UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

JAMES BLEDSOE, PAUL CHOUFFET, JAY MARTIN, and MARTIN RIVAS, on behalf of themselves and all others similarly situated, Plaintiffs, v. FCA US LLC, a Delaware corporation, and CUMMINS INC., an Indiana corporation, Defendants.	Case No.: Hon. **JURY TRIAL DEMANDED**

CLASS ACTION COMPLAINT

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Plaintiffs James Bledsoe, Paul Chouffet, Jay Martin, and Martin Rivas, individually and on behalf of all others similarly situated (the "Class"), allege the following based upon the investigation of counsel, the review of scientific papers, and the investigation of experts.

I. INTRODUCTION

1. The world is besieged by a scandal involving tens of millions of diesel cars that violate relevant emissions standards and were sold under false pretenses that they were "clean" or "cleaner than gas vehicles," or environmentally friendly. The United States, most European countries, and other nations have implemented strict emissions standards for diesel engines designed to protect all of us from the harmful byproducts found in the exhaust from diesel engines.

2. Diesel engines pose a difficult challenge to the environment because they have an inherent trade-off between power, fuel efficiency, and emissions. Compared to gasoline engines, diesel engines generally produce greater torque, low-end power, better drivability, and much higher fuel efficiency. But these benefits come at the cost of much dirtier and more harmful emissions.

3. One by-product of diesel combustion is oxides of nitrogen ("NOx"), which generally describes several compounds comprised of nitrogen and oxygen atoms. These compounds are formed in the cylinder of the engine during the high temperature combustion process. NOx pollution contributes to nitrogen dioxide,

particulate matter in the air, and reacts with sunlight in the atmosphere to form ozone. Exposure to these pollutants has been linked with serious health dangers, including serious respiratory illnesses and premature death due to respiratory-related or cardiovascular-related effects. The United States Government, through the Environmental Protection Agency (EPA), as well as many states like California have passed and enforced laws designed to protect United States citizens from these pollutants and certain chemicals and agents known to cause disease in humans. Automobile manufacturers must abide by these U.S. laws and must adhere to EPA rules and regulations.

4. Seeing a major opportunity for growth, almost all of the major automobile manufacturers rushed to develop "clean diesel" and promoted new diesel vehicles as environmentally friendly and clean. Volkswagen, Mercedes, GM, FCA, and other manufacturers began selling diesel cars and trucks as more powerful, yet also as an environmentally friendly alternative to gasoline vehicles. And the marketing worked, as millions of diesel vehicles were purchased between 2007–2016.

5. The green bubble with respect to diesel vehicles popped on September 18, 2015, when the EPA issued a Notice of Violation of the Clean Air Act ("CAA") (the "First NOV") to Volkswagen Group of America, Audi AG, and VW America for installing illegal "defeat devices" in 2009–2015 Volkswagen and

Audi diesel cars equipped with 2.0-liter diesel engines. A defeat device, as defined by the EPA, is any apparatus that unduly reduces the effectiveness of emissions control systems under conditions a vehicle may reasonably be expected to experience. The EPA found that the VW/Audi Defeat Device allowed the vehicles to pass emissions testing while in the real world these vehicles polluted far in excess of emissions standards. The California Air Resources Board ("CARB") also announced that it had initiated an enforcement investigation of Volkswagen pertaining to the vehicles at issue in the First NOV.

6. On September 22, 2015, Volkswagen announced that 11 million diesel cars worldwide were installed with the same Defeat Device software that had evaded emissions testing by U.S. regulators. Contemporaneously, Volkswagen announced that it had set aside reserves of 6.5 billion euros ($7.3 billion) in the third quarter to address the matter.[1]

7. Volkswagen wasn't alone; soon government agencies began to reveal that many manufacturers had produced dozens of models that were exceeding emissions standards.

8. The "dieselgate" issue is not limited to passenger vehicles, and hence this case. In 2001, the Environmental Protection Agency (EPA) announced

[1] *See* Exhibit 1, Nathan Bomey, *Volkswagen Emission Scandal Widens: 11 Million Cars Affected*, USA Today (Sept. 22, 2015), http://www.usatoday.com/story/money/cars/2015/09/22/volkswagen-emissions-scandal/72605874/.

stringent emissions standards for heavy-duty highway diesel engines, slated to take effect in 2010.[2] Cummins Inc. and Chrysler (now known as FCA US LLC[3]) saw a golden business opportunity, and worked together to build a truck that, at least on paper, met these standards, three years ahead of schedule.[4] Cummins announced the new truck as the "strongest, cleanest, quietest best-in-class 2007 Cummins Turbo Diesel. Leapfrogging the competition, the Cummins 6.7-liter Turbo Diesel engine, used exclusively in Dodge Ram 2500 and 3500 Heavy Duty pickup trucks, has increased displacement[,] providing increased horsepower and torque[,] while achieving the world's lowest 2010 Environmental Protection Agency (EPA) NOx standard a full three years ahead of the requirements."[5]

9. In order to produce a diesel engine that has desirable torque and power characteristics, good fuel economy, and emissions levels low enough to meet the stringent European and United States governmental emission standards, FCA and Cummins (collectively, the Defendants) developed the 6.7-liter diesel engine with a sophisticated NOx adsorber (the "Adsorber Engine"). The primary emission control after-treatment technologies include a diesel particulate filter

[2] *See* Exhibit 2, "Cummins Technology Partnerships," https://cumminsengines.com/technology-partnerships.

[3] FCA stands for Fiat Chrysler Automobiles.

[4] *See id.*

[5] Exhibit 3, Cummins Inc.'s Jan. 23, 2007 Press Release, *available at* http://investor.cummins.com/phoenix.zhtml?c=112916&p=irol-newsArticle_pf&ID=953050.

(DPF) and a NOx adsorber catalyst system. The DPF traps and removes particulate (soot) emissions, while the NOx adsorber system facilitates the capture and reduction of NOx into less harmful substances, such as nitrogen and oxygen.

10. In contrast to Cummins' promises, real-world testing has revealed that the Dodge 2500 and 3500, equipped with the Cummins 6.7-liter turbo diesel engine (the "Affected Vehicles"), emit dangerous levels of NOx at many times higher than (i) their gasoline counterparts, (ii) what a reasonable consumer would expect from the cleanest engine in its class, (iii) United States Environmental Protection Agency maximum standards, and (iv) the levels set for the vehicles to obtain a certificate of compliance that allows them to be sold in the United States. The self-proclaimed "cleanest engine in its class" is far from clean.[6]

11. To appeal to environmentally conscious consumers, FCA and Cummins vigorously marketed the Adsorber Engine, and the Dodge Ram 2500 and 3500 with the Adsorber Engine, as the "strongest, cleanest, quietest" diesel engine in its class."[7] In 2011, Cummins stated that the "product has been in commercial use for over four years, delighting customers with its performance and durability, and delivering on Cummins [sic] commitment to a cleaner, healthier

[6] *See* Exhibit 4, "EPA 2010 Exhaust Emissions Regulations," *available at* https://cumminsengines.com/uploads/docs/4971350.pdf.

[7] *See id.*

environment."[8] FCA claims that "[t]he savings are measured in time, expense, and hassles: both versions of the 6.7-liter Cummins Turbo Diesel in Ram Heavy Duty pickups meet all 50-state emissions standards with no need for a [diesel exhaust fluid] system. Neither Ford nor GM pickups can offer that value."[9]

12. These representations are deceptive and false. The Affected Vehicles routinely exceed applicable Federal and California emissions limits. The legal limit of NOx emissions for stop-and-go driving is 200 mg/mile. When tested, Dodge Ram 2500s emitted 702 mg/mile, and 2,826 mg/mile at maximum emission. The California NOx limit for highway conditions is 400 mg/mile. Testing for the 2500 shows an average of 756 and max of 2,252 mg/mile.

13. As a result, the representations are deceptive and false because it is not the "cleanest engine in its class," and it does not contribute to a "cleaner, healthier environment." The representations are also false and deceptive because one of the Affected Vehicles does not save the consumer "time, expense, and hassles." As detailed below, the catalytic converter wears out more quickly because it is defective, which results in the vehicle burning fuel at a higher rate, and often requiring customers to replace the converter after the warranty has expired at a cost of approximately $3,000–$5,000.

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[8] *See id.*

[9] Exhibit 5, 2012 Dodge Ram brochure, *available at* http://www.auto-brochures.com/makes/ram/Ram_US%20HD_2012.pdf.

14. In addition, the Defendants had another reason to rush the Affected Vehicles to market. Under the EPA regulations, Cummins was able to "bank" emissions credits to spend on other, dirtier engines.[10] Cummins, in turn, could share those credits with FCA. As a result, the Defendants were able to design and build dirty trucks—effectively shifting the cost of those dirty trucks to purchasers of the Affected Vehicles.

15. Thus, the Defendants have perpetrated a gross deception on Plaintiffs and members of the proposed Class, who the Defendants told were buying low-emission, efficient, earth-friendly vehicles.

16. The Defendants never disclosed to consumers that the Affected Vehicles may be "clean" diesels in very limited circumstances, but are "dirty" diesels under most driving conditions. The Defendants never disclosed that they prioritize engine power and profits over the environment and people's time and money. The Defendants never disclosed that the Affected Vehicles' emissions materially exceed the emissions from gasoline-powered vehicles, that the emissions exceed what a reasonable consumer would expect from a "clean diesel," and that emissions materially exceed applicable emissions limits in real world driving conditions. The Defendants never disclosed that their defective NOx

[10] *See* 40 C.F.R. § 1036.701 *et seq.*

adsorber would ultimately cost the consumer more money because of increased fuel costs, increased maintenance costs, and the cost of replacing the catalyst.

17. Plaintiffs bring this action individually and on behalf of all other current and former owners or lessees of Affected Vehicles. Plaintiffs seek damages and equitable relief for the Defendants' misconduct related to the design, manufacture, marketing, sale, and lease of Affected Vehicles with unlawfully high emissions, as alleged in this Complaint.

18. The violations of law alleged herein are in two distinct categories. Plaintiffs' RICO allegations are based in part on a pattern of conduct and scheme that include obtaining certificates of compliance for vehicles that were in fact non-complaint and are illegally on the road. Plaintiffs' state law counts rely on Defendants' deceptive conduct in failing to disclose the polluting nature of the Dodge Ram and the fact that these vehicles do not perform as advertised. Plaintiffs' state law claims are not based on a violation of emission standards.

A. Jurisdiction and Venue

19. This Court has original jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 & 1332. There is also complete diversity of citizenship in this case because each Defendant is a citizen of a different state than any of the Plaintiffs, and the amount in controversy exceeds the sum of $75,000. 28 U.S.C. § 1332. This Court also has supplemental jurisdiction over the state law

claims because those claims are integrally related to the federal claims and form part of the same case and controversy under 28 U.S.C. § 1367.

20. This Court has personal jurisdiction over FCA by virtue of its transacting and doing business in this district and because FCA is registered to do business in Michigan. FCA has transacted and done business in the State of Michigan and in this district and has engaged in statutory violations and common law tortious conduct in Michigan and in this district.

21. This Court has personal jurisdiction over Cummins by virtue of its transacting and doing business in this district and because Cummins is registered to do business in Michigan. Cummins has transacted and done business in the State of Michigan and in this district and has engaged in statutory violations and common law tortious conduct in Michigan and in this district.

22. Venue is proper pursuant to 28 U.S.C. § 1391(a) & (b) because a substantial part of the events or omissions giving rise to the claims occurred in this district. Venue is proper pursuant to 18 U.S.C. § 1965(a) & (b) because Defendants transact affairs in this district, and the ends of justice require it. Venue is also proper in this district under 28 U.S.C. § 1391(b)(1) because the Defendants reside in this judicial district for venue purposes.

II. PARTIES

A. Plaintiffs

23. Each and every Plaintiff and Class member has suffered an ascertainable loss as a result of the Defendants' omissions and/or misrepresentations associated with the Adsorber Engine, including, but not limited to, out-of-pocket loss and future attempted repairs, future additional fuel costs, decreased performance of the vehicle, and diminished value of the vehicle.

24. None of the Defendants, nor any of its agents, dealers, or other representatives informed Plaintiffs or Class members of the existence of the comparatively and unlawfully high emissions and/or defective nature of the Adsorber Engine of the Affected Vehicles prior to purchase.

25. Plaintiff James Bledsoe (for the purpose of this paragraph, "Plaintiff") is a resident of California domiciled in Delhi, California. On or about September 7, 2007, Plaintiff purchased a 2007 Dodge Ram 2500 (for the purpose of this paragraph, the "Affected Vehicle"), in Merced, California. Plaintiff purchased, and still owns, this vehicle. Unknown to Plaintiff, at the time the vehicle was purchased, it was equipped with an emissions system that turned off or limited its emissions reduction system during normal driving conditions and emitted pollutants such as NOx at many multiples of emissions emitted from gasoline-powered vehicles, at many times the level a reasonable consumer would expect

from a "Clean Diesel," and at many multiples of that allowed by federal law. The Defendants' unfair, unlawful, and deceptive conduct in designing, manufacturing, marketing, selling, and leasing the Affected Vehicle without proper emission controls has caused Plaintiff out-of-pocket loss, future attempted repairs, and diminished value of his vehicle. FCA and Cummins knew about, manipulated, or recklessly disregarded the inadequate emission controls during normal driving conditions, but did not disclose such facts or their effects to Plaintiff, so Plaintiff purchased his vehicle on the reasonable, but mistaken, belief that his vehicle was a "clean diesel" as compared to gasoline vehicles, complied with United States emissions standards, and would retain all of its operating characteristics throughout its useful life, including high fuel economy. Plaintiff selected and ultimately purchased his vehicle, in part, because of the Clean Diesel system, as represented through advertisements and representations made by the Defendants. Plaintiff recalls that the advertisements and representations touted the cleanliness of the engine system for the environment and the efficiency and power/performance of the engine system. None of the advertisements reviewed or representations received by Plaintiff contained any disclosure that the Affected Vehicle had high emissions compared to gasoline vehicles and the fact that the Defendants had designed part of the emissions reduction system to emit very high emissions for extended periods at a high rate of frequency during normal driving conditions.

Had Defendants disclosed this design, and the fact that the Affected Vehicle actually emitted pollutants at a much higher level than gasoline vehicles do, and at a much higher level than a reasonable consumer would expect, and emitted unlawfully high levels of pollutants, and would require Plaintiff to pay out-of-pocket costs to fix it, Plaintiff would have received these disclosures, and would not have purchased the vehicle, or would have paid less for it.

26. Plaintiff Paul Chouffet (for the purpose of this paragraph, "Plaintiff") is a resident of Texas domiciled in Irving, Texas. On or about May 12, 2009, Plaintiff purchased a 2009 Dodge Ram 2500 (for the purpose of this paragraph, the "Affected Vehicle"), in Turlock, Texas. Plaintiff purchased, and still owns, this vehicle. Unknown to Plaintiff, at the time the vehicle was purchased, it was equipped with an emissions system that turned off or limited its emissions reduction system during normal driving conditions and emitted pollutants such as NOx at many multiples of emissions emitted from gasoline-powered vehicles, at many times the level a reasonable consumer would expect from a "Clean Diesel," and at many multiples of that allowed by federal law. The Defendants' unfair, unlawful, and deceptive conduct in designing, manufacturing, marketing, selling, and leasing the Affected Vehicle without proper emission controls has caused Plaintiff out-of-pocket loss, future attempted repairs, and diminished value of his vehicle. FCA and Cummins knew about, manipulated, or recklessly disregarded

the inadequate emission controls during normal driving conditions, but did not disclose such facts or their effects to Plaintiff, so Plaintiff purchased his vehicle on the reasonable, but mistaken, belief that his vehicle was a "clean diesel" as compared to gasoline vehicles, complied with United States emissions standards, and would retain all of its operating characteristics throughout its useful life, including high fuel economy. Plaintiff selected and ultimately purchased his vehicle, in part, because of the Clean Diesel system, as represented through advertisements and representations made by the Defendants. Plaintiff recalls that the advertisements and representations touted the cleanliness of the engine system for the environment and the efficiency and power/performance of the engine system. None of the advertisements reviewed or representations received by Plaintiff contained any disclosure that the Affected Vehicle had high emissions compared to gasoline vehicles and the fact that the Defendants had designed part of the emissions reduction system to emit very high emissions for extended periods at a high rate of frequency during normal driving conditions. Had Defendants disclosed this design, and the fact that the Affected Vehicle actually emitted pollutants at a much higher level than gasoline vehicles do, and at a much higher level than a reasonable consumer would expect, and emitted unlawfully high levels of pollutants, Plaintiff would have received these disclosures, and would not have purchased the vehicle, or would have paid less for it.

27. Plaintiff Jay Martin (for the purpose of this paragraph, "Plaintiff") is a resident of California domiciled in Fort Jones, California. On or about May 28, 2016, Plaintiff purchased a 2008 Dodge Ram 2500 (for the purpose of this paragraph, the "Affected Vehicle"), in Grants Pass, Oregon. Plaintiff purchased, and still owns, this vehicle. Unknown to Plaintiff, at the time the vehicle was purchased, it was equipped with an emissions system that turned off or limited its emissions reduction system during normal driving conditions and emitted pollutants such as NOx at many multiples of emissions emitted from gasoline-powered vehicles, at many times the level a reasonable consumer would expect from a "Clean Diesel," and at many multiples of that allowed by federal law. The Defendants' unfair, unlawful, and deceptive conduct in designing, manufacturing, marketing, selling, and leasing the Affected Vehicle without proper emission controls has caused Plaintiff out-of-pocket loss, future attempted repairs, and diminished value of his vehicle. FCA and Cummins knew about, manipulated, or recklessly disregarded the inadequate emission controls during normal driving conditions, but did not disclose such facts or their effects to Plaintiff, so Plaintiff purchased his vehicle on the reasonable, but mistaken, belief that his vehicle was a "clean diesel" as compared to gasoline vehicles, complied with United States emissions standards, and would retain all of its operating characteristics throughout its useful life, including high fuel economy. Plaintiff selected and ultimately

purchased his vehicle, in part, because of the Clean Diesel system, as represented through advertisements and representations made by the Defendants. Plaintiff recalls that the advertisements and representations touted the cleanliness of the engine system for the environment and the efficiency and power/performance of the engine system. None of the advertisements reviewed or representations received by Plaintiff contained any disclosure that the Affected Vehicle had high emissions compared to gasoline vehicles and the fact that the Defendants had designed part of the emissions reduction system to emit very high emissions for extended periods at a high rate of frequency during normal driving conditions. Had Defendants disclosed this design, and the fact that the Affected Vehicle actually emitted pollutants at a much higher level than gasoline vehicles do, and at a much higher level than a reasonable consumer would expect, and emitted unlawfully high levels of pollutants, Plaintiff would have received these disclosures, and would not have purchased the vehicle, or would have paid less for it.

28. Plaintiff Martin Rivas (for the purpose of this paragraph, "Plaintiff") is a resident of Texas domiciled in Kingsville, Texas. On or about November 15, 2011, Plaintiff purchased a 2012 Dodge Ram 2500 (for the purpose of this paragraph, the "Affected Vehicle"), in Kingsville, Texas. Plaintiff purchased, and still owns, this vehicle. Unknown to Plaintiff, at the time the vehicle was

purchased, it was equipped with an emissions system that turned off or limited its emissions reduction system during normal driving conditions and emitted pollutants such as NOx at many multiples of emissions emitted from gasoline-powered vehicles, at many times the level a reasonable consumer would expect from a "Clean Diesel," and at many multiples of that allowed by federal law. The Defendants' unfair, unlawful, and deceptive conduct in designing, manufacturing, marketing, selling, and leasing the Affected Vehicle without proper emission controls has caused Plaintiff out-of-pocket loss, future attempted repairs, and diminished value of his vehicle. FCA and Cummins knew about, manipulated, or recklessly disregarded the inadequate emission controls during normal driving conditions, but did not disclose such facts or their effects to Plaintiff, so Plaintiff purchased his vehicle on the reasonable, but mistaken, belief that his vehicle was a "clean diesel" as compared to gasoline vehicles, complied with United States emissions standards, and would retain all of its operating characteristics throughout its useful life, including high fuel economy. Plaintiff selected and ultimately purchased his vehicle, in part, because of the Clean Diesel system, as represented through advertisements and representations made by the Defendants. Plaintiff recalls that the advertisements and representations touted the cleanliness of the engine system for the environment and the efficiency and power/performance of the engine system. None of the advertisements reviewed or representations

received by Plaintiff contained any disclosure that the Affected Vehicle had high emissions compared to gasoline vehicles and the fact that the Defendants had designed part of the emissions reduction system to emit very high emissions for extended periods at a high rate of frequency during normal driving conditions. Had Defendants disclosed this design, and the fact that the Affected Vehicle actually emitted pollutants at a much higher level than gasoline vehicles do, and at a much higher level than a reasonable consumer would expect, and emitted unlawfully high levels of pollutants, Plaintiff would have received these disclosures, and would not have purchased the vehicle, or would have paid less for it.

29. Each of the Plaintiffs purchased their vehicles at an FCA-authorized dealership. And each received information about the characteristics, benefits, and quality of the RAM vehicles at the dealership.

B. Defendants

30. Defendant FCA US LLC ("FCA") is a limited liability company organized and existing under the laws of the State of Delaware, and is wholly owned by holding company Fiat Chrysler Automobiles N.V., a Dutch corporation headquartered in London, United Kingdom. FCA's principal place of business and headquarters is in Auburn Hills, Michigan, in the Eastern District of Michigan.

31. FCA (sometimes referred to as Chrysler) is a motor vehicle "Manufacturer" and a licensed "Distributor" of new, previously untitled Chrysler, Dodge, Jeep, and Ram brand motor vehicles. FCA's Chrysler brand is one of the "Big Three" American automobile brands. FCA engages in commerce by distributing and selling new and unused passenger cars and motor vehicles under its Chrysler, Dodge, Jeep, and Ram brands. Other major divisions of FCA include Mopar, its automotive parts and accessories division, and SRT, its performance automobile division. As of 2015, FCA is the seventh largest automaker in the world by unit production.

32. FCA's business operations in the United States include the manufacture, distribution, and sale of motor vehicles and parts through its network of independent, franchised motor vehicle dealers. FCA is engaged in interstate commerce in that it sells vehicles through this network located in every state of the United States.

33. FCA sells its trucks through FCA franchise dealerships. FCA distributes information about its RAM trucks to its dealers for the purpose of passing that information to consumers. FCA also understands that its dealers pass on information from FCA about the characteristics, benefits, and quality of its RAM products to consumers. The dealers act as FCA's agents in selling the

Affected Vehicles and disseminating information about the Affected Vehicles to customers and potential customers.

34. Cummins Inc. is a Fortune 500 company that designs, manufactures, and distributes engines, filtration, and power generation products. It earned approximately $19.1 billion in revenue in the year 2015. Cummins is doing business in the Eastern District of Michigan, and elsewhere. It conducts business in interstate and foreign commerce through its network of 600 company-owned and independent distributor facilities, supplying its customers with its products, and more than 7,200 dealer locations in over 190 countries and territories. It is headquartered in Columbus, Indiana.

III. FACTUAL ALLEGATIONS

A. The Environmental Challenges Posed by Diesel Engines and the U.S. Regulatory Response Thereto

35. The United States Government, through the Environmental Protection Agency (EPA), has passed and enforced laws designed to protect U.S. citizens from pollution and, in particular, certain chemicals and agents known to cause disease in humans. Automobile manufacturers must abide by these U.S. laws and must adhere to EPA rules and regulations.

36. The U.S. Clean Air Act has strict emissions standards for vehicles, and it requires vehicle manufacturers to certify to the EPA that the vehicles sold in the United States meet applicable federal emissions standards to control air

pollution. Every vehicle sold in the United States must be covered by an EPA-issued certificate of conformity.

37. There is a very good reason that these laws and regulations exist, particularly with regards to vehicles with diesel engines: In 2012, the World Health Organization declared diesel vehicle emissions to be carcinogenic, and about as dangerous as asbestos.

38. Diesel engines pose a particularly difficult challenge to the environment because they have an inherent trade-off between power, fuel efficiency, and emissions: the greater the power and fuel efficiency, the dirtier and more harmful the emissions.

39. Instead of using a spark plug to combust highly refined fuel with short hydrocarbon chains, as gasoline engines do, diesel engines compress a mist of liquid fuel and air to very high temperatures and pressures, which causes the diesel to spontaneously combust. This allows for a greater compression ratio and longer piston stroke, which produces greater efficiency and engine torque (that is, less fuel consumption and more power).

40. The diesel engine is able to do this both because it operates at a higher compression ratio than a gasoline engine and because diesel fuel contains more energy than gasoline.

41. But this greater energy and fuel efficiency come at a cost: diesel produces dirtier and more dangerous emissions. One by-product of diesel combustion is oxides of nitrogen (NOx), which include a variety of nitrogen and oxygen chemical compounds that only form at high temperatures.

42. NOx is a generic term for the mono-nitrogen oxides NO and NO2 (nitric oxide and nitrogen dioxide), which are predominantly produced from the reaction of nitrogen and oxygen gases in the combustion cylinder during combustion. NOx is produced by the burning of all fossil fuels, but is particularly difficult to control from the burning of diesel fuel in lean-burn conditions (which is the case for nearly all modern on-road diesel engines). NOx is a toxic pollutant, which produces smog and a litany of environmental and health problems. NOx pollution contributes to nitrogen dioxide, particulate matter in the air, and reacts with sunlight in the atmosphere to form ozone. Exposure to these pollutants has been linked with serious health dangers, including asthma attacks and other respiratory illness serious enough to send people to the hospital. Ozone and particulate matter exposure have been associated with premature death due to respiratory-related or cardiovascular-related effects. Children, the elderly, and people with pre-existing respiratory illness are at an increased risk of health effects from these pollutants. NOx can cause breathing problems, headaches, chronically

reduced lung function, eye irritation, and corroded teeth. It can indirectly affect humans by damaging the ecosystems they rely on.

43. The diesel cycle is inherently more efficient than the comparable spark-ignited Otto (gasoline) cycle. In fact, diesel engines can convert over 45% of diesel's chemical energy into useful mechanical energy, whereas gasoline engines convert only 30% of gasoline's chemical energy into mechanical energy. Though more efficient, diesel engines come with their own set of challenges, as emissions from diesel engines can include higher levels of NOx and particulate matter (PM) or soot than emissions from gasoline engines due to the different ways the different fuels combust and the different ways the resulting emissions are treated following combustion. Another way NOx emissions can be reduced is through exhaust gas recirculation or "EGR," whereby exhaust gases are routed back into the intake of the engine and mixed with fresh incoming air. Exhaust gas recirculation lowers NOx by reducing the available oxygen increasing the heat capacity of the exhaust gas mixture and by reducing maximum combustion temperatures; however, EGR can also lead to an increase in PM as well. Another way NOx and PM emissions can be reduced is through expensive exhaust gas after-treatment devices, primarily, catalytic converters, which use a series of chemical reactions to transform the chemical composition of a vehicle's NOx

emissions into less harmful, relatively inert, and nitrogen gas (N2), water (H2O) and carbon dioxide (CO2).

44. Diesel engines thus operate according to this trade-off between price, NOx, and PM, and for the EPA to designate a diesel car as a "clean" vehicle, it must produce both low PM and low NOx. In 2000, the EPA announced stricter emission standards requiring all diesel models starting in 2007 to produce drastically less NOx and PM than years prior. Before introducing an Affected Vehicle into the U.S. stream of commerce (or causing the same), FCA was required to first apply for, and obtain, an EPA-administered COC certifying that the vehicle comported with the emission standards for pollutants enumerated in 40 C.F.R. §§ 86.1811-04, 86.1811-09, & 86.1811-10. The CAA expressly prohibits automakers, like FCA, from introducing a new vehicle into the stream of commerce without a valid EPA COC.[11] Moreover, vehicles must be accurately described in the COC application "in all material respects" to be deemed covered by a valid COC.[12] California's emission standards are even more stringent than those of the EPA. California's regulator, CARB, requires a similar application from automakers to obtain an Executive Order, confirming compliance with California's emission regulations, before allowing the vehicle onto California's roads.

[11] *See* 42 U.S.C. § 7522(a)(1).

[12] *See* 40 C.F.R. § 86.1848-10(c)(6).

1. The Emissions Trading System

45. Under EPA regulations, engine manufacturers may earn emissions credits equal to their emissions limit, less the amount of emissions produced by the engines.[13] An engine manufacturer may average, bank, and trade these emissions credits.[14] To "average" credits means the engine manufacturer can use its emissions credits from one engine model and apply it to another engine model—effectively allowing the "clean" engine to pay for the dirty engine.[15] Banking credits allows an engine manufacturer to save their emissions credits for future years.[16] In some cases, engine manufacturers can use their credits retrospectively, to offset previous engines that exceeded their emissions levels.[17] Finally, engine manufacturers can trade and sell these emissions credits, either privately or on the open market.[18]

46. According to the EPA, this system was designed to offer "flexibility for individual emissions sources to tailor their compliance path to their needs," and "incentive[s] for early pollution reductions as a result of the ability to bank surplus

[13] *See* Exhibit 6, EPA, "What is Emissions Trading?," https://www.epa.gov/emissions-trading-resources/what-emissions-trading.

[14] *See* 40 C.F.R. § 1036.701(a).

[15] *See* 40 C.F.R. § 1036.710.

[16] *See* 40 C.F.R. § 1036.715.

[17] *See id.*

[18] *See* 40 C.F.R. § 1036.720.

allowances."[19] The EPA concludes that, "[u]nder the right circumstances, emissions trading programs have proven to be extremely effective. They can achieve substantial reductions in pollution while providing accountability and transparency."[20]

47. Falsely claiming to obtain reduced emission levels undermines this system. By using fraudulently obtained emissions credits for dirty engines, it increases the pollutants in the air, and shifts the cost of emissions compliance from the owners of vehicles with dirty engines to the owners of vehicles with clean engines. According to the TruckTrend website, "Dodge made a decisive move to head off 2010 emissions regulations at the pass. By increasing the [Cummins 6.7L engine], the company was able to meet the upcoming 2010 standards early. This allowed Chrysler to build up EPA emissions credits that could be used during future model years. During the later part of the 2007 model year, GM introduced the 6.6L Duramax LMM engine, which made 365 hp and 660 lb-ft, even with the addition of a DPF."[21] Upon information and belief, Cummins either gave or sold FCA the credits to allow FCA to use a more powerful engine that released more emissions.

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[19] Exhibit 6.

[20] *Id.*

[21] Exhibit 7, "A Decade of Cummins, Duramax, and Power Stroke Diesel Engines" (June 15, 2015), http://www.trucktrend.com/features/1507-a-decade-of-cummins-duramax-and-power-stroke-diesel-engines/.

2. Cummins' Entry into Clean-Diesel Market

48. Cummins, founded by Clessie Lyle Cummins, has been developing diesel engines since 1919.[22]

49. Cummins has a long history with Dodge, having supplied diesel engines for the manufacturer since 1988.[23]

50. In 1990, the EPA amended its air pollution standards under the Clean Air Act, which addressed diesel emissions.[24]

51. In 1998, the Department of Justice, on behalf of the EPA, sued every diesel manufacturer in the United States, including Cummins, for installing "defeat" devices on their engines.[25] The companies were forced to spend a combined one billion dollars, including an $83.4 million civil penalty, to bring their engines into conformity with national standards.[26]

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[22] *See* Exhibit 8, "Cummins History," https://cumminsengines.com/history.

[23] *See* Exhibit 3.

[24] *See* Exhibit 9, "Regulatory Authorities," https://www.dieselnet.com/standards/us/.

[25] *See* Exhibit 10, U.S. Dep't of Justice Press Release (June 16, 1998), *available at* https://www.justice.gov/archive/opa/pr/1998/June/281.html.

[26] *See* Exhibit 11, "How The EPA Won $1 Billion From Diesel Cheaters Long Before VW" (Sept. 21, 2015), http://jalopnik.com/how-the-epa-won-1-billion-from-diesel-cheaters-long-be-1732109485.

52. But Cummins continued to ship out engines without pollution control equipment through 2006, for which it would pay an additional $2.1 million settlement with the DOJ in 2010.[27]

53. As the EPA began to roll out increasingly tougher standards to take effect in 2004, 2007, and 2010, Cummins began developing its own clean diesel technology.

54. Between 2002 and 2007, Cummins increased its R&D budget by 60 percent, to $321 million, with almost a quarter dedicated to meeting the new emission standards.[28] More specifically, it expanded its component segment budget, which included emissions-related technologies, from $39 million in 2004 to $57 million in 2006. The emphasis was on developing its own system based on its own proprietary parts.[29]

55. In 2006, Cummins spent $720,000 on lobbying Congress on the "development of diesel technology for heavy and light duty trucks."[30]

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[27] *See* Exhibit 12, "Cummins Inc. Agrees to Pay $2.1 Million Penalty for Diesel Engine Clean Air Act Violations," U.S. Dep't of Justice (Feb. 22, 2010), *available at* https://www.justice.gov/opa/pr/cummins-inc-agrees-pay-21-million-penalty-diesel-engine-clean-air-act-violations.

[28] *See* Exhibit 13, "Cummins: An engine maker bets on clean air—and wins" (June 8, 2015), http://fortune.com/2015/06/08/cummins-diesel-engine/.

[29] Cummins' story suggests EPA regulations are an opportunity.

[30] Exhibit 14, "Lobbying Report" (Aug. 14, 2006), *available at* http://soprweb.senate.gov/index.cfm?event=getFilingDetails&filingID=8FE6A473-F9E5-4951-BD7F-6019C32510AE&filingTypeID=3.

56. In September 2006, Cummins unveiled its 6.7-liter Turbo Diesel engine.[31]

57. By 2015, in addition to its engines, Cummins controlled 41 percent of the U.S. market on aftermarket diesel cleaning technologies.[32]

3. Dodge and Cummins Jointly Develop and Promote the Affected Vehicles

58. FCA and Cummins moved aggressively to promote its new vehicle, and to emphasize the strength of the relationship between the two companies. Below are a selection of public statements made by each, as part of an orchestrated campaign by each Defendant to sell the Affected Vehicles as a cleaner and more economical alternative for customers looking to purchase heavy-duty trucks.

4. Cummins

59. "[E]very Dodge Ram pickup will comply with the 2010 NOx and PM emissions standards."[33]

60. The Dodge 2500 was the "strongest, cleanest, quietest" diesel engine in its class, and delivered on their "commitment to a cleaner, healthier environment."[34]

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[31] *See* Exhibit 15, "Dodge Introduces Cleaner, Quieter and More Powerful 6.7-liter Cummins Turbo-Diesel Engine at State Fair of Texas" (Sept. 28, 2006), http://www.prnewswire.com/news-releases/dodge-introduces-cleaner-quieter-and-more-powerful-67-liter-cummins-turbo-diesel-engine-at-state-fair-of-texas-57203457.html.

[32] *See* Exhibit 13.

[33] Exhibit 3.

61. In Cummins' 2007 Sustainability Report, Cummins noted its Mission included "to demand that everything we do lead to a cleaner, healthier, safer environment."[35]

62. Cummins' 2008–2009 Sustainability Report stated: "Ensuring that everything we do leads to a cleaner, healthier and safer environment has been part of the Cummins Mission statement for many years. In practice, that means we are unwavering in our commitment to producing the cleanest diesel engines in the world and in reducing the Company's environmental footprint."[36]

63. In the same Report, Cummins announced that it "is committed to helping customers achieve the lowest operating costs. Fuel economy represents the largest single cost factor in many customers' operations. Customers count on Cummins not only for the most fuel efficient products, but also to use Six Sigma[37] tools to help them measure, optimize, and control the critical factors that impact fuel consumption."

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[34] Exhibit 4.

[35] Exhibit 16, Cummins Inc.'s 2007 Sustainability Report at 34, *available at* https://www.cummins.com/sites/default/files/sustainability/2007_Sustainability_Report_FINAL.pdf.

[36] Exhibit 17, Cummins Inc.'s 2009 Sustainability Report at 9, *available at* http://www.cummins.com/sites/default/files/sustainability/Cummins_2009_SustainabilityReport.pdf.

[37] "Six Sigma" refers to a series of techniques designed to improve the quality and reliability of a product. *See* Exhibit 18, "Six Sigma," Wikipedia, https://en.wikipedia.org/wiki/Six_Sigma.

64. Cummins' Mission Statement in 2010: "Demanding that everything we do leads to a cleaner, healthier, safer environment."[38]

65. Cummins' "10 Statements of Ethical Principles" include: "[1] We will follow the law everywhere," … "[5] We will demand that everything we do leads to a cleaner, healthier and safer environment," … and "[10] We will create a culture where all employees take responsibility for ethical behavior."[39]

66. "Cummins engineers determined that certifying the Dodge Ram pickup truck to the 0.2 g/mi 2010 NOx emission standard early would provide Cummins with significant commercial and technical advantages. Achieving these stringent emission standards required engineers to reduce particulate and NOx emissions by more than 90 percent. This catalyst system was used in more than 450,000 Chrysler ISB engines from 2007 to 2013. The EPA credits generated by this technology allowed Cummins' teams to focus on hitting the next round of emissions standards for other engine platforms, and allowed the company to avoid interim emissions phase-ins. As a result, Cummins increased its heavy duty market share and gained the market share lead in 2007. Today, the company

[38] Exhibit 19, Cummins Inc.'s 2010 Sustainability Report at 1, *available at* https://www.cummins.com/sites/default/files/sustainability/Cummins_2010_SustainabilityReport_FULL.pdf.

[39] Exhibit 16, Cummins Inc.'s 2007 Sustainability Report at 23.

maintains that lead with 41.5 percent of Class 8 vehicles, and 62.5 percent of Class 6 and 7 vehicles.[40]

67. "The application of the right technology on the Dodge Ram is an extension of the joint clean diesel development work Cummins and DaimlerChrysler have performed together for nearly two decades," said Cummins President and Chief Operating Officer Joe Loughrey. "The new best-in-class Cummins Turbo Diesel and the Dodge Ram will provide the strongest, cleanest, quietest solution for heavy-duty pickup truck customers."[41]

68. "Cummins built its 2-millionth pickup truck engine for the Chrysler Group LLC in December, the latest development in a more than 25-year partnership between the two companies."[42]

69. "This milestone build is a significant achievement for Cummins and our employees, and is an accomplishment of which we are immensely proud," said Wayne Ripberger, General Manager—Pickup and Light Commercial Vehicle Operations. "At Cummins, we take great pride in each and every engine we build—whether it's the first or the 2-millionth."[43]

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[40] *See* Exhibit 20, "Employees Honored for Making Cummins Stronger through Innovation," http://social.cummins.com/making-cummins-stronger-innovation/.

[41] Exhibit 3.

[42] Exhibit 21, "Two-Millionth Cummins Pickup Engine Rolls off Line for Chrysler," http://social.cummins.com/two-millionth-cummins-pickup-engine-rolls-line-chrysler/.

[43] *Id*.

70. In winning a 2008 award from *Automotive News*, Cummins stated "Cummins has been recognized for the 6.7L Dodge Ram Turbo Diesel engine which debuted in January 2007 and is available in the Dodge Ram 2500 and 3500 models. The 6.7L diesel engine is the strongest, cleanest, quietest heavy-duty diesel pickup truck engine available on the market and is the first to meet the 2010 EPA emissions regulations in all 50 states. Cummins achieves this by using a NOx Adsorber Catalyst—a breakthrough technology designed and integrated by Cummins." [44]

71. As noted by Joe Loughrey, President and Chief Operating Officer of Cummins, in accepting the award, "This is a significant product innovation and a terrific honor for Cummins to be recognized. We share this recognition with our customer, Chrysler, who collaborated with us in developing a common vision for a product that would deliver on our commitment to exceptional customer satisfaction while ensuring our contribution to a cleaner environment."[45]

72. "Cummins Inc. today announced a multiyear extension of its current agreement with Chrysler Group LLC. Cummins will supply 6.7-liter Turbo Diesel engines for Ram Heavy Duty pickups and Chassis Cab trucks while continuing to grow its partnership with Chrysler, which began 21 years ago. Cummins has

[44] Exhibit 22, Cummins Inc.'s Apr. 15, 2008 Press Release, *available at* http://investor.cummins.com/phoenix.zhtml?c=112916&p=irol-newsArticle_Print&ID=1129865.

[45] *Id.*

produced over 1.7 million Cummins Turbo Diesel engines for Dodge Ram Heavy Duty trucks since 1989. Today, over 80 percent of Ram Heavy Duty truck customers purchase their truck with the legendary Cummins Turbo Diesel."[46]

73. "Today's 6.7-liter Turbo Diesel delivers 350 hp (261 kW) and 650 lb-ft (881 N-m) of torque. This 118 percent increase in horsepower and 86 percent increase in torque have been achieved while also reducing exhaust emissions by 90 percent. In 2007, Dodge and Cummins produced the cleanest heavy-duty diesel pickup in the market by meeting U.S. Environmental Protection Agency (EPA) 2010 emissions levels a full three years in advance."[47]

74. "Cummins and Chrysler have a long and important history together," said Dave Crompton, Cummins VP and General Manager, Midrange Engine Business. "The Chrysler business continues to be a key part of our MidRange engine business. Cummins is proud to supply engines for the award-winning Ram Heavy Duty and to continue working with Chrysler to develop best-in-class products that customers can trust and depend on now and in the future."[48]

[46] Exhibit 23, Cummins Inc.'s Feb. 3, 2010 Press Release, *available at* http://investor.cummins.com/phoenix.zhtml?c=112916&p=irol-newsArticle&ID=1382531.

[47] *Id.*

[48] *Id.*

5. FCA

75. After completing two million trucks together, FCA stated that "[t]he Ram Truck-Cummins diesel partnership is one of the industry's most enduring and certainly fitting of such a tribute," said Fred Diaz, President and CEO, Ram Truck Brand and Chrysler de Mexico, in the news release. "Both companies have benefited greatly, but Ram diesel customers are the real beneficiaries. Every day they experience the toughness and capability a Cummins-powered Ram can deliver."[49]

76. In presenting an environmental award to Cummins, FCA/Chrysler stated: "Working in a close partnership, Chrysler and Cummins achieved remarkable results in meeting and exceeding both regulatory requirements and customer needs. The new Dodge Ram 2500 and 3500 are the first vehicles to achieve the stringent NOx 'phase-in' emission standard in all 50 states, and to do so three years early. The 6.7-liter Cummins Turbo Diesel maintains fuel efficiency as compared to the 2006 model. It also maintains the diesel engine's 30 percent fuel economy savings over gasoline engines, and thus lower CO2 emissions."[50]

[49] Exhibit 21.

[50] Exhibit 16, Cummins Inc.'s 2007 Sustainability Report at 13.

a. 2008 Brochure for Ram 2500/3500 Trucks

77. "THE CUMMINS® 6.7-LITER TURBO DIESEL. SO GOOD, SO POWERFUL, AND SO CLEAN IT WARRANTS A CLASS OF ITS OWN—AND IT'S ONLY IN A DODGE RAM HEAVY DUTY."[51]

78. "The most recent example of the world-famous Cummins powerplant [sic] continues the Cummins history with Dodge Ram—a legacy of pure, driven truck power taking advantage of an increasingly popular—and today, surprisingly clean—fuel source."[52]

79. "Consider all that Cummins has to offer, and you become part of history in the making in real time: today, over 1.5 million Cummins equipped Dodge Rams are powering the roads, farms, and industrial sites of the world. What can you expect from Cummins in your Ram? Count on diesel-specific efficiency. Outstanding performance that defines reliability. Longevity that reaches hundreds of thousands of miles. And durability so impressive, it approaches the inexhaustible."[53]

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[51] Exhibit 24, 2008 Dodge Ram brochure at 11, *available at* http://www.auto-brochures.com/makes/ram/Ram_US%20HD_2008.pdf (emphasis in original throughout).

[52] *Id.*

[53] *Id.*

80. "The large piston bowl is another engineering technique used to ensure good power and clean emissions. In fact, based on full-size diesel pickup trucks, the Cummins offers the cleanest diesel emissions of any."[54]

81. "ADVANCED REQUIREMENTS MET TODAY. The particulate filter is profoundly effective, and is a major factor in Cummins diesel emissions reduction Ram 2500 and 3500 pickup models. Reduced emissions are so important, the 6.7-liter is already able to meet the stringent truck emissions standards based on future requirements—for the 2010 model year. And it meets them in all 50 states."[55]

b. 2009 Brochure for Ram 2500/3500 Trucks

82. "THE INCREDIBLE CUMMINS 6.7-LITER TURBO DIESEL. SO POWERFUL, IT DROPS THE COMPETITTION WITH A ONE-TWO-THREE PUNCH OF 650* LB-FT OF TORQUE, 350 HORSEPOWER, AND SQUEAKY-CLEAN EMISSIONS."[56]

83. "THE CUMMINS® 6.7-LITER TURBO DIESEL: A CLEAN BREAK FROM OTHER DIESELS. Cummins and Dodge Ram form a team that results in outstanding reliability. . . . The Cummins 6.7-liter now ranks among the

[54] *Id.*

[55] *Id.*

[56] Exhibit 25, 2009 Dodge Ram brochure at 4, *available at* http://www.auto-brochures.com/makes/ram/Ram_US%20HD_2009.pdf.

cleanest of any full-size pickup diesel engine. Emissions are so low, they currently meet 2010 emissions regulations."[57]

84. "**LEAN, MEAN, AND VERY CLEAN**. Fewer moving parts than comparable gas engines reduces complexity—and consequent costs. And this Cummins is super-clean, making it the cleanest full-size pickup diesel out there."[58]

c. 2010 Brochure for Ram 2500/3500 Trucks

85. "**THE DRIVING FORCE BEHIND MANY RAM HEAVY DUTY MODELS: THE SINGULAR 6.7-LITER CUMMINS® TURBO DIESEL**. By any measure, it's got game. . . . As one of the cleanest, most powerful, and most respected diesel engines in any commercial pickup, this remarkable power plant can power significantly larger-class vehicles."[59]

d. 2011 Brochure for Ram 2500/3500 Trucks

86. "CUMMINS. THE QUIET AUTHORITY IN CHARGE OF DIESEL POWER. This is teamwork that just flat-out works. Ram Heavy Duty pickups and the formidable Cummins Turbo Diesel are a partnership of shared strengths—for this is a relationship that goes back decades while constantly looking forward to the next generation of trucks. The Cummins 6.7-liter workhorse is capable of driving much larger vehicles—part of the reason it works

[57] *Id.*

[58] *Id.*

[59] Exhibit 26, 2010 Dodge Ram brochure at 6, *available at* http://www.auto-brochures.com/makes/ram/Ram_US%20HD_2010.pdf.

so well in Ram Heavy Duty pickups. Boasting quiet and clean performance, the Cummins generates between 610 and 650 lb-ft of torque (at only 1,500 rpm) and 350 horsepower, depending on transmission, meeting virtually every need for towing, hauling, and responsive acceleration."

87. "The Cummins 6.7-liter Turbo Diesel in Ram Heavy Duty is the only one in its class to meet all 50-state emissions standards—with no need for DEF—resulting in impressive savings in time, costs and hassles."[60]

88. "FUEL FILTER: A WORKING MODEL OF EFFICIENCY. There is little doubt that diesel will play an increasingly important role for both truck and car propulsion. Diesel engines today are a model of cleanliness—in part, due to the fuel filter. The Cummins Turbo Diesel features a fuel filter with outstanding efficiency."[61]

e. 2012 Brochure for Ram 2500/3500 Trucks

89. "Diesel engines today are a model of cleanliness—in part, due to the fuel filter. The Cummins Turbo Diesel features a fuel filter with outstanding efficiency."[62]

90. "The 6.7L Cummins® Turbo Diesels. The most formidable partnership in the working world."[63]

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[60] Exhibit 27, 2011 Dodge Ram brochure at 8, *available at* http://www.auto-brochures.com/makes/ram/Ram_US%20HD_2011.pdf.

[61] *Id.*

[62] Exhibit 5 at 3.

91. "But the overarching factor that defines and separates Ram Heavy Duty is *value*. Like our teamwork with Cummins, whose brilliance gives you a Turbo Diesel with fewer moving party—translating into the real-world value of reduced maintenance costs."[64]

92. "Since 1988, Cummins and Dodge have collaborated to ship over 1.5 million Heavy Duty diesel pickup trucks and today enjoy around 30 percent market share in this highly competitive market in North America."[65]

93. "The depth of thinking on the part of Cummins is pivotal when put into the context of their history with Ram. For nearly a quarter of a century, this partnership benchmarked power, durability, reliability, and economy—and it has provided an enduring legacy attributed to old-fashioned hard work and truly innovative engineering. This success is literally history in the making: it's the longest collaboration of its kind in the industry—and it will continue."[66]

94. Referring to quality control testing: "Long before they work for you, Ram Heavy Duty prototypes endure conditions unlikely to be encountered in your life—or lifetime. Grueling durability tests, excessive climate testing, road simulation shake trials on tracks that resemble mountainous terrains—it's beyond

[63] *Id.* at 4.
[64] *Id.* at 1.
[65] *Id.* at 6.
[66] *Id.* at 3.

brutal. We measure every number—and we measure up, backing you with one of the best working warranties in the business."[67]

6. The Worldwide Emissions Scandal

95. As noted, the world was shocked to learn that Volkswagen had manufactured over 11 million cars that were on the road in violation of European emissions standards, and over 480,000 vehicles were operating in the United States in violation of EPA and state standards. But VW was not the only manufacturer of vehicles that exceeded emissions standards.

96. In May 2015 a study conducted on behalf of the Dutch Ministry of Infrastructure and the Environment ("TNO Study") found that all sixteen vehicles made by a variety of manufacturers, when tested, emitted significantly more NOx on real world trips while they passed laboratory tests. The report concluded that "[i]n most circumstances arising in normal situations on the road, the system scarcely succeeded in any effective reduction of NOx emissions."

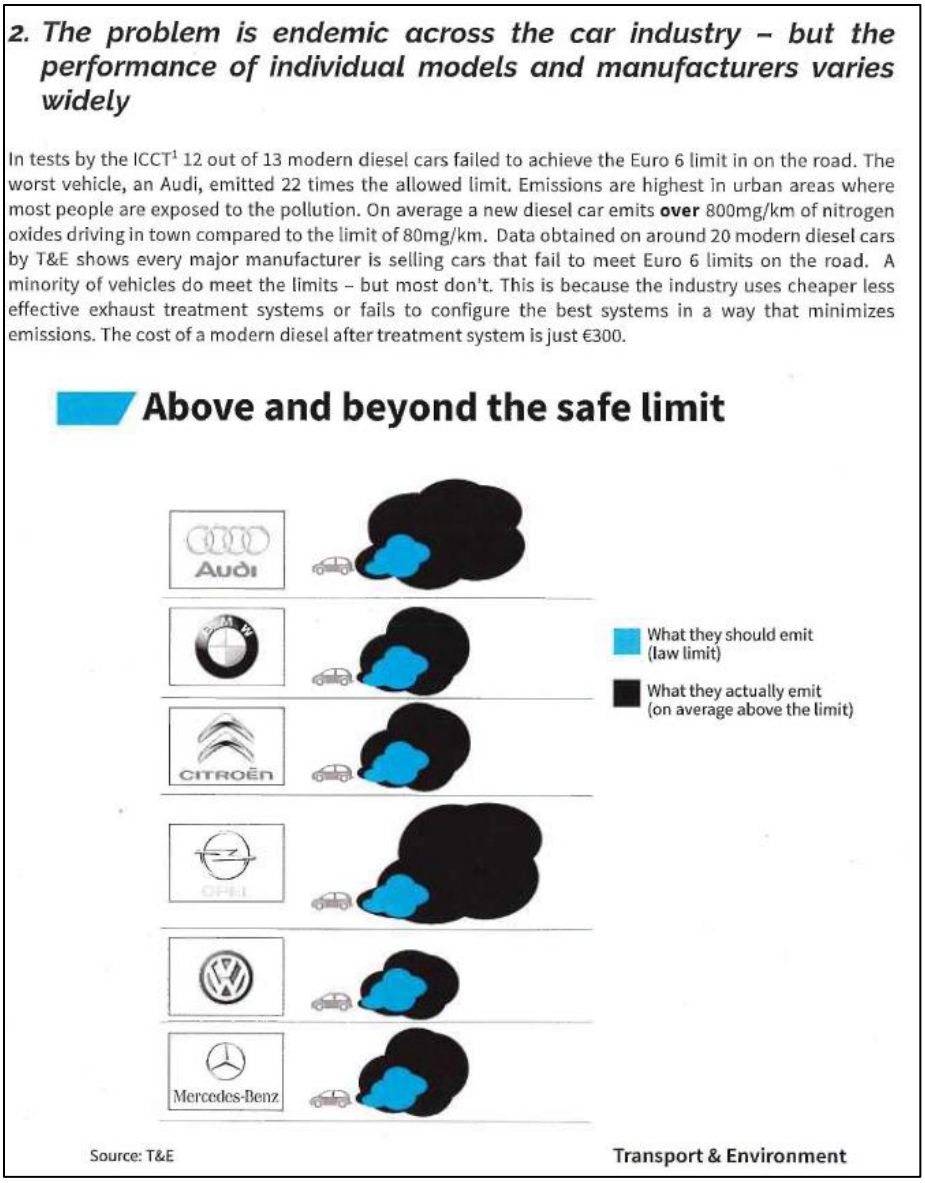
97. In a summary report TNO graphically depicted the widespread failure of most manufacturers:

In the wake of a major scandal involving Volkswagen and Audi diesel vehicles evading emissions standards with the help of certain software that

[67] *Id.* at 6.

manipulates emissions controls (called "defeat devices"),[68] scientific literature and reports and testing indicate that most of the diesel car manufactures of so called Clean Diesel vehicles emit far more pollution on the road than in lab tests. The EPA has widened its probe of auto emissions to include, for example, the Mercedes E250 BlueTEC.

[68] See Exhibit 28, the EPA's Notice of Violation ("NOV") to Volkswagen (Sept. 18, 2015), *available at* https://www.epa.gov/sites/production/files/2015-10/documents/vw-nov-caa-09-18-15.pdf. As detailed in the EPA's NOV, software in Volkswagen and Audi diesel vehicles detects when the vehicle is undergoing official emissions testing and turns full emissions controls on only during the test. But otherwise, while the vehicle is running, the emissions controls are suppressed. This results in cars that meet emissions standards in the laboratory or state testing station, but during normal operation emit NOx at up to 40 times the standard allowed under United States laws and regulations. Volkswagen has admitted to installing a defeat device in its diesel vehicles.



98. The TNO report found that the current system for testing cars in a laboratory produces "meaningless results."

99. TNO further remarked: "It is remarkable that the NOx emission under real-world conditions exceeds the type approval value by [so much]. It demonstrates that the settings of the engine, the EGR and the SCR during a real-world test trip are such that they do not result in low NOx emissions in practice. In

other words: ***In most circumstances arising in normal situations on the road, the systems scarcely succeed in any effective reduction of NOx emissions***." TNO Report at 6 (emphasis added). The lack of any "effective reduction of NOx emissions" is a complete contradiction of Defendants' claim that their vehicles are clean.

100. Other organizations are beginning to take notice of the emissions deception. The Transportation and Environment (T&E) organization, a European group aimed at promoting sustainable transportation, compiled data from "respected testing authorities around Europe." T&E stated in September 2015 that real-world emissions testing showed drastic differences from laboratory tests such that models tested emitted more pollutants on the road than in their laboratory tests. "For virtually every new model that comes onto the market the gap between test and real-world performance leaps," the report asserts.

101. Emissions Analytics is a U.K. company, which says that it was formed to "overcome the challenge of finding accurate fuel consumption and emissions figures for road vehicles." With regard to its recent on-road emissions testing, the company explains: "[I]n the European market, we have found that real-world emissions of the regulated nitrogen oxides are four times above the official level, determined in the laboratory. Real-world emissions of carbon dioxide are almost one-third above that suggested by official figures. For car buyers, this

means that fuel economy on average is one quarter worse than advertised. This matters, even if no illegal activity is found."

7. The Defendants' Emissions Deception

102. The Affected Vehicles contain a sophisticated NOx reduction after-treatment technology called a NOx adsorber. This technology is intended to reduce oxides of nitrogen (NOx) contained in the exhaust of the engine to levels sufficient to allow the vehicle to meet State and Federal emission certification requirements.

103. The NOx adsorber is a catalytic device that operates in two distinct modes: 1) NOx adsorption mode; and 2) NOx regeneration/reduction mode. During adsorption mode, NOx present in the diesel exhaust from the engine chemically binds to the surface of the NOx adsorber catalyst, effectively trapping or storing the NOx. However, the NOx adsorber has a limited capacity for storing NOx, and once the system is saturated (*i.e.*, full), it must be regenerated. A NOx sensor monitors the NOx levels coming out of the adsorber and can detect when NOx adsorber system has reached its capacity.

104. Once it is determined that the NOx adsorber is at or near saturation, the engine control system switches to a "regeneration mode." In this mode, the engine is operated in a fuel rich mode, eliminating excess oxygen and increasing levels of hydrocarbon from unburned fuel. In the absence of oxygen the

hydrocarbons react with the NOx in a "reduction" reaction to desorb the NOx and convert it to harmless nitrogen, oxygen, water, and carbon dioxide.

105. The NOx sensors and other engine and exhaust system sensors feed information to the engine control unit (ECU). Complex algorithms and control strategies coded in the ECU monitor the status of the adsorber system. When the need for a regeneration is detected, the ECU manages and adjusts operational parameters to switch from adsorption mode to regeneration/reduction mode.

106. The system is further complicated by the fact that a diesel particulate filter (DPF) system used to trap and oxidize particulate matter (aka soot) must also be monitored and controlled in a similar fashion, but usually at a different frequency of occurrence.

107. Testing was performed on a 2012 Dodge Ram 2500 powered by a Cummins 6.7 diesel engine using a portable emission measurement system (PEMS). The vehicle had accumulated approximately 70,000 miles at the time of testing. The results show the vehicle does not meet the relevant emission standards, as follows: During on-road testing designed to simulate the driving profile of the Federal Test Procedure (FTP) certification cycle, emissions were found to be 702 mg/mile on average, 3.5 times the federal and California standard of 200 mg/mile. Over significant distances, emissions were found to be as high as 1,100 to 2,800 mg/mile for periods lasting as long as 21% of the total drive time.

That is 5.5 to 14 times the relevant standard. During on-road PEMS testing designed to simulate the driving profile of the Highway certification cycle, average emissions were found to be 756 mg/mile, or 1.9 times the California (and Section 177 state) standard. Over significant distances, emissions were found to be as high as 1,200 to 2,250 mg/mile for periods lasting as long as 16% of the total drive time. That equates to 3.0 to 5.6 times the relevant standard.

108. The vehicle was also found to be particularly sensitive to hills, where steady speed emissions could spike as high as 2,100 mg/mile (5.5 times the standard) on a steady 1.5% grade.

109. The excess emissions are believed to result from excessive DPF active regeneration in combination with deactivated NOx adsorber catalyst. The need for excessive DPF regeneration events and lower overall activity of the NOx adsorber catalyst also lead to increased fuel consumption and shortened engine component life.

110. Furthermore, the need for frequent regenerations was measured to reduce the overall fuel economy of the vehicle by 3-4%.

111. In addition, the Cummins engine certification required on-board diagnostics that must be able to monitor NOx levels. If the NOx levels exceed certain limits service lights and potential engine derate strategies are to be deployed to motivate the operator to have the vehicle inspected and/or serviced.

At no time during the testing were any diagnostic indicators or engine derating observed.

112. These test results are consistent with those found by researchers who prepared the "CAFEE Report" that led to the uncovering of the Volkswagen scandal. There researchers from West Virginia University studied the emissions performance of a NOx adsorber-equipped passenger car during DPF regeneration. Testing revealed that during regeneration events there was an increase in NOx emissions by 97%. The authors also found particulate matter was found to exceed the European standards during DPF regeneration events by two to three orders of magnitude.[69]

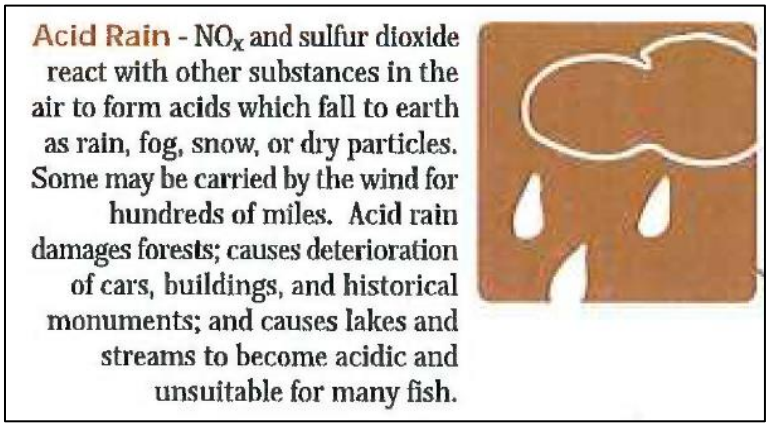
8. The Environmental Damage

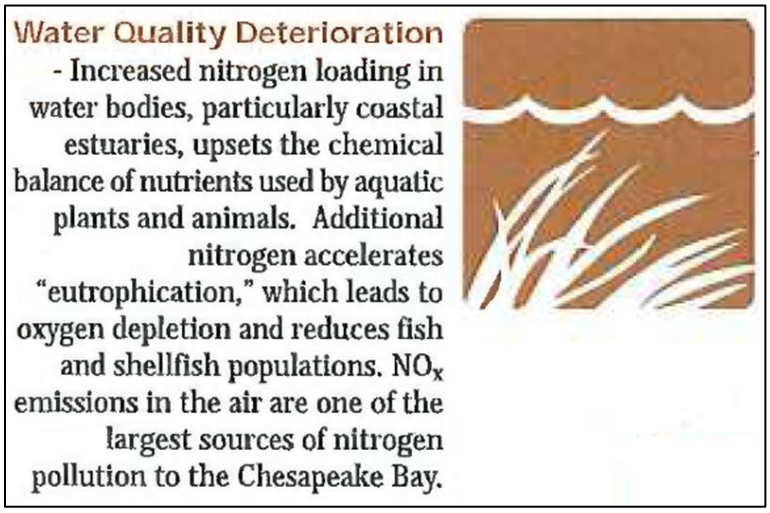
113. NOx contributes to ground-level ozone and fine particulate matter. According to the EPA, "Exposure to these pollutants has been linked with a range of serious health effects, including increased asthma attacks and other respiratory illnesses that can be serious enough to send people to the hospital. Exposure to ozone and particulate matter have also been associated with premature death due to respiratory-related or cardiovascular-related effects. Children, the elderly, and

[69] Exhibit 29, CAFEE Final Report (May 15, 2014) at 107-08, *available at* http://www.theicct.org/sites/default/files/publications/WVU_LDDV_in-use_ICCT_Report_Final_may2014.pdf.

people with pre-existing respiratory disease are particularly at risk for health effects of these pollutants."

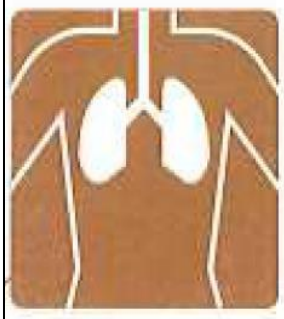
114. The EPA describes the danger of NOx as follows:



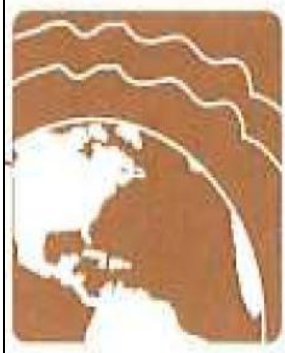


Toxic Chemicals - In the air, NO_x reacts readily with common organic chemicals, and even ozone, to form a wide variety of toxic products, some of which may cause biological mutations. Examples of these chemicals include the nitrate radical, nitroarenes, and nitrosamines.

Ground-level Ozone (Smog) - is formed when NO_x and volatile organic compounds (VOCs) react in the presence of heat and sunlight. Children, the elderly, people with lung diseases such as asthma, and people who work or exercise outside are susceptible to adverse effects such as damage to lung tissue and reduction in lung function. Ozone can be transported by wind currents and cause health impacts far from the original sources. Millions of Americans live in areas that do not meet the health standards for ozone. Other impacts from ozone include damaged vegetation and reduced crop yields.



Particles - NO_x react with ammonia, moisture, and other compounds to form nitric acid vapor and related particles. Human health concerns include effects on breathing and the respiratory system, damage to lung tissue, and premature death. Small particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and aggravate existing heart disease.



Global Warming - One member of the NO_x family, nitrous oxide, is a greenhouse gas. It accumulates in the atmosphere with other greenhouse gases causing a gradual rise in the earth's temperature. This will lead to increased risks to human health, a rise in the sea level, and other adverse changes to plant and animal habitat.

115. On September 19, 2015, scientists at Northwest University Feinberg School of Medicine and Columbia University's Mailman School of Public Health released a study indicating that the elevated emissions from the non-compliant VW vehicles could lead to as many as 50 premature deaths, 3,000 lost workdays and $423 million in economic costs.

9. Plaintiffs' and Class Members' Economic Damage

116. As a result of FCA's and Cummins' unfair, deceptive, and/or fraudulent business practices, and their failure to disclose that under normal operating conditions the Affected Vehicles are not "clean" diesels, emit more

pollutants than do gasoline-powered vehicles, and emit more pollutants than permitted under federal and state laws, and failure to disclose that the Affected Vehicles do not meet and maintain the advertised fuel efficiency, owners and/or lessees of the Affected Vehicles have suffered losses in money and/or property. Had Plaintiffs and Class members known of the higher emissions at the time they purchased or leased their Affected Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did. Moreover, when and if FCA recalls the Affected Vehicles and degrades the diesel engine performance and fuel efficiency in order to make the Affected Vehicles compliant with EPA standards, Plaintiffs and Class members will be required to spend additional sums on fuel and will not obtain the performance characteristics of their vehicles when purchased. Moreover, Affected Vehicles will necessarily be worth less in the marketplace because of their decrease in performance and efficiency and increased wear on their cars' engines.

IV. TOLLING OF THE STATUTE OF LIMITATIONS

A. Discovery Rule Tolling

117. Class members had no way of knowing about the Defendants' deception with respect to the comparatively and unlawfully high emissions of the Adsorber Engine in Affected Vehicles.

118. Within the time period of any applicable statutes of limitation, Plaintiffs and members of the proposed classes could not have discovered through the exercise of reasonable diligence that the Defendants were concealing the conduct complained of herein and misrepresenting the companies' true position with respect to the emission qualities of the Affected Vehicles.

119. Plaintiffs and the other Class members did not discover, and did not know of, facts that would have caused a reasonable person to suspect that the Defendants did not report information within their knowledge to federal and state authorities, the dealerships, or consumers; nor would a reasonable and diligent investigation have disclosed that the Defendants had concealed information about the true emissions of the Affected Vehicles, which was discovered by Plaintiffs only shortly before this action was filed. Nor, in any event, would such an investigation on the part of Plaintiffs and other Class members have disclosed that the Defendants valued profits over truthful marketing and compliance with law.

120. For these reasons, all applicable statutes of limitation have been tolled by operation of the discovery rule with respect to claims as to the Affected Vehicles.

B. Fraudulent Concealment Tolling

121. All applicable statutes of limitation have also been tolled by the Defendants' knowing and active fraudulent concealment and denial of the facts alleged herein throughout the time period relevant to this action.

122. Instead of disclosing their emissions scheme, the fact that the quality and quantity of emissions from the Affected Vehicles were far worse than represented, and their disregard of law, the Defendants falsely represented that the Affected Vehicles had emissions cleaner than their gasoline-powered counterparts, complied with federal and state emissions standards, that the diesel engines were "Clean," and that they were reputable manufacturers whose representation could be trusted.

C. Estoppel

123. The Defendants were under a continuous duty to disclose to Plaintiffs and the other Class members the true character, quality, and nature of emissions from the Affected Vehicles, and of those vehicles' emissions systems.

124. The Defendants knowingly, affirmatively, and actively concealed or recklessly disregarded the true nature, quality, and character of the emissions systems, and the emissions, of the Affected Vehicles.

125. Based on the foregoing, the Defendants are estopped from relying on any statutes of limitations in defense of this action.

V. CLASS ALLEGATIONS

126. Plaintiffs bring this action on behalf of themselves and as a class action, pursuant to the provisions of Rules 23(a) and (b)(3) of the Federal Rules of Civil Procedure, on behalf of the following class and subclasses (collectively, the "Classes"):

The Nationwide Class

All persons or entities in the United States who owned and or leased an "Affected Vehicle" as of November 1, 2016. Affected Vehicles include, without limitation, the 2007–2010 Dodge Ram 2500 with Cummins diesel (2WD, 4WD), the 2011–2012 Dodge Ram 2500 with Cummins diesel (non-SCR systems, 2WD, 4WD), the 2007–2010 Dodge Ram 3500 with Cummins diesel (2WD, 4WD), and the 2011–2012 Dodge Ram 3500 with Cummins diesel (non-SCR systems, 2WD, 4WD).

The Alabama Subclass

All persons or entities in the state of Alabama who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Alaska Subclass

All persons or entities in the state of Alaska who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Arizona Subclass

All persons or entities in the state of Arizona who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Arkansas Subclass

All persons or entities in the state of Arkansas who owned and/or leased an Affected Vehicle as of November 1, 2016.

The California Subclass

All persons or entities in the state of California who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Colorado Subclass

All persons or entities in the state of Colorado who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Connecticut Subclass

All persons or entities in the state of Connecticut who owned and/or leased an Affected Vehicle as of November 1, 2016.

The District of Columbia Subclass

All persons or entities in the District of Columbia who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Delaware Subclass

All persons or entities in the state of Delaware who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Florida Subclass

All persons or entities in the state of Florida who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Georgia Subclass

All persons or entities in the state of Georgia who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Hawaii Subclass

All persons or entities in the state of Hawaii who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Idaho Subclass

All persons or entities in the state of Idaho who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Illinois Subclass

All persons or entities in the state of Illinois who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Kansas Subclass

All persons or entities in the state of Kansas who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Kentucky Subclass

All persons or entities in the state of Kentucky who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Louisiana Subclass

All persons or entities in the state of Louisiana who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Maine Subclass

All persons or entities in the state of Maine who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Maryland Subclass

All persons or entities in the state of Maryland who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Massachusetts Subclass

All persons or entities in the state of Massachusetts who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Michigan Subclass

All persons or entities in the state of Michigan who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Minnesota Subclass

All persons or entities in the state of Minnesota who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Missouri Subclass

All persons or entities in the state of Missouri who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Montana Subclass

All persons or entities in the state of Montana who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Nebraska Subclass

All persons or entities in the state of Nebraska who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Nevada Subclass

All persons or entities in the state of Nevada who owned and/or leased an Affected Vehicle as of November 1, 2016.

The New Hampshire Subclass

All persons or entities in the state of New Hampshire who owned and/or leased an Affected Vehicle as of November 1, 2016.

The New Jersey Subclass

All persons or entities in the state of New Jersey who owned and/or leased an Affected Vehicle as of November 1, 2016.

The New Mexico Subclass

All persons or entities in the state of New Mexico who owned and/or leased an Affected Vehicle as of November 1, 2016.

The New York Subclass

All persons or entities in the state of New York who owned and/or leased an Affected Vehicle as of November 1, 2016.

The North Carolina Subclass

All persons or entities in the state of North Carolina who owned and/or leased an Affected Vehicle as of November 1, 2016.

The North Dakota Subclass

All persons or entities in the state of North Dakota who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Ohio Subclass

All persons or entities in the state of Ohio who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Oklahoma Subclass

All persons or entities in the state of Oklahoma who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Pennsylvania Subclass

All persons or entities in the state of Pennsylvania who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Rhode Island Subclass

All persons or entities in the state of Rhode Island who owned and/or leased an Affected Vehicle as of November 1, 2016.

The South Carolina Subclass

All persons or entities in the state of South Carolina who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Tennessee Subclass

All persons or entities in the state of Tennessee who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Texas Subclass

All persons or entities in the state of Texas who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Utah Subclass

All persons or entities in the state of Utah who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Vermont Subclass

All persons or entities in the state of Vermont who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Virginia Subclass

All persons or entities in the state of Virginia who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Washington Subclass

All persons or entities in the state of Washington who owned and/or leased an Affected Vehicle as of November 1, 2016.

The West Virginia Subclass

All persons or entities in the state of West Virginia who owned and/or leased an Affected Vehicle as of November 1, 2016.

The Wisconsin Subclass

All persons or entities in the state of Wisconsin who owned and/or leased an Affected Vehicle as of November 1, 2016.

127. Excluded from the Class are individuals who have personal injury claims resulting from the high emissions in the Affected Vehicles. Also excluded from the Class are the Defendants and their subsidiaries and affiliates; all persons who make a timely election to be excluded from the Class; governmental entities; and the Judge to whom this case is assigned and his/her immediate family. Plaintiffs reserve the right to revise the Class definition based upon information learned through discovery.

128. Certification of Plaintiffs' claims for classwide treatment is appropriate because Plaintiffs can prove the elements of their claims on a

classwide basis using the same evidence as would be used to prove those elements in individual actions alleging the same claim.

129. This action has been brought and may be properly maintained on behalf of each of the Classes proposed herein under Federal Rule of Civil Procedure 23.

130. **Numerosity**. Federal Rule of Civil Procedure 23(a)(1): The members of the Classes are so numerous and geographically dispersed that individual joinder of all Class members is impracticable. While Plaintiffs are informed and believe that there are hundreds of thousands of members of the Class, the precise number of Class members is unknown to Plaintiffs, but may be ascertained from the Defendants' books and records. Class members may be notified of the pendency of this action by recognized, Court-approved notice dissemination methods, which may include U.S. Mail, electronic mail, Internet postings, and/or published notice.

131. **Commonality and Predominance**: Federal Rule of Civil Procedure 23(a)(2) & (b)(3): This action involves common questions of law and fact, which predominate over any questions affecting individual Class members, including, without limitation:

a. Whether the Defendants engaged in the conduct alleged herein;

b. Whether the Defendants designed, advertised, marketed, distributed, leased, sold, or otherwise placed Affected Vehicles into the stream of commerce in the United States;

c. Whether the Adsorber Engine in the Affected Vehicles emit pollutants at levels that do not make them "clean" diesels and that do not comply with U.S. EPA requirements;

d. Whether the Defendants knew about the comparatively and unlawfully high emissions and, if so, how long the Defendants have known;

e. Whether the Defendants designed, manufactured, marketed, and distributed Affected Vehicles with defective or otherwise inadequate emission controls;

f. Whether the Defendants' conduct violates consumer protection statutes and constitutes breach of contract and fraudulent concealment as asserted herein;

g. Whether Plaintiffs and the other Class members overpaid for their Affected Vehicles; and

h. Whether Plaintiffs and the other Class members are entitled to damages and other monetary relief and, if so, in what amount.

132. **Typicality**: Federal Rule of Civil Procedure 23(a)(3): Plaintiffs' claims are typical of the other Class members' claims because, among other things, all Class members were comparably injured through the Defendants' wrongful conduct as described above.

133. **Adequacy**: Federal Rule of Civil Procedure 23(a)(4): Plaintiffs are adequate Class representatives because their interests do not conflict with the interests of the other members of the Classes they seek to represent; Plaintiffs have retained counsel competent and experienced in complex class action litigation; and Plaintiffs intend to prosecute this action vigorously. The Classes' interests will be fairly and adequately protected by Plaintiffs and their counsel.

134. **Declaratory Relief**: Federal Rule of Civil Procedure 23(b)(2): the Defendants have acted or refused to act on grounds generally applicable to Plaintiffs and the other members of the Classes, thereby making appropriate declaratory relief, with respect to each Class as a whole.

135. **Superiority**: Federal Rule of Civil Procedure 23(b)(3): A class action is superior to any other available means for the fair and efficient adjudication of this controversy, and no unusual difficulties are likely to be encountered in the management of this class action. The damages or other financial detriment suffered by Plaintiffs and the other Class members are relatively small compared to the burden and expense that would be required to

individually litigate their claims against the Defendants, so it would be impracticable for the members of the Classes to individually seek redress for the Defendants' wrongful conduct. Even if Class members could afford individual litigation, the court system could not. Individualized litigation creates a potential for inconsistent or contradictory judgments, and increases the delay and expense to all parties and the court system. By contrast, the class action device presents far fewer management difficulties, and provides the benefits of single adjudication, economy of scale, and comprehensive supervision by a single court.

A. Claims Brought on Behalf of the Nationwide Class

COUNT I:

VIOLATION OF 18 U.S.C. § 1962(C)–(D): THE RACKETEER INFLUENCED AND CORRUPT ORGANIZATIONS ACT ("RICO")

136. Plaintiffs incorporate by reference each preceding paragraph as though fully set forth herein.

137. Plaintiffs bring this Count on behalf of the Nationwide Class against FCA US LLC ("FCA") and Cummins Inc. (inclusively, for purpose of this Count, the "RICO Defendants").

138. At all relevant times, the RICO Defendants have been "persons" under 18 U.S.C. § 1961(3) because they are capable of holding, and do hold, a "legal or beneficial interest in property."

139. 18 U.S.C. § 1962(c) makes it "unlawful for any person employed by or associated with any enterprise engaged in, or the activities of which affect, interstate or foreign commerce, to conduct or participate, directly or indirectly, in the conduct of such enterprise's affairs through a pattern of racketeering activity."

140. 18 U.S.C. § 1962(d), among other provisions, makes it unlawful for "any person to conspire to violate" *See* 18 U.S.C. § 1962(d).

141. By their own admission, the RICO Defendants moved aggressively to capture a large portion of the "clean" diesel truck market. In so doing, they created a product that fell far short of the promises the RICO Defendants made about the product. In particular, the RICO Defendants, along with other entities and individuals, were employed by or associated with, and conducted or participated in the affairs of, one or several RICO enterprises (the "Emission Fraud Enterprise"), whose purpose was to deceive regulators and the driving public into believing that the Class Vehicles were complaint with emissions standards, "clean," and "environmentally friendly" so as to increase revenues and minimize losses from the design, manufacture, distribution, and sale of the Class Vehicles and the defective catalyst devices installed therein. As a direct and proximate result of their fraudulent scheme and common course of conduct, Defendants were able to extract revenues of billions of dollars from Plaintiffs and the Class. As explained

in detail below, the RICO Defendants' years-long misconduct violated 18 U.S.C. §§ 1962(c) & (d).

1. The Emission Fraud Enterprise

142. At all relevant times, the RICO Defendants, along with other individuals and entities, including unknown third parties involved in the design, manufacture, testing, and sale of the Affected Vehicles, operated an association-in-fact enterprise engaged in interstate and foreign commerce, which was formed for the purpose of obtaining EPA Certificates of Conformity ("COCs"), as well as California Air Resources Board ("CARB") Executive Orders ("EOs"), in order to sell the Affected Vehicles containing the defective device throughout the United States, and through which they conducted a pattern of racketeering activity under 18 U.S.C. § 1961(4).

143. Alternatively, each of the RICO Defendants constitutes a single legal entity "enterprise" within the meaning of 18 U.S.C. § 1961(4), through which the RICO Defendants conducted their pattern of racketeering activity in the U.S. In particular, FCA designed, manufactured, and sold the Affected Vehicles, and FCA obtained the COCs and the EOs through material misrepresentations and omissions in order to introduce the Affected Vehicles into the U.S. Stream of Commerce. Cummins participated directly or indirectly in the enterprise by developing, supplying, and promoting the Adsorber Engine.

144. At all relevant times, the Emissions Fraud Enterprise: (a) had an existence separate and distinct from each Defendant; (b) was separate and distinct from the pattern of racketeering in which the RICO Defendants engaged; and (c) was an ongoing organization consisting of legal entities, including FCA and Cummins, and other entities and individuals associated for the common purpose of designing, manufacturing, distributing, testing, and selling the Affected Vehicles through fraudulent COCs and EOs, false emissions tests, deceptive and misleading marketing and materials, and deriving profits and revenues from those activities. Each member of the Emissions Fraud Enterprise shared in the bounty generated by the enterprise, *i.e.*, by sharing the benefit derived from increased sales revenue generated by the scheme to defraud consumers and franchise dealers alike nationwide, and sharing the benefit of earning emissions "credits" as described herein.

145. The Emissions Fraud Enterprise functioned by selling vehicles and component parts to the consuming public. Many of these products are legitimate, including vehicles that do not contain defeat devices. However, the RICO Defendants and their co-conspirators, through their illegal Emissions Fraud Enterprise, engaged in a pattern of racketeering activity, which involves a fraudulent scheme to increase revenue for Defendants and the other entities and

individuals associated-in-fact with the Enterprise's activities through the illegal scheme to sell the Affected Vehicles.

146. The Emissions Fraud Enterprise engaged in, and its activities affected, interstate and foreign commerce, because it involved commercial activities across state boundaries, such as the marketing, promotion, advertisement, and sale or lease of the Affected Vehicles throughout the country, and the receipt of monies from the sale of the same.

147. Within the Emissions Fraud Enterprise, there was a common communication network by which co-conspirators shared information on a regular basis. The Emissions Fraud Enterprise used this common communication network for the purpose of manufacturing, marketing, testing, and selling the Affected Vehicles to the general public nationwide.

148. Each participant in the Emissions Fraud Enterprise had a systematic linkage to each other through corporate ties, contractual relationships, financial ties, and continuing coordination of activities. Through the Emissions Fraud Enterprise, the RICO Defendants functioned as a continuing unit with the purpose of furthering the illegal scheme and their common purposes of increasing their revenues and market share, and minimizing losses.

149. The RICO Defendants participated in the operation and management of the Emissions Fraud Enterprise by directing its affairs, as described herein.

While the RICO Defendants participated in, and are members of, the enterprise, they have a separate existence from the enterprise, including distinct legal statuses, different offices and roles, bank accounts, officers, directors, employees, individual personhood, reporting requirements, and financial statements.

150. As detailed above, each RICO Defendant also relentlessly promoted the Affected Vehicles as clean, powerful, and cost-efficient. The Defendants routinely proclaimed the Affected Vehicles, and the Adsorber Engine, as the "cleanest" in its class, "meeting and exceeding both regulatory requirements and customer needs." The Affected Vehicles were "squeaky clean"; "super clean"; "a model of cleanliness"—"so clean it warrants a class of its own," and "durability so impressive, it approaches the inexhaustible." All of this success is due to the tight collaboration among the RICO Defendants—what Cummins called the "most formidable partnership in the working world."

151. The Enterprise functioned by selling Affected Vehicles, with the Adsorber Engine, to the public. The RICO Defendants engaged in a pattern of racketing activity through their scheme to increase revenue and profits for the RICO Defendants to sell the Affected Vehicles in interstate and foreign commerce, and to increase the emissions credits they earned, thereby allowing them to sell dirty vehicles as well, all for an additional profit. The enterprise involved commercial activities across state boundaries, such as the marketing, promotion,

advertisement, and sale or lease of the Affected Vehicles throughout the country, and the receipt of monies from the sale of the same.

152. The RICO Defendants worked closely together to further the enterprise, by and among the following manner and means:

a. Jointly planning to manufacture a diesel engine and truck that would purportedly meet EPA and California emissions standards three years early;

b. Designing the Affected Vehicles with the Adsorber Engines; Manufacturing, distributing, and selling the Class Vehicles that emitted greater pollution than permitted under the applicable regulations;

c. Misrepresenting and omitting (or causing such misrepresentations and omissions to be made) vehicle specifications on COC and EO applications;

d. Introducing the Affected Vehicles into the stream of U.S. commerce without a valid COC and/or EO;

e. Concealing the unlawfully high emissions from regulators and the public;

f. Misleading the public about the defects in the Affected Vehicles and the Adsorber Engine;

g. Otherwise misrepresenting or concealing the defective nature of the Affected Vehicles from the public and regulators;

h. Illegally selling and/or distributing the Class Vehicles;

i. Designing, testing, and installing the Adsorber Engine into the Affected Vehicles; and

j. Collecting revenues and profits from the sale of such products, including the Affected Vehicles and the Adsorber Engines.

2. Mail and Wire Fraud

153. To carry out, and attempt to carry out, the scheme to defraud, the RICO Defendants, each of whom is a person associated in fact with the enterprise, did knowingly conduct and participate, directly and indirectly, in the conduct of the affairs of the enterprise through a pattern of racketeering activity within the meaning of 18 U.S.C. §§ 1961(1), 1961(5) , & 1962(c), and which employed the use of the mail and wire facilities, in violation of 18 U.S.C. §§ 1341 (mail fraud) & 1343 (wire fraud).

154. Specifically, the RICO Defendants have committed, conspired to commit, and/or aided and abetted in the commission of, at least two predicate acts of racketeering activity (*i.e.*, violations of 18 U.S.C. §§ 1341 & 1343), within the past ten years. The multiple acts of racketeering activity which the RICO Defendants committed, or aided or abetted in the commission of, were related to

each other, posed a threat of continued racketeering activity, and therefore constitute a "pattern of racketeering activity." The racketeering activity was made possible by the RICO Defendants' regular use of the facilities, services, distribution channels, and employees of the enterprise. The RICO Defendants participated in the scheme to defraud by using mail, telephone, and the Internet to transmit mailings and wires in interstate or foreign commerce.

155. In devising and executing the illegal scheme, the RICO Defendants devised and knowingly carried out a material scheme and/or artifice to defraud Plaintiffs and the Nationwide Class or to obtain money from Plaintiffs and the Nationwide Class by means of materially false or fraudulent pretenses, representations, promises, or omissions of material facts. For the purpose of executing the illegal scheme, the RICO Defendants committed these racketeering acts intentionally and knowingly with the specific intent to advance the illegal scheme.

156. The RICO Defendants' predicate acts of racketeering, 18 U.S.C. § 1961(1), include but are not limited to:

a. **Mail Fraud**: The RICO Defendants violated 18 U.S.C. § 1341 by sending and receiving, and by causing to be sent and/or received, materials via U.S. Mail or commercial interstate carriers for the purpose of executing the

unlawful scheme to design, manufacture, market, and sell the Class Vehicles by means of false pretenses, misrepresentations, promises, and omissions.

b. **Wire Fraud**: The RICO Defendants violated 18 U.S.C. § 1343 by transmitting and/or receiving, and by causing to be transmitted and/or received, materials by wire for the purpose of executing the unlawful scheme to defraud and obtain money on false pretenses, misrepresentations, promises, and omissions.

157. The RICO Defendants' use of the mails and wires include, but are not limited to, the transmission, delivery and shipment of the following by the RICO Defendants or third parties that were foreseeably caused to be sent as a result of Defendants' illegal scheme:

a. Application for certificates submitted to the EPA and CARB and Approved Applications received in the mail on April 9, 2008, June 23, 2008, June 6, 2008, and July 2, 2008.

b. Applications submitted to the EPA and CARB for each model year as follows:

- 2007–2010 Dodge Ram 2500 with Cummins diesel (2WD, 4WD);
- 2011–2012 Dodge Ram 2500 with Cummins diesel (non-SCR systems, 2WD, 4WD);
- 2007–2010 Dodge Ram 3500 with Cummins diesel (2WD, 4WD); and
- 2011–2012 Dodge Ram 3500 with Cummins diesel (non-SCR systems, 2WD, 4WD).

c. The Affected Vehicles.

d. The Adsorber Engines.

e. The essential hardware for the Affected Vehicles.

f. False and misleading emissions tests.

g. Additional fraudulent applications for COCs and EOs.

h. Fraudulently obtained COCs and EOs.

i. Vehicle registrations and plates as a result of the fraudulently obtained EPA COCs and EOs.

j. False or misleading communications to the public and to regulators.

k. Sales and marketing materials, including advertising, websites, product packaging, brochures, and labeling, which misrepresented, falsely promoted, and concealed the true nature of the Affected Vehicles.

l. Documents intended to facilitate the manufacture and sale of the Affected Vehicles, including bills of lading, invoices, shipping records, reports and correspondence.

m. Documents to process and receive payment for the Class Vehicles by unsuspecting Class members, including invoices and receipts.

n. Payments to Cummins.

o. Deposits of proceeds.

p. Other documents and things, including electronic communications.

158. The RICO Defendants also used the internet and other electronic facilities to carry out the scheme and conceal the ongoing fraudulent activities. Specifically, the RICO Defendants made misrepresentations about the Class Vehicles on their websites, YouTube, and through ads online, all of which were intended to mislead regulators and the public about the fuel efficiency, emissions standards, and other performance metrics.

159. The RICO Defendants also communicated by U.S. Mail, by interstate facsimile, and by interstate electronic mail with various other affiliates, regional offices, divisions, dealerships and other third-party entities in furtherance of the scheme.

160. The mail and wire transmissions described herein were made in furtherance of Defendants' scheme and common course of conduct to deceive regulators and consumers and lure consumers into purchasing the Class Vehicles, which Defendants knew or recklessly disregarded as emitting illegal amounts of pollution, despite their advertising campaign that the Class Vehicles were "clean" diesel cars.

161. Many of the precise dates of the fraudulent uses of the U.S. Mail and interstate wire facilities are hidden to the Plaintiffs, and cannot be alleged without access to Defendants' books and records. However, Plaintiffs have described the types of predicate acts of mail and/or wire fraud that occurred.

162. The RICO Defendants have not undertaken the practices described herein in isolation, but as part of a common scheme and conspiracy. In violation of 18 U.S.C. § 1962(d), the RICO Defendants conspired to violate 18 U.S.C. § 1962(c), as described herein. Various other persons, firms and corporations, including third-party entities and individuals not named as defendants in this Complaint, have participated as co-conspirators with the RICO Defendants in these

offenses and have performed acts in furtherance of the conspiracy to increase or maintain revenues, increase market share, and/or minimize losses for the Defendants and their unnamed co-conspirators throughout the illegal scheme and common course of conduct.

163. The RICO Defendants aided and abetted others in the violations of the above laws, thereby rendering them indictable as principals in the 18 U.S.C. §§ 1341 & 1343 offenses.

164. To achieve their common goals, the RICO Defendants hid from the general public the unlawfulness and emission dangers of the Class Vehicles and obfuscated the true nature of the defect even after regulators raised concerns. The RICO Defendants suppressed and/or ignored warnings from third parties, whistleblowers, and governmental entities about the discrepancies in emissions testing and the defeat devices present in the Affected Vehicles.

165. The RICO Defendants and each member of the conspiracy, with knowledge and intent, have agreed to the overall objectives of the conspiracy and participated in the common course of conduct to commit acts of fraud and indecency in designing, manufacturing, distributing, marketing, testing, and/or selling the Class Vehicles (and the defeat devices contained therein).

166. Indeed, for the conspiracy to succeed each of the RICO Defendants and their coconspirators had to agree to implement and use the similar devices and

fraudulent tactics—specifically complete secrecy about the defeat devices in the Affected Vehicles.

167. The RICO Defendants knew and intended that government regulators, as well as Plaintiffs and Class members, would rely on the material misrepresentations and omissions made by them about the Affected Vehicles. The RICO Defendants knew and intended that consumers would incur costs as a result.

168. As fully alleged herein, Plaintiffs, along with hundreds of thousands of other consumers, relied upon Defendants' representations and omissions that were made or caused by them. Plaintiffs' reliance is made obvious by the fact that they purchased illegal vehicles that never should have been introduced into the U.S. stream of commerce and whose worth has now plummeted since the scheme was revealed. In addition, the EPA, CARB, and other regulators relied on the misrepresentations and material omissions made or caused to be made by the RICO Defendants; otherwise FCA could not have obtained valid COCs and EOs to sell the Class Vehicles.

169. As described herein, the RICO Defendants engaged in a pattern of related and continuous predicate acts for years. The predicate acts constituted a variety of unlawful activities, each conducted with the common purpose of obtaining significant monies and revenues from Plaintiffs and Class members based on their misrepresentations and omissions, while providing Class Vehicles

that were worth significantly less than the purchase price paid. The predicate acts also had the same or similar results, participants, victims, and methods of commission. The predicate acts were related and not isolated events.

170. The predicate acts all had the purpose of generating significant revenue and profits for the RICO Defendants at the expense of Plaintiffs and Class members. The predicate acts were committed or caused to be committed by the RICO Defendants through their participation in the enterprise and in furtherance of their fraudulent scheme, and were interrelated in that they involved obtaining Plaintiffs' and Class members' funds and avoiding the expenses associated with remediating the Affected Vehicles.

171. By reason of, and as a result of the conduct of the RICO Defendants, and in particular, their pattern of racketeering activity, Plaintiffs and Class members have been injured in their business and/or property in multiple ways, including but not limited to:

a. Purchase or lease of an illegal, defective Class Vehicle;

b. Overpayment for an Affected Vehicle, in that Plaintiffs and Class members believed they were paying for a vehicle that met certain emission and fuel efficiency standards and obtained a vehicle that was anything but;

c. The value of the Class Vehicles has diminished, thus reducing their resale value;

d. Other out-of-pocket and loss-of-use expenses; and

e. Payment for alternative transportation.

172. The RICO Defendants' violations of 18 U.S.C. § 1962(c) & (d) have directly and proximately caused injuries and damages to Plaintiffs and Class members, and Plaintiffs and Class members are entitled to bring this action for three times their actual damages, as well as injunctive/equitable relief, costs, and reasonable attorneys' fees pursuant to 18 U.S.C. § 1964(c).

COUNT II:

VIOLATIONS OF 15 U.S.C. § 2301 *ET SEQ.*
THE MAGNUSON-MOSS WARRANTY ACT ("MMWA")

173. Plaintiffs reallege and incorporate by reference all paragraphs as though fully set forth herein.

174. This claim is brought on behalf of the Nationwide Class.

175. Plaintiffs are "consumers" within the meaning of the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301(3).

176. FCA is a "supplier" and "warrantor" within the meaning of the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301(4)–(5).

177. The Affected Vehicles are "consumer products" within the meaning of the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301(1).

178. 15 U.S.C. § 2301(d)(1) provides a cause of action for any consumer who is damaged by the failure of a warrantor to comply with a written or implied warranty.

179. FCA's express warranties are written warranties within the meaning of the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301(6). The Affected Vehicles' implied warranties are covered under 15 U.S.C. § 2301(7).

180. FCA breached these warranties, as described in more detail above. Without limitation, the Affected Vehicles are equipped with a defective Adsorber Engine that breaks down and releases emissions far in excess of U.S. and California regulations. The Affected Vehicles share a common design defect in that the Adsorber Engine fails to operate as represented by FCA.

181. Plaintiffs and the other Class members have had sufficient direct dealings with either FCA or its agents (*e.g.*, dealerships and technical support) to establish privity of contract between FCA on one hand, and Plaintiffs and each of the other Class members on the other hand. Nonetheless, privity is not required here because Plaintiffs and each of the other Class members are intended third-party beneficiaries of contracts between FCA and its dealers, and specifically, of FCA's implied warranties. The dealers were not intended to be the ultimate consumers of the Affected Vehicles and have no rights under the warranty

agreements provided with the Affected Vehicles; the warranty agreements were designed for and intended to benefit the consumers only.

182. Affording FCA a reasonable opportunity to cure its breach of written warranties would be unnecessary and futile here.

183. At the time of sale or lease of each Affected Vehicle, FCA knew, should have known, or was reckless in not knowing of its misrepresentations and omissions concerning the Affected Vehicles' inability to perform as warranted, but nonetheless failed to rectify the situation and/or disclose the defective design. Under the circumstances, the remedies available under any informal settlement procedure would be inadequate and any requirement that Plaintiffs resort to an informal dispute resolution procedure and/or afford FCA a reasonable opportunity to cure its breach of warranties is excused and thereby deemed satisfied.

184. Plaintiffs and the other Class members would suffer economic hardship if they returned their Affected Vehicles but did not receive the return of all payments made by them. Because FCA is refusing to acknowledge any revocation of acceptance and return immediately any payments made, Plaintiffs and the other Class members have not re-accepted their Affected Vehicles by retaining them.

185. The amount in controversy of Plaintiffs' individual claims meets or exceeds the sum of $25. The amount in controversy of this action exceeds the sum

of $50,000, exclusive of interest and costs, computed on the basis of all claims to be determined in this lawsuit.

186. Plaintiffs, individually and on behalf of the other Class members, seek all damages permitted by law, including diminution in value of the Affected Vehicles, in an amount to be proven at trial.

B. Claims Brought on Behalf of the Michigan Subclass

COUNT I

VIOLATION OF THE MICHIGAN CONSUMER PROTECTION ACT (MICH. COMP. LAWS § 445.903 *ET SEQ.*)

187. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

188. This claim is brought on behalf of the Michigan Subclass.

189. Plaintiffs and the Michigan Class Members were "person[s]" within the meaning of the Mich. Comp. Laws § 445.902(1)(d).

190. The Michigan Consumer Protection Act ("Michigan CPA") prohibits "[u]nfair, unconscionable, or deceptive methods, acts, or practices in the conduct of trade or commerce," … including: "(c) Representing that goods or services have … characteristics … that they do not have;" … "(e) Representing that goods or services are of a particular standard … if they are of another;" … "(i) Making false or misleading statements of fact concerning the reasons for, existence of, or amounts of price reductions;" … "(s) Failing to reveal a material fact, the omission

of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer;" … "(bb) Making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is;" … and "(cc) Failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner." Mich. Comp. Laws § 445.903(1).

191. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact

could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

192. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

193. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel Defendants' deception on their own.

194. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

195. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

196. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

197. The Defendants knew or should have known that their conduct violated the Michigan CPA.

198. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

199. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

200. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

201. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

202. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

203. Plaintiffs seek monetary relief measured as the greater of (a) actual damages in an amount to be determined at trial and (b) statutory damages in the amount of $250 for Plaintiffs and each Michigan Class member; reasonable attorneys' fees; and any other just and proper relief available under Mich. Comp. Laws § 445.911. Plaintiffs also seek punitive damages against the Defendants because they carried out despicable conduct with willful and conscious disregard of the rights of others. The Defendants' unlawful conduct constitutes malice, oppression, and fraud warranting punitive damages.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON MICHIGAN LAW)

204. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

205. This claim is brought on behalf of the Michigan Subclass.

206. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted

with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

207. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

208. The Defendants knew these representations were false when made.

209. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

210. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were

non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

211. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

212. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

213. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

214. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

215. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their

customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

216. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions* diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or

leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

217. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

218. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

219. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have

purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

220. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

221. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective

emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

222. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

223. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON MICHIGAN LAW)

224. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

225. Plaintiffs bring this Count on behalf of the Michigan Subclass.

226. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

227. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and is thus less valuable than vehicles not equipped with the Adsorber Engine.

228. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

C. Claims Brought on Behalf of the Alabama Subclass

COUNT I

VIOLATIONS OF THE ALABAMA DECEPTIVE TRADE PRACTICES ACT (ALA. CODE § 8-19-1 *ET SEQ.*)

229. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

230. Plaintiffs bring this Count on behalf of the Alabama Subclass.

231. Plaintiffs and the Subclass members are "consumers" within the meaning of Ala. Code § 8-19-3(2).

232. Plaintiffs, the Subclass members, and the Defendants are "persons" within the meaning of Ala. Code § 8-19-3(5).

233. The Affected Vehicles are "goods" within the meaning of Ala. Code § 8-19-3(3).

234. The Defendants were and are engaged in "trade or commerce" within the meaning of Ala. Code § 8-19-3(8).

235. The Alabama Deceptive Trade Practices Act ("Alabama DTPA") declares several specific actions to be unlawful, including: "(5) Representing that goods or services have sponsorship, approval, characteristics, ingredients, uses, benefits, or qualities that they do not have," "(7) Representing that goods or services are of a particular standard, quality, or grade, or that goods are of a particular style or model, if they are of another," and "(27) Engaging in any other unconscionable, false, misleading, or deceptive act or practice in the conduct of trade or commerce." Ala. Code § 8-19-5.

236. Plaintiffs intend to assert a claim under the Alabama DTPA. Plaintiffs will make a demand in satisfaction of Ala. Code § 8-19-3 and may amend this Complaint to assert claims under the Alabama DTPA once the required 15 days have elapsed. This paragraph is included for purposes of notice only and is not intended to actually assert a claim under the Alabama DTPA.

COUNT II

BREACH OF CONTRACT
(BASED ON ALABAMA LAW)

237. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

238. Plaintiffs bring this Count on behalf of the Alabama Subclass.

239. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx

reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

240. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and is thus less valuable than vehicles not equipped with the Adsorber Engine.

241. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial,

which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON ALABAMA LAW)

242. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

243. This claim is brought on behalf of the Alabama Subclass.

244. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

245. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission

vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

246. The Defendants knew these representations were false when made.

247. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

248. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

249. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant

vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

250. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

251. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

252. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

253. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

254. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the

Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or

leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

255. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

256. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

257. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

258. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

259. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

260. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

261. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

D. Claims Brought on Behalf of the Alaska Subclass

COUNT I

VIOLATION OF THE ALASKA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION ACT (ALASKA STAT. ANN. § 45.50.471 *ET SEQ.*)

198. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

262. Plaintiffs bring this Count on behalf of the Alaska Subclass.

263. The Alaska CPA proscribes unfair methods of competition and unfair or deceptive acts or practices in the conduct of trade or commerce unlawful, including: "(4) representing that goods or services have sponsorship, approval, characteristics, ingredients, uses, benefits, or quantities that they do not have or that a person has a sponsorship, approval, status, affiliation, or connection that the

person does not have;" "(6) representing that goods or services are of a particular standard, quality, or grade, or that goods are of a particular style or model, if they are of another;" "(8) advertising goods or services with intent not to sell them as advertised;" or "(12) using or employing deception, fraud, false pretense, false promise, misrepresentation, or knowingly concealing, suppressing, or omitting a material fact with intent that others rely upon the concealment, suppression or omission in connection with the sale or advertisement of goods or services whether or not a person has in fact been misled, deceived or damaged." Alaska Stat. Ann. § 45.50.471. Plaintiffs will make a demand in satisfaction of Alaska Stat. Ann. § 45.50.535, and may amend this Complaint to assert claims under the Alaska CPA once the required notice period has elapsed. This paragraph is included for purposes of notice only and is not intended to actually assert a claim under the Alaska CPA.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON ALASKA LAW)

264. Plaintiffs reallege and incorporate by reference all paragraphs as though fully set forth herein.

265. This claim is brought on behalf of the Alaska Subclass.

266. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving

conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

267. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

268. The Defendants knew these representations were false when made.

269. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

270. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

271. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

272. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

273. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

274. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

275. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

276. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

277. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

278. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

279. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

280. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

281. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

282. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

283. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON ALASKA LAW)

284. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

285. Plaintiffs bring this Count on behalf of the Alaska Subclass.

286. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Affected Vehicles' defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

287. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

288. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

E. Claims Brought on Behalf of the Arizona Subclass

COUNT I

VIOLATIONS OF THE ARIZONA CONSUMER FRAUD ACT (ARIZ. REV. STAT. § 44-1521 *ET SEQ.*)

289. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

290. Plaintiffs bring this Count on behalf of the Arizona Subclass.

291. The Arizona Consumer Fraud Act ("Arizona CFA") provides that "[t]he act, use or employment by any person of any deception, deceptive act or practice, fraud, … misrepresentation, or concealment, suppression or omission of any material fact with intent that others rely upon such concealment, suppression or omission, in connection with the sale … of any merchandise whether or not any person has in fact been misled, deceived or damaged thereby, is declared to be an unlawful practice." Ariz. Rev. Stat. § 44-1522(A).

292. In the course of the Defendants' business, it willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unlawful trade practices by employing deception, deceptive acts or practices, fraud, misrepresentations, or concealment, suppression or omission of any material fact with intent that others rely upon such concealment, suppression or omission, in connection with the sale of Affected Vehicles.

293. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

294. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

295. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

296. The Defendants' deception, fraud, misrepresentation, concealment, suppression or omission of material facts were likely to and did in fact deceive reasonable consumers.

297. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

298. The Defendants knew or should have known that their conduct violated the Arizona CFA.

299. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

300. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected

Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

301. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

302. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

303. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

304. Plaintiffs and the Subclass seek monetary relief against the Defendants in an amount to be determined at trial. Plaintiffs and the Subclass also seek punitive damages because the Defendants engaged in aggravated and outrageous conduct with an evil mind.

305. Plaintiffs also seek attorneys' fees and any other just and proper relief available.

COUNT II

BREACH OF CONTRACT
(BASED ON ARIZONA LAW)

306. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

307. Plaintiffs bring this Count on behalf of the Arizona Subclass.

308. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

309. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts

by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

310. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON ARIZONA LAW)

311. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

312. This claim is brought on behalf of the Arizona Subclass.

313. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

314. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

315. The Defendants knew these representations were false when made.

316. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

317. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

318. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the Adsorber Engine, but nonetheless, the intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

319. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

320. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

321. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

322. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

323. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

324. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

325. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

326. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

327. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the Adsorber Engine, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

328. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

329. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

330. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

F. Claims Brought on Behalf of the Arkansas Subclass

COUNT I

VIOLATIONS OF THE DECEPTIVE TRADE PRACTICE ACT (ARK. CODE ANN. § 4-88-101 *ET SEQ.*)

331. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

332. This claim is brought on behalf of the Arkansas Subclass.

333. The Defendants, Plaintiffs, and the Arkansas subclass are "persons" within the meaning of the Arkansas Deceptive Trade Practices Act ("Arkansas DTPA"), Ark. Code Ann. § 4-88-102(5).

334. The "Affected Vehicles" are "goods" within the meaning of Ark. Code Ann. § 4-88-102(4).

335. The Arkansas DTPA prohibits ""[d]eceptive and unconscionable trade practices," which include, but are not limited to, a list of enumerated items, including "[e]ngaging in any other unconscionable, false, or deceptive act or practice in business, commerce, or trade[.]" Ark. Code Ann. § 4-88-107(a)(10). The Arkansas DTPA also prohibits the following when utilized in connection with the sale or advertisement of any goods: "(1) The act, use, or employment by any person of any deception, fraud, or false pretense; or (2) The concealment, suppression, or omission of any material fact with intent that others rely upon the concealment, suppression, or omission." Ark. Code Ann. § 4-88-108.

336. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

337. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the

NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

338. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

339. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

340. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

341. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

342. The Defendants knew or should have known that their conduct violated the Arkansas DTPA.

343. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

344. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

345. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

346. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

347. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

348. Plaintiffs seek monetary relief measured as the greater of (a) actual damages in an amount to be determined at trial and (b) statutory damages in the amount of $250 for Plaintiffs and each Arkansas Class member; (c) reasonable attorneys' fees; and (d) any other just and proper relief available under Arkansas law. Plaintiffs also seek punitive damages against the Defendants because they carried out despicable conduct with willful and conscious disregard of the rights of others. The Defendants' unlawful conduct constitutes malice, oppression, and fraud warranting punitive damages.

COUNT II

FRAUDULENT CONCEALMENT (BASED ON ARKANSAS LAW)

349. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

350. This claim is brought on behalf of the Arkansas Subclass.

351. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, did not meet and maintain the advertised MPG rate, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

352. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were earth-friendly and low-emission

vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

353. The Defendants knew these representations were false when made.

354. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, costly in that the Plaintiffs and other Subclass members had to pay more for fuel than they reasonably expected, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

355. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, did not meet and maintain the advertised MPG rate, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

356. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the Adsorber Engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

357. The truth about the defective emissions controls and the Defendants' manipulations of those controls, failure to meet and maintain the advertised MPG rate, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

358. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on

their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

359. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of each Defendant—one characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

360. The Defendants' false representations were material to consumers, because they concerned the quality and cost-effectiveness of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

361. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, failure to meet and maintain the advertised MPG rate, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with

respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

362. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

363. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

364. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting

vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

365. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and fuel efficiency and the Defendants' failure to timely disclose the defect or defective design of the Adsorber Engine, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, and their failure to meet and maintain the advertised MPG rate, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

366. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the

Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand names, attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

367. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

368. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON ARKANSAS LAW)

369. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

370. Plaintiffs bring this Count on behalf of the Arkansas Subclass members.

371. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

372. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA

rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

373. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

G. Claims Brought on Behalf of the California Subclass

COUNT I

VIOLATIONS OF THE CALIFORNIA UNFAIR COMPETITION LAW (CAL. BUS. & PROF. CODE § 17200 *ET SEQ.*)

374. Plaintiffs James Bledsoe and Jay Martin (Plaintiffs, for purposes of all California Subclass Counts) incorporate by reference all paragraphs as though fully set forth herein.

375. This claim is brought on behalf of the California Subclass.

376. California's Unfair Competition Law ("UCL"), Cal. Bus. & Prof. Code § 17200 *et seq*., proscribes acts of unfair competition, including "any unlawful, unfair or fraudulent business act or practice and unfair, deceptive, untrue or misleading advertising."

377. The Defendants' conduct, as described herein, was and is in violation of the UCL. The Defendants' conduct violates the UCL in at least the following ways:

i. By failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions;

ii. By selling and leasing Affected Vehicles that suffer from a defective emissions control system and that emit unlawfully high levels of pollutants under normal driving conditions;

iii. By knowingly and intentionally concealing from Plaintiffs and the other Subclass members that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that the Affected Vehicles suffer from a defective emissions control system and emit unlawfully high levels of pollutants under normal driving conditions;

iv. By marketing Affected Vehicles as reduced emissions vehicles possessing functional and defect-free, EPA-compliant diesel engine systems;

v. By advertising and posting a miles per gallon ("MPG") rate that the Affected Vehicles do not meet and maintain;

vi. By violating federal laws, including the Clean Air Act; and

vii. By violating other California laws, including California consumer protection laws and California laws governing vehicle emissions and emission testing requirements.

378. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

379. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, that the Affected Vehicles would not meet and maintain the advertised MPG rate; and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

380. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

381. The Defendants knew or should have known that their conduct violated the UCL.

382. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

383. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, were non-EPA-compliant and unreliable, and that the Affected Vehicles would not meet and maintain their advertised MPG rate, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

384. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

385. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. They also were required to pay more for fuel than they reasonably anticipated based on the Defendants' material representations. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

386. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

387. The Defendants' misrepresentations and omissions alleged herein caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain defective Adsorber Engines that failed to comply with EPA and California emissions standards.

388. Accordingly, Plaintiffs and the other Subclass members have suffered injury in fact, including lost money or property, as a result of the Defendants' misrepresentations and omissions.

389. Plaintiffs request that this Court enter such orders or judgments as may be necessary to restore to Plaintiffs and members of the Subclass any money it acquired by unfair competition, including restitution and/or restitutionary disgorgement, as provided in Cal. Bus. & Prof. Code § 17203 and Cal. Civ. Code § 3345, and for such other relief as may be appropriate.

COUNT II

VIOLATIONS OF THE CALIFORNIA CONSUMER LEGAL REMEDIES ACT (CAL. CIV. CODE § 1750 *ET SEQ.*)

390. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

391. This claim is brought on behalf of the California Subclass.

392. California's Consumers Legal Remedies Act ("CLRA"), Cal. Civ. Code § 1750 *et seq*., proscribes "unfair methods of competition and unfair or deceptive acts or practices undertaken by any person in a transaction intended to result or which results in the sale or lease of goods or services to any consumer."

393. The Affected Vehicles are "goods" as defined in Cal. Civ. Code § 1761(a).

394. Plaintiffs and the other Subclass members are "consumers" as defined in Cal. Civ. Code § 1761(d), and Plaintiffs, the other Subclass members, and the Defendants are "persons" as defined in Cal. Civ. Code § 1761(c).

395. As alleged above, the Defendants made representations concerning the benefits, efficiency, performance, and safety features of the Affected Vehicles and Adsorber Engines that were misleading.

396. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles were equipped with defective Adsorber Engines that failed EPA and California emissions standards, and that the Affected Vehicles would not meet and maintain the advertised MPG rate.

397. The Defendants' conduct, as described hereinabove, was and is in violation of the CLRA. The Defendants' conduct violates at least the following enumerated CLRA provisions:

i. Cal. Civ. Code § 1770(a)(2): Misrepresenting the approval or certification of goods.

ii. Cal. Civ. Code § 1770(a)(3): Misrepresenting the certification by another.

iii. Cal. Civ. Code § 1770(a)(5): Representing that goods have sponsorship, approval, characteristics, uses, benefits, or quantities which they do not have.

iv. Cal. Civ. Code § 1770(a)(7): Representing that goods are of a particular standard, quality, or grade, if they are of another.

v. Cal. Civ. Code § 1770(a)(9): Advertising goods with intent not to sell them as advertised.

vi. Cal. Civ. Code § 1770(a)(16): Representing that goods have been supplied in accordance with a previous representation when they have not.

398. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

399. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. They were also deceived by the Defendants' failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate.

400. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

401. The Defendants knew or should have known that their conduct violated the CLRA.

402. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

403. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, were non-EPA-compliant and unreliable, and would not meet and maintain the Affected Vehicles' posted MPG rate, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

404. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

405. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. They also were required to pay more for fuel than they reasonably anticipated based on the Defendants' material representations. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

406. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

407. The Defendants knew, should have known, or was reckless in not knowing of the defective design and/or manufacture of the Adsorber Engines, and that the Affected Vehicles were not suitable for their intended use.

408. The facts concealed and omitted by the Defendants from Plaintiffs and the other Subclass members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Affected Vehicles or pay a lower price. Had Plaintiffs and the other Subclass members known about the defective nature of the Affected Vehicles, and their non-compliance with EPA requirements, and the failure of the Affected Vehicles to meet and maintain their posted MPG rate, they would not have purchased or leased the Affected Vehicles or would not have paid the prices they paid.

409. Plaintiffs and the Subclass have provided the Defendants with notice of their violations of the CLRA pursuant to Cal. Civ. Code § 1782(a).

410. Plaintiffs' and the other Subclass members' injuries were proximately caused by the Defendants' unlawful and deceptive business practices.

411. While Plaintiffs do not seek to recover damages under the CLRA in this initial Complaint, after mailing appropriate notice and demand in accordance

with CAL. CIVIL CODE §§ 1782(a) & (d), Plaintiffs will subsequently amend this Complaint to also include a request for compensatory and punitive damages.

COUNT III

VIOLATIONS OF THE CALIFORNIA FALSE ADVERTISING LAW (CAL. BUS. & PROF. CODE § 17500 *ET SEQ.*)

412. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

413. This claim is brought on behalf of the California Subclass.

414. California Bus. & Prof. Code § 17500 states: "It is unlawful for any … corporation … with intent directly or indirectly to dispose of real or personal property … to induce the public to enter into any obligation relating thereto, to make or disseminate or cause to be made or disseminated … from this state before the public in any state, in any newspaper or other publication, or any advertising device, … or in any other manner or means whatever, including over the Internet, any statement … which is untrue or misleading, and which is known, or which by the exercise of reasonable care should be known, to be untrue or misleading."

415. The Defendants caused to be made or disseminated through California and the United States, through advertising, marketing, and other publications, statements that were untrue or misleading, and which were known, or which by the exercise of reasonable care should have been known to the Defendants, to be

untrue and misleading to consumers, including Plaintiffs and the other Subclass members.

416. The Defendants have violated § 17500 because the misrepresentations and omissions regarding the functionality, reliability, environmental-friendliness, lawfulness, fuel efficiency, and safety of Affected Vehicles as set forth in this Complaint were material and likely to deceive a reasonable consumer.

417. Plaintiffs and the other Subclass members have suffered an injury in fact, including the loss of money or property, as a result of the Defendants' unfair, unlawful, and/or deceptive practices. In purchasing or leasing their Affected Vehicles, Plaintiffs and the other Subclass members relied on the misrepresentations and/or omissions of the Defendants with respect to the functionality, reliability, environmental-friendliness, fuel efficiency, and lawfulness of the Affected Vehicles. The Defendants' representations turned out not to be true because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the Affected Vehicles are distributed with Adsorber Engines that include defective emissions controls and a "Defeat Device." The Affected Vehicles also do not meet and maintain the posted MPG rate. Had Plaintiffs and the other Subclass members known this, they would not have purchased or leased their Affected Vehicles and/or paid as much for them.

Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

418. All of the wrongful conduct alleged herein occurred, and continues to occur, in the conduct of the Defendants' business. The Defendants' wrongful conduct is part of a pattern or generalized course of conduct that is still perpetuated and repeated, both in the State of California and nationwide.

419. Plaintiffs, individually and on behalf of the other Subclass members, request that this Court enter such orders or judgments as may be necessary to restore to Plaintiffs and the other Subclass members any money the Defendants acquired by unfair competition, including restitution and/or restitutionary disgorgement, and for such other relief as may be appropriate.

COUNT IV

BREACH OF CONTRACT
(BASED ON CALIFORNIA LAW)

420. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

421. Plaintiffs bring this Count on behalf of the California Subclass members.

422. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein,

and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

423. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

424. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT V

FRAUDULENT CONCEALMENT (BASED ON CALIFORNIA LAW)

425. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

426. This claim is brought on behalf of the California Subclass.

427. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, did not meet and maintain the advertised MPG rate, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

428. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

429. The Defendants knew these representations were false when made.

430. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, costly in that the Plaintiffs and other Subclass members had to pay more for fuel than they reasonably expected, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

431. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, did not meet and maintain the advertised MPG rate, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those

expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

432. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the Adsorber Engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

433. The truth about the defective emissions controls and the Defendants' manipulations of those controls, failure to meet and maintain the advertised MPG rate, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

434. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

435. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of each Defendant—one characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

436. The Defendants' false representations were material to consumers, because they concerned the quality and cost-effectiveness of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew,

their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

437. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, failure to meet and maintain the advertised MPG rate, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the

Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

438. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

439. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

440. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had

known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

441. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and fuel efficiency and the Defendants' failure to timely disclose the defect or defective design of the Adsorber Engine, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, and their failure to meet and maintain the advertised MPG rate, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

442. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand names, attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

443. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

444. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

H. Claims Brought on Behalf of the Colorado Subclass

COUNT I

VIOLATIONS OF THE COLORADO CONSUMER PROTECTION ACT (COLO. REV. STAT. § 6-1-101 *ET SEQ.*)

445. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

446. Plaintiffs bring this Count on behalf of the Colorado Subclass.

447. Colorado's Consumer Protection Act (the "Colorado CPA") prohibits a person from engaging in a "deceptive trade practice," which includes knowingly making "a false representation as to the source, sponsorship, approval, or certification of goods," or "a false representation as to the characteristics, ingredients, uses, benefits, alterations, or quantities of goods." Colo. Rev. Stat. § 6-1-105(1)(b), (e). The Colorado CPA further prohibits "represent[ing] that goods … are of a particular standard, quality, or grade … if he knows or should know that they are of another," and "advertis[ing] goods … with intent not to sell them as advertised." Colo. Rev. Stat. § 6-1-105(1)(g), (i).

448. Each Defendant is a "person" under § 6-1-102(6) of the Colorado CPA, Col. Rev. Stat. § 6-1-101 *et seq*.

449. Plaintiffs and Colorado Subclass members are "consumers" for the purpose of Col. Rev. Stat. § 6-1-113(1)(a) who purchased or leased one or more Affected Vehicles.

450. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

451. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the

NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

452. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

453. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

454. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

455. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

456. The Defendants knew or should have known that their conduct violated the Colorado CPA.

457. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

458. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

459. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

460. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

461. Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

462. Pursuant to Col. Rev. Stat. § 6-1-113, Plaintiffs and the Subclass seek monetary relief against Defendants measured as the greater of (a) actual damages in an amount to be determined at trial and the discretionary trebling of such damages, or (b) statutory damages in the amount of $500 for each Plaintiff and Subclass member.

463. Plaintiffs and the Subclass also seek declaratory relief, attorneys' fees, and any other just and proper relief available under the Colorado CPA.

COUNT II

BREACH OF CONTRACT
(BASED ON COLORADO LAW)

464. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

465. Plaintiffs bring this Count on behalf of the Colorado Subclass.

466. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

467. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective

Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

468. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON COLORADO LAW)

469. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

470. Plaintiffs bring this Count on behalf of the Colorado Subclass.

471. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants'

advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

472. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

473. The Defendants knew these representations were false when made.

474. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

475. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device,"

emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

476. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

477. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and

the Defendants actively concealed these facts from Plaintiffs and Subclass members.

478. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

479. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

480. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations

regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

481. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial

truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

482. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

483. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

484. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

485. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

486. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

487. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

488. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

I. Claims Brought on Behalf of the Connecticut Subclass

COUNT I

VIOLATIONS OF THE CONNECTICUT UNFAIR TRADE PRACTICES ACT (CONN. GEN. STAT. ANN. § 42-110A *ET SEQ.*)

489. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

490. Plaintiffs bring this Count on behalf of the Connecticut Subclass.

491. Defendants and Plaintiffs are each "persons" as defined by Conn. Gen. Stat. Ann. § 42-110a(3).

492. The Connecticut Unfair Trade Practices Act ("Connecticut UTPA") provides that "[n]o person shall engage in unfair methods of competition and unfair or deceptive acts or practices in the conduct of any trade or commerce." Conn. Gen. Stat. Ann. § 42-110b(a). The Connecticut UTPA further provides a private right of action under Conn. Gen. Stat. Ann. § 42-110g(a). In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of

pollutants, including NOx, as described above. Accordingly, Defendants engaged in unfair and deceptive trade practices because their conduct (1) offends public policy as it has been established by statutes, the common law or other established concept of unfairness; (2) is immoral, unethical, oppressive or unscrupulous; or (3) causes substantial injury to consumers, competitors or other business persons. The harm caused to consumers, motorists, and pedestrians outweighs any benefit associated with such practices, and Defendants fraudulently concealed the defective nature of the Affected Vehicles from consumers.

493. Defendants have also engaged in deceptive conduct because (1) they made representations, omissions, or engaged in other conduct likely to mislead consumers; (2) consumers interpret the message reasonably under the circumstances; and (3) the misleading representation, omission, or practice is material—that is, likely to affect consumer decisions or conduct.

494. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described

above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

495. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

496. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein,

the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

497. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

498. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

499. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

500. The Defendants knew or should have known that their conduct violated the Connecticut UTPA.

501. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

502. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

503. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

504. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their

Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

505. Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

506. Plaintiffs and the other Class members sustained damages as a result of Defendants' unlawful acts, and are therefore entitled to damages and other relief as provided under the Connecticut UTPA.

507. Plaintiffs also seek court costs and attorneys' fees as a result of Defendants' violation of the Connecticut UTPA as provided in Conn. Gen. Stat. Ann. § 42-110g(d). A copy of this Complaint has been mailed to the Attorney General and the Commissioner of Consumer Protection of the State of Connecticut in accordance with Conn. Gen. Stat. Ann. § 42-110g(c).

COUNT II

BREACH OF CONTRACT
(BASED ON CONNECTICUT LAW)

508. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

509. Plaintiffs bring this Count on behalf of the Connecticut Subclass members.

510. FCA's misrepresentations and omissions alleged herein, including, but not limited to, FCA's failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

511. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, rendering the Affected Vehicles less valuable than vehicles not equipped with the Adsorber Engine.

512. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT NON-DISCLOSURE (BASED ON CONNECTICUT LAW)

513. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

514. Plaintiffs bring this Count on behalf of the Connecticut Subclass.

515. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

516. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including

standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

517. The Defendants knew these representations were false when made.

518. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

519. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

520. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

521. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

522. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on

their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

523. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

524. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

525. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-

compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

526. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

527. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

528. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information

concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

529. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

530. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs'

and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

531. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

532. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

J. Claims Brought on Behalf of the Delaware Subclass

COUNT I

VIOLATIONS OF THE DELAWARE CONSUMER FRAUD ACT (DEL. CODE § 2513 *ET SEQ.*)

533. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

534. Plaintiffs bring this Count on behalf of the Delaware Subclass.

535. Each Defendant is a "person" within the meaning of 6 Del. Code § 2511(7).

536. The Delaware Consumer Fraud Act ("Delaware CFA") prohibits the "act, use or employment by any person of any deception, fraud, false pretense, false promise, misrepresentation, or the concealment, suppression, or omission of any material fact with intent that others rely upon such concealment, suppression or omission, in connection with the sale, lease or advertisement of any merchandise, whether or not any person has in fact been misled, deceived or damaged thereby." 6 Del. Code § 2513(a). In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaigns, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants have engaged in deception, fraud, false pretense, false promise, misrepresentation, or the concealment, suppression, or omission of any material fact with intent that others rely upon such concealment, suppression or omission, in connection with the sale, lease or advertisement of the Affected Vehicles.

537. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected

Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

538. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the

Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

539. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

540. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

541. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

542. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

543. The Defendants knew or should have known that their conduct violated the Delaware CFA.

544. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

545. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

546. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

547. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

548. Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

549. Plaintiffs seek damages under the Delaware CFA for injury resulting from the direct and natural consequences of Defendants' unlawful conduct. *See, e.g.*, *Stephenson v. Capano Dev., Inc.*, 462 A.2d 1069, 1077 (Del. 1983). Plaintiffs also seek declaratory relief, attorneys' fees, and any other just and proper relief available under the Delaware CFA.

550. Defendants' engaged in gross, oppressive, or aggravated conduct justifying the imposition of punitive damages.

COUNT II

BREACH OF CONTRACT
(BASED ON DELAWARE LAW)

551. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

552. Plaintiffs bring this Count on behalf of the Delaware Subclass.

553. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

554. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that they are thus less valuable than vehicles not equipped with the Adsorber Engine.

555. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON DELAWARE LAW)

556. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

557. Plaintiffs bring this Count on behalf of the Delaware Subclass.

558. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

559. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including

standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

560. Defendants knew these representations were false when made.

561. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

562. Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

563. As alleged in this Complaint, at all relevant times, Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. Defendants disclosed certain details about the diesel engine, but nonetheless, Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

564. The truth about the defective emissions controls and Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to Defendants; Plaintiffs and the Subclass members did not know of these facts and Defendants actively concealed these facts from Plaintiffs and Subclass members.

565. Plaintiffs and Subclass members reasonably relied upon Defendants' deception. They had no way of knowing that Defendants' representations were false and/or misleading. As consumers, Plaintiffs and Subclass members did not, and could not, unravel Defendants' deception on their own. Rather, Defendants

intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

566. Defendants also concealed and suppressed material facts concerning what is evidently the true culture of Defendants—one characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

567. Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

568. Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to Defendants, because Defendants had exclusive knowledge as to such facts, and because Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. Defendants also had a duty to disclose because they made general affirmative representations about the qualities of their vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a

consumer, including with respect to the emissions certifications testing their vehicles must pass. Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

569. Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that the Affected Vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

570. Defendants have still not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

571. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them.

Plaintiffs' and Subclass members' actions were justified. Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

572. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of Defendants' concealment of the true quality and quantity of those vehicles' emissions and Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the vehicles, and the serious issues engendered by Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

573. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, of the unlawfully high emissions of the Affected Vehicles, and of the non-compliance with EPA emissions requirements, all of which has greatly tarnished the brand name attached to

Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

574. Accordingly, Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

575. Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that Defendants made to them, in order to enrich Defendants. Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

K. Claims Brought on Behalf of the District of Columbia Subclass

COUNT I

VIOLATION OF THE CONSUMER PROTECTION PROCEDURES ACT (D.C. CODE § 28-3901 *ET SEQ.*)

576. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

577. Plaintiffs bring this Count on behalf of the D.C. Subclass.

578. Each Defendant is a "person" under the Consumer Protection Procedures Act ("District of Columbia CPPA"), D.C. Code § 28-3901(a)(1).

579. Class Members are "consumers," as defined by D.C. Code § 28-3901(1)(2), who purchased or leased one or more Affected Vehicles.

580. The Defendants' actions as set forth herein constitute "trade practices" under D.C. Code § 28-3901.

581. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and

failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

582. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

583. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

584. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

585. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

586. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

587. The Defendants knew or should have known that their conduct violated the District of Columbia CPPA.

588. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

589. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

590. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

591. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

592. As a direct and proximate result of the Defendants' violations of the District of Columbia CPPA, Plaintiffs and the D.C. Subclass have suffered injury-in-fact and/or actual damage.

593. Plaintiffs and the D.C. Subclass are entitled to recover treble damages or $1,500, whichever is greater, punitive damages, reasonable attorneys' fees, and any other relief the Court deems proper, under D.C. Code § 28-3901.

594. Plaintiffs seek punitive damages against the Defendants because the Defendants' conduct evidences malice and/or egregious conduct. The Defendants maliciously and egregiously misrepresented the safety, cleanliness, efficiency and reliability of the Affected Vehicles, deceived Class Members, and concealed

material facts that only they knew, all to avoid the expense and public relations nightmare of correcting their defective and environmentally dirty Adsorber Engine.

595. The Defendants' unlawful conduct constitutes malice warranting punitive damages.

COUNT II

FRAUDULENT CONCEALMENT (BASED ON DISTRICT OF COLUMBIA LAW)

596. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

597. This claim is brought on behalf of the District of Columbia Subclass.

598. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, did not meet and maintain the advertised MPG rate, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

599. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

600. The Defendants knew these representations were false when made.

601. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, costly in that the Plaintiffs and other Subclass members had to pay more for fuel than they reasonably expected, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

602. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, did not meet and maintain the advertised MPG rate, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those

expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

603. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the Adsorber Engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

604. The truth about the defective emissions controls and the Defendants' manipulations of those controls, failure to meet and maintain the advertised MPG rate, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

605. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

606. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of each Defendant—one characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

607. The Defendants' false representations were material to consumers, because they concerned the quality and cost-effectiveness of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew,

their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

608. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, failure to meet and maintain the advertised MPG rate, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the

Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

609. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

610. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

611. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had

known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

612. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and fuel efficiency and the Defendants' failure to timely disclose the defect or defective design of the Adsorber Engine, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, and their failure to meet and maintain the advertised MPG rate, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

613. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand names, attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

614. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

615. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON DISTRICT OF COLUMBIA LAW)

616. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

617. Plaintiffs bring this Count on behalf of the District of Columbia Subclass members.

618. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

619. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal

driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

620. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

L. Claims Brought on Behalf of the Florida Subclass

COUNT I

VIOLATIONS OF THE FLORIDA UNFAIR AND DECEPTIVE TRADE PRACTICES ACT (FLA. STAT. § 501.201 *ET SEQ.*)

621. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

622. Plaintiffs bring this Count on behalf of the Florida Subclass.

623. Plaintiffs and the Subclass are "consumers" within the meaning of Florida Unfair and Deceptive Trade Practices Act ("Florida UDTPA"), Fla. Stat. § 501.203(7).

624. Defendants engaged in "trade or commerce" within the meaning of Fla. Stat. § 501.203(8).

625. Florida's Deceptive and Unfair Trade Practices Act prohibits "[u]nfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices in the conduct of any trade or commerce." Fla. Stat. § 501.204(1). Defendants participated in unfair and deceptive trade practices that violated the Florida UDTPA as described herein. In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices as defined in Fla. Stat. § 501.204(1). Defendants' conduct offends established public policy, is immoral, unethical, oppressive, unscrupulous, or substantially injurious to consumers, and is likely to mislead consumers.

626. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the

Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

627. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

628. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

629. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

630. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

631. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

632. The Defendants knew or should have known that their conduct violated the Florida UDTPA.

633. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

634. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

635. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

636. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for

their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

637. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

638. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

COUNT II

BREACH OF CONTRACT
(BASED ON FLORIDA LAW)

639. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

640. Plaintiffs bring this Count on behalf of the Florida Subclass members.

641. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent

those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

642. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

643. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON FLORIDA LAW)

644. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

645. Plaintiffs bring this Count on behalf of the Florida Subclass.

646. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

647. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

648. The Defendants knew these representations were false when made.

649. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

650. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

651. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that

the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

652. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

653. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

654. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture

characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

655. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

656. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably

discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

657. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

658. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

659. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

660. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are

diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

661. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

662. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

663. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

M. Claims Brought on Behalf of the Georgia Subclass

COUNT I

VIOLATION OF GEORGIA'S FAIR BUSINESS PRACTICES ACT (GA. CODE ANN. § 10-1-390 *ET SEQ.*)

664. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

665. This claim is made on behalf of the Georgia Subclass.

666. The Georgia Fair Business Practices Act ("Georgia FBPA") declares "[u]nfair or deceptive acts or practices in the conduct of consumer transactions and consumer acts or practices in trade or commerce" to be unlawful, Ga. Code. Ann. § 10-1-393(a), including, but not limited to, "representing that goods or services have sponsorship, approval, characteristics, ingredients, uses, benefits, or quantities that they do not have," "[r]epresenting that goods or services are of a particular standard, quality, or grade … if they are of another," and "[a]dvertising goods or services with intent not to sell them as advertised." Ga. Code. Ann. § 10-

1-393(b). Plaintiffs will make a demand in satisfaction of O.C.G.A. § 10-1-399(b), and may amend this Complaint to assert claims under the Georgia FBPA once the required notice period has elapsed. This paragraph is included for purposes of notice only and is not intended to actually assert a claim under the Georgia FBPA.

COUNT II

BREACH OF CONTRACT
(BASED ON GEORGIA LAW)

667. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

668. This claim is brought on behalf of the Georgia Subclass.

669. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain

the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

670. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

671. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON GEORGIA LAW)

672. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

673. This claim is brought on behalf of the Georgia Subclass.

674. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

675. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

676. The Defendants knew these representations were false when made.

677. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable

consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

678. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

679. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants,

and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

680. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

681. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

682. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations.

Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

683. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

684. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country,

which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

685. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

686. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

687. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

688. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

689. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

690. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

691. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

N. Claims Brought on Behalf of the Hawaii Subclass

COUNT I

UNFAIR AND DECEPTIVE ACTS IN VIOLATION OF HAWAII LAW (HAW. REV. STAT. § 480 *ET SEQ.*)

556. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

557. This claim is brought on behalf of the Hawaii Subclass.

569. Each Defendant is a "person" under Haw. Rev. Stat. § 480-1.

570. Class Members are "consumer[s]" as defined by Haw. Rev. Stat. § 480-1, who purchased or leased one or more Affected Vehicles.

571. The Defendants' acts or practices as set forth above occurred in the conduct of trade or commerce.

572. Haw. Rev. Stat. § 480-2(a) prohibits "unfair methods of competition and unfair or deceptive acts or practices in the conduct of any trade or commerce."

692. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would

expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

693. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

694. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

695. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

696. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

697. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

698. The Defendants knew or should have known that their conduct violated Haw. Rev. Stat. § 480 *et seq.*

699. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

700. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

701. Pursuant to Haw. Rev. Stat. § 480-13, Plaintiffs and the Hawaii Subclass seek monetary relief against the Defendants measured as the greater of (a) $1,000 and (b) threefold actual damages in an amount to be determined at trial.

702. Under Haw. Rev. Stat. § 480-13.5, Plaintiffs seek an additional award against the Defendants of up to $10,000 for each violation directed at a Hawaiian

elder. The Defendants knew or should have known that their conduct was directed to one or more Class Members who are elders. The Defendants' conduct caused one or more of these elders to suffer a substantial loss of property set aside for retirement or for personal or family care and maintenance, or assets essential to the health or welfare of the elder. One or more Hawaii Subclass members who are elders are substantially more vulnerable to the Defendants' conduct because of age, poor health or infirmity, impaired understanding, restricted mobility, or disability, and each of them suffered substantial physical, emotional, or economic damage resulting from the Defendants' conduct.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON HAWAII LAW)

703. Plaintiffs reallege and incorporate by reference all paragraphs as though fully set forth herein.

704. This claim is brought on behalf of the Hawaii Subclass.

705. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx,

and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

706. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

707. The Defendants knew these representations were false when made.

708. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

709. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

710. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

711. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and

the Defendants actively concealed these facts from Plaintiffs and Subclass members.

712. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

713. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

714. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations

regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

715. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial

truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

716. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

717. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

718. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

719. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

720. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

721. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

722. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON HAWAII LAW)

723. Plaintiffs reallege and incorporate by reference all paragraphs as though fully set forth herein.

724. This claim is brought on behalf of the Hawaii Subclass.

725. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

726. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts

by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

727. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

O. Claims Brought on Behalf of the Idaho Subclass

COUNT I

VIOLATIONS OF THE IDAHO CONSUMER PROTECTION ACT (IDAHO CODE § 48-601 *ET SEQ.*)

728. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

729. Plaintiffs bring this Count on behalf of the Idaho Subclass.

730. Each Defendant is a "person" under the Idaho Consumer Protection Act ("Idaho CPA"), Idaho Code § 48-602(1).

731. The Defendants' acts or practices as set forth above occurred in the conduct of "trade" or "commerce" under Idaho Code § 48-602(2).

732. Idaho Code § 48-603 prohibits the following conduct in trade or commerce: engaging in any act or practice which is otherwise misleading, false, or deceptive to the consumer; and engaging in any unconscionable method, act or practice in the conduct of trade or commerce, as provided in section 48-603C.

733. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or

statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

734. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

735. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

736. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

737. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

738. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

739. The Defendants knew or should have known that their conduct violated the Idaho CPA.

740. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

741. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

742. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

743. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

744. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

745. Plaintiffs also seek attorneys' fees and any other just and proper relief available under the Idaho CPA.

746. Plaintiffs also seek punitive damages against the Defendants because the Defendants' conduct evidences an extreme deviation from reasonable standards. The Defendants' unlawful conduct constitutes malice, oppression, and fraud warranting punitive damages.

COUNT II

BREACH OF CONTRACT (BASED ON IDAHO LAW)

747. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

748. Plaintiffs bring this Count on behalf of the Idaho Subclass.

749. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a

system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

750. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

751. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON IDAHO LAW)

752. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

753. This claim is brought on behalf of the Idaho Subclass.

754. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

755. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

756. The Defendants knew these representations were false when made.

757. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-

EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

758. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

759. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants,

and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

760. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

761. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

762. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations.

Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

763. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

764. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country,

which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

765. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

766. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

767. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

768. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

769. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

770. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

771. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

P. Claims Brought on Behalf of the Illinois Subclass

COUNT I

VIOLATION OF THE ILLINOIS CONSUMER FRAUD AND DECEPTIVE BUSINESS PRACTICES ACT (815 ILL. COMP. STAT. 505/1 *ET SEQ.* AND 720 ILL. COMP. STAT. 295/1A)

772. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

773. This claim is brought on behalf of the Illinois Subclass.

774. Each Defendant is a "person" as that term is defined in 815 Ill. Comp. Stat. 505/1(c).

775. Plaintiffs and the Subclass members are "consumers" as that term is defined in 815 Ill. Comp. Stat. 505/1(e).

776. The Illinois Consumer Fraud and Deceptive Business Practices Act ("Illinois CFA") prohibits "unfair or deceptive acts or practices, including but not limited to the use or employment of any deception, fraud, false pretense, false promise, misrepresentation or the concealment, suppression or omission of any material fact, with intent that others rely upon the concealment, suppression or omission of such material fact … in the conduct of trade or commerce … whether

any person has in fact been misled, deceived or damaged thereby." 815 Ill. Comp. Stat. 505/2.

777. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

778. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

779. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

780. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

781. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

782. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

783. The Defendants knew or should have known that their conduct violated the Illinois CFA.

784. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

785. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected

Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

786. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

787. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

788. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

789. Pursuant to 815 Ill. Comp. Stat. 505/10a(a), Plaintiffs and the Subclass members seek monetary relief against the Defendants in the amount of actual damages, as well as punitive damages because the Defendants acted with fraud and/or malice and/or was grossly negligent.

790. Plaintiffs also seek punitive damages, attorneys' fees, and any other just and proper relief available under 815 Ill. Comp. Stat. § 505/1 *et seq.*

COUNT II

BREACH OF CONTRACT
(BASED ON ILLINOIS LAW)

791. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

792. Plaintiffs bring this Count on behalf of the Illinois Subclass.

793. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

794. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts

by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

795. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON ILLINOIS LAW)

796. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

797. This claim is brought on behalf of the Illinois Subclass.

798. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

799. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

800. The Defendants knew these representations were false when made.

801. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

802. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

803. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

804. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

805. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

806. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

807. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

808. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

809. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

810. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

811. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

812. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

813. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

814. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

815. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

Q. Claims Brought on Behalf of the Kansas Subclass

COUNT I

VIOLATIONS OF THE KANSAS CONSUMER PROTECTION ACT (KAN. STAT. ANN. § 50-623 *ET SEQ.*)

816. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

817. Plaintiffs bring this Count on behalf of the Kansas Subclass.

645. Each Defendant is a "supplier" under the Kansas Consumer Protection Act ("Kansas CPA"), Kan. Stat. Ann. § 50-624(l).

750. Kansas Class Members are "consumers," within the meaning of Kan. Stat. Ann. § 50-624(b), who purchased or leased one or more Affected Vehicles.

751. The sale of the Affected Vehicles to the Kansas Class Members was a "consumer transaction" within the meaning of Kan. Stat. Ann. § 50-624(c).

752. The Kansas CPA states "[n]o supplier shall engage in any deceptive act or practice in connection with a consumer transaction," Kan. Stat. Ann. § 50-626(a), and that deceptive acts or practices include: (1) knowingly making representations or with reason to know that "(A) Property or services have sponsorship, approval, accessories, characteristics, ingredients, uses, benefits or quantities that they do not have;" and "(D) property or services are of particular standard, quality, grade, style or model, if they are of another which differs materially from the representation;" "(2) the willful use, in any oral or written

representation, of exaggeration, falsehood, innuendo or ambiguity as to a material fact;" and "(3) the willful failure to state a material fact, or the willful concealment, suppression or omission of a material fact." The Kansas CPA also provides that "[n]o supplier shall engage in any unconscionable act or practice in connection with a consumer transaction." Kan. Stat. Ann. § 50-627(a).

753. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes

the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

818. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

819. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

820. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

821. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

822. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

823. The Defendants knew or should have known that their conduct violated the Kansas CPA.

824. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

825. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

826. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

827. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

828. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

754. Pursuant to Kan. Stat. Ann. § 50-634, Plaintiffs and the Kansas Class seek monetary relief against the Defendants measured as the greater of (a) actual

damages in an amount to be determined at trial and (b) statutory damages in the amount of $10,000 for each Plaintiff and Kansas Class member.

772. Plaintiffs also seek an order enjoining the Defendants' unfair, unlawful, and/or deceptive practices, declaratory relief, attorneys' fees, and any other just and proper relief available under Kan. Stat. Ann. § 50-623 *et seq*.

COUNT II

FRAUDULENT CONCEALMENT (BASED ON KANSAS LAW)

829. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

830. This claim is brought on behalf of the Kansas Subclass.

831. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

832. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

833. The Defendants knew these representations were false when made.

834. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

835. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected

Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

836. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

837. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

838. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants'

representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

839. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

840. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the

vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

841. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products

pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

842. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

843. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

844. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the

Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

845. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

846. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the

Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

847. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

848. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON KANSAS LAW)

849. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

850. Plaintiffs bring this Count on behalf of the Kansas Subclass.

851. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber

Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

852. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

853. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

R. Claims Brought on Behalf of the Kentucky Subclass

COUNT I

VIOLATIONS OF THE KENTUCKY CONSUMER PROTECTION ACT (KY. REV. STAT. ANN. § 367.110 *ET SEQ.*)

854. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

855. Plaintiffs bring this Count on behalf of the Kentucky Subclass.

856. Each Defendant, each Plaintiff, and each member of the Kentucky Subclass is a "person" within the meaning of the Ky. Rev. Stat. Ann. § 367.110(1).

857. The Defendants engaged in "trade" or "commerce" within the meaning of Ky. Rev. Stat. Ann. § 367.110(2).

858. The Kentucky Consumer Protection Act ("Kentucky CPA") makes unlawful "[u]nfair, false, misleading, or deceptive acts or practices in the conduct of any trade or commerce." Ky. Rev. Stat. Ann. § 367.170(1). In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants

than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in deceptive business practices prohibited by the Kentucky CPA.

859. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes

the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

860. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

861. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

862. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

863. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

864. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

865. The Defendants knew or should have known that their conduct violated the Kentucky CPA.

866. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

867. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

868. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

869. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

870. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

871. Pursuant to Ky. Rev. Stat. Ann. § 367.220, Plaintiffs and the Subclass seek to recover actual damages in an amount to be determined at trial; declaratory

relief; attorneys' fees; and any other just and proper relief available under Ky. Rev. Stat. Ann. § 367.220.

COUNT II

BREACH OF CONTRACT
(BASED ON KENTUCKY LAW)

872. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

873. Plaintiffs bring this Count on behalf of the Kentucky Subclass.

874. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

875. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that they were thus less valuable than vehicles not equipped with the Adsorber Engine.

876. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUD BY OMISSION
(BASED ON KENTUCKY LAW)

877. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

878. This claim is brought on behalf of the Kentucky Subclass.

879. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

880. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

881. The Defendants knew these representations were false when made.

882. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

883. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

884. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

885. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

886. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

887. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

888. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

889. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

890. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

891. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

892. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

893. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

894. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

895. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

896. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

S. Claims Brought on Behalf of the Louisiana Subclass

COUNT I

VIOLATION OF THE LOUISIANA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION LAW (LA. STAT. ANN. § 51:1401 *ET SEQ.*)

897. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

898. This claim is brought only on behalf of members of the Louisiana Subclass.

689. The Defendants, Plaintiffs, and the Louisiana Subclass are "persons" within the meaning of the La. Stat. Ann. § 51:1402(8).

836. Plaintiffs and the Louisiana Subclass are "consumers" within the meaning of La. Stat. Ann. § 51:1402(1).

837. The Defendants engaged in "trade" or "commerce" within the meaning of La. Stat. Ann. § 51:1402(9).

838. The Louisiana Unfair Trade Practices and Consumer Protection Law ("Louisiana CPL") makes unlawful "deceptive acts or practices in the conduct of any trade or commerce." La. Stat. Ann. § 51:1405(A).

899. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected

Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

900. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the

Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

901. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

902. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

903. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

904. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

905. The Defendants knew or should have known that their conduct violated the Louisiana CPL.

906. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

907. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

908. As a direct and proximate result of the Defendants' violations of the Louisiana CPL, Plaintiffs and the Louisiana Subclass have suffered injury-in-fact and/or actual damage.

909. Pursuant to La. Stat. Ann. § 51:1409, Plaintiffs and the Louisiana Subclass seek to recover actual damages in an amount to be determined at trial; treble damages for the Defendants' knowing violations of the Louisiana CPL; an order enjoining the Defendants' unfair, unlawful, and/or deceptive practices; declaratory relief; attorneys' fees; and any other just and proper relief available under La. Stat. Ann. § 51:1409.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON LOUISIANA LAW)

910. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

911. This claim is brought on behalf of the Louisiana Subclass.

912. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx,

and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

913. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

914. The Defendants knew these representations were false when made.

915. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

916. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

917. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

918. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and

the Defendants actively concealed these facts from Plaintiffs and Subclass members.

919. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

920. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

921. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations

regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

922. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial

truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

923. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

924. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

925. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

926. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

927. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

928. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

929. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON LOUISIANA LAW)

930. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

931. This claim is brought on behalf of the Louisiana Subclass.

932. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

933. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts

by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

934. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

T. Claims Brought on Behalf of the Maine Subclass

COUNT I

VIOLATION OF MAINE UNFAIR TRADE PRACTICES ACT (ME. REV. STAT. ANN. TIT. 5 § 205-A *ET SEQ.*)

935. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

936. Plaintiffs intend to assert a claim under the Maine Unfair Trade Practices Act ("Maine UTPA") which makes unlawful "[u]nfair methods of competition and unfair or deceptive acts or practices in the conduct of any trade or commerce." Me. Rev. Stat. Ann. tit. 5 § 207. Plaintiffs will make a demand in

satisfaction of Me. Rev. Stat. Ann. tit. 5, § 213(A), and may amend this Complaint to assert claims under the Maine UTPA once the required 30 days have elapsed. This paragraph is included for purposes of notice only and is not intended to actually assert a claim under the Maine UTPA.

COUNT II

FRAUDULENT CONCEALMENT (BASED ON MAINE LAW)

937. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

938. This claim is brought on behalf of the Maine Subclass.

939. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

940. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including

standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

941. The Defendants knew these representations were false when made.

942. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

943. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

944. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

945. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

946. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on

their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

947. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

948. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

949. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-

compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

950. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

951. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

952. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information

concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

953. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

954. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs'

and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

955. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

956. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT (BASED ON MAINE LAW)

957. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

958. This claim is brought on behalf of the Maine Subclass.

959. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and their failure to disclose that the Affected Vehicles would not meet and

maintain their advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

960. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

961. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial,

which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

U. Claims Brought on Behalf of the Maryland Subclass

COUNT I

VIOLATIONS OF THE MARYLAND CONSUMER PROTECTION ACT (MD. CODE ANN. COM. LAW § 13-101 *ET SEQ.*)

962. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

963. This claim is brought only on behalf of members of the Maryland Subclass.

964. Each of the Defendants, Plaintiffs, and the Maryland Subclass are "persons" within the meaning of Md. Code Ann. Com. Law § 13-101(h).

965. The Maryland Consumer Protection Act ("Maryland CPA") provides that a person may not engage in any unfair or deceptive trade practice in the sale of any consumer good. Md. Com. Law Code § 13-303. In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, that the vehicles have a "Defeat Device," and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in unfair and deceptive trade practices. Defendants' acts and practices

offend public policy; were immoral, unethical, oppressive, or unscrupulous; caused substantial injury to consumers; had the capacity, tendency or effect of deceiving or misleading consumers; failed to state a material fact that deceives or tends to deceive; and constitute deception, fraud, false pretense, false premise, misrepresentation, or knowing concealment, suppression, or omission of any material fact with the intent that a consumer rely on the same in connection therewith.

966. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact

could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

967. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

968. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

969. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

970. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

971. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

972. The Defendants knew or should have known that their conduct violated the Maryland CPA.

973. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

974. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

975. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

976. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

977. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

978. Pursuant to Md. Code Ann. Com. Law § 13-408, Plaintiffs and the Maryland Subclass seek actual damages, attorneys' fees, and any other just and proper relief available under the Maryland CPA.

COUNT II

BREACH OF CONTRACT
(BASED ON MARYLAND LAW)

979. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

980. Plaintiffs bring this Count on behalf of the Maryland Subclass members.

981. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs

and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

982. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that they were thus less valuable than vehicles not equipped with the Adsorber Engine.

983. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON MARYLAND LAW)

984. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

985. This claim is brought on behalf of the Maryland Subclass.

986. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving

conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

987. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

988. The Defendants knew these representations were false when made.

989. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

990. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

991. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

992. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

993. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

994. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

995. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

996. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

997. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

998. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

999. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1000. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1001. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1002. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1003. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

V. Claims Brought on Behalf of the Massachusetts Subclass

COUNT I

VIOLATIONS OF THE MASSACHUSETTS CONSUMER PROTECTION ACT (MASS. GEN. LAWS CH. 93A)

1004. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1005. Plaintiffs intend to assert a claim under the Massachusetts Consumer Protection Act ("MCPA"), which makes it unlawful to engage in any "[u]nfair methods of competition or deceptive acts or practices in the conduct of any trade or commerce." Mass. Gen. Laws ch. 93A, § 2(1). Plaintiffs will make a demand in satisfaction of Mass. Gen. Laws ch. 93A, § 9(3), and may amend this Complaint to assert claims under the MCPA once the required 30 days have elapsed. This paragraph is included for purposes of notice only and is not intended to actually assert a claim under the MCPA.

COUNT II

BREACH OF CONTRACT (BASED ON MASSACHUSETTS LAW)

1006. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1007. Plaintiffs bring this Count on behalf of the Massachusetts Subclass members.

1008. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1009. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or

defective design of emissions controls, including information known to FCA rendering each Affected Vehicle non-EPA-compliant, and that they were thus less valuable than vehicles not equipped with the Adsorber Engine.

1010. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON MASSACHUSETTS LAW)

1011. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1012. This claim is brought on behalf of the Massachusetts Subclass.

1013. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted

with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1014. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1015. The Defendants knew these representations were false when made.

1016. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1017. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were

non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1018. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1019. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1020. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1021. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1022. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their

customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1023. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or

leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1024. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1025. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1026. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have

purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1027. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1028. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective

emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1029. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1030. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

W. Claims Brought on Behalf of the Minnesota Subclass

COUNT I

VIOLATION OF THE MINNESOTA PREVENTION OF CONSUMER FRAUD ACT (MINN. STAT. § 325F.68 *ET SEQ.*)

1031. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1032. This claim is brought on behalf of the Minnesota Subclass.

1033. The Affected Vehicles constitute "merchandise" within the meaning of Minn. Stat. § 325F.68(2).

1034. The Minnesota Prevention of Consumer Fraud Act ("Minnesota CFA") prohibits "[t]he act, use, or employment by any person of any fraud, false pretense, false promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby." Minn. Stat. § 325F.69(1). The Minnesota CFA also prohibits the dissemination, directly or indirectly, of an advertisement "of any sort regarding merchandise," where that advertisement contains "any material assertion, representation, or statement of fact which is untrue, deceptive, or misleading." Minn. Stat. § 325F.67. In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants used or employed a fraud, false pretense, false

promise, misrepresentation, misleading statement or deceptive practice, with the intent that others rely thereon in connection with the sale of any merchandise, whether or not any person has in fact been misled, deceived, or damaged thereby and disseminated advertisements containing material assertions, representations, or statements of fact which were untrue, deceptive, or misleading, all in violation of the Minnesota CFA.

1035. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or

statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1036. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1037. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1038. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1039. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1040. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1041. The Defendants knew or should have known that their conduct violated the Minnesota CFA.

1042. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1043. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1044. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1045. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

1046. Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

1047. Pursuant to Minn. Stat. § 8.31(3a), Plaintiffs and the Minnesota Subclass seek actual damages, attorneys' fees, and any other just and proper relief available under the Minnesota CFA.

1048. Plaintiffs also seek punitive damages under Minn. Stat. § 549.20(1)(a) given the clear and convincing evidence that Defendants' acts show deliberate disregard for the rights of others.

COUNT II

BREACH OF CONTRACT
(BASED ON MINNESOTA LAW)

1049. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1050. Plaintiffs bring this Count on behalf of the Minnesota Subclass.

1051. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1052. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that they were thus less valuable than vehicles not equipped with the Adsorber Engine.

1053. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT
(BASED ON MINNESOTA LAW)

1054. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1055. This claim is brought on behalf of the Minnesota Subclass.

1056. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1057. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1058. The Defendants knew these representations were false when made.

1059. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1060. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1061. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1062. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1063. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1064. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1065. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1066. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1067. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1068. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1069. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1070. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1071. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1072. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1073. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

X. Claims Brought on Behalf of the Missouri Subclass

COUNT I

VIOLATIONS OF THE MISSOURI MERCHANDISING PRACTICES ACT (MO. REV. STAT. § 407.010 *ET SEQ.*)

1074. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1075. Plaintiffs bring this Count on behalf of the Missouri Subclass.

1076. Each of the Defendants, Plaintiffs, and the Missouri Subclass are "persons" within the meaning of Mo. Rev. Stat. § 407.010(5).

1077. Each of the Defendants engaged in "trade" or "commerce" in the State of Missouri within the meaning of Mo. Rev. Stat. § 407.010(7).

1078. The Missouri Merchandising Practices Act ("Missouri MPA") makes unlawful the "act, use or employment by any person of any deception, fraud, false pretense, misrepresentation, unfair practice, or the concealment, suppression, or omission of any material fact in connection with the sale or advertisement of any merchandise." Mo. Rev. Stat. § 407.020. In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign,

and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants used or employed deception, fraud, false pretense, false promise, misrepresentation, unfair practice or the concealment, suppression, or omission of any material fact in connection with the sale or advertisement of any merchandise in trade or commerce, in violation of the Missouri MPA. Defendants' conduct offends public policy; is unethical, oppressive, or unscrupulous; and presents a risk of, or causes, substantial injury to consumers.

1079. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact,

the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1080. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1081. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1082. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1083. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1084. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1085. The Defendants knew or should have known that their conduct violated the Missouri MPA.

1086. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1087. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1088. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1089. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1090. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1091. The Defendants are liable to Plaintiffs and the Missouri Subclass for damages in amounts to be proven at trial, including attorneys' fees, costs, and punitive damages, and any other just and proper relief under Mo. Rev. Stat. § 407.025.

COUNT II

BREACH OF CONTRACT (BASED ON MISSOURI LAW)

1092. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1093. Plaintiffs bring this Count on behalf of the Missouri Subclass members.

1094. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs

and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1095. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and is thus less valuable than vehicles not equipped with the Adsorber Engine.

1096. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON MISSOURI LAW)

1097. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1098. This claim is brought on behalf of the Missouri Subclass.

1099. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving

conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1100. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1101. The Defendants knew these representations were false when made.

1102. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1103. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1104. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1105. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1106. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1107. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1108. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1109. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1110. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1111. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1112. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1113. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1114. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1115. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1116. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

Y. Claims Brought on Behalf of the Montana Subclass

COUNT I

VIOLATION OF MONTANA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION ACT OF 1973 (MONT. CODE ANN. § 30-14-101 *ET SEQ.*)

1117. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1118. This claim is brought only on behalf of the Montana Subclass.

1119. Each of the Defendants, Plaintiffs, and the Montana Subclass are "persons" within the meaning of Mont. Code Ann. § 30-14-102(6).

1120. Montana Subclass members are "consumer[s]" under Mont. Code Ann. § 30-14-102(1).

1121. The sale or lease of the Affected Vehicles to Montana Subclass members occurred within "trade and commerce" within the meaning of Mont. Code Ann. § 30-14-102(8), and Defendants committed deceptive and unfair acts in the conduct of "trade and commerce" as defined in that statutory section.

1122. The Montana Unfair Trade Practices and Consumer Protection Act ("Montana CPA") makes unlawful any "unfair methods of competition and unfair or deceptive acts or practices in the conduct of any trade or commerce." Mont.

Code Ann. § 30-14-103. In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in unfair methods of competition and unfair or deceptive acts or practices in the conduct of any trade or commerce in violation of the Montana CPA.

1123. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits,

and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1124. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1125. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1126. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1127. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1128. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1129. The Defendants knew or should have known that their conduct violated the Montana CPA.

1130. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1131. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1132. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1133. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1134. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1135. Because the Defendants' unlawful methods, acts, and practices have caused Plaintiffs and Montana Subclass members to suffer an ascertainable loss of money and property, Plaintiffs and the Subclass seek from the Defendants actual damages or $500, whichever is greater, discretionary treble damages, reasonable attorneys' fees, and any other relief the Court considers necessary or proper, under Mont. Code Ann. § 30-14-133.

COUNT II

BREACH OF CONTRACT
(BASED ON MONTANA LAW)

1136. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1137. Plaintiffs bring this Count on behalf of the Montana Subclass members.

1138. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations

and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1139. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that they were thus less valuable than vehicles not equipped with the Adsorber Engine.

1140. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON MONTANA LAW)

1141. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1142. This claim is brought on behalf of the Montana Subclass.

1143. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1144. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1145. The Defendants knew these representations were false when made.

1146. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1147. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1148. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that

the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1149. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1150. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1151. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture

characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1152. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1153. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably

discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1154. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1155. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1156. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1157. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are

diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1158. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1159. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1160. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

Z. Claims Brought on Behalf of the Nebraska Subclass

COUNT I

VIOLATION OF THE NEBRASKA CONSUMER PROTECTION ACT (NEB. REV. STAT. § 59-1601 *ET SEQ.*)

1161. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1162. This claim is brought on behalf of the Nebraska Subclass.

1163. The Defendants, Plaintiffs and Nebraska Class Members are "person[s]" under the Nebraska Consumer Protection Act ("Nebraska CPA"), Neb. Rev. Stat. § 59-1601(1).

1164. The Defendants' actions as set forth herein occurred in the conduct of trade or commerce as defined under Neb. Rev. Stat. § 59-1601(2).

1165. The Nebraska CPA prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce." Neb. Rev. Stat. § 59-1602. The

Defendants' conduct as set forth herein constitutes unfair or deceptive acts or practices.

1166. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1167. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1168. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1169. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1170. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1171. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1172. The Defendants knew or should have known that their conduct violated the Nebraska CPA.

1173. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1174. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected

Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1175. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1176. Because the Defendants' conduct caused injury to Nebraska Subclass members' property through violations of the Nebraska CPA, Plaintiffs and the Nebraska Subclass seek recovery of actual damages, as well as enhanced damages up to $1,000, an order enjoining the Defendants' unfair or deceptive acts and practices, court costs, reasonable attorneys' fees, and any other just and proper relief available under Neb. Rev. Stat. § 59-1609.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON NEBRASKA LAW)

1177. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1178. Plaintiffs bring this Count on behalf of the Nebraska Subclass.

1179. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants'

advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1180. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1181. The Defendants knew these representations were false when made.

1182. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1183. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device,"

emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1184. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1185. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and

the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1186. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1187. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1188. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations

regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1189. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial

truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1190. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1191. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1192. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1193. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1194. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1195. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1196. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON NEBRASKA LAW)

1197. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1198. Plaintiffs bring this Count on behalf of the Nebraska Subclass.

1199. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1200. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass

members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that they were thus less valuable than vehicles not equipped with the Adsorber Engine.

1201. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

AA. Claims Brought on Behalf of the Nevada Subclass

COUNT I

VIOLATIONS OF THE NEVADA DECEPTIVE TRADE PRACTICES ACT (NEV. REV. STAT. § 598.0903 *ET SEQ.*)

1202. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1203. Plaintiffs bring this Count on behalf of the Nevada Subclass.

1204. The Nevada Deceptive Trade Practices Act ("Nevada DTPA"), Nev. Rev. Stat. § 598.0903 *et seq.*, prohibits deceptive trade practices. Nev. Rev. Stat. § 598.0915 provides that a person engages in a "deceptive trade practice" if, in the course of business or occupation, the person: "5. Knowingly makes a false representation as to the characteristics, ingredients, uses, benefits, alterations or quantities of goods or services for sale or lease or a false representation as to the

sponsorship, approval, status, affiliation or connection of a person therewith"; "7. Represents that goods or services for sale or lease are of a particular standard, quality or grade, or that such goods are of a particular style or model, if he or she knows or should know that they are of another standard, quality, grade, style or model"; "9. Advertises goods or services with intent not to sell or lease them as advertised"; or "15. Knowingly makes any other false representation in a transaction." Accordingly, Defendants have violated the Nevada DTPA by knowingly representing that Affected Vehicles have uses and benefits which they do not have; representing that Affected Vehicles are of a particular standard, quality, and grade when they are not; advertising Affected Vehicles with the intent not to sell or lease them as advertised; representing that the subject of a transaction involving Affected Vehicles has been supplied in accordance with a previous representation when it has not; and knowingly making other false representations in a transaction.

1205. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected

Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1206. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1207. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the

Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1208. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1209. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1210. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1211. The Defendants knew or should have known that their conduct violated the Nevada DTPA.

1212. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1213. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1214. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1215. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the

direct and natural consequence of the Defendants' misrepresentations and omissions.

1216. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1217. Accordingly, Plaintiffs and the Nevada Subclass seek their actual damages, punitive damages, court costs, attorney's fees, and all other appropriate and available remedies under the Nevada DTPA. Nev. Rev. Stat. § 41.600.

COUNT II

BREACH OF CONTRACT
(BASED ON NEVADA LAW)

1218. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1219. Plaintiffs bring this Count on behalf of the Nevada Subclass members.

1220. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected

Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1221. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1222. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON NEVADA LAW)

1223. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1224. This claim is brought on behalf of the Nevada Subclass.

1225. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1226. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1227. The Defendants knew these representations were false when made.

1228. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1229. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1230. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that

the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1231. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1232. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1233. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture

characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1234. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1235. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably

discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1236. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1237. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1238. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1239. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are

diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1240. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1241. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1242. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

BB. Claims Brought on Behalf of the New Hampshire Subclass under New Hampshire Law

COUNT I

VIOLATION OF N.H. CONSUMER PROTECTION ACT (N.H. REV. STAT. ANN. § 358-A:1 *ET SEQ.*)

1243. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1244. Plaintiffs bring this claim on behalf of the New Hampshire Subclass.

1245. Plaintiffs, the New Hampshire Subclass, and each of the Defendants are "persons" under the New Hampshire Consumer Protection Act ("New Hampshire CPA"), N.H. Rev. Stat. § 358-A:1.

1246. The Defendants' actions as set forth herein occurred in the conduct of trade or commerce as defined under N.H. Rev. Stat. § 358-A:1.

1247. The New Hampshire CPA prohibits a person, in the conduct of any trade or commerce, from using "any unfair or deceptive act or practice," including

"but … not limited to, the following: … (V) Representing that goods or services have … characteristics, … uses, benefits, or quantities that they do not have;" "(VII) Representing that goods or services are of a particular standard, quality, or grade, … if they are of another;" and "(IX) Advertising goods or services with intent not to sell them as advertised." N.H. Rev. Stat. § 358-A:2.

1248. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes

the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1249. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1250. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1251. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1252. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1253. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1254. The Defendants knew or should have known that their conduct violated the New Hampshire CPA.

1255. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1256. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1257. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1258. Because the Defendants' willful conduct caused injury to New Hampshire Subclass members' property through violations of the New Hampshire CPA, Plaintiffs and the New Hampshire Subclass seek recovery of actual damages or $1,000, whichever is greater, treble damages, costs and reasonable attorneys' fees, an order enjoining the Defendants' unfair and/or deceptive acts and practices, and any other just and proper relief under N.H. Rev. Stat. § 358-A:10.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON NEW HAMPSHIRE LAW)

1259. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1260. Plaintiffs bring this claim on behalf of the New Hampshire Subclass.

1261. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving

conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1262. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1263. The Defendants knew these representations were false when made.

1264. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1265. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1266. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1267. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1268. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1269. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1270. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1271. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1272. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1273. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1274. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1275. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1276. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1277. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1278. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON NEW HAMPSHIRE LAW)

1279. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1280. Plaintiffs bring this Count on behalf of the New Hampshire Subclass.

1281. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1282. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1283. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

CC. Claims Brought on Behalf of the New Jersey Subclass Under New Jersey Law

COUNT I

VIOLATIONS OF THE NEW JERSEY CONSUMER FRAUD ACT (N.J.S.A. § 56:8-1 *ET SEQ.*)

1284. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1285. Plaintiffs bring this Count on behalf of the New Jersey Subclass.

1286. The New Jersey Consumer Fraud Act, N.J.S.A. § 56:8-1 *et seq.* ("NJ CFA"), prohibits unfair or deceptive acts or practices in the conduct of any trade or commerce.

1287. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and

failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1288. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1289. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1290. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1291. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1292. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1293. The Defendants knew or should have known that their conduct violated the NJ CFA.

1294. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1295. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1296. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1297. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Class and Subclass members.

1298. Plaintiffs and the other Class and Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Class and Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1299. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1300. Pursuant to N.J.S.A. § 56:8-20, Plaintiffs will serve the New Jersey Attorney General with a copy of this Complaint within 10 days of filing.

COUNT II

BREACH OF CONTRACT
(BASED ON NEW JERSEY LAW)

1301. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1302. Plaintiffs bring this Count on behalf of the New Jersey Subclass.

1303. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Class members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Class members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Class members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1304. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other New Jersey Class members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and is thus less valuable than vehicles not equipped with the Adsorber Engine.

1305. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Class have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT
(BASED ON NEW JERSEY LAW)

1306. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1307. Plaintiffs bring this Count on behalf of the New Jersey Subclass.

1308. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1309. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1310. The Defendants knew these representations were false when made.

1311. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1312. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1313. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1314. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1315. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1316. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1317. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1318. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1319. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1320. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1321. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1322. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1323. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1324. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1325. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

DD. Claims Brought on Behalf of the New Mexico Subclass

COUNT I

VIOLATIONS OF THE NEW MEXICO UNFAIR TRADE PRACTICES ACT (N.M. STAT. ANN. § 57-12-1 *ET SEQ.*)

1326. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1327. This claim is brought on behalf of the New Mexico Subclass.

1328. The Defendants, Plaintiffs and New Mexico Subclass members are or were "person[s]" under the New Mexico Unfair Trade Practices Act ("New Mexico UTPA"), N.M. Stat. Ann. § 57-12-2. 010549-11 816608 V1

1329. The Defendants' actions as set forth herein occurred in the conduct of trade or commerce as defined under N.M. Stat. Ann. § 57-12-2.

1330. The New Mexico UTPA makes unlawful "a false or misleading oral or written statement, visual description or other representation of any kind knowingly made in connection with the sale, lease, rental or loan of goods or services … by a person in the regular course of the person's trade or commerce, that may, tends to or does deceive or mislead any person," including but not limited to "failing to state a material fact if doing so deceives or tends to deceive." N.M. Stat. Ann. § 57-12- 2(D). The Defendants' acts and omissions described herein constitute unfair or deceptive acts or practices under N.M. Stat. Ann. § 57-12-2(D). In

addition, the Defendants' actions constitute unconscionable actions under N.M. Stat. Ann. § 57-12-2(E), since they took advantage of the lack of knowledge, ability, experience, and capacity of the New Mexico Subclass members to a grossly unfair degree.

1331. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and

failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1332. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1333. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1334. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1335. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1336. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1337. The Defendants knew or should have known that their conduct violated the New Mexico UTPA.

1338. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1339. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1340. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1341. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1342. As a direct and proximate result of the Defendants' violations of the New Mexico UTPA, Plaintiffs and the New Mexico Subclass have suffered injury-in-fact and/or actual damage.

1343. New Mexico Subclass members seek punitive damages against the Defendants because the Defendants' conduct was malicious, willful, reckless, wanton, fraudulent and in bad faith. Because the Defendants' conduct was malicious, willful, reckless, wanton, fraudulent and in bad faith, it warrants punitive damages.

1344. Because the Defendants' unconscionable, willful conduct caused actual harm to New Mexico Class Members, Plaintiffs and the New Mexico

Subclass seek recovery of actual damages or $100, whichever is greater, discretionary treble damages, punitive damages, and reasonable attorneys' fees and costs, as well as all other proper and just relief available under N.M. Stat. Ann. § 57-12-10.

COUNT II

FRAUDULENT CONCEALMENT (BASED ON NEW MEXICO LAW)

1345. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1346. Plaintiffs bring this Count on behalf of the New Mexico Subclass.

1347. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1348. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including

standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1349. The Defendants knew these representations were false when made.

1350. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1351. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1352. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1353. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1354. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on

their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1355. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1356. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1357. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-

compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1358. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1359. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1360. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information

concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1361. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1362. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs'

and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1363. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1364. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON NEW MEXICO LAW)

1365. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1366. This claim is brought on behalf of the New Mexico Subclass.

1367. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases

of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1368. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1369. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial,

which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

EE. Claims Brought on Behalf of the New York Subclass

COUNT I

VIOLATIONS OF NEW YORK GENERAL BUSINESS LAW § 349 (N.Y. GEN. BUS. LAW § 349)

1370. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1371. This claim is brought on behalf of the New York Subclass.

1372. New York's General Business Law § 349 makes unlawful "[d]eceptive acts or practices in the conduct of any business, trade or commerce." In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. The challenged act or practice was "consumer-oriented;" (2) that the act or practice was misleading in a material way; and (3) Plaintiffs suffered injury as a result of the

deceptive act or practice. Accordingly, Defendants have violated General Business Law § 349.

1373. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1374. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1375. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1376. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1377. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1378. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1379. The Defendants knew or should have known that their conduct violated New York's General Business Law § 349.

1380. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1381. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected

Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1382. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1383. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1384. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1385. Pursuant to N.Y. Gen. Bus. Law § 349(h), Plaintiffs and each Subclass member may recover actual damages, in addition to three times actual damages up to $1,000 for the Defendants' willful and knowing violation of N.Y. Gen. Bus. Law § 349.

COUNT II

VIOLATIONS OF NEW YORK GENERAL BUSINESS LAW § 350 (N.Y. GEN. BUS. LAW § 350)

1386. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1387. This claim is brought on behalf of the New York Subclass.

1388. New York's General Business Law § 350 makes unlawful "[f]alse advertising in the conduct of any business, trade or commerce[.]" False advertising includes "advertising, including labeling, of a commodity … if such advertising is misleading in a material respect," taking into account "the extent to which the advertising fails to reveal facts material in the light of … representations [made] with respect to the commodity." N.Y. Gen. Bus. Law § 350-a.

1389. Defendants caused to be made or disseminated throughout New York, through advertising, marketing, and other publications, statements that were untrue or misleading, and which were known, or which by the exercise of reasonable care should have been known to Defendants, to be untrue and misleading to consumers, including Plaintiffs and the other Subclass members.

1390. Defendants have violated N.Y. Gen. Bus. Law § 350 because the misrepresentations and omissions alleged herein, including but not limited to Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1391. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1392. Plaintiffs and Subclass members reasonably relied upon Defendants' false misrepresentations. They had no way of knowing that Defendants' representations were false and gravely misleading. As alleged herein, Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel Defendants' deception on their own.

1393. Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1394. Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1395. Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1396. Defendants knew or should have known that their conduct violated General Business Law § 350.

1397. Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1398. Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1399. Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1400. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

1401. Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

1402. Plaintiffs and the other Subclass members are entitled to recover their actual damages or $500, whichever is greater. Because Defendants acted willfully or knowingly, Plaintiffs and the other Subclass members are entitled to recover three times actual damages, up to $10,000.

COUNT III

BREACH OF CONTRACT
(BASED ON NEW YORK LAW)

1403. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1404. Plaintiffs bring this Count on behalf of the New York Subclass members.

1405. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1406. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or

defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1407. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT IV

FRAUDULENT CONCEALMENT (BASED ON NEW YORK LAW)

1408. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1409. This claim is brought on behalf of the New York Subclass.

1410. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted

with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1411. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1412. The Defendants knew these representations were false when made.

1413. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1414. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were

non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1415. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1416. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1417. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1418. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1419. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their

customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1420. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or

leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1421. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1422. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1423. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have

purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1424. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1425. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective

emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1426. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1427. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

FF. Claims Brought on Behalf of the North Carolina Subclass

COUNT I

VIOLATIONS OF THE NORTH CAROLINA UNFAIR AND DECEPTIVE ACTS AND PRACTICES ACT (N.C. GEN. STAT. § 75-1.1 *ET SEQ.*)

1428. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1429. Plaintiffs bring this Count on behalf of the North Carolina Subclass.

1430. Defendants engaged in "commerce" within the meaning of N.C. Gen. Stat. § 75-1.1(b).

1431. The North Carolina UDTPA broadly prohibits "unfair or deceptive acts or practices in or affecting commerce." N.C. Gen. Stat. § 75-1.1(a). In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in unfair and deceptive trade practices because they (1) had the capacity or tendency to deceive, (2) offend public policy, (3) are immoral, unethical, oppressive or unscrupulous, or (4) cause substantial injury to consumers.

1432. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the

Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1433. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1434. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1435. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1436. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1437. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1438. The Defendants knew or should have known that their conduct violated the North Carolina UDTPA.

1439. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1440. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1441. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1442. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for

their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1443. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1444. Plaintiffs seek an order for treble their actual damages, court costs, attorney's fees, and any other just and proper relief available under the North Carolina Act, N.C. Gen. Stat. § 75-16.

1445. Plaintiffs also seek punitive damages against the Defendants because the Defendants' conduct was malicious, willful, reckless, wanton, fraudulent and in bad faith.

COUNT II

BREACH OF CONTRACT
(BASED ON NORTH CAROLINA LAW)

1446. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1447. Plaintiffs bring this Count on behalf of the North Carolina Subclass members.

1448. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1449. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA,

rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1450. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON NORTH CAROLINA LAW)

1451. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1452. This claim is brought on behalf of the North Carolina Subclass.

1453. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1454. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1455. The Defendants knew these representations were false when made.

1456. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1457. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected

Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1458. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1459. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1460. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants'

representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1461. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1462. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the

vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1463. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products

pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1464. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1465. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1466. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the

Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1467. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1468. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the

Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1469. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1470. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

GG. Claims Brought on Behalf of the North Dakota Subclass

COUNT I

VIOLATION OF THE NORTH DAKOTA CONSUMER FRAUD ACT (N.D. CENT. CODE § 51-15-02)

1471. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1472. This claim is brought on behalf of the North Dakota Subclass.

1473. Plaintiffs, the North Dakota Subclass members, and each of the Defendants are "persons" within the meaning of N.D. Cent. Code § 51-15-02(4).

1474. The Defendants engaged in the "sale" of "merchandise" within the meaning of N.D. Cent. Code § 51-15-02(3), (5).

1475. The North Dakota Consumer Fraud Act ("North Dakota CFA") makes unlawful "[t]he act, use, or employment by any person of any deceptive act or practice, fraud, false pretense, false promise, or misrepresentation, with the intent that others rely thereon in connection with the sale or advertisement of any merchandise." N.D. Cent. Code § 51-15-02. As set forth above and below, the Defendants committed deceptive acts or practices, with the intent that North Dakota Subclass members rely thereon in connection with their purchase or lease of the Affected Vehicles.

1476. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition,

unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1477. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1478. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception.

Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1479. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1480. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1481. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1482. The Defendants knew or should have known that their conduct violated the North Dakota CFA.

1483. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving

conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1484. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1485. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1486. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1487. As a direct and proximate result of the Defendants' violations of the North Dakota CFA, Plaintiffs and the North Dakota Subclass have suffered injury-in-fact and/or actual damage.

1488. North Dakota Subclass members seek punitive damages against the Defendants because the Defendants' conduct was egregious. The Defendants' egregious conduct warrants punitive damages.

1489. Further, the Defendants knowingly committed the conduct described above, and thus, under N.D. Cent. Code § 51-15-09, the Defendants are liable to Plaintiffs and the North Dakota Subclass for treble damages in amounts to be proven at trial, as well as attorneys' fees, costs, and disbursements. Plaintiffs further seek an order enjoining the Defendants' unfair and/or deceptive acts or practices, and other just and proper available relief under the North Dakota CFA.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON NORTH DAKOTA LAW)

1490. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1491. Plaintiffs bring this Count on behalf of the North Dakota Subclass.

1492. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx,

and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1493. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1494. The Defendants knew these representations were false when made.

1495. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1496. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1497. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1498. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and

the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1499. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1500. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1501. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations

regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1502. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial

truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1503. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1504. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1505. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1506. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1507. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1508. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1509. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON NORTH DAKOTA LAW)

1510. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1511. This claim is brought on behalf of the North Dakota Subclass.

1512. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1513. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective

Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1514. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

HH. Claims Brought on Behalf of the Ohio Subclass

COUNT I

VIOLATIONS OF THE OHIO CONSUMER SALES PRACTICES ACT (OHIO REV. CODE § 1345.01 *ET SEQ.*)

1515. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1516. This claim is brought on behalf of the Ohio Subclass.

1517. Plaintiffs and the other Ohio Subclass members are "consumers" as defined by the Ohio Consumer Sales Practices Act, Ohio Rev. Code § 1345.01 ("Ohio CSPA"). Each of the Defendants is a "supplier" as defined by the Ohio

CSPA. Plaintiffs' and the other Ohio Subclass members' purchases or leases of Affected Vehicles were "consumer transactions" as defined by the Ohio CSPA.

1518. The Ohio CSPA, Ohio Rev. Code § 1345.02, broadly prohibits unfair or deceptive acts or practices in connection with a consumer transaction. Specifically, and without limitation of the broad prohibition, the Act prohibits suppliers from representing (i) that goods have characteristics or uses or benefits which they do not have; (ii) that their goods are of a particular quality or grade they are not; and (iii) the subject of a consumer transaction has been supplied in accordance with a previous representation, if it has not. *Id.* The Defendants' conduct as alleged above and below constitutes unfair and/or deceptive consumer sales practices in violation of Ohio Rev. Code § 1345.02.

1519. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices,

including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1520. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1521. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception.

Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1522. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1523. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1524. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1525. The Defendants knew or should have known that their conduct violated the Ohio CSPA.

1526. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving

conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1527. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1528. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1529. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1530. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1531. Plaintiffs and the Subclass sustained damages as a result of the Defendants' unlawful acts and are, therefore, entitled to damages and other relief as provided under the Ohio CSPA.

1532. Plaintiffs also seek court costs and attorneys' fees as a result of Defendants' violations of the OCSPA as provided in Ohio Rev. Code § 1345.09.

COUNT II

BREACH OF CONTRACT
(BASED ON OHIO LAW)

1533. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1534. Plaintiffs bring this Count on behalf of Ohio Subclass members.

1535. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased

these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1536. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, thus rendering each Affected Vehicle less valuable, than vehicles not equipped with the Adsorber Engine.

1537. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON OHIO LAW)

1538. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1539. This claim is brought on behalf of the Ohio Subclass.

1540. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1541. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1542. The Defendants knew these representations were false when made.

1543. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable

consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1544. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1545. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants,

and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1546. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1547. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1548. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations.

Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1549. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1550. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country,

which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1551. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1552. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1553. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1554. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1555. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1556. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1557. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

II. Claims Brought on Behalf of the Oklahoma Subclass

COUNT I

VIOLATION OF OKLAHOMA CONSUMER PROTECTION ACT (OKLA. STAT. TIT. 15 § 751 *ET SEQ.*)

1558. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1559. Plaintiffs bring this Count on behalf of the Oklahoma Subclass.

1560. Plaintiffs and the Oklahoma Subclass members are "persons" under the Oklahoma Consumer Protection Act ("Oklahoma CPA"), Okla. Stat. tit. 15 § 752.

1561. Each of the Defendants is a "person," "corporation," or "association" within the meaning of Okla. Stat. tit. 15 § 15-751(1).

1562. The sale or lease of the Affected Vehicles to the Oklahoma Subclass members was a "consumer transaction" within the meaning of Okla. Stat. tit. 15 § 752, and the Defendants' actions as set forth herein occurred in the conduct of trade or commerce.

1563. The Oklahoma CPA declares unlawful, *inter alia*, the following acts or practices when committed in the course of business: "mak[ing] a false or misleading representation, knowingly or with reason to know, as to the

characteristics, … uses, [or] benefits, of the subject of a consumer transaction," or making a false representation, "knowingly or with reason to know, that the subject of a consumer transaction is of a particular standard, style or model, if it is of another or "[a]dvertis[ing], knowingly or with reason to know, the subject of a consumer transaction with intent not to sell it as advertised;" and otherwise committing "an unfair or deceptive trade practice." *See* Okla. Stat. tit. 15, § 753.

1564. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or

statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1565. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1566. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1567. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1568. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1569. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1570. The Defendants knew or should have known that their conduct violated the Oklahoma CPA.

1571. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1572. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1573. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1574. Plaintiffs and the Oklahoma Class suffered ascertainable loss caused by the Defendants' misrepresentations and concealment of and failure to disclose material information.

1575. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1576. As a direct and proximate result of the Defendants' violations of the Oklahoma CPA, Plaintiffs and the Oklahoma Class have suffered injury-in-fact and/or actual damage.

1577. The Defendants' conduct as alleged herein was unconscionable because (1) the Defendants, knowingly or with reason to know, took advantage of consumers reasonably unable to protect their interests because of their age, physical infirmity, ignorance, illiteracy, inability to understand the language of an agreement or similar factor; (2) at the time the consumer transaction was entered

into, the Defendants knew or had reason to know that price grossly exceeded the price at which similar vehicles were readily obtainable in similar transactions by like consumers; and (3) the Defendants knew or had reason to know that the transaction the Defendants induced the consumer to enter into was excessively one-sided in favor of the Defendants.

1578. Because the Defendants' unconscionable conduct caused injury to Oklahoma Subclass members, Plaintiffs and the Oklahoma Subclass seek recovery of actual damages, discretionary penalties up to $2,000 per violation, punitive damages, and reasonable attorneys' fees, under Okla. Stat. tit. 15 § 761.1. Plaintiffs and the Oklahoma Subclass further seek an order enjoining the Defendants' unfair and/or deceptive acts or practices, and any other just and proper relief available under the Oklahoma CPA.

COUNT II

FRAUDULENT CONCEALMENT (BASED ON OKLAHOMA LAW)

1579. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1580. Plaintiffs bring this Count on behalf of the Oklahoma Subclass.

1581. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted

pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1582. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1583. The Defendants knew these representations were false when made.

1584. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1585. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1586. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1587. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1588. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1589. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1590. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1591. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1592. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1593. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1594. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1595. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1596. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1597. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1598. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON OKLAHOMA LAW)

1599. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1600. This claim is brought on behalf of the Oklahoma Subclass.

1601. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1602. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1603. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

JJ. Claims Brought on Behalf of the Pennsylvania Subclass

COUNT I

VIOLATIONS OF THE PENNSYLVANIA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION LAW (73 P.S. § 201-1 *ET SEQ.*)

1604. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1605. Plaintiffs bring this Count on behalf of the Pennsylvania Subclass.

1606. Plaintiffs purchased or leased their Affected Vehicle primarily for personal, family or household purposes within the meaning of 73 P.S. § 201-9.2.

1607. All of the acts complained of herein were perpetrated by Defendants in the course of trade or commerce within the meaning of 73 P.S. § 201-2(3).

1608. The Pennsylvania Unfair Trade Practices and Consumer Protection Law ("Pennsylvania CPL") prohibits unfair or deceptive acts or practices, including: (i) "Representing that goods or services have … characteristics, … [b]enefits or qualities that they do not have;" (ii) "Representing that goods or services are of a particular standard, quality or grade … if they are of another;" (iii) "Advertising goods or services with intent not to sell them as advertised;" and (iv) "Engaging in any other fraudulent or deceptive conduct which creates a likelihood of confusion or misunderstanding." 73 P.S. § 201-2(4).

1609. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition,

unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1610. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1611. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception.

Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1612. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1613. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1614. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1615. The Defendants knew or should have known that their conduct violated the Pennsylvania CPL.

1616. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving

conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1617. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1618. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1619. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1620. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1621. The Defendants are liable to Plaintiffs and the Pennsylvania Subclass for treble their actual damages or $100, whichever is greater, and attorneys' fees and costs. 73 P.S. § 201-9.2(a). Plaintiffs and the Pennsylvania Class are also entitled to an award of punitive damages given that the Defendants' conduct was malicious, wanton, willful, oppressive, or exhibited a reckless indifference to the rights of others.

COUNT II

BREACH OF CONTRACT
(BASED ON PENNSYLVANIA LAW)

1622. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1623. Plaintiffs bring this Count on behalf of the Pennsylvania Subclass.

1624. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have

purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1625. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, thus rendering each Affected Vehicle less valuable, than vehicles not equipped with the Adsorber Engine.

1626. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON PENNSYLVANIA LAW)

1627. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1628. This claim is brought on behalf of the Pennsylvania Subclass.

1629. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1630. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1631. The Defendants knew these representations were false when made.

1632. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1633. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1634. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that

the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1635. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1636. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1637. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture

characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1638. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1639. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably

discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1640. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1641. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1642. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1643. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are

diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1644. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1645. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1646. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

KK. Claims Brought on Behalf of the Rhode Island Subclass

COUNT I

VIOLATION OF THE RHODE ISLAND UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION ACT (R.I. GEN. LAWS § 6-13.1 *ET SEQ.*)

1647. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1648. Plaintiffs bring this Count on behalf of the Rhode Island Subclass.

1649. Plaintiffs are persons who purchased or leased one or more Affected Vehicles primarily for personal, family, or household purposes within the meaning of R.I. Gen. Laws § 6-13.1-5.2(a).

1650. Rhode Island's Unfair Trade Practices and Consumer Protection Act ("Rhode Island CPA") prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce" including: "(v) Representing that goods or services have sponsorship, approval, characteristics, ingredients, uses, benefits, or

quantities that they do not have"; "(vii) Representing that goods or services are of a particular standard, quality, or grade, … if they are of another"; "(ix) Advertising goods or services with intent not to sell them as advertised"; "(xii) Engaging in any other conduct that similarly creates a likelihood of confusion or of misunderstanding"; "(xiii) Engaging in any act or practice that is unfair or deceptive to the consumer"; and "(xiv) Using any other methods, acts or practices which mislead or deceive members of the public in a material respect." R.I. Gen. Laws § 6-13.1-1(6).

1651. The Defendants engaged in unlawful trade practices, including: (1) representing that the Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; (2) representing that the Affected Vehicles are of a particular standard and quality when they are not; (3) advertising the Affected Vehicles with the intent not to sell them as advertised; and (4) otherwise engaging in conduct that is unfair or deceptive and likely to deceive.

1652. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1653. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the

Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1654. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1655. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1656. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1657. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1658. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1659. The Defendants knew or should have known that their conduct violated the Rhode Island CPA.

1660. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1661. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1662. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1663. Plaintiffs and the Rhode Island Class suffered ascertainable loss caused by the Defendants' misrepresentations and concealment of and failure to disclose material information. Plaintiffs who purchased the Affected Vehicles

either would have paid less for their vehicles or would not have purchased or leased them at all.

1654. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1655. As a direct and proximate result of the Defendants' violations of the Rhode Island CPA, Plaintiffs and the Rhode Island Class have suffered injury-in-fact and/or actual damage.

1656. Plaintiffs and the Rhode Island Class are entitled to recover the greater of actual damages or $200 pursuant to R.I. Gen. Laws § 6-13.1-5.2(a). Plaintiffs also seek punitive damages in the discretion of the Court because of the Defendants' egregious disregard of consumer and public safety and their long-running concealment of the serious safety defects and their tragic consequences.

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON RHODE ISLAND LAW)

1664. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1665. Plaintiffs bring this Count on behalf of the Rhode Island Subclass.

1666. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted

pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1667. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1668. The Defendants knew these representations were false when made.

1669. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1670. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1671. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1672. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1673. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1674. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1675. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1676. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1677. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1678. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1679. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1680. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1681. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1682. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1683. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON RHODE ISLAND LAW)

1684. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1685. This claim is brought on behalf of the Rhode Island Subclass.

1686. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1687. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1688. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

LL. Claims Brought on Behalf of the South Carolina Subclass

COUNT I

VIOLATIONS OF THE SOUTH CAROLINA UNFAIR TRADE PRACTICES ACT (S.C. CODE ANN. § 39-5-10 *ET SEQ.*)

1689. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1690. This claim is brought on behalf of the South Carolina Subclass.

1691. Each Defendant is a "person" under S.C. Code Ann. § 39-5-10.

1692. The South Carolina Unfair Trade Practices Act ("South Carolina UTPA") prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce." S.C. Code Ann. § 39-5-20(a).

1693. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and

failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1694. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1695. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1696. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1697. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1698. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1699. The Defendants knew or should have known that their conduct violated the South Carolina UTPA.

1700. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1701. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1702. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1703. Plaintiffs and the South Carolina Class suffered ascertainable loss caused by the Defendants' misrepresentations and concealment of and failure to disclose material information. Plaintiffs who purchased the Affected Vehicles either would have paid less for their vehicles or would not have purchased or leased them at all. 1694. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1704. As a direct and proximate result of the Defendants' violations of the South Carolina UTPA, Plaintiffs and the South Carolina Class have suffered injury-in-fact and/or actual damage.

1705. Pursuant to S.C. Code Ann. § 39-5-140(a), Plaintiffs seek monetary relief against the Defendants to recover for their economic losses. Because the Defendants' actions were willful and knowing, Plaintiffs' damages should be trebled. *Id.*

1706. Plaintiffs further allege that the Defendants' malicious and deliberate conduct warrants an assessment of punitive damages because the Defendants carried out despicable conduct with willful and conscious disregard of the rights and safety of others, subjecting Plaintiffs and the Class to cruel and unjust hardship as a result.

COUNT II

VIOLATIONS OF THE SOUTH CAROLINA REGULATION OF MANUFACTURERS, DISTRIBUTORS, AND DEALERS ACT (S.C. CODE ANN. § 56-15-10 *ET SEQ.*)

1707. Plaintiffs reallege and incorporate by reference all paragraphs as though fully set forth herein.

1708. This claim is brought only on behalf of the South Carolina Subclass.

1709. Each of the Defendants was a "manufacturer" as set forth in S.C. Code Ann. § 56-15-10, as each was engaged in the business of manufacturing or assembling new and unused motor vehicles.

1710. Defendants committed unfair or deceptive acts or practices that violated the South Carolina Regulation of Manufacturers, Distributors, and Dealers Act ("Dealers Act"), S.C. Code Ann. § 56-15-30.

1711. Defendants engaged in actions which were arbitrary, in bad faith, unconscionable, and which caused damage to Plaintiffs, the South Carolina Subclass, and to the public.

1712. Defendants' bad faith and unconscionable actions include, but are not limited to: (1) representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have, (2) representing that Affected Vehicles are of a particular standard, quality, and grade when they are not, (3) advertising Affected Vehicles with the intent not to sell them as advertised, (4) representing that a transaction involving Affected Vehicles confers or involves rights, remedies, and obligations which it does not, and (5) representing that the subject of a transaction involving Affected Vehicles has been supplied in accordance with a previous representation when it has not.

COUNT III

FRAUDULENT CONCEALMENT
(BASED ON SOUTH CAROLINA LAW)

1713. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1714. Plaintiffs bring this Count on behalf of the South Carolina Subclass.

1715. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx,

and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1716. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1717. The Defendants knew these representations were false when made.

1718. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1719. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1720. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1721. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and

the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1722. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1723. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1724. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations

regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1725. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial

truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1726. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1727. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1728. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1729. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1730. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1731. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1732. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT IV

BREACH OF CONTRACT
(BASED ON SOUTH CAROLINA LAW)

1733. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1734. This claim is brought on behalf of the South Carolina Subclass.

1735. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1736. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective

Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1737. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

MM. Claims Brought on Behalf of the Tennessee Subclass

COUNT I

VIOLATIONS OF THE TENNESSEE CONSUMER PROTECTION ACT (TENN. CODE ANN. § 47-18-101 *ET SEQ.*)

1738. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1739. Plaintiffs bring this Count on behalf of the Tennessee Subclass.

1740. Plaintiffs and the Tennessee Subclass are "natural persons" and "consumers" within the meaning of Tenn. Code Ann. § 47-18-103(2).

1741. Each Defendant is a "person" within the meaning of Tenn. Code Ann. § 47-18-103(2).

1742. The Defendants' conduct complained of herein affected "trade," "commerce" or "consumer transactions" within the meaning of Tenn. Code Ann. § 47-18-103(19).

1743. The Tennessee Consumer Protection Act ("Tennessee CPA") prohibits "[u]nfair or deceptive acts or practices affecting the conduct of any trade or commerce," including but not limited to: "Representing that goods or services have … characteristics, [or] … benefits … that they do not have…;" "Representing that goods or services are of a particular standard, quality or grade … if they are of another;" "Advertising goods or services with intent not to sell them as advertised;" and "Engaging in any other act or practice which is deceptive to the consumer or any other person." Tenn. Code Ann. § 47-18-104. In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants violated the Tennessee CPA by engaging in unfair or deceptive acts, including representing that Affected Vehicles have characteristics or benefits that they did not have;

representing that Affected Vehicles are of a particular standard, quality, or grade when they are of another; advertising Affected Vehicles with intent not to sell them as advertised; and engaging in acts or practices that are deceptive to consumers.

1744. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and

failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1745. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1746. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1747. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1748. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1749. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1750. The Defendants knew or should have known that their conduct violated the Tennessee CPA.

1751. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1752. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1753. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1754. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

1755. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1756. Pursuant to Tenn. Code § 47-18-109(a), Plaintiffs and the Tennessee Subclass seek monetary relief against the Defendants measured as actual damages in an amount to be determined at trial, treble damages as a result of the

Defendants' willful or knowing violations, and any other just and proper relief available under the Tennessee CPA.

COUNT II

BREACH OF CONTRACT
(BASED ON TENNESSEE LAW)

1757. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1758. Plaintiffs bring this Count on behalf of the Tennessee Subclass.

1759. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1760. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, thus rendering each Affected Vehicle less valuable, than vehicles not equipped with the Adsorber Engine.

1761. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT
(BASED ON TENNESSEE LAW)

1762. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1763. This claim is brought on behalf of the Tennessee Subclass.

1764. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1765. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1766. The Defendants knew these representations were false when made.

1767. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1768. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1769. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1770. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1771. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1772. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1773. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1774. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1775. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1776. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1777. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1778. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1779. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1780. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1781. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

NN. Claims Brought on Behalf of the Texas Subclass

COUNT I

VIOLATIONS OF THE DECEPTIVE TRADE PRACTICES ACT (TEX. BUS. & COM. CODE § 17.41 *ET SEQ.*)

1782. The Georgia Fair Business Practices Act ("Georgia FBPA") declares "[u]nfair or deceptive acts or practices in the conduct of consumer transactions and consumer acts or practices in trade or commerce" to be unlawful, Ga. Code. Ann. § 10-1-393(a), including, but not limited to, "representing that goods or services have sponsorship, approval, characteristics, ingredients, uses, benefits, or quantities that they do not have," "[r]epresenting that goods or services are of a particular standard, quality, or grade … if they are of another," and "[a]dvertising goods or services with intent not to sell them as advertised." Ga. Code. Ann. § 10-1-393(b). Plaintiffs will make a demand in satisfaction of O.C.G.A. § 10-1-399(b), and may amend this Complaint to assert claims under the Georgia FBPA once the required notice period has elapsed. This paragraph is included for purposes of notice only and is not intended to actually assert a claim under the Georgia FBPA.

COUNT II

BREACH OF CONTRACT (BASED ON TEXAS LAW)

1783. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1784. Plaintiffs bring this Count on behalf of the Texas Subclass members.

1785. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the Adsorber Engine's defect and/or defective design of emissions controls as alleged herein, and failure to disclose that the Affected Vehicles did not meet and maintain the advertised MPG rate, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the defective Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1786. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the Affected Vehicles would not meet and maintain their advertised MPG rate, and by misrepresenting or failing to disclose that the NOx reduction system in the

Affected Vehicles turns off or is limited during normal driving conditions and the existence of the Adsorber Engine's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the defective Adsorber Engine.

1787. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT
(BASED ON TEXAS LAW)

1788. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1789. This claim is brought on behalf of the Texas Subclass.

1790. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, failed to meet and maintain the advertised MPG rate, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted

unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1791. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, met and maintained the advertised MPG rate, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1792. The Defendants knew these representations were false when made.

1793. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, not meeting and maintaining the advertised MPG rate, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1794. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, did not meet and maintain the advertised MPG rate, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, were non-EPA-compliant and unreliable, and failed to meet and maintain the advertised MPG rate, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1795. As alleged in this Complaint, at all relevant times, the has held out the Affected Vehicles to be reduced emission, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deployed a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1796. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device,"

failure to meet and maintain the advertised MPG rate, and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1797. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1798. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of each Defendant—one characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. They also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1799. The Defendants' false representations were material to consumers because they concerned the quality and cost-effectiveness of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1800. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the Affected Vehicles with respect to emissions, starting with references to them as *reduced-emissions diesel cars* and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air

law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, meets and maintains the advertised MPG rate, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing fuel-efficient, reduced-emissions diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1801. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1802. The Defendants had still not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1803. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1804. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and fuel efficiency and the Defendants' failure to timely disclose the defect or defective design of the Adsorber Engine, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the

Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, and their failure to meet and maintain the advertised MPG rate, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1805. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand names, attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1806. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1807. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

OO. Claims Brought on Behalf of the Utah Subclass

COUNT I

VIOLATIONS OF THE UTAH CONSUMER SALES PRACTICES ACT (UTAH CODE ANN. § 13-11-1 *ET SEQ.*)

1808. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1809. Plaintiffs bring this Count on behalf of the Utah Subclass.

1810. Each of the Defendants qualifies as a "supplier" under the Utah Consumer Sales Practices Act ("Utah CSPA"), Utah Code Ann. § 13-11-3.

1811. Plaintiffs and the Subclass members are "persons" under Utah Code Ann. § 13-11-3.

1812. Sales of the Affected Vehicles to Plaintiffs and the Subclass were "consumer transactions" within the meaning of Utah Code Ann. § 13-11-3.

1813. The Utah CSPA makes unlawful any "deceptive act or practice by a supplier in connection with a consumer transaction" under Utah Code Ann. § 13-11-4. Specifically, "a supplier commits a deceptive act or practice if the supplier knowingly or intentionally: (a) indicates that the subject of a consumer transaction has sponsorship, approval, performance characteristics, accessories, uses, or benefits, if it has not" or "(b) indicates that the subject of a consumer transaction is

of a particular standard, quality, grade, style, or model, if it is not." Utah Code Ann. § 13-11-4. "An unconscionable act or practice by a supplier in connection with a consumer transaction" also violates the Utah CSPA. Utah Code Ann. § 13-11-5.

1814. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and

failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1815. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1816. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1817. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1818. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1819. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1820. The Defendants knew or should have known that their conduct violated the Utah CSPA.

1821. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1822. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1823. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1824. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1825. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. the Defendants' unlawful acts and practices complained of herein affect the public interest.

1826. Pursuant to Utah Code Ann. § 13-11-4, Plaintiffs and the Subclass seek monetary relief against the Defendants measured as the greater of (a) actual damages in an amount to be determined at trial and (b) statutory damages in the

amount of $2,000 for each Plaintiff and Utah Class member, reasonable attorneys' fees, and any other just and proper relief available under the Utah CSPA.

COUNT II

BREACH OF CONTRACT
(BASED ON UTAH LAW)

1827. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1828. Plaintiffs bring this Count on behalf of the Utah Subclass members.

1829. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1830. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1831. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON UTAH LAW)

1832. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1833. Plaintiffs bring this Count on behalf of the Utah Subclass.

1834. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving

conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1835. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1836. The Defendants knew these representations were false when made.

1837. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1838. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1839. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1840. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1841. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1842. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1843. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1844. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1845. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1846. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1847. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1848. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1849. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1850. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1851. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

PP. Claims Brought on Behalf of the Vermont Subclass

COUNT I

VIOLATION OF VERMONT CONSUMER FRAUD ACT
(VT. STAT. ANN. TIT. 9, § 2451 *ET SEQ.*)

1852. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1853. This claim is brought on behalf of the Vermont Subclass.

1854. Each of the Defendants is a seller within the meaning of Vt. Stat. Ann. tit. 9, § 2451(a)(c).

1855. The Vermont Consumer Fraud Act ("Vermont CFA") makes unlawful "[u]nfair methods of competition in commerce, and unfair or deceptive acts or practices in commerce." Vt. Stat. Ann. tit. 9, § 2453(a).

1856. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described

above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1857. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1858. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein,

the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1859. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1860. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1861. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1862. The Defendants knew or should have known that their conduct violated the Vermont CFA.

1863. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1864. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1865. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1866. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers, including Plaintiffs, about the true cleanliness and efficiency of the Adsorber Engine, the quality of the Defendants' brands, the devaluing of environmental cleanliness and integrity at the Defendants' companies, and the true value of the Affected Vehicles.

1867. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Vermont Subclass. The Defendants' fraudulent use of the "defeat device" and concealment of the true characteristics of the Clean Diesel engine system were material to Plaintiffs and the Vermont Class. A vehicle made by a reputable manufacturer of environmentally friendly vehicles is worth more than an otherwise comparable vehicle made by a disreputable and dishonest manufacturer of polluting vehicles that conceals the amount its vehicles pollute rather than make environmentally friendly vehicles.

1868. Plaintiffs and the Vermont Subclass suffered ascertainable loss caused by the Defendants' misrepresentations and concealment of and failure to disclose material information. Plaintiffs who purchased the Affected Vehicles either would have paid less for their vehicles or would not have purchased or leased them at all.

1869. The Defendants had an ongoing duty to all their customers to refrain from unfair and deceptive acts or practices under the Vermont CFA. All owners of Affected Vehicles suffered ascertainable loss in the form of the diminished value of their vehicles as a result of the Defendants' deceptive and unfair acts and practices that occurred in the course of the Defendants' business.

1870. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1447. As a direct and proximate result of the Defendants' violations of the Vermont CFA, Plaintiffs and the Vermont Subclass have suffered injury-in-fact and/or actual damage.

1448. Plaintiffs and the Vermont Subclass are entitled to recover "appropriate equitable relief" and "the amount of [their] damages, or the consideration or the value of the consideration given by [them], reasonable attorney's fees, and exemplary damages not exceeding three times the value of the consideration given by [them]" pursuant to Vt. Stat. Ann. tit. 9, § 2461(b).

COUNT II

FRAUDULENT CONCEALMENT
(BASED ON VERMONT LAW)

1871. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1872. Plaintiffs bring this Count on behalf of the Vermont Subclass.

1873. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1874. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1875. The Defendants knew these representations were false when made.

1876. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1877. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1878. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1879. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1880. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1881. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1882. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1883. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1884. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1885. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1886. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1887. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1888. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1889. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1890. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

COUNT III

BREACH OF CONTRACT
(BASED ON VERMONT LAW)

1891. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1892. This claim is brought on behalf of the Vermont Subclass.

1893. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1894. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective

Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1895. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

QQ. Claims Brought on Behalf of the Virginia Subclass

COUNT I

VIOLATIONS OF THE VIRGINIA CONSUMER PROTECTION ACT (VA. CODE ANN. § 59.1-196 *ET SEQ.*)

1896. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1897. This claim is brought on behalf of the Virginia Subclass.

1898. Each Defendant is a "person" as defined by Va. Code Ann. § 59.1-198. The transactions between Plaintiffs and the other Subclass members on the one hand and Defendants on the other, leading to the purchase or lease of the Affected Vehicles by Plaintiffs and the other Subclass members, are "consumer

transactions" as defined by Va. Code Ann. § 59.1-198, because the Affected Vehicles were purchased or leased primarily for personal, family or household purposes.

1899. The Virginia Consumer Protection Act ("Virginia CPA") prohibits "(5) misrepresenting that goods or services have certain quantities, characteristics, ingredients, uses, or benefits; (6) misrepresenting that goods or services are of a particular standard, quality, grade, style, or model; … (8) advertising goods or services with intent not to sell them as advertised; … [and] (14) using any other deception, fraud, false pretense, false promise, or misrepresentation in connection with a consumer transaction[.]" Va. Code Ann. § 59.1-200(A).

1900. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits,

and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1901. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1902. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1903. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1904. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1905. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1906. The Defendants knew or should have known that their conduct violated the Virginia CPA.

1907. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1908. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1909. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1910. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

1911. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1912. Pursuant to Va. Code Ann. § 59.1-204, Plaintiffs and the Subclass seek monetary relief against the Defendants measured as the greater of (a) actual damages in an amount to be determined at trial and (b) statutory damages in the amount of $500 for each Plaintiff and Subclass member. Because Defendants' conduct was committed willfully and knowingly, Plaintiffs are entitled to recover, for each Plaintiff and Subclass member, the greater of (a) three times actual damages or (b) $1,000.

1913. Plaintiffs also seek punitive damages, and attorneys' fees, and any other just and proper relief available under General Business Law § 59.1-204 *et seq.*

COUNT II

BREACH OF CONTRACT
(BASED ON VIRGINIA LAW)

1914. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1915. Plaintiffs bring this Count on behalf of Virginia Subclass members.

1916. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein, caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions,

Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1917. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1918. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON VIIRGINIA LAW)

1919. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1920. Plaintiffs bring this Count on behalf of the Virginia Subclass.

1921. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1922. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1923. The Defendants knew these representations were false when made.

1924. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1925. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1926. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that

the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1927. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1928. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1929. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture

characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1930. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1931. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably

discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1932. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1933. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1934. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1935. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are

diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1936. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1937. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1938. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

RR. Claims Brought on Behalf of the Washington Subclass

COUNT I

VIOLATION OF THE WASHINGTON CONSUMER PROTECTION ACT (WASH. REV. CODE ANN. § 19.86.010 *ET SEQ.*)

1939. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1940. Plaintiffs bring this Count on behalf of the Washington Subclass.

1941. Each Defendant, each Plaintiff, and each member of the Washington Subclass is a "person" under Wash. Rev. Code Ann. § 19.86.010(1) ("Washington CPA").

1942. Defendants engaged in "trade" or "commerce" under Wash. Rev. Code Ann. § 19.86.010(2).

1943. The Washington Consumer Protection Act ("Washington CPA") broadly prohibits "[u]nfair methods of competition and unfair or deceptive acts or

practices in the conduct of any trade or commerce." Wash. Rev. Code. Wash. Ann. § 19.96.010.

1944. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair and deceptive business practices prohibited by the Washington CPA. The Defendants' conduct was unfair because it (1) offends public policy as it has been established by statutes, the common law, or otherwise; (2) is immoral, unethical, oppressive, or unscrupulous; or (3) causes substantial injury to consumers. The Defendants' conduct is deceptive because it has the capacity or tendency to deceive.

1945. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would

expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

1946. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

1947. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

1948. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

1949. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

1950. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

1951. The Defendants knew or should have known that their conduct violated the Washington CPA.

1952. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

1953. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1954. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

1955. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for

their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

1956. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

1957. The Defendants are liable to Plaintiffs and the Subclass for damages in amounts to be proven at trial, including attorneys' fees, costs, and treble damages, as well as any other remedies the Court may deem appropriate under Wash. Rev. Code. Ann. § 19.86.090.

COUNT II

BREACH OF CONTRACT
(BASED ON WASHINGTON LAW)

1958. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1959. Plaintiffs bring this Count on behalf of the Washington Subclass members.

1960. The Defendants' misrepresentations and omissions alleged herein, including the Defendants' failure to disclose the existence of the diesel engine system's defect and/or defective design of emissions controls as alleged herein,

caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1961. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and the existence of the diesel engine system's defect and/or defective design of emissions controls, including information known to FCA, rendering each Affected Vehicle non-EPA-compliant, and thus less valuable than vehicles not equipped with the Adsorber Engine.

1962. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial,

which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT
(BASED ON WASHINGTON LAW)

1963. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1964. Plaintiffs bring this Count on behalf of the Washington Subclass.

1965. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1966. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission

vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1967. The Defendants knew these representations were false when made.

1968. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1969. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1970. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant

vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1971. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1972. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

1973. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

1974. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

1975. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the

Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or

leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

1976. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

1977. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

1978. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

1979. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

1980. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

1981. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

1982. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

SS. Claims Brought on Behalf of the West Virginia Subclass

COUNT I

VIOLATIONS OF THE WEST VIRGINIA CONSUMER CREDIT AND PROTECTION ACT (W. VA. CODE § 46A-1-101 *ET SEQ.*)

1983. Plaintiffs incorporate by reference all paragraphs as though fully set forth herein.

1984. Plaintiff intends to assert a claim under the West Virginia Consumer Credit and Protection Act ("West Virginia CCPA") which prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce …." W. VA. CODE § 46A-6-104. Plaintiff will make a demand in satisfaction of W. VA. CODE § 46A-6-106(b), and may amend this Complaint to assert claims under the CCPA once the required 20 days have elapsed. This paragraph is included for

purposes of notice only and is not intended to actually assert a claim under the CCPA.

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COUNT II

BREACH OF CONTRACT
(BASED ON WEST VIRGINIA LAW)

1985. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1986. Plaintiffs bring this Count on behalf of the West Virginia Subclass.

1987. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

1988. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, thus rendering each Affected Vehicle less valuable, than vehicles not equipped with the Adsorber Engine.

1989. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT
(BASED ON WEST VIRGINIA LAW)

1990. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

1991. Plaintiffs bring this Count on behalf of the West Virginia Subclass.

1992. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants

higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

1993. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

1994. The Defendants knew these representations were false when made.

1995. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

1996. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions

and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

1997. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

1998. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the

Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

1999. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

2000. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

2001. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they

concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

2002. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and

Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

2003. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

2004. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

2005. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

2006. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members

who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

2007. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

2008. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

2009. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

TT. Claims Brought on Behalf of the Wisconsin Subclass

COUNT I

VIOLATIONS OF THE WISCONSIN DECEPTIVE TRADE PRACTICES ACT (WIS. STAT. § 110.18)

2010. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

2011. Plaintiffs bring this claim on behalf of the Wisconsin Subclass.

2012. Each of the Defendants is a "person, firm, corporation or association" within the meaning of Wis. Stat. § 100.18(1).

2013. Plaintiffs and Wisconsin Subclass members are members of "the public" within the meaning of Wis. Stat. § 100.18(1). Plaintiffs and Wisconsin Subclass members purchased or leased one or more Affected Vehicles.

2014. The Wisconsin Deceptive Trade Practices Act ("Wisconsin DTPA") prohibits a "representation or statement of fact which is untrue, deceptive or misleading." Wis. Stat. § 100.18(1). In the course of Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Affected

Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in deceptive business practices prohibited by the Wisconsin DTPA.

2015. In the course of the Defendants' business, they willfully failed to disclose and actively concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the Affected Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Affected Vehicles emit far more pollution than a reasonable consumer would expect in light of the Defendants' advertising campaign, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, the Defendants engaged in unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices, including representing that Affected Vehicles have characteristics, uses, benefits, and qualities which they do not have; representing that Affected Vehicles are of a particular standard and quality when they are not; failing to reveal a material fact, the omission of which tends to mislead or deceive the consumer, and which fact could not reasonably be known by the consumer; making a representation of fact or statement of fact material to the transaction such that a person reasonably believes the represented or suggested state of affairs to be other than it actually is; and

failing to reveal facts that are material to the transaction in light of representations of fact made in a positive manner.

2016. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Subclass members were deceived by the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, that the emissions controls were defective, and that the Affected Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above.

2017. Plaintiffs and Subclass members reasonably relied upon the Defendants' false misrepresentations. They had no way of knowing that the Defendants' representations were false and gravely misleading. As alleged herein, the Defendants engaged in extremely sophisticated methods of deception. Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own.

2018. The Defendants' actions as set forth above occurred in the conduct of trade or commerce.

2019. The Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers.

2020. The Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Subclass.

2021. The Defendants knew or should have known that their conduct violated the Wisconsin DTPA.

2022. The Defendants owed Plaintiffs and the Subclass a duty to disclose the truth about their emissions systems manipulation because the Defendants:

a. Possessed exclusive knowledge that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions;

b. Intentionally concealed the foregoing from Plaintiffs and the Subclass; and/or

c. Made incomplete representations that they manipulated the emissions system in the Affected Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the Subclass that contradicted these representations.

2023. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had

emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

2024. The Defendants' conduct proximately caused injuries to Plaintiffs and the other Subclass members.

2025. Plaintiffs and the other Subclass members were injured and suffered ascertainable loss, injury-in-fact, and/or actual damage as a proximate result of the Defendants' conduct in that Plaintiffs and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain, and their Affected Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of the Defendants' misrepresentations and omissions.

2026. The Defendants' violations present a continuing risk to Plaintiffs as well as to the general public. The Defendants' unlawful acts and practices complained of herein affect the public interest.

2027. Plaintiffs and the Wisconsin Subclass are entitled to damages and other relief provided for under Wis. Stat. § 100.18(11)(b)(2). Because the

Defendants' conduct was committed knowingly and/or intentionally, Plaintiff` and the Wisconsin Subclass are entitled to treble damages.

2028. Plaintiffs and the Wisconsin Subclass also seek court costs and attorneys' fees under Wis. Stat. § 110.18(11)(b)(2).

COUNT II

BREACH OF CONTRACT
(BASED ON WISCONSIN LAW)

2029. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

2030. Plaintiffs bring this Count on behalf of the Wisconsin Subclass members.

2031. The Defendants' misrepresentations and omissions alleged herein, including, but not limited to, the Defendants' failure to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions caused Plaintiffs and the other Subclass members to make their purchases or leases of their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Subclass members would not have purchased or leased these Affected Vehicles, would not have purchased or leased these Affected Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain the Adsorber Engine and which were not marketed as including such a system. Accordingly, Plaintiffs

and the other Subclass members overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

2032. Each and every sale or lease of an Affected Vehicle constitutes a contract between FCA and the purchaser or lessee. FCA breached these contracts by, among other things, selling or leasing to Plaintiffs and the other Subclass members defective Affected Vehicles and by misrepresenting or failing to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, thus rendering each Affected Vehicle less valuable, than vehicles not equipped with the Adsorber Engine.

2033. As a direct and proximate result of FCA's breach of contract, Plaintiffs and the Subclass have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT III

FRAUDULENT CONCEALMENT (BASED ON WISCONSIN LAW)

2034. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

2035. Plaintiffs bring this Count on behalf of the Wisconsin Subclass.

2036. The Defendants intentionally concealed that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving

conditions, that the Affected Vehicles had defective emissions controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of the Defendants' advertising campaign, emitted unlawfully high levels of pollutants such as NOx, and were non-compliant with EPA emission requirements, or the Defendants acted with reckless disregard for the truth, and denied Plaintiffs and the other Subclass members information that is highly relevant to their purchasing decision.

2037. The Defendants further affirmatively misrepresented to Plaintiffs and Subclass members in advertising and other forms of communication, including standard and uniform material provided with each car, that the Affected Vehicles they were selling had no significant defects, were Earth-friendly and low-emission vehicles, complied with EPA regulations, and would perform and operate properly when driven in normal usage.

2038. The Defendants knew these representations were false when made.

2039. The Affected Vehicles purchased or leased by Plaintiffs and the other Subclass members were, in fact, defective, emitting pollutants at a much higher rate than gasoline-powered vehicles and at a much higher rate than a reasonable consumer would expect in light of the Defendants' advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions.

2040. The Defendants had a duty to disclose that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions and that these Affected Vehicles were defective, employed a "Defeat Device," emitted pollutants at a much higher rate than gasoline-powered vehicles, had emissions that far exceeded those expected by a reasonable consumer, and were non-EPA-compliant and unreliable, because Plaintiffs and the other Subclass members relied on the Defendants' material representations that the Affected Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

2041. As alleged in this Complaint, at all relevant times, the Defendants have held out the Affected Vehicles to be reduced-emissions, EPA-compliant vehicles. The Defendants disclosed certain details about the diesel engine, but nonetheless, the Defendants intentionally failed to disclose the important facts that the NOx reduction system in the Affected Vehicles turns off or is limited during normal driving conditions, and that the Affected Vehicles had defective emissions controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable consumer, emitted unlawfully high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

2042. The truth about the defective emissions controls and the Defendants' manipulations of those controls, unlawfully high emissions, the "Defeat Device," and non-compliance with EPA emissions requirements was known only to the Defendants; Plaintiffs and the Subclass members did not know of these facts, and the Defendants actively concealed these facts from Plaintiffs and Subclass members.

2043. Plaintiffs and Subclass members reasonably relied upon the Defendants' deception. They had no way of knowing that the Defendants' representations were false and/or misleading. As consumers, the Plaintiffs and Subclass members did not, and could not, unravel the Defendants' deception on their own. Rather, the Defendants intended to deceive Plaintiffs and Subclass members by concealing the true facts about the Affected Vehicle emissions.

2044. The Defendants also concealed and suppressed material facts concerning what is evidently the true culture of the Defendants—a culture characterized by an emphasis on profits and sales above compliance with federal and state clean air law and emissions regulations that are meant to protect the public and consumers. Defendants also emphasized profits and sales above the trust that Plaintiffs and Subclass members placed in their representations. Consumers buy diesel cars from the Defendants because they feel they are clean

diesel cars. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Affected Vehicles are doing.

2045. The Defendants' false representations were material to consumers, because they concerned the quality of the Affected Vehicles, because they concerned compliance with applicable federal and state law and regulations regarding clean air and emissions, and also because the representations played a significant role in the value of the vehicles. As the Defendants well knew, their customers, including Plaintiffs and Subclass members, highly valued that the vehicles they were purchasing or leasing were fuel efficient, clean diesel cars with reduced emissions, and they paid accordingly.

2046. The Defendants had a duty to disclose the emissions defect, defective design of emissions controls, and violations with respect to the Affected Vehicles because details of the true facts were known and/or accessible only to the Defendants, because the Defendants had exclusive knowledge as to such facts, and because the Defendants knew these facts were not known to or reasonably discoverable by Plaintiffs or Subclass members. The Defendants also had a duty to disclose because they made general affirmative representations about the qualities of the vehicles with respect to emissions, starting with references to them as reduced-emissions diesel cars and as compliant with all laws in each country, which were misleading, deceptive, and incomplete without the disclosure of the

additional facts set forth above regarding the actual emissions of their vehicles, their actual philosophy with respect to compliance with federal and state clean air law and emissions regulations, and their actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Subclass members, the Defendants had the duty to disclose not just the partial truth, but the entire truth. These omitted and concealed facts were material because they directly impact the value of the Affected Vehicles purchased or leased by Plaintiffs and Subclass members. Whether a manufacturer's products pollute, comply with federal and state clean air law and emissions regulations, and whether that manufacturer tells the truth with respect to such compliance or non-compliance, are material concerns to a consumer, including with respect to the emissions certifications testing their vehicles must pass. The Defendants represented to Plaintiffs and Subclass members that they were purchasing or leasing reduced-emission diesel vehicles when, in fact, they were purchasing or leasing defective, high-emission vehicles with unlawfully high emissions.

2047. The Defendants actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect their profits and to avoid the perception that their vehicles were not clean diesel vehicles and did not or could not comply with federal and state laws governing clean air and emissions, which

perception would hurt the brand's image and cost the Defendants money, and they did so at the expense of Plaintiffs and Subclass members.

2048. The Defendants still have not made full and adequate disclosures, and continue to defraud Plaintiffs and Subclass members by concealing material information regarding the emissions qualities of the Affected Vehicles.

2049. Plaintiffs and Subclass members were unaware of the omitted material facts referenced herein, and they would not have acted as they did if they had known of the concealed and/or suppressed facts, in that they would not have purchased purportedly reduced-emissions diesel cars manufactured by the Defendants, and/or would not have continued to drive their heavily polluting vehicles, or would have taken other affirmative steps in light of the information concealed from them. Plaintiffs' and Subclass members' actions were justified. The Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiffs, or Subclass members.

2050. Because of the concealment and/or suppression of the facts, Plaintiffs and Subclass members have sustained damage because they own vehicles that are diminished in value as a result of the Defendants' concealment of the true quality and quantity of those vehicles' emissions and the Defendants' failure to timely disclose the defect or defective design of the diesel engine system, the actual emissions qualities and quantities of the Defendants' vehicles, and the serious

issues engendered by the Defendants' corporate policies. Had Plaintiffs and Subclass members been aware of the true emissions facts with regard to the Affected Vehicles, and the Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiffs and Subclass members who purchased or leased new or certified previously owned vehicles would have paid less for their vehicles or would not have purchased or leased them at all.

2051. The value of Plaintiffs' and Subclass members' vehicles has diminished as a result of the Defendants' fraudulent concealment of the defective emissions controls of the Affected Vehicles, the unlawfully high emissions of the Affected Vehicles, and the non-compliance with EPA emissions requirements, all of which has greatly tarnished the Defendants' brand name attached to Plaintiffs' and Subclass members' vehicles and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

2052. Accordingly, the Defendants are liable to Plaintiffs and Subclass members for damages in an amount to be proven at trial.

2053. The Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and Subclass members' rights and the representations that the Defendants made to them, in order to enrich the Defendants. The Defendants' conduct warrants an

assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

VI. REQUEST FOR RELIEF

WHEREFORE, Plaintiffs, individually and on behalf of members of the Nationwide Class and State Subclasses, respectfully request that the Court enter judgment in their favor and against the Defendants, as follows:

A. Certification of the proposed Nationwide Class and State Subclasses, including appointment of Plaintiffs' counsel as Class Counsel;

B. Restitution, including at the election of Class members, recovery of the purchase price of their Affected Vehicles, or the overpayment or diminution in value of their Affected Vehicles;

C. Damages, including punitive damages, costs, and disgorgement in an amount to be determined at trial, except that monetary relief under certain consumer protection statutes, as stated above, shall be limited prior to completion of the applicable notice requirements;

D. An order requiring the Defendants to pay both pre- and post-judgment interest on any amounts awarded;

E. An award of costs and attorneys' fees; and

F. Such other or further relief as may be appropriate.

VII. DEMAND FOR JURY TRIAL

Plaintiffs hereby demand a jury trial for all claims so triable.

DATED: November 14, 2016

Respectfully submitted,

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Attorneys for Plaintiffs and the Proposed Class

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Exhibit 21- social.cummins.com-Two Millionth Cummins Pickup Engine Rolls Off Line for Chrysler

Exhibit 22-Cummins Inc.-Press Release (April 15, 2008)

Exhibit 23-Cummins Inc.-Press Release (February 3, 2010)

Exhibit 24- 2008 Dodge Ram Brochure

Exhibit 25- 2009 Dodge Ram Brochure

Exhibit 26-2010 Dodge Ram Brochure

Exhibit 27-2011 Dodge Ram Brochure

Exhibit 28- EPA's Notice of Violation to Volkswagen (September 18, 2015)

Exhibit 29-CAFEE Final Report (May 15, 2014)

EXHIBIT 1

Volkswagen emission scandal widens: 11 million cars affected

Nathan Bomey, USA TODAY 5:40 p.m. EDT September 22, 2015

Investors crush Volkswagen shares as company sets aside $7.3 billion to address software that manipulates emissions tests.

(Photo: Julian Stratenschulte, European Pressphoto Agency)

Volkswagen's emissions scandal ballooned Tuesday as the company admitted that software designed to fool regulators affects 11 million vehicles worldwide and could cost more than $7 billion to address, threatening to undermine its new position as the world's largest automaker.

The automaker's deception immediately qualifies as one of the most expensive automotive scandals in recent memory and could jeopardize CEO Martin Winterkorn's job as his contract comes up for renewal.

The company's crisis dragged down stocks in Germany, undermined Volkswagen's claims of environmentally advanced diesel engineering and threatened to reverse the automaker's sales gains on Toyota as the world's biggest vehicle maker — a title it seized in the first six months of 2015.

Unlike General Motors' accidental ignition-switch defect, which killed more than 120 people, Volkswagen engineers intentionally designed cars to circumvent regulators.

While Volkswagen's transgression hasn't killed anyone, it has sown distrust among consumers.

"This could damage the Volkswagen brand globally for years to come," said former automotive marketing executive Peter De Lorenzo, blogger at Autoextremist.com, in an interview. "Trust and belief in the brand has been broken."

Winterkorn pledged to regain the public's trust and "find out exactly what happened" amid speculation that he could lose his job over the crisis. Winterkorn's contract, coincidentally, is up for renewal at the automaker's board meeting Friday (/story/money/cars/2015/09/02/volkswagen-ceo-gets-contract-extension/71564856/). A subcommittee will meet Wednesday to recommend whether the full board should extend the CEO's deal.

He apologized Tuesday for the second time in four days, but gave no indication that he'll consider resigning. He said, "We are asking for trust as we move forward."

"We are working very hard on the necessary technical solutions," he said, according to an English translation of his remarks provided by Volkswagen. "And we will do everything we can to avert damage to our customers and employees. I give you my word: we will do all of this with the greatest possible openness and transparency."

USA TODAY

Analysis: Deception fuels Volkswagen emissions scandal (http://www.usatoday.com/story/money/cars/2015/09/22/analysis-deception-fuels-volkswagen-emissions-scandal/72608782/)

Investors crushed the German automaker's stock, driving shares down 20%, a day after the stock plunged 19% (/story/money/cars/2015/09/21/volkswagen-stock-epa-emissions-diesel-cars/72551936/).

The crisis began Friday when the U.S. Environmental Protection Agency accused Volkswagen of installing sophisticated software on nearly 500,000 U.S. vehicles to manipulate emissions tests.

The technology tricks regulators into believing that four-cylinder diesel cars comply with emissions standards, but the cars are actually emitting harmful pollutants at rates of up to 40 times acceptable standards. Volkswagen quickly halted sales of the cars after the allegations surfaced.

The U.S. Justice Department has opened a criminal probe into the automaker's actions. The EPA has an investigation, and foreign regulators are expected to launch their own probes.

USA TODAY

Analysis: Deception fuels Volkswagen emissions scandal

(http://www.usatoday.com/story/money/cars/2015/09/22/analysis-deception-fuels-volkswagen-emissions-scandal/72608782/)

Volkswagen acknowledged "a notable deviation between bench test results and actual road use" in the affected vehicles.

Volkswagen said it would set aside 6.5 billion euro, or $7.3 billion, in its third quarter to address the matter and warned that the amount could change. In the U.S., the EPA could fine Volkswagen up to $37,500 per car, which would equal a maximum fine of $18 billion.

The scandal raises serious questions about whether high-level executives knew about the software, which had been installed on some nameplates for at least six consecutive model years.

Earlier this month, a subcommittee of Volkswagen's board recommended that the full panel extend Winterkorn's contract through 2018. The official renewal at Friday's board meeting was viewed at the time as a routine matter, but now it may be up in the air.

Winterkorn kept his job earlier this year after then-chairman Ferdinand Piech tried to displace him. Piech exited the company shortly after his failed effort.

De Lorenzo, the automotive marketing veteran, said Winterkorn will be forced to answer questions about his knowledge of the emissions scandal.

"He's very much detailed-oriented. He's always regaled his underlings with his depth of knowledge of detailed items that they would assume he wouldn't bother with," De Lorenzo said. "I think heads will roll and this could bring down Winterkorn and some of his trusted lieutenants."

Dave Sullivan, an analyst with AutoPacific, said the "chances of him coming out unscathed have got to be very small."

The EPA has said the software affected the four-cylinder diesel versions of the 2009 to 2015 Jetta, Beetle and Golf; the 2014 and 2015 Passat; and the 2009 to 2015 Audi A3.

The episode is likely to trigger a recall and a flurry of consumer lawsuits. It may prompt the company to compensate individual car owners or other measures.

U.S. Sen. Bill Nelson, D-Fla., called on the Federal Trade Commission to investigate Volkswagen's marketing of "clean diesel" vehicles.

EPA officials have pledged to punish Volkswagen. The crisis took on an additional political bent Tuesday afternoon when Democratic presidential candidate Hillary Clinton tweeted about the scandal: "Outrageous. When companies put profits ahead of safety and the environment, there should be consequences."

Volkswagen's sheer size may help the company navigate the crisis without jeopardizing its future. The company had 12.7 billion euros in operating profit in 2014, as well as 592,586 employees globally.

Brian Moody, site editor for AutoTrader.com, said Volkswagen took the right step by apologizing quickly.

"Doing it the way they're doing it it makes sense," he said in an interview. "I think they'll get past it quicker. I think taking the head-on approach will be better for them in the long run."

Still, the scandal may endanger the reputation of diesel cars in the U.S., where many consumers still view the cars skeptically. A gallon of diesel fuel cost 22 cents more than a gallon of unleaded gasoline in the U.S. as of Tuesday afternoon, according to GasBuddy.com.

What's more, European regulators are expected to place Volkswagen under intense scrutiny. And the scandal could bode poorly for Volkswagen in the world's largest vehicle market, China, where Volkswagen is No. 1 by market share.

"The problem is the Chinese are starting to realize they have got to do something with their air and this could have an effect on the relationship the Chinese have with Volkswagen," Sullivan said.

Follow USA TODAY reporter Nathan Bomey on Twitter @NathanBomey (http://twitter.com/NathanBomey).

EXHIBIT 2

Cummins Technology Partnerships

Recent technology partnerships have been featured in Cummins literature - please see a short description of each below, and click the title to open a pdf version of the full flyer in a new window or tab.

ETHOS Public Report

This Ultra-Low Carbon Powertrain project report describes the design, development, and testing of a prototype powertrain concept fueled by E85 and targeted to decrease CO2 emissions on a full-fuel-cycle basis by over 50%. This project developed a downsized 2.8L engine for use in class 4-6 medium duty vehicles with power and torque capabilities appropriate for this market.

SuperTruck

In 2010, the Department of Energy (DOE) awarded $39 million in funding to Cummins Inc. – which the company and its partners are matching 50/50 – to support technology development, system integration and demonstration for a highly efficient Class 8 tractor-trailer – known as the SuperTruck program. Cummins has partnered with PACCAR Inc. and suppliers including Cummins Component Businesses (Turbo Technologies, Emission Solutions, Fuel Systems and Filtration), Eaton and VanDyne SuperTurbo Inc., and research entities Oak Ridge National Laboratory and Purdue University.

EPA 2010 Exhaust Emission Regulations

Public/Private Partnership Accelerates Progress. In 2001, the EPA set forth the most stringent exhaust emissions standards for heavy-duty on-highway diesel engines to be introduced in 2010. The EPA regulations provided a clear, long-term view of the emissions performance targets, and of the investments in research and development (R&D) that would be needed to develop the right technologies to deliver reliable, durable, high performing products to the many markets served by diesel engines.

EPA 2007 Regulations - Diesel Particulate Filters

As part of the emissions regulations finalized in 2001 for on-highway diesel engines, the EPA set standards for particulate matter (PM) to be implemented in 2007 that would reduce PM to near-zero levels. This posed a significant challenge to diesel engine manufacturers as they needed to develop and introduce active diesel particulate filters (DPFs), which had not previously been used on a large scale. Investments in research and development (R&D)

Resources
Brochures
Blog
How a Diesel Engine Works
On-Highway
Tier 4 Info
Body Builder IQA
Biodiesel FAQ
Connected Diagnostics
INLINE 7 Data Link Adapter
Off-Highway Fuel Quality
Center of Excellence
DEF for Industrial Applications
Natural Gas Engines
Technology Partnerships
Training Hardware

were needed to develop the right technologies to deliver reliable, durable, high performing products to the many markets served by heavy-duty diesel engines.

Cummins Inc, Box 3005, Columbus, IN 47202-3005 USA

EXHIBIT 3

News Article

View printer-friendly version

<< Back

Cummins Reveals Best-In-Class 2007 Turbo Diesel Engine

Strongest. Cleanest. Quietest.

WASHINGTON--(BUSINESS WIRE)--Jan. 23, 2007--Cummins Inc. (NYSE:CMI) today unveiled the strongest, cleanest, quietest best-in-class 2007 Cummins Turbo Diesel. Leapfrogging the competition, the Cummins 6.7-liter Turbo Diesel engine, used exclusively in Dodge Ram 2500 and 3500 Heavy Duty pickup trucks, has increased displacement providing increased horsepower and torque while achieving the world's lowest 2010 Environmental Protection Agency (EPA) NOx standard a full three years ahead of the requirements.

The new Turbo Diesel engines are in full production at the Cummins MidRange Engine Plant in Columbus, Ind. Cummins has been the sole supplier of diesel engines for the Dodge Ram since 1988, shipping approximately 160,000 engines in 2006.

Cummins is the first diesel engine manufacturer to have a product certified to the 2010 EPA heavy-duty engine standards for oxides of nitrogen (NOx) and particulate matter (PM) emissions, making it the cleanest heavy-duty diesel engine available in North America. The 2010 EPA standards for NOx (0.2g) and PM (0.01g) represent a more than 90 percent reduction in each pollutant, compared to the 2004 standards.

"The application of the right technology on the Dodge Ram is an extension of the joint clean diesel development work Cummins and DaimlerChrysler have performed together for nearly two decades," said Cummins President and Chief Operating Officer Joe Loughrey. "The new best-in-class Cummins Turbo Diesel and the Dodge Ram will provide the strongest, cleanest, quietest solution for heavy-duty pickup truck customers."

This new technology is a significant validation of the industry's ability to meet the EPA's 2010 clean diesel standards. These innovations help power our economy and drive our environmental successes," said Bill Wehrum, EPA's Acting Assistant Administrator for Air and Radiation.

Cummins announced this news prior to the Washington Auto Show in conjunction with DaimlerChrysler and the EPA.

Strongest. The increased displacement of the 6.7-liter Turbo Diesel - enabling an increase in horsepower and torque while maintaining fuel economy - will provide Dodge Ram customers with better engine performance without sacrificing the reliability and durability that have become synonymous with Cummins. Increased vehicle control and lower operating cost are both delivered on the new 6.7L Turbo Diesel with the addition of an integrated exhaust brake option, providing outstanding braking performance.

Cleanest. Combining advanced in-cylinder technologies, including a Bosch flexible 1800-bar High Pressure Common Rail fuel system with Cummins next-generation cooled Exhaust Gas Recirculation (EGR) and Variable Geometry Turbocharger (VGT(TM)), plus advanced exhaust aftertreatment technology, every Dodge Ram pickup will comply with the 2010 NOx and PM emissions standards. The advanced aftertreatment system includes a close-coupled diesel oxidation catalyst, a NOx adsorber catalyst and a combined diesel oxidation/particulate filter. The engine also incorporates a proprietary closed crankcase ventilation (CCV) system to eliminate crankcase fumes and "driveway drips." These advanced technologies require the use of Ultra-Low Sulfur Diesel (ULSD) fuel in order to meet the tough 2007 and 2010 regulations.

Quietest. The 2007 Cummins Turbo Diesel achieves a 50 percent noise reduction over the previous model, even with the increase in power and torque. The combination of reduced combustion noise, a low-noise VGT, optimized fuel timing/delivery, reduced-noise accessory drive pulleys and block side shields all contribute to this significant noise reduction.

Since 1988, Cummins and Dodge have collaborated to ship over 1.5 million Heavy Duty diesel pickup trucks and today enjoy around 30 percent market share in this highly competitive market in North America.

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Headquartered in Columbus, Indiana (USA), Cummins serves customers in more than 160 countries through its network of 550 company-owned and independent distributor facilities and more than 5,000 dealer locations. Cummins reported net income of $550 million on sales of $9.9 billion in 2005. Press releases can be found on the Web at cummins.com or everytime.cummins.com.

CONTACT: Cummins Inc.
Carol Lavengood, 812-377-3079
carol.lavengood@cummins.com

SOURCE: Cummins Inc.

EXHIBIT 4

EPA 2010 Exhaust Emissions Regulations.

Public/Private Partnership Accelerates Progress.

In 2001, the Environmental Protection Agency (EPA) set forth the most stringent exhaust emissions standards for heavy-duty on-highway diesel engines, to be introduced in 2010. The EPA regulations provided a clear, long-term view of the emissions performance targets and of the investments in research and development (R&D) that would be needed to develop the right technologies to deliver reliable, durable, high-performing products to the many markets served by diesel engines.

99% Reductions In PM And NOx.

The challenge to diesel engine manufacturers was huge, with a required 99% reduction of both Particulate Matter (PM) and oxides of nitrogen (NOx) from unregulated levels. Cummins engineers knew that this would require the development and introduction of engine technologies and exhaust catalysts never before applied to on-highway heavy-duty diesel engines. The Department of Energy (DOE) also recognized the significant challenge and stepped forward to help support the needed R&D through public-private partnerships known as Cooperative Research and Development Agreements (CRADAs).

Every Partner Contributes.

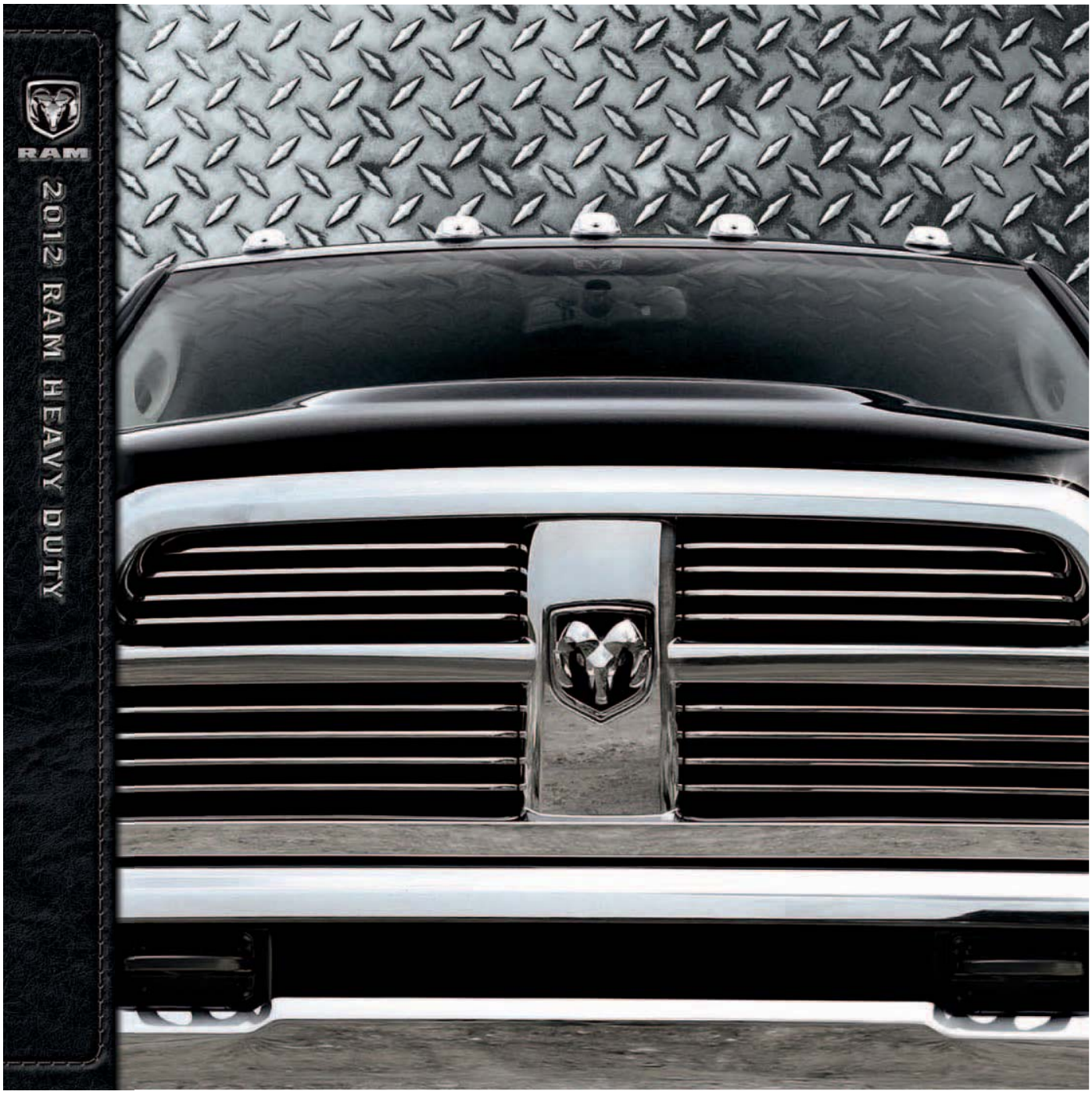
One example of a successful R&D partnership has been among the DOE, Cummins, catalyst partner Johnson Matthey and Pacific Northwest National Laboratory (PNNL). The partnership started shortly after the adoption of the stringent emissions standards in 2001, in recognition of the fundamental challenges posed by the introduction of catalytic systems in diesel applications. Over the course of the 50/50 cost-shared partnership, this collaboration provided Cummins with powerful catalysis and surface science expertise and tools. The CRADA provided the first quantitative analysis to decouple the two major modes of NOx Adsorber Catalyst (NAC) degradation – thermal damage and inadequate sulfur removal from the catalyst surface.

In addition, the CRADA provided access to PNNL discoveries, which proved key to interpreting many features of these uniquely complex catalytic systems. With researchers from all three organizations being closely involved in the technical discussions on a regular basis, the CRADA stayed focused on the factors of substantial, practical relevance from both catalyst formulation and catalyst application standpoints.

A Successful Launch – Three Years Early.

In 2007, Cummins, in partnership with Chrysler, revealed the most advanced diesel engine and exhaust aftertreatment system as the “strongest, cleanest, quietest” diesel engine in its class. The CRADA had been instrumental in the development and application of a NOx Adsorber Catalyst for the Cummins 6.7L Turbo Diesel, and Cummins was the first diesel engine manufacturer to have a product certified to the 2010 EPA heavy-duty engine emissions regulations in all 50 states – a full three years ahead of the schedule laid out by the EPA. The product has been in commercial use for over four years, delighting customers with its performance and durability, and delivering on Cummins commitment to a cleaner, healthier environment.

EXHIBIT 5


RAM
2012 RAM HEAVY DUTY

RAM HEAVY DUTY. THESE ARE OUR VALUES AT WORK. Yes, it's about versatile power and the strength to do the job. Yes, it's about exceptional towing and hauling capability. To be sure, it's about the wide range of available Mopar® Accessories that can transform this workhorse into a comfortable, Internet[1]*-connected room. But the overarching factor that defines and separates Ram Heavy Duty is *value*. Like our teamwork with Cummins,® whose brilliance gives you a Turbo Diesel† with fewer moving parts — translating into the real-world value of reduced maintenance costs. Like our formidable 5.7-liter HEMI® V8,† whose legendary performance has served whole eras in automotive and aviation history. Finally, it's about value measured in quality, with the 5-Year/100,000-Mile Powertrain Limited Warranty[2] that backs you on every Ram Heavy Duty. These are our values. And time and time again, they work. *A note about this brochure: All disclaimers and disclosures can be found inside the back cover. †Check with your local dealer for model/engine availability.

ONLY RAM MAX IT.

RAM HEAVY DUTY. HANDS DOWN, A BENCHMARK FOR THE CLASS.

RAM POWER WAGON: No other pickup matches the stunning strengths of the long-lauded Ram Power Wagon® • The most capable off-road full-size pickup, period • **Class Exclusive[3]:** front electronically disconnecting stabilizer bar (or sway bar), allows nine inches of additional articulation • **Class Exclusive[3]:** electronically locking front and rear differentials **Class Exclusive[3]:** 12,000-lb capacity front-mounted WARN® winch, with 4.6-horsepower series wound motor and 125 feet of 3/8-inch aircraft-grade cable • Super-tough 4.56 axle ratio

RAM 2500/3500 PICKUPS: Built for work, designed for recreation, ready to handle what life hands you • Unsurpassed 800 lb-ft of torque[3] from the available 6.7-liter Cummins High Output Turbo Diesel • **Class Exclusive[3]:** the ingenious and convenient RamBox® Cargo Management System (late availability) • **Class Exclusive[3]:** versatile rear in-floor storage bins on Crew Cab models • **Class Exclusive[3]:** available 6-speed manual transmission • **Best-in-class honors[3]:** The mammoth interior volume of Ram Mega Cab® • **Class Exclusive[3]:** on Cummins Turbo Diesel-equipped models, no need at all for a Diesel Exhaust Fluid (DEF) system — unlike Ford and Chevy diesel-powered models

RAM 3500 PICKUPS: These one-ton workhorses feature upgrades that launch them into the realm of extreme capability • Available MAX Tow Package ramps up GCWR and towing • Exceptional GCWR strength that boosts capability up to 30,100 lb[4] • Maximum towing capability reaches a stunning 22,750 lb[4]

LOCOMOTIVE OF THE GAS POWERTRAINS.

HEMI The hemispherical engine head was designed more than a century ago — a clear indication of the uncontested success of this iconic design. With initial contributions to American history encompassing engine applications that ranged from aircraft and tanks to the iconic American muscle car, today's HEMI® V8 is pure innovation at work, with its dual spark plug technology and unique hemispherical combustion chambers burning fuel with outstanding efficiency.

EXCEPTIONALLY FUEL-EFFICIENT OPERATION. It comes to work by combining performance with fuel-efficient operation. The 5.7-liter HEMI V8 in Ram 2500 trucks delivers capability.

A BIG BREATH OF FRESH AIR. As the standard engine on Ram 2500 Heavy Duty pickups, the 5.7-liter HEMI V8 on Ram Heavy Duty models features a notable advantage: Variable Valve Timing (VVT). By varying the exact timing of each valve, the degree of "engine breathing" increases exponentially. The results are all about doing the work with greater efficiency and strength; torque number rises and fuel-efficient performance increases. It's exactly the technology needed for a gas engine to provide beyond-competent towing, hauling, and acceleration. In every way, this is a legend at work.

TRANSMISSIONS

66RFE 6-SPEED AUTOMATIC.
New, and engineered specifically for the 2012 Ram 2500 Heavy Duty pickup, this sophisticated multirange electronically controlled transmission features optimized gear ratios and Electronic Range Select (ERS) for responsive, durable performance. Standard with the 5.7-liter HEMI V8 on 2500 models.

68RFE 6-SPEED AUTOMATIC.
Features Electronic Range Select for premium operation during cruising and towing. Outstanding strength, stamina, and reliability with impressive performance at all rpm levels. Available for Ram 2500 and 3500 pickups equipped with the Cummins® High Output Turbo Diesel.

CLASS-EXCLUSIVE[3] 6-SPEED MANUAL.
Here, a high-ratio sixth gear offers ideal lower highway rpm ranges along with the welcome efficiency inherent in manual transmissions. The proven 6-speed manual is the standard drivetrain component for Ram Heavy Duty models powered by the 6.7-liter Cummins Turbo Diesel power plant.

MAXIMUM PAYLOAD CAPACITIES (WHEN PROPERLY EQUIPPED)

			2500												3500											
			Regular Cab		Crew Cab						Mega Cab®				Regular Cab		Crew Cab						Mega Cab			
			LB 4x2	LB 4x4	SB 4x2	RB 4x2	LB 4x2	SB 4x4	RB 4x4	LB 4x4	SB 4x2	RB 4x2	SB 4x4	RB 4x4	LB 4x2	LB 4x4	SB 4x2	RB 4x2	LB 4x2	SB 4x4	RB 4x4	LB 4x4	SB 4x2	RB 4x2	SB 4x4	RB 4x4
AUTOMATIC TRANSMISSION	Engine	GVWR																								
	5.7L HEMI V8	8,510						1,880	1,690																	
		8,650	3,190	2,700																						
		8,800			2,930	2,730	2,830	2,520	2,320	2,360	2,530	2,340	2,090	1,900												
	6.7L Cummins Turbo Diesel I-6	9,000	2,650	2,180	2,240	2,040	2,110				1,950	1,750														
		9,600						2,410	2,220	2,290			2,020	1,830												
		10,100[1]															3,300	3,100	3,120	2,880	2,680	2,700	2,950	2,750	2,530	2,330
		10,500[2]																					3,020		2,600	
		11,500[2]																	4,160							
		12,000[2]													5,180											
		12,200[2]														4,950										
		12,300[2]																			4,550					

			2500												3500											
			Regular Cab		Crew Cab						Mega Cab				Regular Cab		Crew Cab						Mega Cab			
			LB 4x2	LB 4x4	SB 4x2	RB 4x2	LB 4x2	SB 4x4	RB 4x4	LB 4x4	SB 4x2	RB 4x2	SB 4x4	RB 4x4	LB 4x2	LB 4x4	SB 4x2	RB 4x2	LB 4x2	SB 4x4	RB 4x4	LB 4x4	SB 4x2	RB 4x2	SB 4x4	RB 4x4
MANUAL TRANSMISSION	Engine	GVWR																								
	6.7L Cummins Turbo Diesel I-6	9,000	2,550	2,090	2,170	1,980	2,050				1,880	1,690														
		9,600						2,340	2,150	2,210			1,960	1,760												
		10,100[1]															3,250	3,050	3,070	2,830	2,630	2,650	2,890	2,700	2,470	2,280
		10,500[2]																					2,960		2,540	
		11,500[2]																	4,110							
		12,000[2]													5,100											
		12,200[2]														4,880										
		12,300[2]																			4,490					

Weights given in lb. LB = Long Box SB = Short Box RB = RamBox® [1]Single Rear Wheel only. [2]Dual Rear Wheel only.

5 YEAR/100,000 MILE POWERTRAIN WARRANTY **WARRANTIES AS TOUGH AS THE POWERTRAINS THEY PROTECT.** The business of a Ram truck is to deliver quality. All Ram powertrains cover you with a 5-Year/100,000-Mile Powertrain Limited Warranty.[2]

UNSURPASSED[3] TORQUE AT YOUR SERVICE.

THE 6.7L CUMMINS® TURBO DIESELS. THE MOST FORMIDABLE PARTNERSHIP IN THE WORKING WORLD.

Long known for the strength to power semi trucks, the world-respected Cummins Turbo Diesel engines continue their leadership role with Ram Heavy Duty. The Cummins High Output version — available for both Ram 2500 and 3500 Heavy Duty pickups — boosts measured torque specifications to unsurpassed[3] capability; with available torque rated at 800 lb-ft. The Ram 3500 GCWR is equally impressive, maxing out at 30,100 lb[4] The story hardly stops there: with the Cummins High Output Turbo Diesel and the available MAX Tow Package, a properly equipped Ram 3500 Regular Cab ST Dually 4x2 can tow up to an astonishing 22,750 lb. The point that drives it all home is class exclusive[3]: only Ram and Cummins offer the value along with the hassle-free operation that completely eliminates the need for a Diesel Exhaust Fluid (DEF) system required by Ford and GM counterparts.

NO DIESEL EXHAUST FLUID (DEF) REQUIRED HERE. The savings are measured in time, expense, and hassles: both versions of the 6.7-liter Cummins Turbo Diesel in Ram Heavy Duty pickups meet all 50-state emissions standards with no need for a DEF system. Neither Ford nor GM pickups can offer that value.

THERMODYNAMICS DEFINED. Unlike competitive designs which use two thermostats, the Cummins engines use only one. With fewer moving parts, it ensures an easier and more cost-effective means to measure temperature and provide standard maintenance.

FORMIDABLE BLOCK STIFFNESS. The cast-iron engine block is comprised of one sole element (others use a combination of metals), which helps contribute to less noise and vibration, and also helps to mitigate harshness.

COMMON-RAIL ARCHITECTURE. The common-rail fuel system in the 6.7-liter Cummins Turbo Diesel works with sophisticated electronics to yield multiple advantages. Among them: uncommonly quiet operation.

INTEGRATED GRID HEATER. An engineering accomplishment by Cummins to help achieve outstanding cold-starting ability. The Cummins engines start without glow plugs or an ancillary block heater in temperatures as low as -20°F.

ELECTRONIC CONTROL MODULE (ECM). This proprietary engineering enables the engine to respond faster to throttle inputs. Its expanded electronic features were specifically designed for the demands of the commercial market.

FUEL FILTER: A WORKING MODEL OF EFFICIENCY. There is little doubt that diesel engines will play an increasingly important role for both truck and car propulsion. Diesel engines today are a model of cleanliness — in part, due to the fuel filter. The Cummins Turbo Diesel features a fuel filter with outstanding efficiency.

Cummins HIGH OUTPUT DIESEL

COMPETITIVELY EDGING ALL OTHERS OUT OF THE PICTURE.

The points enumerated here only begin to describe the substantial differences between Cummins and competitive engines. While the details encompass everything from materials to the position of the oil pan, the focus of the acknowledged leader in diesel technology is simply to employ fewer moving parts.

The depth of thinking on the part of Cummins is pivotal when put into the context of their history with Ram. For nearly a quarter of a century, this partnership has benchmarked power, durability, reliability, and economy — and it has provided an enduring legacy attributed to old-fashioned hard work and truly innovative engineering. This success is literally history in the making: it's the longest collaboration of its kind in the industry — and it will continue.

MAXIMUM LOADED TRAILER WEIGHT (WHEN PROPERLY EQUIPPED)

				2500												3500															
				Regular Cab		Crew Cab						Mega Cab®				Regular Cab		Crew Cab								Mega Cab					
	Engine	Axle Ratio	GCWR	LB 4x2	LB 4x4	SB 4x2	RB 4x2	LB 4x2	SB 4x4	RB 4x4	LB 4x4	SB 4x2	RB 4x2	SB 4x4	RB 4x4	LB DRW 4x2	LB DRW 4x4	SB 4x2	RB 4x2	LB 4x2	LB DRW 4x2	SB 4x4	RB 4x4	LB 4x4	LB DRW 4x4	SB 4x2	SB DRW 4x2	RB 4x2	SB 4x4	SB DRW 4x4	RB 4x4
AUTOMATIC TRANSMISSION	5.7L HEMI® V8	3.73	17,000	11,400	10,900	11,000	10,800	10,900	10,550	10,350	10,400	10,600	10,400	10,150	9,950																
		4.10	20,000	14,400	13,900	14,000	13,800	13,900	13,550	13,350	13,400	13,600	13,400	13,150	12,950																
		4.56	17,000						10,200	10,050																					
	6.7L Cummins Turbo Diesel I-6	3.42	17,000	10,500	10,050	10,100	9,900	9,950	9,650	9,450	9,550	9,800	9,600	9,250	9,100	10,050	9,600	10,050	9,850	9,850	9,500	9,650	9,450	9,450	9,100	9,700	9,350	9,500	9,300	8,950	9,100
		3.73	20,000	13,500	13,050	13,100	12,900	12,950	12,650	12,450	12,550	12,800	12,600	12,250	12,100																
		4.10	22,000	15,500	15,050	15,100	14,900	14,950	14,650	14,450	14,550	14,800	14,600	14,250	14,100																
		3.73	21,000													14,050	13,600	14,050	13,850	13,850	13,500	13,650	13,450	13,450	13,100	13,700	13,350	13,500	13,300	12,950	13,100
		4.10	24,000															17,050	16,850	16,850		16,650	16,450	16,450		16,700		16,500	16,300		16,100
		4.10	25,300[5]																		17,200										
		4.10	25,700[5]																		17,650										
		4.10	25,900[5]																		17,950										
		4.10	26,000[5]																								18,350			17,950	
		4.10	26,100[5]																		18,200										
		4.10	27,600[5]																						19,100						
		4.10	28,000[5]																						19,550						
		4.10	28,300[5]																						19,900						
		4.10	28,500[5]																						20,150						
		4.10	30,000[5]														22,150														
		4.10	30,100[5]													22,750															
MANUAL TRANSMISSION	Engine	Axle Ratio	GCWR																												
	6.7L Cummins Turbo Diesel I-6	3.42	19,000	12,400	11,950	12,000	11,850	11,900	11,600	11,400	11,450	11,750	11,550	11,200	11,000	11,950	11,550	12,000	11,800	11,800	11,450	11,600	11,400	11,400	11,050	11,650	11,300	11,450	11,200	10,900	11,050
		3.73	20,000	13,400	12,950	13,000	12,850	12,900	12,600	12,400	12,450	12,750	12,550	12,200	12,000																
		3.73	21,000													13,950	13,550	14,000	13,800	13,800	13,450	13,600	13,400	13,400	13,050	13,650	13,300	13,450	13,200	12,900	13,050

Weights given in lb. LB = Long Box SB = Short Box RB = RamBox DRW = Dual Rear Wheel [1]DRW only. Requires MAX Tow Package.

5YEAR/100,000MILE POWERTRAIN WARRANTY **WARRANTIES AS TOUGH AS THE POWERTRAINS THEY PROTECT.** The business of a Ram truck is to deliver quality. All Ram powertrains cover you with a 5-Year/100,000-Mile Powertrain Limited Warranty.[2]

Ram 3500 Crew Cab SLT DRW shown in Bright White. Properly secure all cargo.

NO FEAR FROM RAIL TO TRAIL. IT'S ALL ABOUT TOWING.

RAM HEAVY DUTY IS ALL ABOUT THE REAL WORLD. Like towing a cabin cruiser or hauling an excavator. Precisely why those Ram 3500 impressive towing figures also contribute to value. Three available advantages — the 6.7-liter Cummins® High Output engine, 6-speed automatic transmission, and the MAX Tow Package — result in the very real "Less Is More" equation: More towing power means less worry. More strength allows fewer trips. More capability reduces expenses for greater profits. That's real Ram value.

IMPRESSIVELY LARGE BRAKE ROTORS, PADS, AND CALIPERS.

Leave smaller brakes to the others. Our massive rotors measure over 14 inches in diameter — with huge brake pads to match. It's about capability and control, and Ram Heavy Duty delivers.

AVAILABLE INTEGRATED TRAILER BRAKE CONTROLLER.

This panel-mounted display gives you greater control and towing confidence. Customize it to increase or decrease the trailer brake pressure, depending on your load weight.

NEW ELECTRIC-OVER-HYDRAULIC TRAILER BRAKE CAPABILITY.

Expand your towing capability. Choose from multiple modes for trailer-specific customization. Handles up to four-axle trailers, including standard and gooseneck. Customer-selectable inputs are visible in the EVIC display.

FIFTH-WHEEL HITCH.

Authentic Accessories by Mopar, ramp up towing. This tough Fifth-Wheel Hitch assembly is recommended across the Ram truck line when towing weights exceed 12,000 lb — an assignment easily handled by Ram Heavy Duty.[4]

CHOOSE YOUR RAM. AND GO GET HITCHED. It's not merely outstanding towing numbers that make the Ram family the pickups of choice for the work site. Convenience is also at work here. This is ideal technology made for people who need to get hitched up.

On every Ram Heavy Duty, integrated 4- and 7-pin trailer connectors are standard. Class-IV hitch, standard. And the available ParkView® Rear Back-Up Camera[5] removes the need for a spotter, or the time-consuming in-and-out trips from the cab to properly line up hitch to ball.

Whether powered by the outstanding choices of Cummins Turbo Diesels or the legendary 5.7-liter HEMI® V8, you've got cab sizes and cargo beds custom-made for every job, with the singular Ram Heavy Duty Mega Cab® still offering the largest interior volume in the class.[3]

CONTROL IT, WITH YOUR DIESEL EXHAUST BRAKE. STANDARD WITH EVERY CUMMINS.

For some trucks, towing with or against gravity is a battle of wills. This indispensable asset on every Cummins Diesel offers exceptional control on grades.

NO DEF HERE. SAVE MONEY, TIME, AND HASSLES.

No other heavy-duty pickup in the class[3] can make this claim. The Cummins-powered Ram 2500 and 3500 Heavy Duty pickups stand alone, meeting every 50-state emissions standard with no need for a Diesel Exhaust Fluid system.

CAPABILITY TO EXCEED THE NEED.

All towing figures: when properly equipped.

3500 REGULAR CAB, 8' BOX
22,750-LB
MAX TOW CAPACITY

3500 CREW CAB, 6'4" BOX
17,050-LB
MAX TOW CAPACITY

3500 CREW CAB, 8' BOX
20,150-LB
MAX TOW CAPACITY

3500 MEGA CAB, 6'4" BOX
18,350-LB
MAX TOW CAPACITY

DO THE MATH. STUDY YOUR ANGLES. ★

Look into it and it's clear that Ram has the right numbers. These are heavy-duty trucks with heavy-duty attitude — and dressed with looks to kill. But don't let that sculpted exterior or luxurious interior distract you from the guts of the matter. While Ram's comfortable ride, deft handling, and nimble maneuverability all combine for an impressive drive to the job site, these are serious workhorses built to tow multiple tons and haul thousands of pounds on a daily — and yearly — time frame.

This no-nonsense do-it-all work ethic was born in the arduous process of preproduction testing. Long before they work for you, Ram Heavy Duty prototypes endure conditions unlikely to be encountered in your life — or lifetime. Grueling durability tests, excessive climate testing, road simulation shake trials on tracks that resemble mountainous terrains — it's beyond brutal. We measure every number — and we measure up, backing you with one of the best working warranties[2] in the business.

THE 5-YEAR/100,000-MILE POWERTRAIN LIMITED WARRANTY.[2]

So complete, it's transferable. It protects every Ram engine and transmission for 5 years or 100,000 miles, whichever comes first. Includes towing to an authorized dealer. See dealer for details.

5 YEAR/100,000 MILE POWERTRAIN WARRANTY[2]

1 The tough hydroformed front structure is designed to be the primary absorber of any impacts. By deflecting the energy from the driver and front passenger, it contributes to enhanced safety and security.

2 We focus on components that offer phenomenal strength, durability, and reliability. Ram Heavy Duty features supremely durable suspension bushings, outstanding front spring rates, and specially tuned suspensions. All contribute to impressive maneuverability and deft handling under a wide variety of loads and road conditions.

3 Look for capability up to 5,500 lb.[4] High front GAWR figures accommodate large snowplow applications.

4 We completely seal the interior, giving you a beyond-quiet cabin. Our design effectively manages inside airflow through the cab and out via proprietary air exhausters in the rear of the cab.

5 Under the C-pillars, special hydra-mounts enhance comfort and quietness. These unique mounts are literally "tuned" to help eliminate the vibrations of the suspension and frame.

6 Ram Heavy Duty brakes rank among the best. This multichannel, four-wheel antilock system is electronically operated, with front brakes controlled individually and the rear in tandem. Electronic Variable Brake Proportioning (EVBP) balances front-to-rear properties. The massive rotors exceed 14 inches in diameter, offering uncompromised braking power.

7 The structural cab strength comes from High Strength Steel (HSS) reinforcements and specialized inserts, which are integrated directly into the cab. Ram Heavy Duty also features superstrong windshield pillars and B-pillars.

IDEAL IF YOU'RE COMFORTABLE WITH COMPLETE CONTROL.

INTERIORS YOU CAN LIVE WITH. Make crosstown traffic bearable — and cross-country tours a spacious journey. Available features like power lumbar seats, heated and ventilated seats, Dual-Zone Temperature Control, and sophisticated electronics that can include the 'Net[1] is where we're at. Be part of it: upload your Ram Heavy Duty video to youtube.com/Ram

This is where it all comes together. You're in complete control — from mastering your towing to knowing the operational systems of your 2012 Ram Heavy Duty at a glance. Crisp readouts from the Electronic Vehicle Information Center (EVIC) are augmented by wicked smart design touches — like available woodgrain surfaces. The technology of tomorrow becomes even smarter when you add Authentic Accessories by Mopar® to keep you in touch with it all: people, music, maps, the 'Net.[1] Sometimes the impressive power of a Ram Heavy Duty interior even outweighs the experience of enjoying what's under the hood.

uconnect

IN TOUCH, IN TUNE. Outfit your Ram with Uconnect® and you've got a hub for your most important media: cell phone, Internet[1] (an available Authentic Accessory by Mopar), SiriusXM™ Satellite Radio,[8] navigation system, and personal devices, such as an iPod® or smartphone. Add SiriusXM Advanced Audio,[8] and enjoy features like Song Title Save, Song/Artist/Composer Information, Game Alerts for sporting events, Traffic Jump, Channel Browsing (without switching stations), Favorite Song Storing — and much more.

SiriusXM TRAFFIC SiriusXM TRAVEL LINK

PHONE. Talking on the phone while driving has never been easier — or more responsible. Uconnect Phone is the in-vehicle, voice-activated communication system that allows you to pair up to seven Bluetooth® compatible phones and then talk virtually hands-free. This system is also clever enough to synchronize with your phone's address book[6] — up to 1,000 entries — every time you get into your vehicle. The remote USB port lets you charge mobile devices.

WEB.[11] Put the power of high-speed Internet in your vehicle with the available Uconnect Web.[11] Effortlessly connect any WiFi-enabled device to the Internet at 3G broadband speeds, making your Ram a mobile Hotspot within a 150-ft range. Passengers can use multiple devices at the same time. There's no need for cell cards or software with this unique Authentic Accessory by Mopar. It's all wireless.

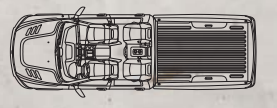
VOICE COMMAND.[7] It simplifies driving by letting you keep your eyes on the road and your hands on the wheel. Vocally select AM/FM radio stations, SiriusXM Satellite Radio[8] channels, make and receive calls, select navigation destinations, and record voice memos. Utilizing smart technology, the Voice Command[7] system can also be trained to better recognize your voice, and can understand commands in English, French, and Spanish.

MULTIMEDIA. Manage all of your media. You'll have six ways to access audio, including SiriusXM Satellite Radio[8] (your first year of service is included), plus a 40GB hard drive and iPod control with Voice Command.[7] Wirelessly stream music through Bluetooth streaming audio. Rear Seat Video can be utilized in multiple ways, including playing your personal DVDs, a variety of compatible multimedia devices, and operating numerous gaming consoles.

NAVIGATION SOLUTIONS. Choose from either Garmin® or the Enhanced GPS Navigation systems. Garmin is easy to use, with numerous features including Lane Guidance. The Enhanced GPS Navigation provides destination entry via Voice Command[7] and SiriusXM Traffic™[8] for real-time traffic info on the go. Add SiriusXM Travel Link™[8] for local fuel and movie info, even sports results and stock market figures.

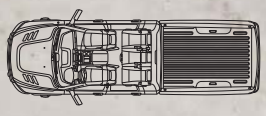
SOMETIMES BIGGER IS THE BEST. In the case of the cavernous Ram Mega Cab,® there is no contender: this Ram Heavy Duty comes to work with the largest interior volume in the class.[3]

CREW CAB



Interior Volume: 125.3 cu ft

MEGA CAB



Interior Volume: 142.65 cu ft


1


2

Crew Cab

The objective was uncompromising: *create an interior that works, day-in and year-out, to deliver outstanding levels of comfort, convenience, storage and capability. From the practical Regular Cab to Laramie Crew Cab and Mega Cab*, Ram Heavy Duty delivers it all.*

Laramie Crew Cab

1 Command central: the Ram Laramie dashboard and instrumentation leaves no doubt about who's in charge of this work partner. 2 The spacious and backseat-friendly Ram Crew Cab Laramie in Light Pebble Beige with Bark Brown accents, shown with available equipment.

Laramie Mega Cab

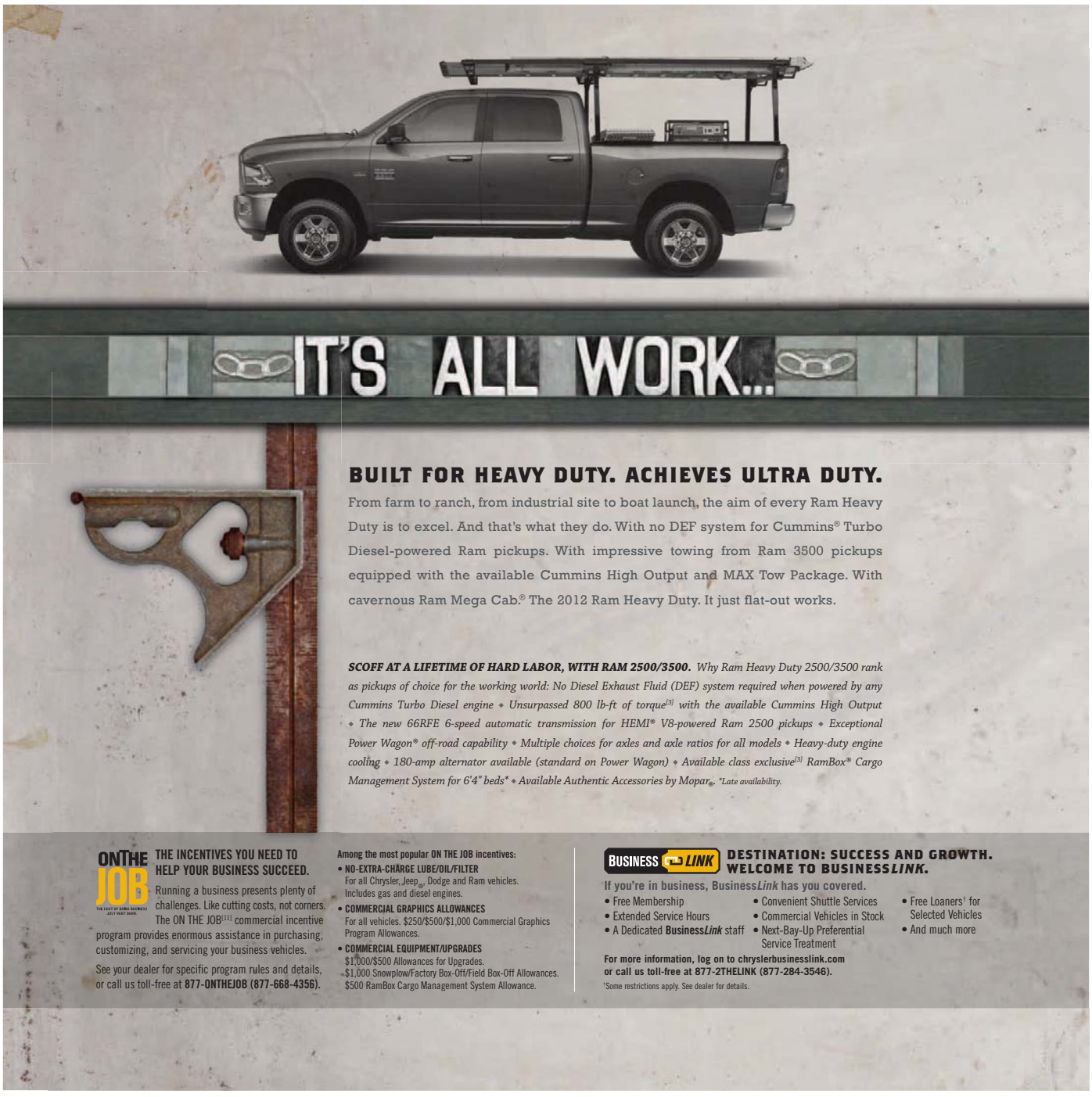
3 Nothing says mega like Ram Mega Cab, the class-leading[3] cab for interior volume and comfort, shown here in Dark Slate Gray leather trim. 4 Advantage Ram: the huge Mega Cab rear-seat area transforms into a convenient fold-flat cargo space for transporting large items with small effort. 5 The in-floor storage bins and handy clips for grocery bags in Ram Mega Cab models.


3

Mega Cab


4


5



BUILT FOR HEAVY DUTY. ACHIEVES ULTRA DUTY.

From farm to ranch, from industrial site to boat launch, the aim of every Ram Heavy Duty is to excel. And that's what they do. With no DEF system for Cummins® Turbo Diesel-powered Ram pickups. With impressive towing from Ram 3500 pickups equipped with the available Cummins High Output and MAX Tow Package. With cavernous Ram Mega Cab.® The 2012 Ram Heavy Duty. It just flat-out works.

SCOFF AT A LIFETIME OF HARD LABOR, WITH RAM 2500/3500. *Why Ram Heavy Duty 2500/3500 rank as pickups of choice for the working world: No Diesel Exhaust Fluid (DEF) system required when powered by any Cummins Turbo Diesel engine • Unsurpassed 800 lb-ft of torque[3] with the available Cummins High Output • The new 66RFE 6-speed automatic transmission for HEMI® V8-powered Ram 2500 pickups • Exceptional Power Wagon® off-road capability • Multiple choices for axles and axle ratios for all models • Heavy-duty engine cooling • 180-amp alternator available (standard on Power Wagon) • Available class exclusive[3] RamBox® Cargo Management System for 6'4" beds* • Available Authentic Accessories by Mopar®. *Late availability.*

ON THE JOB

THE INCENTIVES YOU NEED TO HELP YOUR BUSINESS SUCCEED.

Running a business presents plenty of challenges. Like cutting costs, not corners. The ON THE JOB[11] commercial incentive program provides enormous assistance in purchasing, customizing, and servicing your business vehicles.

See your dealer for specific program rules and details, or call us toll-free at **877-ONTHEJOB (877-668-4356).**

Among the most popular ON THE JOB incentives:

- **NO-EXTRA-CHARGE LUBE/OIL/FILTER** For all Chrysler, Jeep®, Dodge and Ram vehicles. Includes gas and diesel engines.
- **COMMERCIAL GRAPHICS ALLOWANCES** For all vehicles. $250/$500/$1,000 Commercial Graphics Program Allowances.
- **COMMERCIAL EQUIPMENT/UPGRADES** $1,000/$500 Allowances for Upgrades. $1,000 Snowplow/Factory Box-Off/Field Box-Off Allowances. $500 RamBox Cargo Management System Allowance.

BUSINESS LINK

DESTINATION: SUCCESS AND GROWTH. WELCOME TO BUSINESS*LINK*.

If you're in business, Business*Link* has you covered.

- Free Membership
- Extended Service Hours
- A Dedicated **Business*Link*** staff
- Convenient Shuttle Services
- Commercial Vehicles in Stock
- Next-Bay-Up Preferential Service Treatment
- Free Loaners† for Selected Vehicles
- And much more

For more information, log on to chryslerbusinesslink.com or call us toll-free at 877-2THELINK (877-284-3546).

†Some restrictions apply. See dealer for details.

1 Crew Cab Laramie: *From the first glance, Laramie hints at exceptional design and comfort — and it delivers in every way. To an interior appointed with leather-trimmed seats, subtle touches of chrome on the dash, and woodgrain trim, add navigational radio, and ParkView® Rear Back-Up Camera,[57] all standard.* **2 Dual Glove Boxes:** *Expand comfort and convenience with these intelligently designed storage compartments.* **3 Under-the-Seat and In-Floor Storage:** *Easy to reach and out of the way on Ram Crew Cabs, these are ideal for small tools and valuables.* **4 RamBox® System:** *This available cargo management system is now engineered for Ram Heavy Duty models with 6'4" beds. (Late availability.) Two lockable, lit, and drainable compartments on the sides of the bed join cargo rails and a bed extender/divider — with lots of custom RamBox System accessories from Mopar, to boot.*

Properly secure all cargo.

Late availability feature shown.

Ram 2500 Crew Cab Outdoorsman shown in two-tone Black and Mineral Gray Metallic with optional equipment. Properly secure all cargo.

Ram 2500 Crew Cab Big Horn in Mineral Gray Metallic. Properly secure all cargo.

...AND KNOWS PLAY.

READY TO BACK YOUR NEXT ADVENTURE.

When the angle of a boat launch makes drivers of lesser trucks look on with undisguised envy, count on your Ram Heavy Duty — and try not to smirk. Given tougher-than-nails engines, bulletproof transmissions and transfer cases, and exceptional towing technology, every day can be play time.

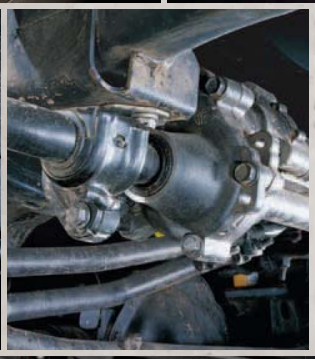
BEST PLAY ON THE BOOKS: RAM 2500/3500 HEAVY DUTY. *Cummins® Turbo Diesel (std. 3500, available 2500), 610 lb-ft of torque; available Cummins High Output, for an unsurpassed 800 lb-ft of torque[3]; standard diesel exhaust brake; available 6-speed automatic transmission with Electronic Range Select (ERS) for optimal gear selection and hands-on control. More: the Tow-Haul Mode, with dashboard-mounted switch, allows reprogramming of the transmission while towing and hauling; standard Class IV trailer hitch; available fully integrated electronic trailer brake controller.*

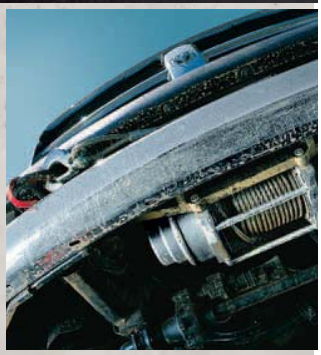
EVERY VOCATION, EVERY LOCATION: RAM HEAVY DUTY HAS A TRIM LEVEL TO MEET THE NEED.

Right, top row: *The most luxurious Ram ever built. Ram Laramie Longhorn features a premium interior with unique Laramie Longhorn Edition badging and seat treatments with distinctive laser-etched designs — or not; that's your call.* ***Second row:*** *Ram Power Wagon® distinguishes itself as the most capable pickup for severe off-road conditions; standard components on this exceptional pickup include Bilstein® gas-charged monotube shock absorbers, an electronically disconnecting front stabilizer bar (providing an additional nine inches of articulation), and the 12,000-lb capacity WARN® winch.* ***Third row:*** *The name says it all: Ram Outdoorsman, designed and built to take you to the lesser (and possibly never-before) traveled paths of life. Expand the capacity of the available brilliant RamBox® Cargo Management System with additional assets from Mopar®. Shown here is the RamBox Holster, letting you transport long guns, fishing rods with reels, or both.* ***Bottom row:*** *Contrast the vintage 1953 Ram Power Wagon military vehicle with a 2012 Ram Heavy Duty Crew Cab Big Horn, and you see history in motion. Ram Heavy Duty serves every purpose, from civic duty to all-around capability. For more, bookmark ramtrucks.com*

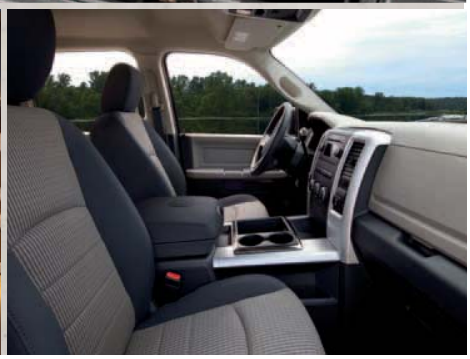
Properly secure all cargo.


LARAMIE
LONGHORN
EDITION






ONLY RAM
HAS IT.

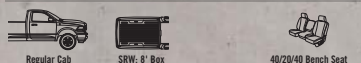


Ram 3500 Mega Cab® Laramie Longhorn in Deep Cherry Red Pearl with White Gold Metallic lower.

RAM HEAVY DUTY TRIM LEVELS

ST

2500



3500

STANDARD FEATURES:

MECHANICAL

2500: 5.7L HEMI® V8 with heavy-duty cooling and 66RFE 6-speed automatic transmission

3500: 6.7L Cummins® Turbo Diesel with heavy-duty cooling and 6-speed manual transmission • Tow hooks • 7 x 11-inch trailer tow mirrors

2500/3500: Electronic Stability Control System (ESC)[9] (on SRW models only), which includes 4-wheel ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[9] • Manual part-time transfer case (on 4x4 models) • On short box models: 34-gallon fuel tank • Long box models: 35-gallon fuel tank

INTERIOR

Vinyl 40/20/40 front bench seat • Vinyl folding rear bench on Crew Cab models • Vinyl floor covering • Multistage front air bags[10] • Supplemental side-curtain air bags[10] • Tilt steering wheel • Automatic headlamps • Air conditioning • Power windows and door locks (on Crew Cab models) • Media Center radio with CD player and MP3 auxiliary input jack • Electronic Vehicle Information Center (EVIC) located in instrument panel cluster

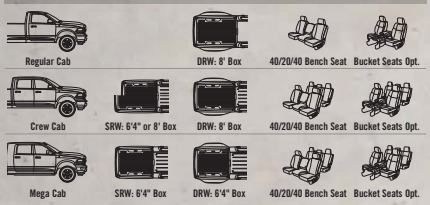
EXTERIOR

Black front and rear bumpers • Black grille surround and inserts • Black fold-in sideview mirrors • Dual-lens headlamps • Bed rail caps • Locking tailgate • 4- and 7-pin trailer wiring harness/connectors • Class IV trailer hitch receiver • 17-inch steel wheels with BSW tires

SLT

2500

3500



STANDARD FEATURES:

MECHANICAL

2500: 5.7L HEMI V8 with heavy-duty cooling and 66RFE 6-speed automatic transmission

3500: 6.7L Cummins Turbo Diesel with heavy-duty cooling and 6-speed manual transmission • Tow hooks • 7 x 11-inch trailer tow mirrors

2500/3500: Electronic Stability Control System (ESC)[9] (on SRW models only), which includes 4-wheel ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[9] • Electronic part-time transfer case (on 4x4 models) • Electronic trailer brake controller • Remote keyless entry • On short box models: 34-gallon fuel tank • Long box models: 35-gallon fuel tank

INTERIOR

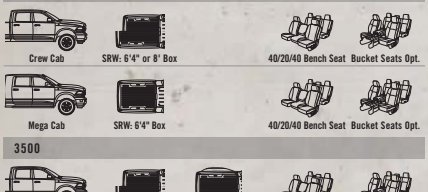
Cloth 40/20/40 front bench seat • Cloth folding rear bench on Crew Cab and Mega Cab models • Carpet floor covering • Multistage front air bags[10] • Supplemental side-curtain air bags[10] • Tilt steering wheel • Automatic headlamps • Air conditioning • Power windows and door locks • Media Center radio with CD player, MP3 auxiliary input jack and SiriusXM™ Satellite Radio[8] • Electronic Vehicle Information Center (EVIC) located in the instrument panel cluster • Overhead console • Power sliding rear window on Crew Cab and Mega Cab models

EXTERIOR

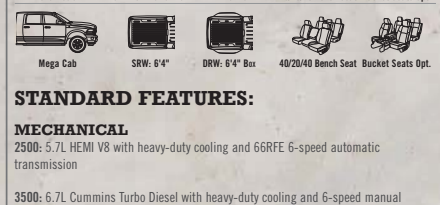
Chrome front and rear bumpers • Chrome grille surround with Black inserts • Dual-lens headlamps • Chrome door handles • Black, power heated fold-in sideview mirrors • Bed rail caps • Locking tailgate • 4- and 7-pin trailer wiring harness/connectors • Class IV trailer hitch receiver • 17-inch chrome steel wheels with BSW tires

BIG HORN

2500



3500



STANDARD FEATURES:

MECHANICAL

2500: 5.7L HEMI V8 with heavy-duty cooling and 66RFE 6-speed automatic transmission

3500: 6.7L Cummins Turbo Diesel with heavy-duty cooling and 6-speed manual transmission • Tow hooks • 7 x 11-inch trailer tow mirrors

2500/3500: Electronic Stability Control System (ESC)[9] (on SRW models only), which includes 4-wheel ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[9] • Electronic part-time transfer case (on 4x4 models) • Electronic trailer brake controller • Remote keyless entry • On short box models: 34-gallon fuel tank • Long box models: 35-gallon fuel tank

INTERIOR

Luxury Group • Cloth 40/20/40 front bench seat • Cloth 60/40 split-folding rear bench seat • Carpet floor covering • Multistage front air bags[10] • Supplemental side-curtain air bags[10] • Leather-wrapped tilt steering wheel with audio controls • 115-volt power outlet • Automatic headlamps • Air conditioning • Power windows and door locks • Media Center radio with CD player, MP3 auxiliary input jack and SiriusXM Satellite Radio[8] • Electronic Vehicle Information Center (EVIC) located in the instrument panel cluster • Overhead console • Power sliding rear window

EXTERIOR

Quad-lens headlamps • Fog lamps • Chrome front and rear bumpers • Chrome grille surround with chrome billet inserts • Black power heated fold-in sideview mirrors with puddle lamps and supplemental turn signal indicators • Chrome door handles • Bed rail caps • Locking tailgate • 4- and 7-pin trailer wiring harness/connectors • Class IV trailer hitch receiver • 17-inch polished aluminum wheels with BSW tires

OUTDOORSMAN

**Vehicle shown with optional monotone paint.*

2500

Regular Cab	SRW: 8' Box	40/20/40 Bench Seat	Bucket Seats Opt.
Crew Cab	SRW: 6'4" or 8' Box	40/20/40 Bench Seat	Bucket Seats Opt.
Mega Cab®	SRW: 6'4" Box	40/20/40 Bench Seat	Bucket Seats Opt.

3500

Regular Cab	SRW: 6'4" or 8' Box	40/20/40 Bench Seat	Bucket Seats Opt.
Crew Cab	SRW: 6'4"	40/20/40 Bench Seat	Bucket Seats Opt.

STANDARD FEATURES:

MECHANICAL

2500: 5.7L HEMI® V8 with heavy-duty cooling and 66RFE 6-speed automatic transmission

3500 (SRW MODELS ONLY): 6.7L Cummins® Turbo Diesel with heavy-duty cooling and 6-speed manual transmission

2500/3500: Electronic Stability Control System (ESC)[9] which includes 4-wheel ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[9] • Remote keyless entry • Electronic part-time transfer case (on 4x4 models) • Electronic trailer brake controller • Tow hooks • Remote start (with automatic transmissions only) and Security Group • On short box models: 34-gallon fuel tank • Long box models: 35-gallon fuel tank

INTERIOR

Luxury group • Leather-wrapped tilt steering wheel with audio controls • Premium cloth front 40/20/40 bench seat • Power driver's seat • Cloth 60/40 split-folding rear bench on Crew Cab and Mega Cab models • Carpet floor covering • Rubber all-weather floor mats • Multistage front air bags[10] • Supplemental side-curtain air bags[10] • Automatic headlamps • Air conditioning • Power windows and door locks • Media Center radio with CD player, MP3 auxiliary input jack, and SiriusXM™ Satellite Radio[8] • 115-volt power outlet • Electronic Vehicle Information Center (EVIC) located in instrument panel cluster • Overhead console with Universal Garage Door Opener • Power sliding rear window on Crew Cab and Mega Cab models

EXTERIOR

Two-tone paint with Mineral Gray Metallic front bumper, rear bumper, and fender flares • Body-color grille surround with Black inserts • Black door handles • Heated power, fold-in sideview mirrors in Black with puddle lamps and turn signal indicators • Fog lamps • Quad-lens headlamps • Bed rail caps • Locking tailgate • 4- and 7-pin trailer wiring harness/connectors • Class IV trailer hitch receiver • Tow hooks • 7 x 11-inch trailer tow mirrors • 17-inch forged aluminum wheels with LT All-Terrain tires

POWER WAGON®

2500

Crew Cab	SRW: 6'4"	40/20/40 Bench Seat

STANDARD FEATURES:

MECHANICAL

2500 only. 5.7L HEMI V8 with heavy-duty cooling and 66RFE 6-speed automatic transmission • Tow hooks • Skid plates for the fuel tank and transfer case • Electronic disconnecting front stabilizer (or sway) bar • Front and rear electronic locking differentials • 12,000-lb WARN® winch • 34-gallon fuel tank • Remote keyless entry • Electronic Stability Control System (ESC)[9] which includes 4-wheel ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[9] • Manual part-time transfer case • Electronic trailer brake controller

INTERIOR

Power driver's seat • Cloth front 40/20/40 bench seat • Cloth 60/40 split-folding rear bench • Tilt steering wheel • Carpet floor covering • Automatic headlamps • Air conditioning • Power windows and door locks • Media Center radio with CD player, MP3 auxiliary input jack and SiriusXM Satellite Radio[8] • Electronic Vehicle Information Center (EVIC) located in instrument panel cluster • Multistage front air bags[10] • Supplemental side-curtain air bags[10] • Power sliding rear window

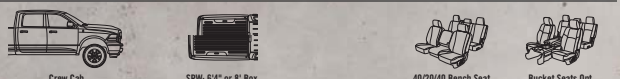
EXTERIOR

Two-tone paint with front and rear chrome bumpers • Black fender flares • Chrome grille surround with Black inserts • Black, power heated fold-in sideview mirrors • Black door handles and Black bed rail caps • Fog lamps • Quad-lens headlamps • Locking tailgate • Class IV trailer hitch receiver • 4- and 7-pin trailer wiring harness/connectors • 17-inch forged aluminum wheels with 33-inch LT All-Terrain tires

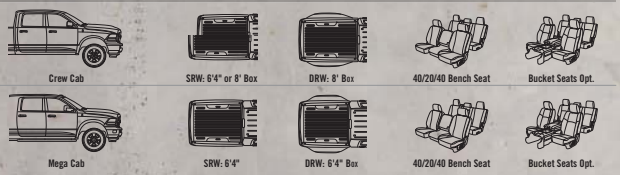
RAM HEAVY DUTY TRIM LEVELS

LARAMIE

2500



3500



STANDARD FEATURES:

MECHANICAL

2500: 5.7L HEMI® V8 with heavy-duty cooling and 66RFE 6-speed automatic transmission

3500: 6.7L Cummins® Turbo Diesel with heavy-duty cooling and 6-speed manual transmission • Tow hooks • 7 x 11-inch trailer tow mirrors

2500/3500: Electronic Stability Control System (ESC)[9] (on SRW models only), which includes 4-wheel ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[9] • Electronic part-time transfer case (on 4x4 models) • Electronic trailer brake controller • Remote keyless entry • ParkView® Rear Back-Up Camera[5] • Security alarm • On short box models: 34-gallon fuel tank • Long box models: 35-gallon fuel tank

INTERIOR

Leather-trimmed front 40/20/40 bench seat • Power driver and front-passenger seats • Heated front seats • Leather-trimmed 60/40 split-folding rear bench • Power adjustable pedals with memory • 115-volt power outlet • Carpet floor covering • Multistage front air bags[10] • Supplemental side-curtain air bags[10] • Heated leather-wrapped tilt steering wheel with audio controls • Automatic headlamps • Automatic temperature control • Power windows and door locks • Media Center 730N touch-screen radio with CD player, navigation, 40GB hard drive, remote USB port, MP3 auxiliary input jack and SiriusXM™ Satellite Radio[8] • Premium 10-speaker surround sound audio system • Electronic Vehicle Information Center (EVIC) located in the instrument panel cluster • Overhead console with Universal Garage Door Opener • Power sliding rear window

EXTERIOR

Two-tone paint treatment with lower body and fender flares in Bright Silver Metallic • Chrome front and rear bumpers • Chrome door handles • Chrome grille surround with chrome billet inserts • Chrome power heated fold-in sideview mirrors with puddle lamps and turn signal indicators • Quad-lens headlamps • Fog lamps • Bed rail caps • Locking tailgate • 4- and 7-pin trailer wiring harness/connectors • Class IV trailer hitch receiver • 17-inch polished aluminum wheels with BSW tires

LARAMIE LONGHORN

2500

3500

STANDARD FEATURES:

MECHANICAL

2500: 5.7L HEMI V8 with heavy-duty cooling and 66RFE 6-speed automatic transmission

3500: 6.7L Cummins High Output Turbo Diesel with heavy-duty cooling and 6-speed automatic transmission • Tow hooks • 7 x 11-inch trailer tow mirrors

2500/3500: Electronic Stability Control System (ESC)[9] (on SRW models only), which includes 4-wheel ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[9] • ParkSense® Rear Park Assist[5] • ParkView Rear Back-Up Camera[5] • Electronic part-time transfer case (on 4x4 models) • Electronic trailer brake controller • Remote keyless entry • Security alarm system • Remote start system • On short box models: 34-gallon fuel tank • Long box models: 35-gallon fuel tank

INTERIOR

Premium leather front bucket seats • Power driver and front-passenger seats • Heated and ventilated front seats • Full-floor center console with leather console cover • 115-volt power outlet • Premium leather heated 60/40 split-folding rear bench • Carpet floor covering • Premium floor mats with removable inserts • Multistage front air bags[10] • Supplemental side-curtain air bags[10] • Heated leather-wrapped tilt steering wheel with audio controls • Automatic headlamps • Automatic temperature control • Power windows and door locks • Media Center 730N touch-screen radio with CD player, navigation, 40GB hard drive, remote USB port, MP3 auxiliary input jack and SiriusXM Satellite Radio[8] • Premium 10-speaker surround sound audio system • Premium instrument cluster • Electronic Vehicle Information Center (EVIC) located in instrument panel cluster • Overhead console with Universal Garage Door Opener • Power sliding rear window

EXTERIOR

Two-tone paint treatment with lower body, fender flares, front bumper, rear bumper, and running boards in White Gold Metallic • Fog lamps • Chrome grille surround with chrome billet inserts • Chrome power heated fold-in sideview mirrors with puddle lamps and turn signal indicators • Unique Laramie Longhorn badging • Quad-lens headlamps • Chrome door handles • Bed rail caps • Spray-in bedliner • Locking tailgate • 4- and 7-pin trailer wiring harness/connectors • Class IV trailer hitch receiver • 17-inch polished aluminum wheels with BSW tires

AUTHENTIC RAM ACCESSORIES

Mopar®. Inspiring truck owners with innovative parts and accessories – all made-to-spec, for your Ram truck. This is what Mopar delivers, along with expert, caring service. Mopar technicians are the masters of your make and model, with access to the authentic tools and diagnostic equipment that help get the job done efficiently and effectively. Choose authentic Mopar parts and service and you'll drive away with peace of mind. Visit mopar.com or your dealer for more information on the full line of Authentic Ram Accessories.

Above: Ram 2500 Crew Cab with available Steel Ladder Rack, an Authentic Ram Accessory by Mopar. Properly secure all cargo.

1 CAPABILITY. It's total strength when you need pulling power: tough Gooseneck Hitch attaches to frame crossmembers and delivers outstanding towing capability.

2 FUNCTIONALITY. Barrier for others, strongbox for you. Constructed of diamond plate aluminum, the lockable Heavy-Duty Commercial Grade Toolbox is ideal for jobs large and small.

3 PROTECTION. Scratches and dents in the truck bed are history when you opt for the dealer-installed Drop-In Bedliner with its cargo-friendly molded surface.

4 CONNECTIVITY. Get with it — and stay there. Web access is critical, and the means to stay in touch with it all is this indispensable Accessory from Mopar: the comprehensive Uconnect Web.[1]

Ram 1500 shown.

Ram 1500 shown.

RAM 2500/3500 BUYER'S GUIDE

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT REG/CREW/MEGA G	BIG HORN CREW/MEGA Z	OUTDOORSMAN REG/CREW/MEGA T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H	LARAMIE LONGHORN CREW/MEGA K
ENGINES AND TRANSMISSIONS							
5.7L HEMI® V8 WITH VVT (EZC) 6-SPEED AUTOMATIC (DFP) (2500 only)	26A	26G	26Z	26T	26P	26H	26K
6.7L CUMMINS® TURBO DIESEL I-6 (ETJ) 6-SPEED MANUAL (DGE)	2EA	2EG	2EZ	2ET	N/A	2EH	N/A
6.7L CUMMINS HIGH OUTPUT TURBO DIESEL I-6 (ETJ) 6-SPEED 68RFE AUTOMATIC (DG7)	2FA	2FG	2FZ	2FT	N/A	2FH	2FK
MECHANICAL FEATURES							
ALTERNATORS — 160-amp (BAB)	•	•	•	•		•	•
— 180-amp (4x4 models only; included with Heavy-Duty Snowplow Prep Group) (BAD)	P	P	P	P	•	P	P
AXLES 2500							
— Antispin rear differential (DSA)	O	O	O	•		O	O
— Tru-Lok® front and rear electronic locking differentials (DSE)					•		
— 3.42 ratio (standard with Cummins Turbo Diesel only; not available on Outdoorsman 4x4 models) (DMR)	O	O	O	O		O	O
— 3.73 ratio (available with Cummins Turbo Diesel) (DME)	•/O	•/O	•/O	•/O		•/O	•/O
— 4.10 ratio (included on Outdoorsman 4x4) (DMF)	O	O	O	O/P		O	O
— 4.56 ratio (DMU)					•		
— 10.5-inch Single Rear Wheel (2500 HEMI models only) (DRW)	•	•	•	•	•	•	•
— 11.5-inch Single Rear Wheel (included with 6.7L Cummins engine) (DRQ)	P	P	P	P		P	P
AXLES 3500							
— Antispin rear differential (DSA)	•	•	•	•		•	•
— 3.42 ratio (DMR)	•	•	•	•		•	•
— 3.73 ratio (DME)	O	O	O	O		O	O
— 4.10 ratio (optional with SRW; included with MAX Tow Group on DRW) (DMF)	O/P	O/P	O/P	O		O/P	O/P
— 11.5-inch Single Rear Wheel (not available on 3500 Regular Cab; standard on 3500 Crew Cab short box models; included with Single Rear Wheel Group) (DRQ)	•/P	•/P	•/P	•		•/P	•/P
— 11.5-inch Dual Rear Wheel (not available on 3500 Crew Cab short box models) (DRX)	•	•	•			•	•
BATTERY — 730-amp (BCN)	•	•	•	•	•	•	•
DIESEL EXHAUST BRAKE — Included with Cummins engines (NEN)	P	P	P	P		P	P
DUAL REAR WHEEL — Includes 11.5-inch DRW axle, box and fender clearance lamps (3500 only; not available on Crew Cab short box models) (WLA)	•	•	•			•	•
DUAL TRANSMISSION OIL COOLER — Requires Cummins High Output Diesel (included with 3500 Max Tow Group)	O/P	O/P	O/P	O	O	O/P	O/P
ENGINE BLOCK HEATER — Included with Cold Weather Group (NHK)	O/P	O/P	O/P	O/P	O	O/P	O/P
ENGINE COOLING — Heavy-duty (NMC)	•	•	•	•	•	•	•
FUEL TANK — 34-gallon (standard with 6' 4" boxes) (NFU)	•	•	•	•	•	•	•
— 35-gallon (standard with 8-ft boxes) (NFV)	•	•	•	•		•	•
SHOCK ABSORBERS — Front, heavy-duty (SFB)	•	•	•	•	•	•	•
— Rear, heavy-duty (SGB)	•	•	•	•	•	•	•
SKID PLATES — Fuel tank (4x4 models only) (XEE)					•		
— Transfer case (4x4 models only; included with the Protection and Heavy-Duty Snowplow Prep Groups) (XEF)	P	P	P	P	•	P	P
STABILIZER BAR — Front (SHA)	•	•	•	•		•	•
— Front, electronic disconnect (SHG)					•		
STEERING — Power, rack-and-pinion (4x2 models only) (SBA)	•	•	•	•		•	•
— Power, recirculating ball (4x4 models only) (SBE)	•	•	•	•	•	•	•
TOW HOOKS — Included with Protection Group and 6.7L Cummins engine; standard on 3500 (XEA)	O/P	O/P	O/P	•	•	O/P	O/P
TRAILER HITCH RECEIVER — Class V; includes 4- and 7-pin trailer wiring harness/connectors (XFH) (XFK)	•	•	•	•	•	•	•
TRANSFER CASE — Manual shift, part-time (4x4 models only) (DH1)	•				•		
— Electric shift, part-time (4x4 models only) (DH3)		•	•	•		•	•
WINCH — WARN® Front, electric; 12,000-lb capacity (XE5)					•		
— Tire carrier (TBM)	•	•	•	•	•	•	•
EXTERIOR FEATURES							
BADGING — 4x4 (on 4x4 models only)	•	•	•	•	•	•	•
— Big Horn (MYF)			•				
— Laramie (MTE)						•	
— Laramie Longhorn (M1B)							•
— Lone Star (Texas only) (MYG)			P				
— Ram's Head (MGA)	•	•	•	•	•	•	•
— Power Wagon					•		
— SLT (MTD)		•					
— Outdoorsman				•			
BEDLINER — Spray-in (XMF)	O	O	O	O	O	O	•
BUMPERS — Front, Black (MCC)	•						
— Rear, Black (MBZ)	•						
— Front, painted lower body-color				•			•
— Rear, painted lower body-color				•			•
— Front, chrome (included with Chrome Appearance Group) (MCT)	P	•	•	O	•	•	O
— Rear, chrome (included with Chrome Appearance Group) (MBF)	P	•	•	O	•	•	O
CHROME TUBULAR SIDE STEPS — Authentic Ram Accessory by Mopar® (MRT)	O	O	O	O		O	O
FASCIA — Front, headlamp filler, Black (included with low-volume paint) (MCJ)	P	P	P	P	•		
— Front, headlamp filler, body-color (MCM)	•	•	•	•		•	•
FOG LAMPS — Included with Popular Equipment Group (LNJ)		P	•	•	•	•	•
GRILLE — Chrome surround, Black insert grille (included with Chrome Appearance Group) (MFD)	P	•			•		
— Black (MFF)	•						
— Chrome surround, chrome insert (MF1)			•			•	•
— Body-color surround, Black insert (MFT)				•			
EXTERIOR FEATURES (continued)							
HEADLAMPS — Automatic (LMG)	•	•	•	•	•	•	•
— Halogen (LMA)	•	•					
— Quad halogen (LME)			•	•	•	•	•
LAMPS, EXTERIOR — Cab clearance (included with 3500 DRW models; available on 2500/3500 SRW models) (LNC)	P/O	P/O	P/O	O	•	P/O	P/O
— Box and rear fender clearance (included with 3500 DRW models) (LND)	P	P	P			P	P
MIRRORS 2500; EXTERIOR							
— Manual, Black, Regular Cab only (GPU)	•						
— Folding trailer tow, manual, Black, Regular Cab only (GPD)	O						
— Power, heated, folding, Black (GT6)	•	•	•	•	•		
— Power, heated, folding, Black; includes exterior courtesy lamps and supplemental turn signal (included with Luxury Group) (GUK)		P	P	P	P		
— Power trailer tow, heated, manual folding, Black; includes exterior courtesy lamps and supplemental turn signal (GPG) (NA Regular Cab ST)	O	O	O	O	O		
— Power multifunction, heated, folding, chrome; includes position memory, exterior courtesy lamps and supplemental turn signal (GU4)						•	•
— Power multifunction trailer tow, heated, manual folding, chrome; includes position memory, exterior courtesy lamps and supplemental turn signal (GPC)						O	O
MIRRORS 3500; EXTERIOR							
— Folding trailer tow, manual, Black, Regular Cab only (GPD)	•						
— Power trailer tow, heated, manual folding, Black; includes exterior courtesy lamps and supplemental turn signal (included with Crew Cab) (GPG)	P/•	•	•				
— Power multifunction trailer tow, heated, manual folding, chrome; includes position memory, exterior courtesy lamps and supplemental turn signal (GPC)						•	•
PAINT — Monotone (APA)	•	•	•	O	P	O	O
— Two-tone, includes accent fender flares (APD)				•	•	•	•
RAMBOX® Cargo Management System — Includes pickup box with integrated bins that are weatherproof, lockable and drainable; also includes rails with four adjustable cleats, and a dual-purpose bed divider/extender (for 6'4" box, Single Rear Wheel models only; not available with 8-ft box; 6'4" box late availability) (XB9)	O	O	O	O	O	O	O
TAILGATE — Locking (XJJ)	•	•	•	•	•	•	•
TIRES 2500							
— LT245/70R17E BSW All-Season (TWD)	•						
— LT245/70R17E BSW On-/Off-road (TWE)	O						
— LT265/70R17E BSW All-Season (not available on Mega Cab® 4x4 models) (TT3)		•	•			•	•
— LT265/70R17E BSW On-/Off-road, 4x4 only (standard on Mega Cab 4x4 models) (TXE)		•	•			•	•
— LT285/70R17D BSW All-Terrain (Power Wagon models only) (TXA)					•		
— LT265/70R17E OWL On-/Off-road (included with Popular Equipment Group) (TT5)		P/O	O	•		O	O
— Spare, full-size (TBB)	•	•	•	•	•	•	•
TIRES 3500							
— LT265/70R17E BSW All-Season (SRW models only) (TT3)	•/P	•/P	•/P			•/P	•/P
— LT265/70R17E OWL On-/Off-road (SRW models only) (TT5)	O	O	O	•		O	O
— LT235/80R17E BSW All-Season (DRW models only) (TPY)	•	•	•			•	•
— LT235/80R17E OWL On-/Off-road (DRW models only) (TP9)	O	O/P	O			O	O
— Spare, full-size (TBB)	•	•	•			•	•
WHEELS 2500							
— 17 x 7.5-inch styled steel, painted Argent (WD2)	•						
— 17 x 8-inch steel, chrome-clad (included with Chrome Appearance Group) (WGS)	P	•					
— 17 x 8-inch polished aluminum (WBG)		O	•	O			
— 17 x 8-inch polished forged aluminum (WFF)				•	•		
— 17 x 8-inch polished cast aluminum (WFK)						•	•
— 17 x 7-inch steel spare (WF1)	•	•	•	•	•	•	•
WHEELS 3500							
— 17 x 7.5-inch styled steel, painted Argent (SRW models only) (WD2)	•						
— 17 x 8-inch steel chrome-clad (included with Chrome Appearance Group; SRW models only) (WGS)	P	•					
— 17 x 8-inch polished aluminum (SRW models only) (WBG)		O	•	O			
— 17 x 8-inch polished forged aluminum (SRW models only) (WFF)				•			
— 17 x 8-inch polished cast aluminum (SRW models only) (WFK)						•	•
— 17 x 6-inch Argent steel (DRW models only) (WFU)	•						
— 17 x 6-inch steel chrome finish (included with Chrome Appearance Group; DRW models only) (WD4)	P	•	•				
— 17 x 6-inch polished aluminum (DRW models only) (WF7)		O	O			•	
— 17 x 6-inch polished aluminum with Longhorn center cap (DRW models only) (WF9)							•
WHEELWELL FLARES — Painted Mineral Gray Metallic (MMJ)				•			
— Black (K50)					•		
— Color-matched with lower two-tone paint color (MRD)						•	•
— Monotone body-color wheel flares				O		O	O
WINDSHIELD WIPERS — Variable-intermittent (JHA)	•	•	•	•	•	•	•
INTERIOR FEATURES							
AIR CONDITIONING — (HAA)	•	•	•	•	•		
— Dual-Zone Temperature Control (HAF)						•	•
ASSIST HANDLE — Driver and passenger-side (CSP)	•	•	•	•	•	•	•
BEZEL — Center stack, Black (JBF)	•						
— Center stack, color-keyed (JBY)		•	•	•	•		
— Center stack, woodgrain insert (JBB)						•	•
CIGAR LIGHTER — Included with Smoker's Group (JJA)	P	P	P	P	P	P	P
CONSOLE — Full-size floor console (included with front bucket seats)		P	P	P	P	P	•
— Overhead, with lighting (CUN)		•		•	•		

PACKAGE DESIGNATIONS	ST REG/CREW	SLT REG/CREW/MEGA	BIG HORN CREW/MEGA	OUTDOORSMAN REG/CREW/MEGA	POWER WAGON® CREW (2500 ONLY)	LARAMIE CREW/MEGA	LARAMIE LONGHORN CREW/MEGA
	A	G	Z	T	P	H	K
— Overhead, with Universal Garage Door Opener (included in Luxury Group) (CV2)		P	•	P	P	•	•
INTERIOR FEATURES (continued)							
DOOR LOCKS — Manual (Regular Cab models only) (JE8)	•						
— Power (included with Crew Cab) (JPB)	P	•	•	•	•	•	•
FLOOR COVERING — Heavy-duty vinyl (CKJ)	•	O	O	O	O		
— Carpet (included with ST Popular Equipment Group) (CKE)	P	•	•	•	•	•	•
FLOOR MATS — Front only, carpeted (Regular Cab; included with carpet on ST models) (CLA)	P	•					
— Front and rear, carpeted (Crew Cab and Mega Cab® models; included with carpet on ST models) (CLE)	P	•	•			•	•
— Front, rubber all-weather (Regular Cab models only) (CLY)	O	O		•			
— Front and rear, rubber all-weather (CLF)	O	O	O	•	•	O	
INSTRUMENT CLUSTER — With display screen for Electronic Vehicle Information Center	•	•	•	•	•	•	•
MIRRORS, INTERIOR — Day/night manual (GNA)	•	•					
— Auto-dimming rearview day/night (included with Luxury Group and Uconnect® Phone) (GNK)		P	•	•	•	•	•
— Passenger-side visor with mirror (GNM)		•		•	•		
— Illuminated visor, passenger and driver side (included with Luxury Group) (GNC)		P	•	•	P	•	•
PEDALS — Power adjustable (requires automatic transmission) (XAP)		O	O	O	O		
— Power adjustable with memory (requires automatic transmission) (XAM)						O	•
PICKUP BOX DELETE — 2500 Regular Cab and Crew Cab models only (XBC)	O	O	O				
POWER ACCESSORY DELAY — (JKY)	•	•	•	•	•	•	•
POWER OUTLETS — Two 12-volt auxiliary (JJJ)	•	•	•	•	•	•	•
— 115-volt auxiliary (included with *M9, *MJ seats) (JKV)		P	P	P	P	•	•
SEAT BELTS — Front, shoulder height adjustable (CGD)	•	•	•	•	•	•	•
SEATS — Power 10-way driver (included with *M9 and *MJ seats) (JRT)		P	P	P	P		
— Power 10-way driver with memory and 6-way power front-passenger (JRF)						•	•
— Heated driver and front-passenger, includes heated steering wheel (CMA)						•	•
— Heated second-row (included with *GJ bucket seats) (JPZ)						P	•
— Vinyl 40/20/40 split-bench front (Crew Cab models include folding rear bench seat trimmed in vinyl) (*TX)	•						
— Cloth-trimmed 40/20/40 split-bench front with folding center armrest/business console (included with ST Popular Equipment Group; Crew Cab and Mega Cab models include folding rear bench seat trimmed in cloth) (*V9)	P	•	•		•		
— Premium cloth-trimmed 40/20/40 split-bench front with power 10-way driver, power lumbar adjuster, folding center armrest/business console with center-seat-cushion storage, 115-volt auxiliary power outlet (included with Popular Equipment Group; Crew Cab and Mega Cab models include 60/40 split-folding rear bench seat) (*M9)		O/P	O	•	O		
— Premium cloth-trimmed low-back bucket seats with power 10-way driver, power lumbar adjuster, fixed center console, 115-volt auxiliary power outlet (Crew Cab and Mega Cab models include 60/40 split-folding rear bench seat trimmed in cloth) (*MJ)		O	O	O			
— Leather-trimmed 40/20/40 split-bench heated front with power 10-way/memory for driver, power 6-way front-passenger, power lumbar adjuster, front center-seat-cushion storage and folding center armrest/business console, 115-volt auxiliary power outlet (Crew Cab and Mega Cab models include 60/40 split-folding rear bench seat trimmed in vinyl) (*VL)						•	
— Leather-trimmed low-back, ventilated and heated bucket seats, includes power 10-way driver and power 6-way front-passenger, power lumbar adjuster, fixed center console, 115-volt auxiliary power outlet, heated second-row seats on Crew Cab and Mega Cab models (Crew Cab and Mega Cab models include 60/40 split-folding rear bench seat trimmed in vinyl) (*GJ)						O	
— Premium leather low-back, ventilated and heated bucket seats, power 10-way driver and power 6-way front-passenger, power lumbar adjuster, fixed center console, 115-volt auxiliary power outlet, heated second-row seats on Crew Cab and Mega Cab models (Crew Cab and Mega Cab models include 60/40 leather split-folding rear bench seat) (Bark Brown seats include laser etching) (*XJ)							•
— Premium leather-trimmed low-back, ventilated and heated bucket seats, includes power 10-way driver and power 6-way front-passenger, power lumbar adjuster, fixed center console, 115-volt auxiliary power outlet, heated second-row seats on Crew Cab and Mega Cab models. (Crew Cab and Mega Cab models include 60/40 split-folding rear bench seat) (Bark Brown only, no laser etching) (*DJ)							O
SPEED CONTROL — (NHM)	•	•	•	•	•	•	•
STEERING — Tilt-column (SUA)	•	•	•	•	•	•	•
STEERING WHEEL — Four-spoke, urethane-wrapped (SCF)	•	•			•		
— Leather-wrapped with remote audio control buttons (included with Luxury Group) (SCV)		P	•	•	P	•	•
— Heated (included with heated seats) (NHS)						•	•
STORAGE — Front center-seat-cushion (included with *M9) (CVH)		P	P	P	P	•	
— Front, behind seat (Regular Cab models only) (CU3)	•	•		•			
— Rear, behind second-row seat (Mega Cab models only) (CU3)		•	•	•		•	•
— Rear, underseat compartment (Crew Cab models only) (CUE)	•	•	•	•	•	•	•
— Rear, in-floor storage bins (Crew Cab models only)	•	•	•	•	•	•	•
SUNROOF — Power (Crew Cab and Mega Cab models only) (GWA)		O	O	O	O	O	O
TURN SIGNALS — Three-blink lane-change signal	•	•	•	•	•	•	•
TIP START — Included with automatic transmissions	P	P	P	P	P	P	P
VISORS — Front passenger, with mirror (GNM)		•		•	•		
— Driver and front passenger, with illuminated vanity mirrors (included with Luxury Group) (GNC)		P	•	•	P	•	•
WINDOWS — Manual (Regular Cab models only) (JF8)	•						
— Power, front with driver-side one-touch down (Regular Cab models only) (JPY)		•	•				

PACKAGE DESIGNATIONS	ST REG/CREW	SLT REG/CREW/MEGA	BIG HORN CREW/MEGA	OUTDOORSMAN REG/CREW/MEGA	POWER WAGON CREW (2500 ONLY)	LARAMIE CREW/MEGA	LARAMIE LONGHORN CREW/MEGA
	A	G	Z	T	P	H	K
— Power, front and rear with driver-side one-touch down and up (Crew Cab and Mega Cab models only) (JP3)	•	•	•	•	•	•	•
INTERIOR FEATURES (continued)							
— Rear backlight, fixed (included with rear defroster on Crew Cab and Mega Cab models) (GJD)	•	P	P	P	P	P	P
— Rear defroster (Crew Cab and Mega Cab models only; requires fixed glass rear window) (GFA)		O	O	O	O	O	O
— Rear backlight, sliding (Regular Cab models only) (GFD)	O	•					
— Rear backlight, power sliding (Crew Cab and Mega Cab models only) (GFE)		•	•	•	•	•	•
UCONNECT MULTIMEDIA							
MEDIA CENTER 130 RADIO — AM/FM/CD radio with MP3/WMA support, audio jack and Voice Command[17] (RES)	•	•	•	•	•		
MEDIA CENTER 430 RADIO — AM/FM/CD/DVD† radio with MP3/WMA support, 6.5-inch touch screen, 40GB hard drive, SiriusXM™ Satellite Radio,[8] audio jack and Voice Command[17] (RBZ)		O	O	O	O	O	
MEDIA CENTER 430N RADIO — AM/FM/CD/DVD† radio with MP3/WMA support, 6.5-inch touch screen, 40GB hard drive, SiriusXM Satellite Radio,[8] audio jack, Voice Command,[17] GPS Navigation, SiriusXM Traffic,[18][19] SiriusXM Travel Link,[18][19] and Uconnect Phone (RHB)		O	O	O	O	O	O
MEDIA CENTER 730N RADIO — AM/FM/CD/DVD† radio with MP3/WMA support, 6.5-inch touch screen, 40GB hard drive, SiriusXM Satellite Radio,[8] audio jack, Voice Command,[17] GPS Navigation, SiriusXM Traffic,[8] SiriusXM Travel Link,[8] and Uconnect Phone (RHR)					O	•	•
RADIO CONTROLS — Steering wheel-mounted audio controls (included with leather-wrapped steering wheel) (RDZ)		P	P	P	P	•	•
REAR SEAT VIDEO SYSTEM — Not available on Regular Cab models (XRV)		O	O	O	O	O	O
REMOTE USB PORT — Included with Media Center touch-screen radio or Uconnect Phone (RSX)	P	P	P	P	P	•	•
SIRIUSXM SATELLITE RADIO[8] — Included with ST Popular Equipment Group (RSC)	P	•	•	•	•	•	•
SPEAKER SYSTEM — Six standard (RCG)	•	•	•	•	•		
— Six premium speakers (Regular Cab only) (RCK)		O		O			
— Ten premium amplified speakers including a subwoofer (included with Technology Group) (RC3)		P	P	P	P	•	•
UCONNECT PHONE — Hands-free calling with Address Sync,[8] Bluetooth® and Voice Command[17] (included with Media Center touch-screen radios) (RSP)	O	O/P	O/P	P	•	•	•
UCONNECT WEB[17] — Internet connection WiFi Hotspot (dealer-installed Authentic Accessory by Mopar®)	O	O	O	O	O	O	O
SAFETY AND SECURITY							
AIR BAGS[10] — Multistage front (CG3)	•	•	•	•	•	•	•
— Supplemental side-curtain (CGS)	•	•	•	•	•	•	•
BRAKES — Power-assisted 4-wheel antilock disc (BRT)	•	•	•	•	•	•	•
ELECTRONIC STABILITY CONTROL[8] — ESC (includes ABS, Brake Assist, All-Speed Traction Control, Electronic Roll Mitigation, Hill Start Assist, and Trailer Sway Control[35]) (not available on 3500 DRW models) (BRT)	•	•	•	•	•	•	•
PARKSENSE® — Rear Park Assist System[5] (included with Technology Group) (XAA)		P	P	P	P	O	•
PARKVIEW® — Rear Back-Up Camera[20] (requires Media Center touch-screen radio) (XAC)		O	O	O	O	•	•
REMOTE KEYLESS ENTRY — Controls for power door locks, illuminated entry system, panic alarm; includes 2 transmitters (included with ST Popular Group) (GXM)	P	•	•	•	•	•	•
REMOTE START SYSTEM — Requires automatic transmission (XBM)		O	O	•	O	O	•
SECURITY ALARM — (LSA)		O	O	•	O	•	•
SENTRY KEY® THEFT DETERRENT — Engine immobilizer (GXX)	•	•	•	•	•	•	•
TIRE PRESSURE MONITOR WITH DISPLAY — 2500 models only (XGM)	•	•	•	•	•	•	•
TRAILER BRAKE CONTROL — Fully integrated electronic (XHC)	O	•	•	•	•	•	•
PACKAGE GROUPS							
CHROME ACCENTS GROUP — Includes chrome exhaust tip, chrome bodyside molding, and chrome tubular side steps (AEE)	O	O	O			O	O
CHROME APPEARANCE GROUP — Includes chrome front and rear bumpers, chrome grille, 17-inch chrome steel wheels (AED)	O						
CHROME SIDE STEP AND BED RAIL GROUP — Includes chrome tubular side steps, chrome bed rails (ACZ)	O	O	O			O	O
COLD WEATHER GROUP — Includes engine block heater and winter front grille cover (requires Cummins® Turbo Diesel) (ADE)	O	O	O	O		O	O
HEAVY-DUTY SNOWPLOW PREP GROUP — Includes 180-amp alternator, transfer case skid plate (4x4 models only) (AHD)	O	O	O	O		O	O
LUXURY GROUP — Includes overhead console, sun visors with illuminated vanity mirrors, auto-dimming rearview mirror, power heated mirrors (on G, Z, and T CPOS only), Universal Garage Door Opener, glove box lamp, underhood lamp, rear dome lamp with on/off switch, and leather-wrapped steering wheel (ADA)		O	•	•	O	•	•
MAX TOW GROUP — 3500 DRW models only. Includes 4.10 gear ratio and aluminum heat sink differential cover, dual transmission oil cooler (requires Cummins High Output engine and 6-speed automatic transmission) (AHQ)	O	O	O			O	O
POPULAR EQUIPMENT GROUP — Includes premium cloth 40/20/40 bench seat, fog lamps and OWL tires (Regular Cab only) (ALW)		O					
PROTECTION GROUP — Includes tow hooks and transfer case skid plate (4x4 models only) (ADB)	O	O	O	O	•	O	O
SINGLE REAR WHEEL GROUP — 3500 models only (standard on Crew Cab short box; available on Crew Cab long box and Mega Cab models; not available on Regular Cab) (AR9)	•/O	•/O	•/O	•		•/O	•/O
SMOKER'S GROUP — Includes ashtray and cigar lighter (AWS)	O	O	O	O	O	O	O
ST POPULAR EQUIPMENT GROUP — Includes cloth 40/20/40 bench seat, carpeted flooring, speed control, RKE on Crew Cab, floor mats and SiriusXM Satellite Radio[8] (AJY)	O						
TECHNOLOGY GROUP — Includes premium 10-speaker system and ParkSense Rear Park Assist System[5] (Crew Cab and Mega Cab models only) (ADG)		O	O	O	O		

†In-dash DVD capability is not available in all states. See your dealer for details.


17-INCH ARGENT STEEL WHEEL
(STANDARD ON 2500/3500 ST SRW)
17-INCH CHROME-CLAD STEEL WHEEL
(STANDARD ON 2500/3500 SLT SRW, AVAILABLE ON ST)
17-INCH POLISHED FORGED ALUMINUM WHEEL
(STANDARD ON OUTDOORSMAN, POWER WAGON™)
17-INCH POLISHED FORGED ALUMINUM WHEEL
(STANDARD ON 2500/3500 BIG HORN/LONE STAR SRW, AVAILABLE ON SLT, OUTDOORSMAN)
17-INCH POLISHED ALUMINUM WHEEL
(STANDARD ON 2500/3500 LARAMIE AND LARAMIE LONGHORN SRW)
EXTERIOR APPEARANCE
BLACK
BRIGHT SILVER METALLIC
BRIGHT WHITE
DEEP CHERRY RED PEARL
DEEP MOLTEN RED PEARL
FLAME RED
MINERAL GRAY METALLIC
SADDLE BROWN PEARL
SAGEBRUSH PEARL
TEQUILA SUNRISE PEARL
(LATE AVAILABILITY)
TRUE BLUE PEARL

17-INCH ARGENT STEEL WHEEL
(STANDARD ON 3500 ST DRW)

17-INCH CHROME WHEEL SKINS
(STANDARD ON 3500 SLT, AVAILABLE ON ST DRW)

17-INCH POLISHED ALUMINUM WHEEL
(STANDARD ON 3500 LARAMIE,
AVAILABLE ON SLT, BIG HORN/LONE STAR DRW)

17-INCH POLISHED ALUMINUM WHEEL
WITH LONGHORN CENTER CAP
(STANDARD ON 3500 LARAMIE LONGHORN DRW)

INTERIOR FABRICS

HEAVY-DUTY VINYL
DARK SLATE GRAY/MEDIUM GRAYSTONE
(ST)

CLOTH
DARK SLATE GRAY/MEDIUM GRAYSTONE
(ST, SLT, Big Horn, Outdoorsman, Power Wagon®)

CLOTH
LIGHT PEBBLE BEIGE
(SLT, Big Horn, Outdoorsman, Power Wagon)

LEATHER-TRIMMED
LIGHT PEBBLE BEIGE
(Laramie)

LEATHER-TRIMMED
DARK SLATE GRAY
(Laramie)

PREMIUM LEATHER
RUSSET WITHOUT LASER ETCHING
(Laramie Longhorn)

PREMIUM LEATHER
BARK BROWN WITH LASER ETCHING
(Available without Laser Etching; refer to Longhorn page
for Laser Etching reference) (Laramie Longhorn)

5 YEAR/100,000 MILE POWERTRAIN WARRANTY

Mopar Service Contracts

MOPAR

uconnect

BUSINESS LINK

SiriusXM

AUTOMOBILITY

[1] Sold separately. Subscription required. Uconnect Web feature is not intended for use by the driver while the vehicle is in motion. Always drive carefully. [2] Transferable. See dealer for complete details and a copy of the 5-Year/100,000-Mile Powertrain Limited Warranty. [3] Based on latest available competitive information. Class based on 250/2500 and 350/3500 pickups. [4] When properly equipped. [5] Always check entire surroundings before backing up. [6] Phone must support Bluetooth Phone Book Access Profile (PBAP). [7] Requires Uconnect Phone. [8] Sirius services require subscriptions, sold separately after 12-month trial included with vehicle purchase. See our Customer Agreement for complete terms at siriusxm.com. If you decide to continue your Sirius services at the end of your trial subscription, the plan you choose will automatically renew and bill at then-current rates until you call SiriusXM at 1-866-635-2349 to cancel. Programming subject to change. Sirius satellite service available only to those at least 18 and older in the 48 contiguous U.S., D.C., and PR (with coverage limitations). Traffic information not available in all markets. See siriusxm.com/traffic for details. Sirius, XM and all related marks and logos are trademarks of Sirius XM Radio Inc. [9] No system, no matter how sophisticated, can repeal the laws of physics or overcome careless driving actions. Performance is limited by available traction, which snow, ice, and other conditions can affect. When the ESC warning lamp flashes, the driver needs to use less throttle and adapt speed and driving behavior to prevailing road conditions. Always drive carefully, consistent with conditions. Always wear your seat belt. [10] The Advanced Front Air Bags in this vehicle are certified to the new U.S. federal regulations for advanced air bags. Children 12 years old and younger should always ride buckled up in a rear seat. Infants in rear-facing child restraints should never ride in the front seat of a vehicle with a passenger front air bag. All occupants should always wear their lap and shoulder belts properly. [11] ON THE JOB is a retail incentive program. See your dealer for official program rules. Inquire about eligibility by calling 877-ONTHEJOB or by logging on to the chryslerbusinesslink.com/programs_incentives.html. The purchaser or lessee must be a qualified commercial customer for more than 30 days prior to the date of vehicle purchase. An official ON THE JOB Customer Acknowledgement Form must be signed by the customer (provided by the dealer).

5-YEAR/100,000-MILE POWERTRAIN LIMITED WARRANTY. Transferable. See your dealer for complete details and a copy of the 5-Year/100,000-Mile Powertrain Limited Warranty. **3/36 BASIC LIMITED WARRANTY.** Ram vehicles are covered by a Chrysler Group LLC 3-Year or 36,000-Mile Basic Limited Warranty. See your dealer for a copy of this limited warranty. Excludes normal maintenance and wear items. **BUSINESS*LINK*.** If your business relies on vehicles, Business*Link* can save you time, money, and hassles. For more, log on to chryslerbusinesslink.com or call us toll-free at 877-2THELINK (877-284-3546). **CHRYSLER SERVICE CONTRACTS.** Chrysler Group LLC has a vested interest in your satisfaction and ownership experience with your new Ram truck. Chrysler Group LLC Service Contracts offer extended service plans to help ensure that you'll enjoy your truck for many years down the road. For more information on comprehensive vehicle coverage, see your Ram dealer, call 800-442-2666, or visit dodge.com/csc **AUTHENTIC RAM ACCESSORIES BY MOPAR** are designed specifically for your Ram truck for exceptional fit, finish, and performance. Visit your dealership or mopar.com **UCONNECT.** With Uconnect, you're always connected — to people, places, music, movies, and the Internet. **SiriusXM SATELLITE RADIO** delivers over 130 channels, including commercial-free music plus the best sports, news, talk, comedy, and entertainment. Factory-installed SiriusXM Satellite Radio includes a one-year subscription. For more information, go to siriusxm.com **RAM OUTFITTER** is a collection of handpicked items bearing the Ram name – from apparel to tools for work and play. It's all found at ramtrucks.com/outfitter **AUTOMOBILITY.** Chrysler Group LLC's Automobility program provides aftermarket reimbursement incentives on adaptive vehicle upfit equipment in order to help provide safe and reliable vehicle modifications to enhance accessibility for all people. For more information, call 800-255-9877 or visit chryslerautomobility.com **RAM® MASTERCARD.®** Earn 3 points on qualifying purchases made at Chrysler Group LLC dealerships, 2 points per $1 on qualifying travel purchases, and 1 point per $1 on qualifying purchases everywhere else with the new Ram MasterCard. Points may be redeemed at your local dealership for cash off your new or used vehicle, accessories, parts, or service – including your next oil change. Or choose from hundreds of other rewards, including travel, cash back to your account, merchandise, or gift cards.* For more information or to apply, visit RamCard.com *Complete details, including restrictions, limitations, and exclusions, will be available when you become a Cardmember. This card is issued by First Bankcard, a division of First National Bank of Omaha, pursuant to a license by MasterCard International Incorporated.

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Explore an extensive line of gifts and gear for the Ram enthusiast. From authentic wearables and sports equipment to electronics, all items are as rugged and durable as your Ram vehicle. **ramtrucks.com/outfitter**

YouTube RAM ZONE

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Shown below: Ram 2500 Crew Cab Power Wagon® in Mineral Gray Metallic with Black lower.

Ram is a registered trademark of Chrysler Group LLC.

EXHIBIT 6

What Is Emissions Trading?

Emissions trading, sometimes referred to as “cap and trade” or “allowance trading,” is an approach to reducing pollution that has been used successfully to protect human health and the environment. Emissions trading programs have two key components: a limit (or cap) on pollution, and tradable allowances equal to the limit that authorize allowance holders to emit a specific quantity (e.g., one ton) of the pollutant. This limit ensures that the environmental goal is met and the tradable allowances provide flexibility for individual emissions sources to set their own compliance path. Because allowances can be bought and sold in an allowance market, these programs are often referred to as “market-based.”

Effectively designed emissions trading programs provide:

- Environmental certainty, established by the overall pollution limit.
- Flexibility for individual emissions sources to tailor their compliance path to their needs.
- Incentives for efficiency and innovation that lower implementation costs.
- Incentive for early pollution reductions as a result of the ability to bank surplus allowances.
- Low administrative costs.
- Accountability for reducing, tracking and reporting emissions.

Additional Information:

- Tools of the Trade
- Video – Emissions Trading 101
- Clearing the Air: The Facts About Capping and Trading Emissions
- Progress Reports of EPA's trading programs

Emissions trading programs are best implemented when:

- The environment and/or public health concerns occur over a relatively large geographic area.
- A significant number of sources are responsible for the pollution problem.
- Emissions can be consistently and accurately measured.

Under the right circumstances, emissions trading programs have proven to be extremely effective. They can achieve substantial reductions in pollution while providing accountability and transparancy by making the data available through systems such as EPA’s Air Markets Program Data (AMPD).

« Return to the Emissions Trading Resources Home Page

Contact Us to ask a question, provide feedback, or report a problem.

Last updated on May 11, 2016

Social sites:

More social media at EPA »

EXHIBIT 7

DP
FEATURES

A Decade of Cummins, Duramax, and Power Stroke Diesel Engines

10 Years of Diesel Dominance

Trevor Reed – Jun 15, 2015

View Photo Gallery | 9 Photos

During the 10 years Diesel Power has existed, the engines offered in ¾- and 1-ton trucks have evolved to make more and more horsepower and torque. While a little more than 300 hp and 600 lb-ft of torque offered straight from the factory in 2005 seemed like massive power, the current highest ratings are a whopping 440 hp for the Ford Power Stroke and 865 lb-ft of torque for the Cummins engine in the Ram—and these clean-diesel torque wars don't show any signs of slowing down. Here's how everything has played out during our first 10 years. (For this timeline, we will be referring to the model years of engines, as opposed to calendar years, to avoid confusion.)

2005 – The Debut of Diesel Power

The first issue of Diesel Power hit newsstands and the web at a pivotal time in the history of diesel engines. The common-rail Cummins in the Dodge Ram was able to make 610 lb-ft of torque and meet 50-state emissions ratings without the need for an EGR system, the common-rail Duramax was entering its second generation with a new variable-geometry turbocharger and 605 lb-ft of torque, and Ford's 6.0L Power Stroke engine was using a mix of VGT technology and non-common-rail fueling to

create 325 hp—and lots of conversations about its durability.

Photo 2/9 | 5 9l Cummins

5.9L Cummins

Displacement: 5.9L (359ci)

Layout: I-6

Power: 325 hp at 2,900 rpm

Torque: 610 lb-ft at 1,600 rpm

Bore x Stroke: 4.02x4.72 inches (102x120mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Holset fixed-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.2:1

Emissions Systems: Diesel oxidation catalytic converter

Photo 3/9 | 6 6l Duramax

6.6L Duramax LLY

Displacement: 6.6L (403ci)

Layout: V-8 » Power: 310 hp at 3,000 rpm

Torque: 605 lb-ft at 1,600 rpm

Power: 300 hp at 3,000 rpm (manual transmission)

Torque: 520 lb-ft at 1,800 rpm (manual transmission)

Bore x Stroke: 4.06x3.90 inches (103x99mm)

Valvetrain: OHV four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Cast iron

Compression Ratio: 17.5:1

Emissions Systems: Cooled exhaust gas recirculation and diesel oxidation catalytic converter

Photo 4/9 | 6 0l Power Stroke

6.0L Power Stroke

Displacement: 6.0L (365ci)

Layout: V-8

Power: 325 hp at 3,300 rpm

Torque: 570 lb-ft at 2,000 rpm

Bore x Stroke: 3.74x4.13 inches (95x105mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure HEUI with Siemens pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 18.0:1

Emissions Systems: Cooled exhaust gas recirculation and diesel oxidation catalyst

2006 – 6.6L Duramax LBZ Takes the Horsepower Crown

The third generation of the Duramax, the LBZ, quickly became one of the favorite engines for tuners thanks to a stronger block, larger connecting rods, a new piston design, lower compression ratio, and heads that could handle more pressure. This allowed GM to increase the factory power and torque outputs to a class-leading 360 hp and a Cummins-matching 650 lb-ft. Both the Ford and Ram engines continued to offer the same output as the previous year.

5.9L Cummins

Displacement: 5.9L (359ci)

Layout: I-6

Power: 325 hp at 2,900 rpm

Torque: 610 lb-ft at 1,600 rpm

Bore x Stroke: 4.02x4.72 inches (102x120mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Holset fixed-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.2:1

Emissions Systems: Diesel oxidation catalytic converter

6.6L Duramax LBZ

Displacement: 6.6L (403ci)

Layout: V-8

Power: 360 hp at 3,200 rpm

Torque: 650 lb-ft at 1,600 rpm

Bore x Stroke: 4.06x3.90 inches (103x99mm)

Valvetrain: OHV four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Cast iron

Compression Ratio: 16.8:1

Emissions Systems: Cooled exhaust gas recirculation and diesel oxidation catalytic converter

6.0L Power Stroke

Displacement: 6.0L (365ci)

Layout: V-8

Power: 325 hp at 3,300 rpm

Torque: 570 lb-ft at 2,000 rpm

Bore x Stroke: 3.74x4.13 inches (95x105mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure HEUI with Siemens pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 18.0:1

Emissions Systems: Cooled exhaust gas recirculation and diesel oxidation catalyst

2007 – 6.7L Cummins and 6.6L Duramax LMM Arrive

Dodge made a decisive move to head off 2010 emissions regulations at the pass. By increasing the displacement of the Cummins engine from 5.9L to 6.7L and introducing a cooled EGR system, new injection techniques, a variable-geometry turbocharger, and a diesel particulate filter (DPF), the company was able to meet the upcoming 2010 standards early. This allowed Chrysler to build up EPA emissions credits that could be used during future model years. During the later part of the ’07 model year, GM introduced the 6.6L Duramax LMM engine, which made 365 hp and 660 lb-ft, even with the addition of a DPF. The LMM was equipped in the all-new generation of GMT900 trucks, produced alongside ’07 2500HD/3500HD “Classic” models with the old body style and the LBZ engine. Ford continued offering the 6.0L Power Stroke for one more year.

Photo 5/9 | 6 7l Cummins

6.7L Cummins

Displacement: 6.7L (408ci)

Layout: I-6

Power: 350 hp at 3,013 rpm

Torque: 650 lb-ft at 1,500 rpm

Power: 350 hp at 3,013 rpm (manual transmission)

Torque: 610 lb-ft at 1,500 rpm (manual transmission)

Bore x Stroke: 4.21x4.88 inches (107x124mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Holset variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.3:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

Photo 6/9 | 6 6l Duramax

6.6L Duramax LMM

Displacement: 6.6L (403ci)

Layout: V-8

Power: 365 hp at 3,200 rpm

Torque: 660 lb-ft at 1,600 rpm

Bore x Stroke: 4.06x3.90 inches (103x99mm)

Valvetrain: OHV four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Cast iron

Compression Ratio: 16.8:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, and diesel particulate filter

6.0L Power Stroke

Displacement: 6.0L (365ci)

Layout: V-8

Power: 325 hp at 3,300 rpm

Torque: 570 lb-ft at 2,000 rpm

Bore x Stroke: 3.74x4.13 inches (95x105mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure HEUI with Siemens pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 18.0:1

Emissions Systems: Cooled exhaust gas recirculation and diesel oxidation catalyst

2008 – The 6.4L Power Stroke Replaces the 6.0L

While Ford and Navistar International went to court over warranty claims about the 6.0L Power Stroke engine, they were already in the process of developing the 6.4L powerplant that debuted very early in the ’08 model year. It used numerous design upgrades over the previous engine, including common-rail fueling and a compound series sequential turbocharger setup to make 350 hp and 650 lb-ft—even with the use of a diesel particulate filter. That DPF became infamous when a video appeared on YouTube showing flames shooting out the tailpipe of a Super Duty truck at a dealership. Ford quickly initiated a voluntary safety recall (NHTSA 07S49) that altered the programming “to prevent the occurrence of excessive heat in the exhaust system or potential flame from the tailpipe.” Both the 6.7L Cummins and 6.6L Duramax LML engines maintained the same basic designs and power outputs.

6.7L Cummins

Displacement: 6.7L (408ci)
Layout: I-6
Power: 350 hp at 3,013 rpm
Torque: 650 lb-ft at 1,500 rpm
Power: 350 hp at 3,013 rpm (manual transmission)
Torque: 610 lb-ft at 1,500 rpm (manual transmission)
Bore x Stroke: 4.21x4.88 inches (107x124mm)
Valvetrain: OHV with four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP3 pump
Induction: Holset variable-geometry turbocharger
Head Material: Cast iron
Block Material: Cast iron
Compression Ratio: 17.3:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

6.6L Duramax LMM

Displacement: 6.6L (403ci)
Layout: V-8
Power: 365 hp at 3,200 rpm
Torque: 660 lb-ft at 1,600 rpm
Bore x Stroke: 4.06x3.90 inches (103x99mm)
Valvetrain: OHV four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP3 pump
Induction: Garrett variable-geometry turbocharger
Head Material: Cast aluminum
Block Material: Cast iron
Compression Ratio: 16.8:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, and diesel particulate filter

Photo 7/9 | 2008 PowerStroke

6.4L Power Stroke

Displacement: 6.4L (390ci)

Layout: V-8

Power: 350 hp at 3,000 rpm

Torque: 650 lb-ft at 2,000 rppm

Bore x Stroke: 3.87x4.13 inches (98x105mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Siemens K16 pump

Induction: BorgWarner series sequential variable-geometry and fixed turbochargers

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.5:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

> "The DPF on the ’08 Super Duty became infamous when a video appeared on YouTube showing flames shooting out the tailpipe...."

2009

6.7L Cummins

Displacement: 6.7L (408ci)

Layout: I-6

Power: 350 hp at 3,013 rpm

Torque: 650 lb-ft at 1,500 rpm

Power: 350 hp at 3,013 rpm (manual transmission)

Torque: 610 lb-ft at 1,500 rpm (manual transmission)

Bore x Stroke: 4.21x4.88 inches (107x124mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Holset variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.3:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

6.6L Duramax LMM

Displacement: 6.6L (403ci)

Layout: V-8

Power: 365 hp at 3,200 rpm

Torque: 660 lb-ft at 1,600 rpm

Bore x Stroke: 4.06x3.90 inches (103x99mm)

Valvetrain: OHV four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Cast iron

Compression Ratio: 16.8:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, and diesel particulate filter

6.4L Power Stroke

Displacement: 6.4L (390ci)

Layout: V-8

Power: 350 hp at 3,000 rpm

Torque: 650 lb-ft at 2,000 rppm

Bore x Stroke: 3.87x4.13 inches (98x105mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Siemens K16 pump

Induction: BorgWarner series sequential variable-geometry and fixed turbochargers

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.5:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

2010

6.7L Cummins

Displacement: 6.7L (408ci)

Layout: I-6

Power: 350 hp at 3,013 rpm

Torque: 650 lb-ft at 1,500 rpm

Power: 350 hp at 3,013 rpm (manual transmission)

Torque: 610 lb-ft at 1,500 rpm (manual transmission)

Bore x Stroke: 4.21x4.88 inches (107x124mm)

Valvetrain: OHV with four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP3 pump
Induction: Holset variable-geometry turbocharger
Head Material: Cast iron
Block Material: Cast iron
Compression Ratio: 17.3:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

6.6L Duramax LMM
Displacement: 6.6L (403ci)
Layout: V-8
Power: 365 hp at 3,200 rpm
Torque: 660 lb-ft at 1,600 rpm
Bore x Stroke: 4.06x3.90 inches (103x99mm)
Valvetrain: OHV four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP3 pump
Induction: Garrett variable-geometry turbocharger
Head Material: Cast aluminum
Block Material: Cast iron
Compression Ratio: 16.8:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, and diesel particulate filter

Displacement: 6.4L (390ci)
Layout: V-8
Power: 350 hp at 3,000 rpm
Torque: 650 lb-ft at 2,000 rppm
Bore x Stroke: 3.87x4.13 inches (98x105mm)
Valvetrain: OHV with four valves per cylinder
Fuel Injection: High-pressure common-rail with Siemens K16 pump
Induction: BorgWarner series sequential variable-geometry and fixed turbochargers
Head Material: Cast iron
Block Material: Cast iron
Compression Ratio: 17.5:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

2011 – All-New Ford 6.7L Scorpion, New 6.6L Duramax LML, and Cummins Torque Bump

After parting ways with Navistar International, Ford came out with its own completely new engine that used the code name Scorpion during development. Unlike the all-iron 6.0L and 6.4L engines, the 6.7L used a compacted graphite iron (CGI) block and reversed aluminum heads to send exhaust directly into a single-sequential turbocharger, which has two compressor wheels mounted back to back on a shaft that's turned by a single turbine wheel. The engine also included the injection of diesel exhaust fluid to meet emissions requirements. It initially debuted with 390 hp and 735 lb-ft of torque, but that was soon increased to 400 hp and 800 lb-ft of torque with a

free factory programming upgrade. For 2011, Ram used a software upgrade that greatly increased the torque output of the 6.7L Cummins to 800 lb-ft. The same year, GM introduced the 6.6L Duramax LML with DEF injection that made 397 hp and 765 lb-ft of torque.

6.7L Cummins

Displacement: 6.7L (408ci)
Layout: I-6
Power: 350 hp at 3,013 rpm
Torque: 800 lb-ft at 1,600 rpm
Power: 350 hp at 3,013 rpm (manual transmission)
Torque: 610 lb-ft at 1,500 rpm (manual transmission)
Bore x Stroke: 4.21x4.88 inches (107x124mm)
Valvetrain: OHV with four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP3 pump
Induction: Holset variable-geometry turbocharger
Head Material: Cast iron
Block Material: Cast iron
Compression Ratio: 17.3:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

Photo 8/9 | 2011 Duramax

6.6L Duramax LML

Displacement: 6.6L (403ci)
Layout: V-8
Power: 397 hp at 3,000 rpm
Torque: 765 lb-ft at 1,600 rpm
Bore x Stroke: 4.06x3.90 inches (103x99mm)
Valvetrain: OHV four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP4.2 pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Cast iron

Compression Ratio: 16.0:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

6.7L Power Stroke

Displacement: 6.7L (406ci)

Layout: V-8

Power: 400 hp at 2,800 rpm

Torque: 800 lb-ft at 1,600 rpm

Power: 390 hp at 2,800 rpm (initial power rating)

Torque: 735 lb-ft at 1,600 rpm (initial torque rating)

Power: 400 hp at 2,800 rpm (after programming update)

Torque: 800 lb-ft at 1,600 rpm (after programming update)

Bore x Stroke: 3.90x4.25 inches (99x108mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP4.2 pump

Induction: Garrett single-sequential variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Compacted graphite iron (CGI)

Compression ratio: 16.2:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

2012

6.7L Cummins

Displacement: 6.7L (408ci)

Layout: I-6

Power: 350 hp at 3,013 rpm

Torque: 800 lb-ft at 1,600 rpm

Power: 350 hp at 3,013 rpm (manual transmission)

Torque: 610 lb-ft at 1,500 rpm (manual transmission)

Bore x Stroke: 4.21x4.88 inches (107x124mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Holset variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.3:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, and diesel particulate filter

6.6L Duramax LML

Displacement: 6.6L (403ci)

Layout: V-8
Power: 397 hp at 3,000 rpm
Torque: 765 lb-ft at 1,600 rpm
Bore x Stroke: 4.06x3.90 inches (103x99mm)
Valvetrain: OHV four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP4.2 pump
Induction: Garrett variable-geometry turbocharger
Head Material: Cast aluminum
Block Material: Cast iron
Compression Ratio: 16.0:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

6.7L Power Stroke
Displacement: 6.7L (406ci)
Layout: V-8
Power: 400 hp at 2,800 rpm
Torque: 800 lb-ft at 1,600 rpm
Bore x Stroke: 3.90x4.25 inches (99x108mm)
Valvetrain: OHV with four valves per cylinder
Fuel Injection: High-pressure common-rail with Bosch CP4.2 pump
Induction: Garrett single-sequential variable-geometry turbocharger
Head Material: Cast aluminum
Block Material: Compacted graphite iron (CGI)
Compression Ratio: 16.2:1
Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

2013 – 6.7L Cummins Finally Gets DEF

Since Ram Trucks (no longer under the Dodge banner) had built up credits with the EPA by meeting 2010's emissions standards by 2007, it was able to delay the use of DEF in its trucks until 2013. While many people decried the addition of DEF, the Cummins engine helped prove that it could be an advantage by allowing the engineers to program the engine to make more power while producing fewer emissions and needing fewer mpg-killing DPF regenerations. With the addition of the heavy-duty Aisin AS69RC six-speed automatic transmission, the Cummins' maximum ratings increased to 385 hp and a class-leading 850 lb-ft of torque. The 6.7L Power Stroke and 6.6L Duramax LML engines retained the same power and torque ratings.

6.7L Cummins
Displacement: 6.7L (408ci)
Layout: I-6
Power: 370 hp at 2,800 rpm (68RFE automatic transmission)
Torque: 800 lb-ft at 1,700 rpm (68RFE automatic transmission)
Power: 385 hp at 2,800 rpm (Aisin AS69RC automatic transmission)

Torque: 850 lb-ft at 1,700 rpm (Aisin AS69RC automatic transmission)

Power: 350 hp at 2,800 rpm (manual transmission)

Torque: 660 lb-ft at 1,500 rpm (manual transmission)

Bore x Stroke: 4.21x4.88 inches (107x124mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Holset variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.3:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

6.6L Duramax LML

Displacement: 6.6L (403ci)

Layout: V-8

Power: 397 hp at 3,000 rpm

Torque: 765 lb-ft at 1,600 rpm

Bore x Stroke: 4.06x3.90 inches (103x99mm)

Valvetrain: OHV four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP4.2 pump

Induction: Garrett variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Cast iron

Compression Ratio: 16.0:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

6.7L Power Stroke

Displacement: 6.7L (406ci)

Layout: V-8

Power: 400 hp at 2,800 rpm

Torque: 800 lb-ft at 1,600 rpm

Bore x Stroke: 3.90x4.25 inches (99x108mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP4.2 pump

Induction: Garrett single-sequential variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Compacted graphite iron (CGI)

Compression Ratio: 16.2:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

> "With the addition of the heavy-duty Aisin AS69RC six-speed automatic transmission, the Cummins' maximum ratings

> increased to 385hp and a class-leading 850 lb-ft of torque"

2014

6.7L Cummins

Displacement: 6.7L (408ci)

Layout: I-6 » Power: 370 hp at 2,800 rpm (68RFE automatic transmission)

Torque: 800 lb-ft at 1,700 rpm (68RFE automatic transmission)

Power: 385 hp at 2,800 rpm (Aisin AS69RC automatic transmission)

Torque: 850 lb-ft at 1,700 rpm (Aisin AS69RC automatic transmission)

Power: 350 hp at 2,800 rpm (manual transmission)

Torque: 660 lb-ft at 1,500 rpm (manual transmission)

Bore x Stroke: 4.21x4.88 inches (107x124mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail

Induction: Holset variable-geometry turbocharger

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2015 – Second-Gen 6.7L Power Stroke and 865-lb-ft Cummins

The second generation of the 6.7L Power Stroke swapped the dual-compressor turbocharger for a large, single variable-geometry turbo, upgraded injector tips, and a new “cobra head” downpipe to increase output to a class-leading 440 hp and 860 lb-ft of torque. Not to be outdone, Ram upped the maximum torque rating of the 6.7L Cummins to 865 lb-ft of torque for trucks with the Aisin transmission. Meanwhile, General Motors continues to offer the LML with 397 hp and 765 lb-ft of torque, but there are rumors a significantly redesigned Duramax engine could debut as soon as 2016.

6.7L Cummins

Displacement: 6.7L (408ci)

Layout: I-6

Power: 370 hp at 2,800 rpm (68RFE automatic transmission)

Torque: 800 lb-ft at 1,700 rpm (68RFE automatic transmission)

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Torque: 865 lb-ft at 1,700 rpm (Aisin AS69RC automatic transmission)

Power: 350 hp at 2,800 rpm (manual transmission)

Torque: 660 lb-ft at 1,500 rpm (manual transmission)

Bore x Stroke: 4.21x4.88 inches (107x124mm)

Valvetrain: OHV with four valves per cylinder

Fuel Injection: High-pressure common-rail with Bosch CP3 pump

Induction: Holset variable-geometry turbocharger

Head Material: Cast iron

Block Material: Cast iron

Compression Ratio: 17.3:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalyst, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

6.6L Duramax LML

Displacement: 6.6L (403ci)

Layout: V-8

Power: 397 hp at 3,000 rpm

Torque: 765 lb-ft at 1,600 rpm

Bore x Stroke: 4.06x3.90 inches (103x99mm)

Valvetrain: OHV four valves per cylinder

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Induction: Garrett variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Cast iron

Compression Ratio: 16.0:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic

converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

Photo 9/9 | 2015 Power Stroke

6.7L Power Stroke

Displacement: 6.7L (406ci)

Layout: V-8

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Torque: 860 lb-ft at 1,600 rpm

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Fuel Injection: High-pressure common-rail with Bosch CP4.2 pump

Induction: Garrett single variable-geometry turbocharger

Head Material: Cast aluminum

Block Material: Compacted graphite iron (CGI)

Compression Ratio: 16.2:1

Emissions Systems: Cooled exhaust gas recirculation, diesel oxidation catalytic converter, diesel particulate filter, and selective catalytic reduction with diesel exhaust fluid

Sources

Ford Motor Company
Dearborn, MI 48126
800-392-3673
www.ford.com

Chevrolet
Detroit, MI 48323
www.chevrolet.com

Ram Trucks
Aubum Hills, MI 48321
800-726-4636
www.ramtrucks.com

GMC
888-988-7267
http://www.gmc.com

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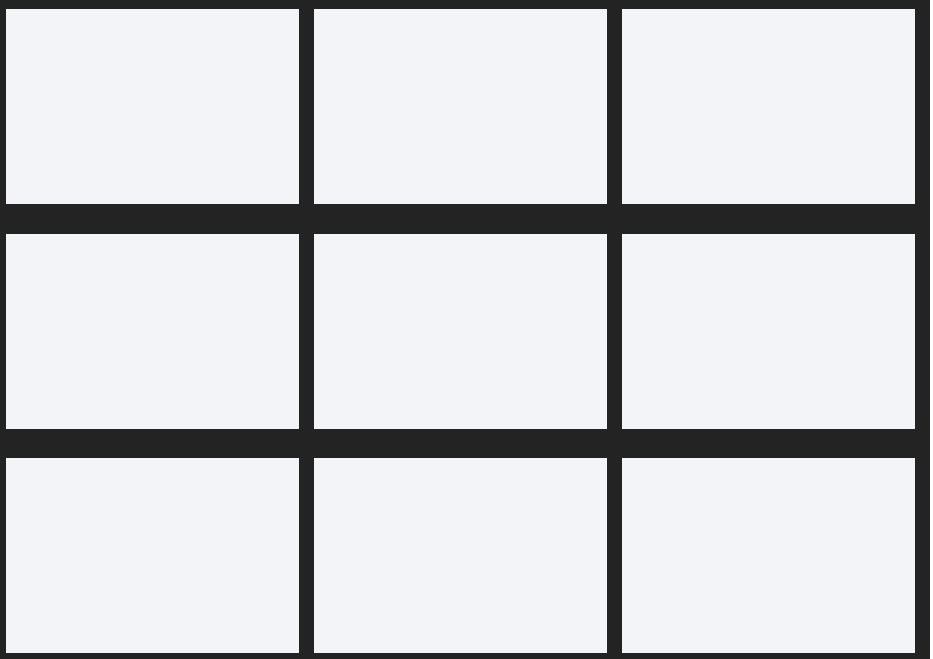

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EXHIBIT 8

Cummins History

NEARLY 100 YEARS OF DEPENDABILITY AND PERFORMANCE

Cummins roots are planted in soil nourished by innovation, persistence and a commitment to community. Founded in Columbus, Indiana, in 1919 as Cummins Engine Company, for its namesake Clessie Lyle Cummins, the fledgling firm was among the first to see the commercial potential of an unproven engine technology invented two decades earlier by Rudolph Diesel.

Fortunately for Clessie Cummins, a self-taught mechanic and inventor, his vision was shared by someone with the financial resources to make it a reality: William Glanton (W.G.) Irwin, a successful local banker and investor, who already had provided financial backing

About

History

Vision, Mission & Values

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Owners Clubs

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Sitemap

for Cummins' auto mechanic operation and machine shop.

The Start of Something Special

After a decade of fits and starts, during which time the diesel engine failed to take hold as a commercial success, a stroke of marketing genius by Clessie Cummins helped save the Company. Cummins mounted a diesel engine in a used Packard limousine and on Christmas day in 1929 took W.G. Irwin for a ride in America's first diesel-powered automobile. Irwin's enthusiasm for the new engine led to an infusion of cash into the Company, which helped fuel a number of speed and endurance records in the coming years - including a grueling 13,535-mile run at the Indianapolis Motor Speedway in 1931. Such feats earned Cummins' foothold as an engine supplier to the trucking industry.

Still, publicity alone could not carry the Company; Cummins needed reliable products and a sound business organization. In 1933, the company released the Model H, a powerful engine for transportation that launched the company's most successful engine family. J. Irwin Miller, great-nephew of W.G. Irwin, became general manager in 1934 and went on to lead the company to international prominence over the next four decades. By marketing high-quality products through a unique nationwide service organization, the Company earned its first profit in 1937. Three years later, Cummins offered the industry's first 100,000-mile warranty.

Fueled by Opportunity

By the 1950s, America had embarked on a massive interstate highway construction program, with Cummins engines powering much of the equipment that built the roads and thousands of the trucks that began to roll down them. Truckers demanded economy, power, reliability, and durability, and Cummins responded. By combining lab-based research and field-based trials, including dramatic performances at the Indy 500 races, Cummins achieved technological breakthroughs, including the revolutionary PT (pressure-time) fuel injection system of 1954. By the late 1950s, Cummins had sales of over $100 million and a commanding lead in the market for heavy truck diesels.

Going Global

As Cummins continued to grow its business in the United States, the Company also began looking beyond its traditional borders. Cummins opened its first foreign manufacturing facility in Shotts, Scotland, in 1956 and by the end of the 1960s, Cummins had expanded its sales and service network to 2,500 dealers in 98 countries. Today, Cummins has more than 5,000 facilities in 197 countries and

territories.

Cummins, led by the visionary leadership of J. Irwin Miller, forged strong ties to emerging countries such as China, India and Brazil, where Cummins had a major presence before most other U.S. multinational companies. Cummins has grown into one of the largest engine makers in both China and India, and for the past three years approximately half of the Company's sales have been generated outside the United States.

A Powerful Presence

Cummins is no longer just an engine business, but a global power leader with more than $13 billion in sales in 2010. We are a family of inter-related, yet diversified businesses that create or enhance value as a result of doing business with each other or having those relationships.

Cummins is organized around four business segments - Engine, Power Generation, Components Business and Distribution – and provides products and service to customers in more than 150 countries.

Cummins is a technology leader in the diesel engine market, with our employees working relentlessly to provide cutting-edge solutions to the increasingly difficult challenge of producing cleaner-running engines. For example, Cummins was the only company in the industry to meet the 2010 EPA standards for NOx emissions with the release in early 2007 of its new 6.7-liter turbo diesel for the Dodge Ram Heavy Duty pickup.

Clessie Cummins' spirit of innovation and commitment to quality lives on nearly a century later in the nearly 40,000 Cummins employees who work to design, make and sell products that can be found in nearly every type of vehicle imaginable.

EXHIBIT 9

DieselNet: Emission Standards

United States

Regulatory Authorities

Federal Standards. US federal emission standards for engines and vehicles, including emission standards for greenhouse gas (GHG) emissions, are established by the US Environmental Protection Agency (EPA). The EPA authority to regulate engine emissions—and the air quality in general—is based on the *Clean Air Act* (CAA), most recently amended in 1990.

Fuel economy standards are developed by the National Highway Traffic Safety Administration (NHTSA), an agency within the US Department of Transportation (DOT).

The development of engine emission standards occurs according to the procedures of the US rulemaking process. New regulations are first published as proposed rules. Following a period of public discussion, the new rule is finalized and signed into law. New regulatory proposals and regulations are published in the Federal Register. Consolidated regulations become a part of the Code of Federal Regulations (CFR).

California Standards. The State of California has the right to adopt its own emission regulations, which are often more stringent than the federal rules. Engine and vehicle emission regulations are adopted by the California Air Resources Board (ARB), a regulatory body within the California EPA.

California is the only state vested with the authority to develop its own emission regulations. Other states have a choice to either implement the federal emission standards, or else to adopt California requirements (CAA section 177).

Regulated Engines and Vehicles

Emission Standards for New Engines and Vehicles

The following categories of new engines and/or vehicles are subject to emission standards in the USA:

- Cars and Light Trucks: Tier 1 | Tier 2 | Tier 3 | California
- Heavy-Duty Truck and Bus Engines
- Mobile Nonroad Diesel Engines
- Railway Locomotives
- Marine Engines
- Small spark ignited (SSI) engines (≤ 19 kW)

- Large spark ignited (LSI) engines (> 19 kW)
- Stationary Engines: SI NSPS | CI NSPS | NESHAP

GHG & Fuel Economy

Fuel economy in new light-duty vehicles has been regulated since the 1970's by CAFE standards administered by the National Highway Traffic Safety Administration (NHTSA), an agency within the Department of Transportation (DOT).

The first greenhouse gas regulations for motor vehicles were adopted in 2002 in California. At the federal level, GHG emission standards and harmonized CAFE legislation for light-duty vehicles were adopted in joint regulatory actions by the EPA and the NHSTA in 2010 and 2012. GHG/fuel economy regulation for heavy-duty trucks was adopted in 2011.

On-Board Diagnostics (OBD)

On-Board Diagnostic requirements—California and federal—apply to light-duty vehicles, as well as to increasing number of categories of heavy-duty engines. OBD regulations ensure compliance with emission standards by setting requirements to monitor selected emission system components (e.g., catalytic converters) or in-use emission levels, and to alert the driver/operator—such as by a dashboard-mounted malfunction indicator light—when a problem is detected.

In-Use Engine Regulations

In addition to new engine emission regulations, there is a growing number of programs—mandatory or incentive-based—to reduce emissions from in-use diesel engines. These initiatives are being implemented by all levels of government: federal, state, and local. We provide an overview of the following diesel programs:

- California Diesel Risk Reduction Program
- Urban Bus Retrofit Rebuild (UBRR) Program (1995)
- Diesel Occupational Health Regulations

Vehicle Weight Classes

Some of the commonly used US vehicle weight classifications are summarized in the following tables.

Table 1
Vehicle weight classifications by the US FHA and US Census Bureau

Gross vehicle weight rating (lbs)	Federal Highway Administration		US Census Bureau
	Vehicle Class	GVWR Category	VIUS Classes
≤ 6,000	Class 1: ≤ 6,000 lbs	Light Duty ≤ 10,000 lbs	Light Duty ≤ 10,000 lbs
10,000	Class 2: 6,001-10,000 lbs		
14,000	Class 3: 10,001-14,000 lbs	Medium Duty 10,001-26,000 lbs	Medium Duty 10,001-19,500 lbs
16,000	Class 4: 14,001-16,000 lbs		
19,500	Class 5: 16,001-19,500 lbs		
26,000	Class 6: 19,501-26,000 lbs		Light Heavy Duty 19,501-26,000 lbs
33,000	Class 7: 26,001-33,000 lbs	Heavy Duty ≥ 26,001 lbs	Heavy Duty ≥ 26,001 lbs
> 33,000	Class 8: > 33,000 lbs		

Table 2
Vehicle weight classifications by the US EPA

Gross vehicle weight rating (lbs)	EPA Emissions Classifications			
	Heavy Duty Vehicles and Engines			Light Duty Vehicles
	HD Trucks	HD Engines	General trucks	Passenger Vehicles
≤ 6,000	Light Duty Trucks 1 & 2: ≤ 6,000 lbs	Light Light Duty Trucks: ≤ 6,000 lbs	Light Duty Trucks ≤ 8,500 lbs	Light Duty Vehicles ≤ 8,500 lbs
8,500	Light Duty Trucks 3 & 4: 6,001-8,500 lbs	Heavy Light Duty Trucks: 6,001-8,500 lbs		
10,000	Heavy Duty Vehicle 2b: 8,501-10,000 lbs	Light Heavy Duty Engines: 8,501-19,500 lbs	Heavy Duty Vehicle Heavy Duty Engine ≥ 8,500 lbs	Medium Duty Passenger Vehicles 8,501-10,000 lbs
14,000	Heavy Duty Vehicle 3: 10,001-14,000 lbs			
16,000	Heavy Duty Vehicle 4: 14,001-16,000 lbs			
19,500	Heavy Duty Vehicle 5: 16,001-19,500 lbs			
26,000	Heavy Duty Vehicle 6: 19,501-26,000 lbs	Medium Heavy Duty Engines: 19,501-33,000 lbs		
33,000	Heavy Duty Vehicle 7: 26,001-33,000 lbs			
60,000	Heavy Duty Vehicle 8a: 33,001-60,000 lbs	Heavy Heavy Duty Engines Urban Bus: ≥ 33,001 lbs		
> 60,000	Heavy Duty Vehicle 8b: ≥ 60,001 lbs			

Auxiliary Emission Control Devices and Defeat Devices

Under some operating conditions, components of the emission control system can be shut-off or deactivated. This is usually done for reasons including: ensuring engine start-up, protection of the vehicle against damage or accident and preventing the unwanted shut-down of emergency vehicles or equipment. Deactivating components of the emission control system is carried out using what is called an Auxiliary Emission Control Device (AECD). EPA regulations define an AECD as:

> any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

The EPA definition for emission control system covers all components that are used to control emissions including: aftertreatment devices, engine modifications, sensors, actuators, EGR system and so on.

A *defeat device* is an AECD that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use. Defeat devices are prohibited. In order for manufacturers to certify their vehicles and engines, during the application for certification, they must submit a list of AECDs, justify their use, explain how they work and demonstrate that the AECDs are not defeat devices.

While there are some differences, the definitions of AECD, emission control system and defeat device as well their approval is relatively consistent for light-, medium- and heavy-duty vehicles and engines as well as nonroad engines.

EXHIBIT 10

FOR IMMEDIATE RELEASE
ENR
TUESDAY, JUNE 16, 1998
(202) 514-2008
TDD (202) 514-1888

JUSTICE DEPARTMENT SUES MACK TRUCK INC. UNDER CLEAN AIR ACT

Company Charged With Illegal Emissions From Diesel Engines

WASHINGTON The Justice Department, on behalf of the Environmental Protection Agency, yesterday sued Mack Trucks Inc., one of the leading U.S. manufacturers of heavy duty diesel engines, for violating standards designed to limit emissions of dangerous air pollutants under the Clean Air Act.

"The American people deserve clean air to breath," said Lois Schiffer, Assistant Attorney General in charge of the Environment and Natural Resources Division. "Those who break the law will pay a high price. This lawsuit is another example of the federal government's determination to ensure full compliance with the Clean Air Act."

On Monday, the Department filed suit in U.S. District Court in Washington, D.C. to respond to the company's termination of settlement negotiations by filing its own lawsuit against the federal government.

The suit alleges that Mack has been selling unlawful heavy duty diesel engines equipped with devices that defeat the engines' emissions control system, resulting in the emission of illegal amounts of oxides of nitrogen (NOx).

NOx is an air pollutant that contributes to smog, acid rain, and increased levels of lung disease. Heavy duty diesel engines are used in tractor trailers and other large trucks.

The suit asks the court to prohibit Mack from selling engines with defeat devices, to order Mack to recall and fix those engines currently on the road, and to require Mack to take additional steps to offset the harm caused to public health and the environment. The suit also seeks civil penalties for the violations.

"Mack's use of defeat devices had and will continue to have a significant adverse impact on the public, resulting in an estimated 700,000 tons of excess harmful nitrogen oxide emissions and more than $1 billion in extra health care costs over the life of the engines," said Steve Herman, EPA Assistant Administrator for Enforcement and Compliance Assurance. "By filing the lawsuit, we are taking action to ensure that the company does not compromise clean air and the public health now and in the future."

"There simply is no excuse for circumventing federal laws aimed at protecting and preserving our natural resources," said Wilma A. Lewis, United States Attorney for the District of Columbia. "This lawsuit is the result of a collaborative effort among the Environmental Protection Agency, the Environmental and Natural Resources Division of the Department of Justice and the U.S. Attorney's Office, and demonstrates our continuing commitment toward enforcing the Clean Air Act."

According to the charges, the company's engine software controls the timing of fuel injection into the combustion chamber, causing the engine to emit excessive amounts of NOx while the truck is running on the open road. However, the company's engine software is designed in such a way so that these emission levels do not show up on the federal test. Changing the timing of fuel injection can increase fuel economy, but at the expense of much higher emissions of NOx.

The suit also alleges that these engines are not covered by

EPA's certificates of conformity, which all engines must have to be lawfully sold in this country.

Under the Clean Air Act, a manufacturer is prohibited from selling or offering for sale any new motor vehicle or motor vehicle engine equipped with any device designed to defeat the engines' emission control system.

The government estimates that the affected engines, if not fixed, could result in total increases in NOx emissions in excess of 700,000 tons over the life of the engines.

Oxides of Nitrogen combine with volatile organic compounds in the presence of sunlight to form ozone, one of six criteria pollutants for which EPA has established National Ambient Air Quality Standards. An abundance of ozone near the earth's surface is harmful to humans, agricultural crops and plants. In addition, oxides of nitrogen can cause acid rain, which is harmful to fish, and high levels of nitrates in drinking water, which is a human health hazard, especially for infants.

Last week, the Department settled allegations that American Honda Motor Co. Inc. and Ford Motor Company violated the Clean Air Act by selling vehicles with disabled emission control diagnostic systems and illegally installing defeat devices, respectively.

Mack's failure to disclose to EPA the existence of these defeat devices on its engines obstructed the EPA's ability to protect public welfare and the environment before the engines were sold.

###

98-281

EXHIBIT 11

How The EPA Won $1 Billion From Diesel Cheaters Long Before VW

Raphael Orlove

9/21/15 4:05pm · Filed to: DIESELGATE

171

15

Volkswagen's current diesel disaster is not the first time the Environmental Protection Agency has discovered that a vehicle manufacturer had been cheating on their diesel emissions tests. Here's how the U.S. government won $1 billion from diesel cheaters

Your Guide To Dieselgate: Volkswagen's Diesel Cheating Catastrophe

Yes, it's a catastrophe. There's no other way to describe the allegations from the Environmental...

Read more

That VW's small diesel passenger car engines were spewing out significantly more toxic NOx than law allowed is, quite surprisingly, not extremely remarkable in the world of governing the auto industry. In the past nine years alone, Europe has gone through not one but two major scandals with diesel engines producing way too much NOx.

These issues were called "cycle beating," where an automaker builds a car that passes emissions tests only during the test itself and never anytime else. They surfaced both in 2006 (read the full report right here) and in 2014 (read the full report on this in German here). Both may yet weigh on VW's case here in 2015.

But there was another case that precedes VW's current issues right here in America, again with diesels, again even with defeat devices. And there's bad news for VW: the EPA won.

The drama unfolded in 1998 when the Justice Department on behalf of the EPA straight up sued every major diesel engine manufacturer in the United States. The suit alleged these companies' heavy trucks were "equipped with devices that defeat the engines' emissions control system, resulting in the emission of illegal amounts of oxides of nitrogen."

The engines met the requirements when run on the EPA's 20-minute test procedure, but had three times the legal NOx emissions in highway driving.

Sound familiar?

As the EPA recounts, the suit named Caterpillar, Inc., Cummins Engine Company, Detroit Diesel Corporation, Mack Trucks, Inc., Navistar International Transportation

Corporation, Renault Vehicules Industriels, s.a., and the Volvo Truck Corporation.

A critical story in the libertarian-minded policy journal *The Independent Review* detailed the case just as it had been settled, elaborating the 'absurdity' of the EPA suing engine producers for making engines that technically passed all of their tests.

In other words, one man's cheat was another man's way of just passing a test.

> In a good example of the regulatory doublespeak common at the EPA, the engine controllers were said to have "defeated" the emissions standards by ensuring that the engines met precisely the EPA standards using EPA's tests.
>
> Because the EPA's engine test focused only on simulating urban driving conditions, however, meeting the test standard allowed the engine controllers to focus on mileage rather than on emissions under highway driving conditions. In effect, the EPA sued the engine manufacturers because the engine makers had not designed their engines to meet a test procedure EPA had not created.
>
> Despite the legal absurdity of the EPA's position, in 1998 the firms and the EPA signed a $1 billion settlement that tightens the previous regulatory standards and specifies how the industry will regulate emissions of nitrogen oxides (NOx).

The companies were forced to spend a collective *one billion dollars* in total, including an $83.4 million civil penalty, at the time the largest ever for violation of environmental law.

(I sincerely hope somebody at the EPA held a pinkie up to their mouth Dr. Evil style when they made the announcement. Indeed, *Austin Powers* came out in 1997, so it would still be fresh in their minds. You do feel old reading that.)

Now, as *The Independent Review* pointed out, it does seem strange that the EPA was punishing companies for passing the EPA's own tests. The engine makers made this exact point when they argued against their regulators, as the *New York Times* reported. You might think the onus would be on the EPA at that point for making a bad test, but the EPA was having none of that.

Then again, if the tests are designed to simulate real-world conditions and how the trucks

perform in regular driving, and the goal of the regulation is to make sure we have clean air, you can see the issue.

"These defeat devices are really deceit devices," EPA administrator Carol Browner said at the time. "They defeat important public health protections and deceive the American people."

If you go and look up the full text of the Clean Air Act and search for 'defeat,' you will come up with this very clear explanation explicitly states under the 'Prohibited Acts' section, that is it prohibited "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use."

This note on defeat devices is exactly what left diesel engine manufacturers at a loss. If you're wondering why they all settled, this section of the Clean Air Act looks like the key reasoning. The EPA has said as much themselves to VW.

This 1998 case is startling because it almost exactly mirrors the drama that VW is going through at the moment. Yes, VW's diesels passed all of the EPA's tests while the EPA was testing them.

But this case from 1998 (along with the wording of the Clean Air Act it affirms) set the precedent that if you use a defeat device to do exactly as the EPA tells you, don't expect to pay less than nine figures.

Photo Credit: Getty Images (Diesel trucks are pictured here marching on Washington, if you can call it that, protesting high diesel prices. The photo was taken in the year 2000.)

Contact the author at raphael@jalopnik.com.

Reply | 171 replies

EXHIBIT 12

JUSTICE NEWS

Department of Justice

Office of Public Affairs

SHARE

FOR IMMEDIATE RELEASE Monday, February 22, 2010

Cummins Inc. Agrees to Pay $2.1 Million Penalty for Diesel Engine Clean Air Act Violations

WASHINGTON—Cummins Inc., a major motor vehicle engine company based in Columbus, Ind., will pay a $2.1 million penalty and recall 405 engines under a settlement agreement resolving alleged violations of the Clean Air Act, the Justice Department and U.S. Environmental Protection Agency (EPA) announced today.

According to a complaint filed simultaneously with the settlement in federal court in the District of Columbia, between 1998 and 2006 Cummins shipped more than 570,000 heavy duty diesel engines to vehicle equipment manufacturers nationwide without pollution control equipment included, in violation of the Clean Air Act. This equipment, known as exhaust after-treatment devices (ATDs), controls engine exhaust emissions once the emissions have exited the engine and entered the exhaust system. Typical ATDs include catalytic converters and diesel particulate filters.

Engine manufacturers must prove through testing that their engine designs meet EPA's emissions standards and seek certificates of conformity. According to the complaint, Cummins tested the engines with the ATDs to meet the standards, but failed to include the ATDs with the engines when Cummins shipped the engines to the vehicle manufacturers. Instead, Cummins relied upon the vehicle manufacturers to purchase and install the correct ATDs. The United States alleges that the shipment of engines to vehicle manufacturers without the ATDs violates the Clean Air Act's prohibition on the sale of engines not covered by certificates of conformity.

The settlement requires Cummins to recall approximately 405 engines that were found to have reached the ultimate consumers without the correct ATDs in order to install the correct ATDs.

"This settlement assures that the environment suffers no ill effects because it requires that Cummins not only install the proper pollution control devices but also mitigate the effects of the harmful emissions released as a result of its actions," said Ignacia S. Moreno, Assistant Attorney General for the Justice Department’s Environment and Natural Resources Division.

"Reliable and effective pollution control systems are essential to protect human health and the environment from harmful engine emissions," said Cynthia Giles, Assistant Administrator for

DEPARTMENT OF JUSTICE ACCOMPLISHMENTS

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Register, Apply for Permits, or Request Records

EPA's Office of Enforcement and Compliance Assurance. "These requirements are a critical part of EPA's program to reduce air pollution and secure clean air so that all Americans can breathe easier."

EPA estimates that Cummins actions resulted in approximately 167 excess tons of nitrogen oxides and hydrocarbon emissions, and 30 excess tons of particulate matter emissions over the lifetime of the non-conforming engines. Cummins will mitigate the effects of excess emissions from its non-conforming engines through permanent retirement of emission credits equal to the excess tons of pollution.

Over half the air pollutants in America come from "mobile sources" of air pollution, such as cars, trucks, buses, motorcycles, construction, agricultural and lawn and garden equipment, marine vessels, outboard motors, jet skis and snowmobiles. Mobile source pollutants include smog-forming volatile organic compounds and nitrogen oxides, toxic air pollutants such as cancer-causing benzene, and particulate matter or "soot." These pollutants are responsible for asthma and other respiratory illnesses.

The state of California Air Resources Board will receive $420,000 of the civil penalty under a separate settlement agreement with Cummins, continuing a federal government practice of sharing civil penalties with states that participate in clean air enforcement actions.

The Cummins settlement was lodged today in the U.S. District Court for the District of Columbia, and is subject to a 30-day public comment period. A copy of the consent decree is available on the Justice Department Web site at http://www.justice.gov/enrd/Consent_Decrees.html.

10-173

Environment and Natural Resources Division

Updated September 15, 2014

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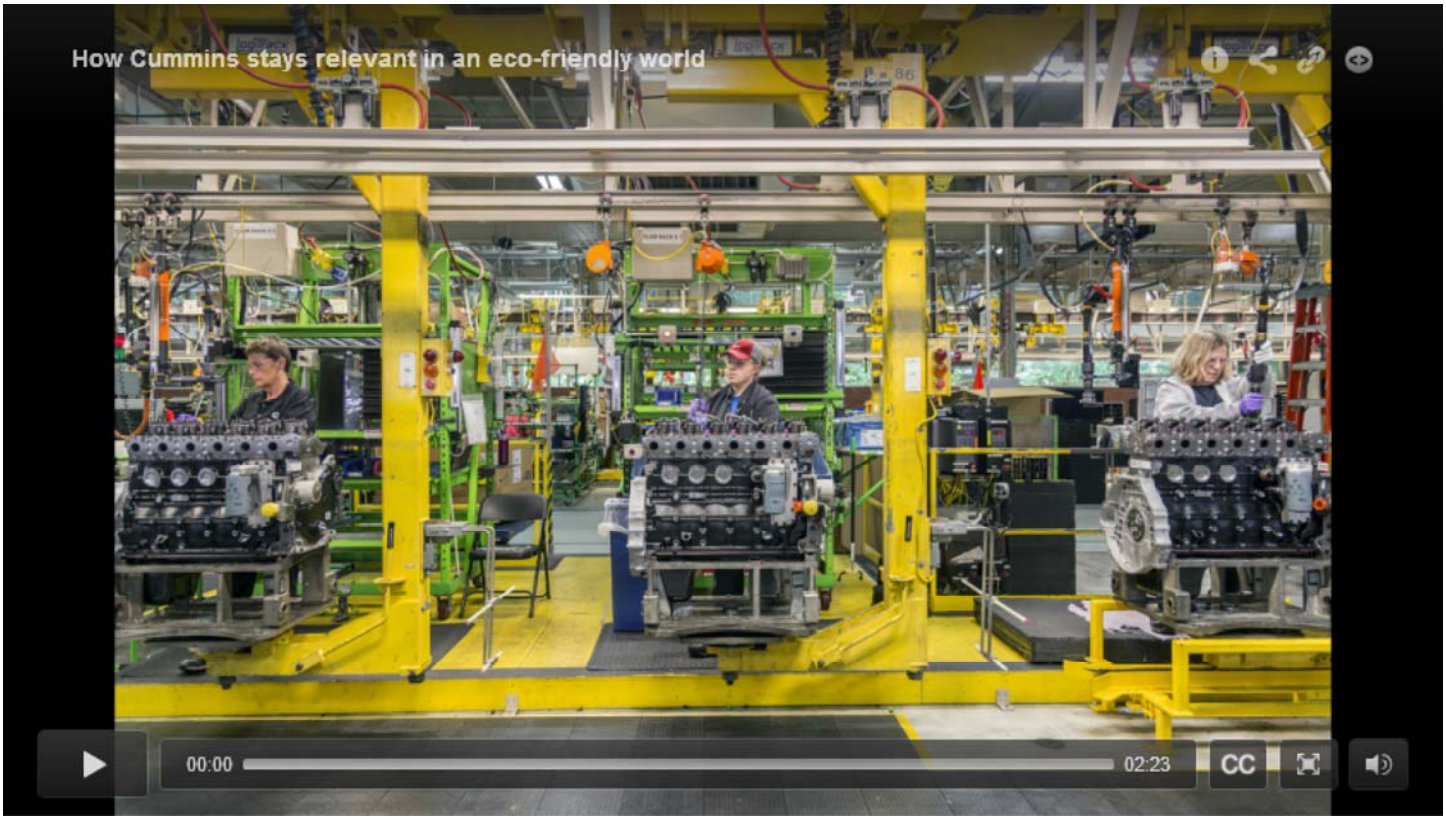
EXHIBIT 13

LEADERSHIP FORTUNE 500 See the Fortune 500 list

Cummins: An engine maker bets on clean air—and wins

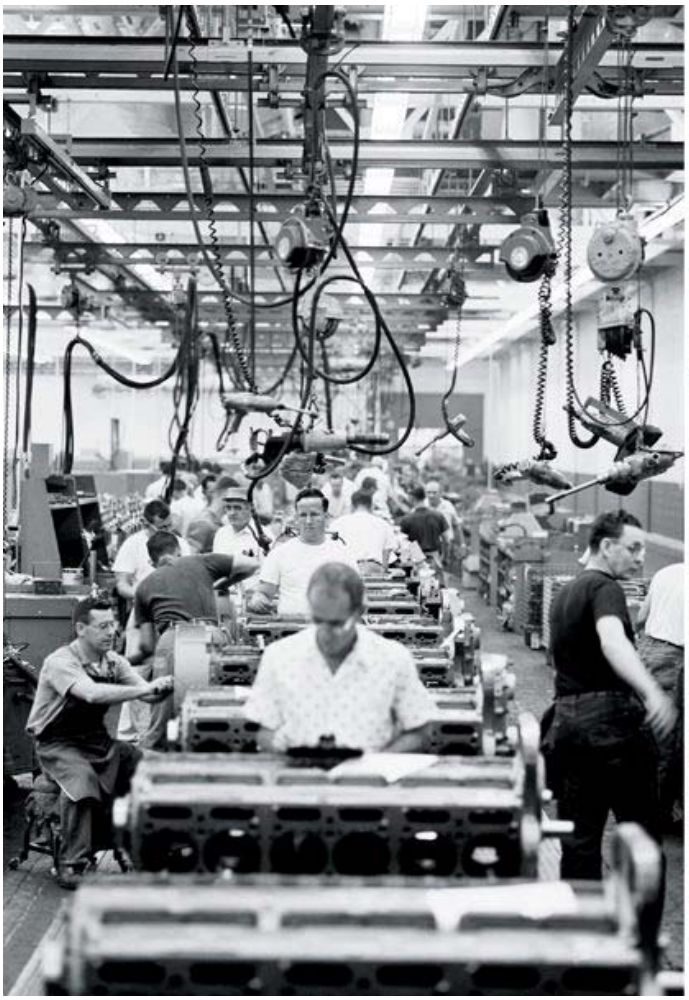
by Clay Risen JUNE 8, 2015, 8:00 AM EST

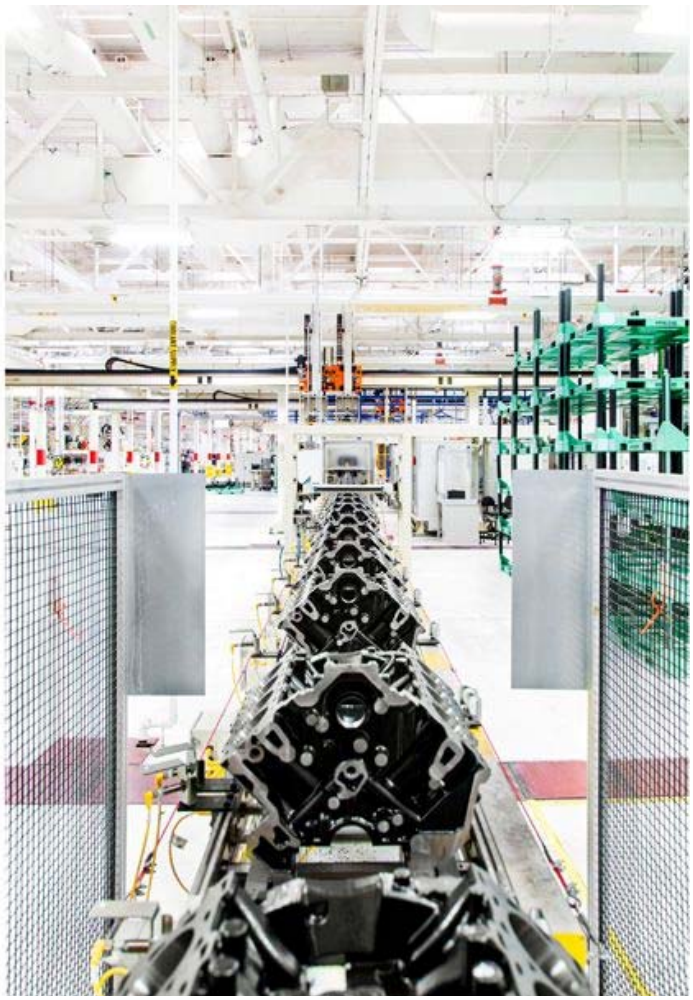


The Indiana diesel giant has thrived, thanks to smart investments in emissions-control technology and overseas partnerships.

Drive across the Midwest, and you'll see the same scene in town after town: shuttered factories, Main Streets full of empty storefronts, workforces hollowed out by the steep decline in the once-mighty American manufacturing sector. So you may find yourself doing a double-take when you get to Columbus, Ind., pop. 46,000, the home of Cummins (▲)**CMI 1.07%** , the country's leading diesel-engine manufacturer. You'll see a thriving downtown, weekend street fairs, and crowds flocking to trendy cafés and restaurants. With 17% of the local workforce employed directly by Cummins, Columbus is a one-business town—and business is good. The local economy is at 4.4% unemployment, compared with 5.8% for Indiana as a whole. "When I was growing up, my hometown of Anderson, an hour north of here, had 20,000 GM (▲)**GM 4.94%** employees, and 30 years later it has none," says Jason Hester, executive director of the Columbus Economic Development Board. "Right now, in this community, if you want a job, you're hired." For that you can thank diesel engines—bulky, unglamorous machines that may make you think of battered pickups and lumbering semis, or maybe of Europe, where diesel passenger cars are the norm. And yet in an American economy driven by tech startups and high finance, Cummins has not only survived but thrived in heavy industry. Driven by global demand for its energy-efficient, low-emission engines, the company's sales have popped since the end of the Great Recession; revenues jumped from $10.8 billion in 2009 to $19.2 billion in 2014. It operates in 90 countries, with almost 50% of its 2014 sales coming from overseas. In the U.S. and many other markets, it's the company to beat in diesel. Says Larry De Maria, an analyst with William Blair: "Cummins arguably makes the best engines in the world."

Cummins and Columbus, from Past to Present: In 1958, *Architectural Forum* magazine hired Ezra Stoller to photograph the home of Cummins CEO J. Irwin Miller in Columbus, the company's hometown. That encounter led to more commissions, between 1962 and 1971, for which Stoller shot pictures of Cummins's factories and Columbus itself. Here, his vintage photos are paired with new images captured for *Fortune* by Ryan Donnell.





On the line, then and now: Cummins workers put the finishing touches on engines in a Columbus factory in 1962 (left); engine blocks destined for Nissan pickups await machining in that same factory today.

Vintage Photo: Ezra Stoller—Esto; Photograph by Ryan Donnell For Fortune

Cummins first found success riding the postwar boom; it's one of only 57 companies that have appeared on the *Fortune* 500 every year since 1955. But more impressive is how the company has sustained that success in a tumultuous time for U.S. industry. When many manufacturers fled to cheaper overseas labor, Cummins took a more sophisticated tack, investing in its domestic workforce and facilities while establishing fifty-fifty joint ventures abroad. And when many automotive companies fought Washington on clean-air regulations, Cummins embraced them—and then used its mastery of clean-tech diesel to build a moat around itself. "We like things where the business is hard to do," says Rich Freeland, Cummins's president and chief operating officer. "Only a few people can get there, and we think we can."

2014 COMPANY PROFILE

Rank in *Fortune* 500:	154
Revenues:	$19.2 billion
Profits:	$1.65 billion
Employees:	54,600
Total Return to Shareholders (2004-2014 Annual Rate):	23.1%

That sort of confidence, along with a corporate culture that emphasizes investing in employees and their communities, has helped Cummins evolve into something truly unusual. It's a multi-national, technology-driven, very contemporary company that retains some qualities of an Eisenhower-era, take-care-of-your-workers industrial giant—a business model so traditionally American that it now seems practically un-American. It's a combination that has Cummins poised to continue capitalizing on the growing global trucking industry, and one that could keep it firing on all cylinders for many years to come.

Though you would never confuse Cummins with Apple (▼)**AAPL -2.75%** or HP (▲)**HPQ 0.77%** , it, too, got its start in a garage. In 1919, Clessie Lyle Cummins, an auto mechanic and chauffeur in Columbus, persuaded his boss, a local banker named William G. Irwin, to invest in an exotic engine technology developed by the German engineer Rudolf Diesel.

At the time, few Americans had heard of diesel, and those who had heard of it figured the bulky design was best suited for generators and farm equipment. But Cummins saw the possibility of using it on the highway, and through the 1920s and '30s his eponymous company churned out increasingly powerful, sophisticated engines, with the goal of serving the burgeoning commercial trucking sector.

Assembling engines for Dodge Ram trucks at a Cummins plant today; workers on one of the company's original assembly lines in 1962.

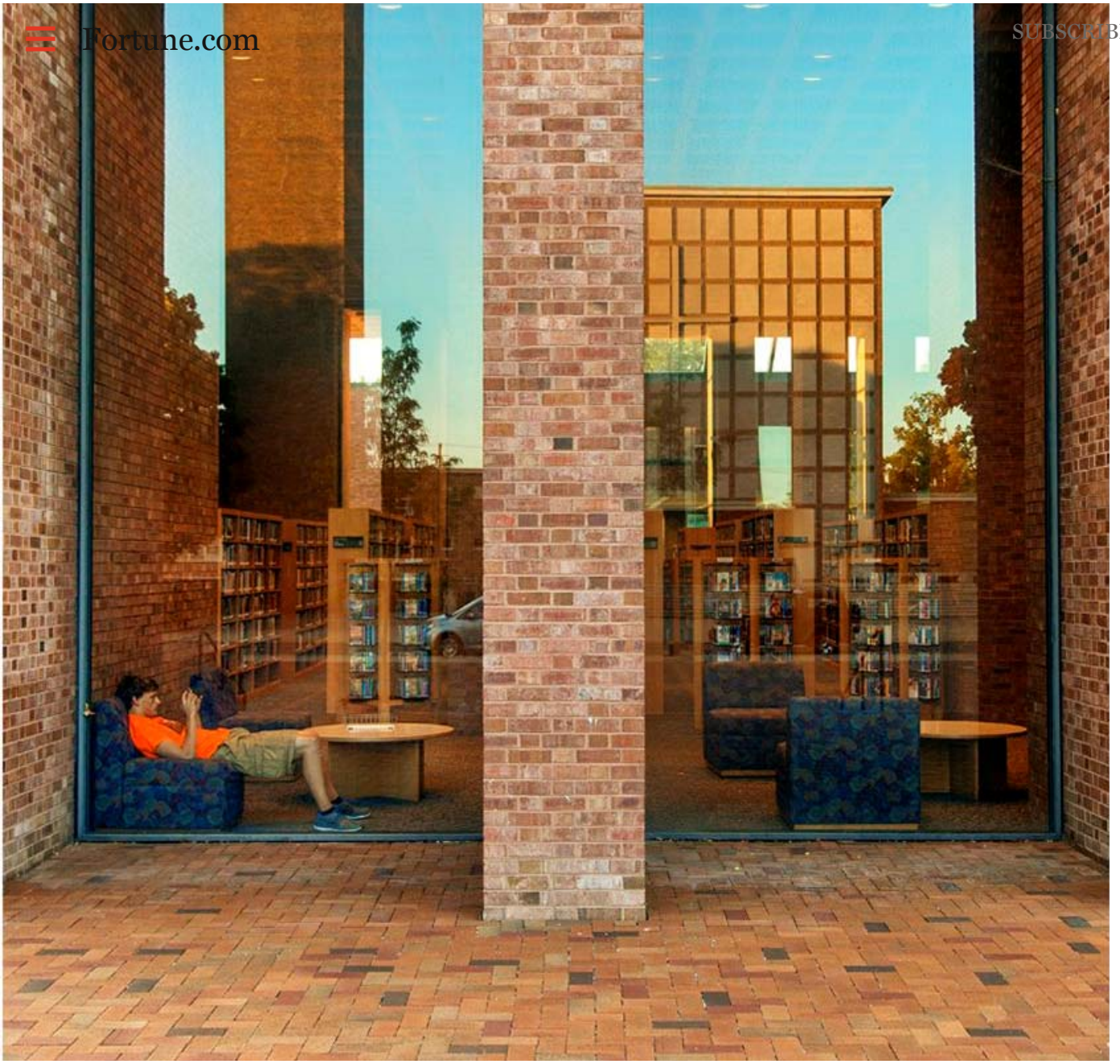
Photograph by Ryan Donnell for Fortune; Vintage photograph: Ezra Stoller—Esto

Click to enlarge.

The advent of World War II and the postwar expansion of the highway system and the interstate trucking industry created an unquenchable demand for immensely powerful engines, and diesel was unmatched in that category. Under the leadership of Irwin's nephew, J. Irwin Miller, the company grew from $26 million in gross sales in 1944 to $1.26 billion in 1977—14-fold growth after adjusting for inflation.

If Clessie Cummins was responsible for creating the company, Miller deserves credit for making it a global powerhouse. He was an unlikely candidate for the role of industrial magnate: Born into wealth, he went to Yale and Oxford, where he played classical violin, rowed crew, and gravitated toward circles of architects and artists. Once in place at Cummins, though, Miller proved to be a natural executive. He understood the long-term potential of overseas growth, so even as Cummins made a mint on domestic trucking, it began to expand internationally. Miller opened Cummins's first overseas factory in 1956 in Scotland; six years later he formed a fifty-fifty joint venture to build heavy-duty engines in Pune, India—decades before most American firms dared invest in that country. In 1975, Miller was one of the first American executives to visit China after President Richard Nixon normalized relations.

Miller paid equal attention to the company's hometown. To attract top-flight engineering and management talent to rural Indiana, he had the corporate philanthropy, the Cummins Foundation, sink millions into local schools. And he offered to pay the architect's fees for any public building project that agreed to choose from a list of firms he provided; as a result, Columbus has one of the greatest concentrations of modern architecture in the country. I.M. Pei designed the public library. Eero Saarinen did a local church. Richard Meier designed a school; Robert A.M. Stern, a hospital. "It's a matter of enlightened self-interest," says Hester at the local economic development board. "Cummins can attract employees who but for these amenities would not come here."



One of Cummins's major architectural commissions in Columbus, Eliel Saarinen's First Christian Church, is shown here reflected in a window of another, I.M. Pei's Cleo Rogers Memorial Library.

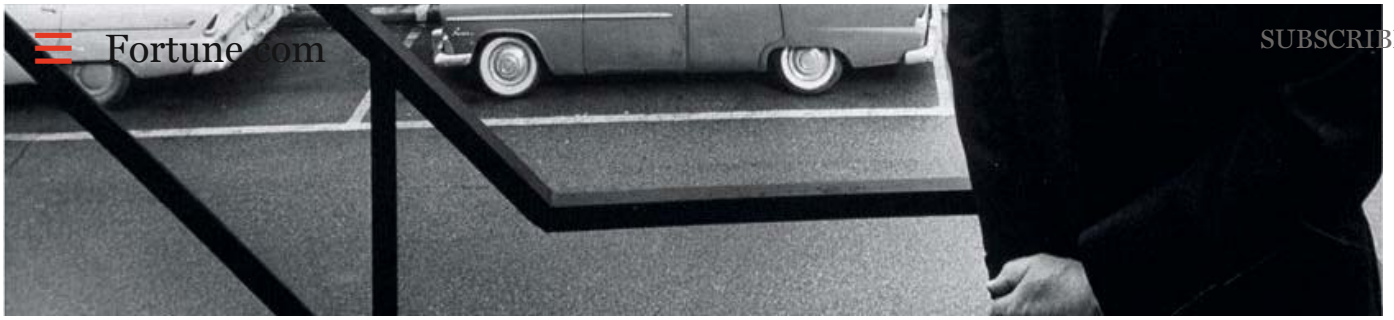
Photograph by Ryan Donnell for Fortune

Miller's public activism extended beyond Columbus, as Charles Rentschler, a former Cummins executive, documents in *The Cathedral Builder,* a new biography of Miller. In 1960 he became the first lay president of the National Council of Churches, and he used his business and religious ties to push Midwestern congressmen to support the Civil Rights Act of 1964. He was strongly pro-union and fought against Indiana's right-to-work law when it was first introduced. "I wouldn't know how to run a big company without a strong union," he told a *Fortune* reporter in 1957. (Even today about 40% of Cummins's global workforce is unionized.)

Though Miller died in 2004, the company continues to reflect his philosophy of serving stakeholders beyond its shareholders—including customers, employees, and the community. In 2012, after the Columbus city council rejected a plan to provide universal curbside recycling, Cummins led a consortium of local firms to pay for the program's capital costs, including trucks and toters, a $500,000 commitment. "I meet other mayors who say I'm lucky to be mayor of Columbus," says

Kristen Brown, a sixth-generation resident—and a daughter of a lifetime Cummins employee—who was elected in 2011. "They say, 'I'd love to have a Cummins.' "

Miller's legacy was put to the test in 1997, when the Environmental Protection Agency began investigating whether special shutoff switches in the company's engines could be used to disable emissions controls. They could, apparently to the surprise and dismay of Cummins engineers. The next year the EPA forced Cummins and several other manufacturers to agree to reprogram the devices and sign an $83.4 million consent decree, the highest civil penalty in environmental enforcement to date. The EPA then moved forward the deadline for new, lower-emission engines from 2004 to October 2002.



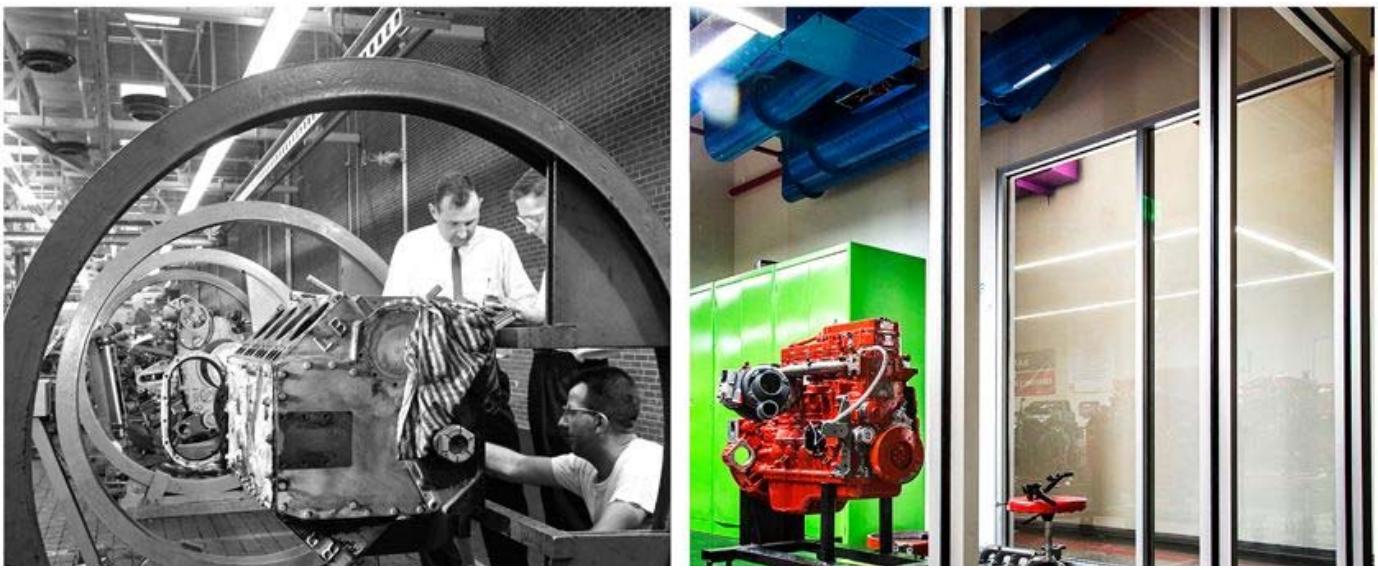
CEO J. Irwin Miller funded big civic architecture projects—including this Eero Saarinen–designed bank—to help Cummins lure talent to Columbus.

Photo: Frank Scherschel—The LIFE Picture Collection/Getty Images

Some at Cummins wondered whether a company built on dirty, heavy-duty diesel could survive the EPA's order, says Freeland, the president and COO, who has been with the company since 1979. Cummins's leadership considered suing, but eventually cooler heads prevailed, and rather than fight the EPA, Cummins decided to work with it. "We said we'd double down, because we thought there was a way to be different," Freeland says. Cummins was, after all, the leader in diesel technology. If it could quickly meet the EPA's new standards, it stood to reap enormous benefits.

Under Theodore M. Solso, who was chairman and chief executive from 2000 to 2011 and is now chairman of General Motors, Cummins set out to become the first diesel company to hit the EPA targets. "The whole industry said there was no way anyone could meet it," Solso now recalls. But Solso made meeting the goal a centerpiece of a bigger internal revolution. In the early 2000s he implemented Six Sigma management systems and ended the wildly popular (but profit-reducing) practice of offering discounts on most sales. Above all, he poured money into research and development, traditionally a weak spot for diesel makers. From 2002 to 2007, Cummins boosted annual R&D spending by 60%, to $321 million, with almost a quarter dedicated to meeting future EPA engine standards. That emphasis yielded important new technologies, including advances in "deep spray" injection, a process that reduced engines' emissions without sacrificing efficiency by pushing fuel farther into the cylinder.

Cummins did indeed hit the EPA's standards first, and saw it pay off almost immediately. By 2010, Caterpillar (▲)**CAT 3.05%** and Detroit Diesel, its two largest domestic rivals, had bowed out of the on-highway heavy-duty diesel market, which Cummins now dominates with a 39% share. Annual revenues have more than tripled since 2002, when that EPA deadline kicked in, and experts within and outside the company say Cummins's early commitment to a low-emissions strategy will help it maintain its lead as regulations ratchet up over coming decades.



Technicians at work on a prototype engine in 1962; a present-day prototype at rest in the Technical Center.

Vintage Photograph: Ezra Stoller—Esto; Photograph by Ryan Donnell for Fortune

"The on- and off-highway emissions standards were the best thing that ever happened to Cummins," says Mike Brezonick, editor-in-chief of *Diesel Progress* magazine. "They make such better engines now. It was the equivalent of the Manhattan Project." The company also controls about 41% of the North American market for after-market components that lower emissions on other companies' engines, a huge new source of revenue. "You hear in the news that pollution controls are hurting jobs," says John Wall, the chief technology officer. "For us it's the exact opposite." Last year the components business brought in $5.1 billion, or a little over a quarter of total revenues.

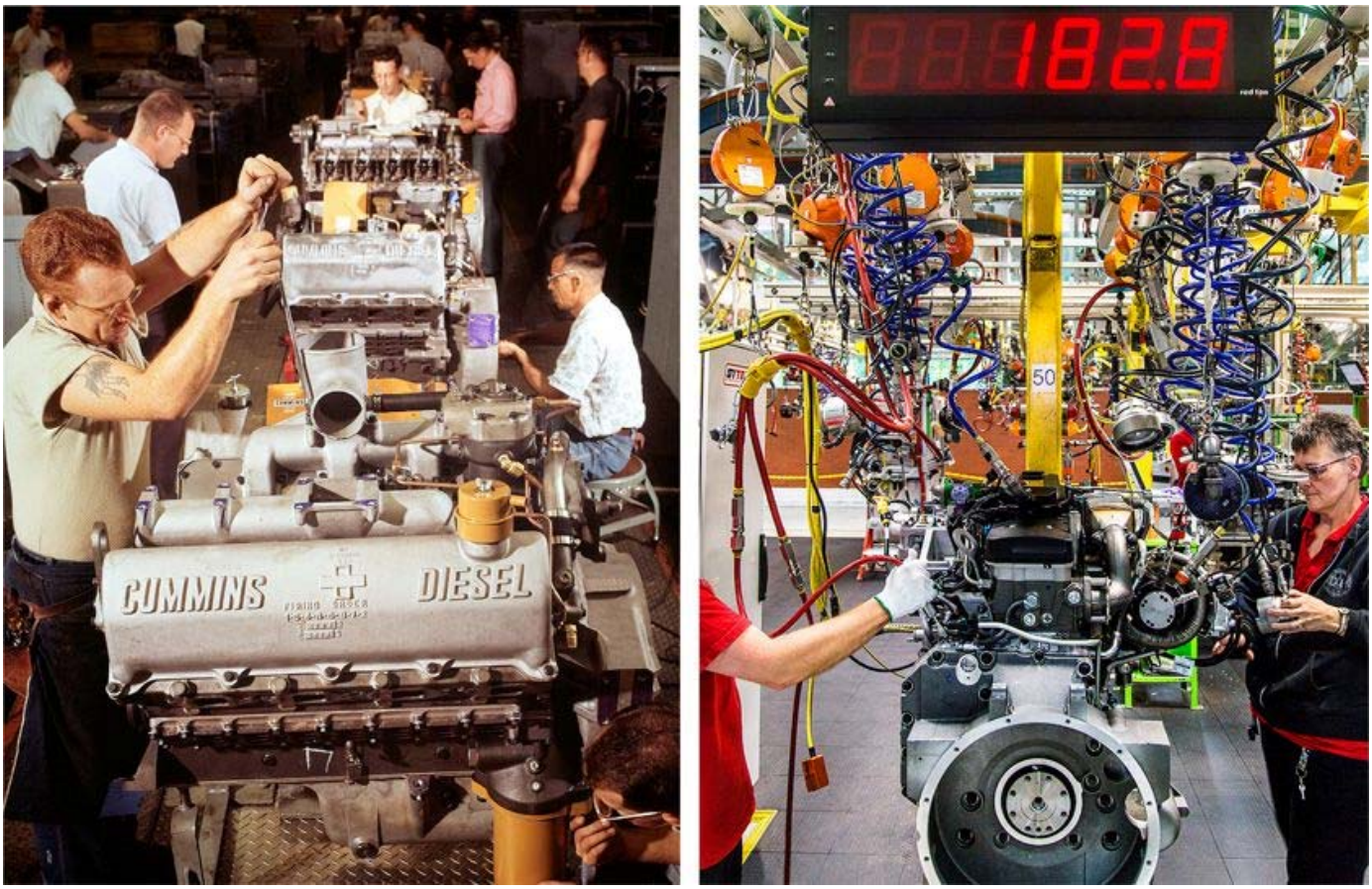
Cummins continues to work closely with the EPA on the next generation of standards. Wall, coincidentally, had been meeting with agency officials the day before giving an interview to *Fortune*. "We'll take [regulators] through technologies being developed, explain how long it will take to get them to market," Wall says, hoping that the industry's needs are on their minds when the rules are finally written. That kind of cooperation has made Cummins a poster child for emissions controls; Solso and his successor, current CEO Tom Linebarger, have both stood beside President Obama as he announced rounds of clean-air standards.

Cummins's clean-engine investments mesh in important ways with its other major strategic initiative of the past decade and a half: its rapid growth overseas. Under Solso the company opened dozens of new foreign joint ventures and deepened its investments in East Asia and Latin America. By 2005, China and India alone were generating $1.9 billion in sales, almost 23% of Cummins's total. Today, of its 54,600 employees, 63% work outside the U.S., up from about 50% a decade ago.

Cummins engineers working at drafting tables in 1963; doing similar work with the help of computer-aided design software at the CumminsTechnical Center.

As developing nations improve their own clean-air standards, Cummins's lead in meeting U.S. rules could leave it well positioned to take advantage. And its diversity, both in product lines and markets, has already bolstered Cummins enormously by severing it from the chains of cyclicality in the diesel-engine industry. During the downturn of the late 1990s and early 2000s, Cummins struggled and had unprofitable years, but it emerged from the Great Recession relatively unscathed, thanks to its broad exposure to the developing world.

The benefits of global breadth were on display in Cummins's most recent quarterly earnings call. The company forecast big dropoffs in truck engine sales in China and Brazil, but it also said that U.S. demand would be more than strong enough to offset the declines, and investors shrugged off the news. Cummins stock is up 105% over the past five years, compared with 95% for the S&P 500, and it remains an analyst darling.



Blue-collar technicians and white-collar engineers often team up on Cummins assembly lines, as in this 1962 photo. Today, a digital clock tracks the time spent on particular tasks.

Vintage Photograph: Ezra Stoller—Esto; Photograph by Ryan Donnell for Fortune

Cummins is far from the only U.S. manufacturer to have expanded overseas, of course. But unlike many big companies that fly solo, Cummins insists on splitting ownership fifty-fifty, and it stocks its overseas offices with local talent. Going half-and-half has allowed Cummins to get into tough markets, like China, that might resist a company that tried to force its own terms. And it means that Cummins gets a better sense of local conditions more quickly. China in particular is littered with the hulks of failed ventures by U.S. companies that didn't understand the territory. In 2013, for example, Caterpillar, one of Cummins's rivals, had to write down $580 million after it gobbled up a Chinese mining-equipment company, Siwei. Caterpillar said it

had discovered, months after the deal closed, that Siwei's value had been inflated by "accounting misconduct" at the Chinese company.

As it expands globally, Cummins looks to local talent to boost not just its rank and file but also its management. Its leadership development program, an 18-month executive education program, trains 15 promising employees from other countries—including China, India, and Brazil—to become leaders either in their own countries or in other regions where Cummins operates. "It's part of our belief in building capability locally," Freeland says. "We're not there to extract value."

The offices and printing plant of the Columbus Republic newspaper designed by Myron Goldsmith of Skidmore, Owings & Merrill, shown shortly after completion in 1971, and today. Appropriately enough for a factory-town paper, its bright-yellow printing press was visible to the public.

Vintage photograph: Ezra Stoller—Esto; Photograph by Ryan Donnell for Fortune

Developing local talent is also important because of the way Cummins tackles overseas product development. Instead of taking products made for the U.S. and tweaking them (or "de-contenting" them, in industry lingo) to fit local needs, the company approaches each region as a blank slate and develops engines and other products to match it. That's more expensive upfront, but it means a better and more profitable fit in the long run. It's also a running source of ideas and products that might find export markets of their own. For example, Cummins's ISF 2.8-liter engine was designed for the Chinese commercial truck market, where engines tend to be smaller and lower in power than in the U.S. and Europe. But it turns out that for the U.S. market, the ISF works perfectly in pickup trucks. Last year Nissan presented a concept version of its Frontier pickup, with a Cummins ISF 2.8, at the Chicago Auto Show.

Cummins also invests heavily in the overseas communities it enters, in projects that show how corporate citizenship and a strategy for the company's future can complement each other. Among its initiatives: an engineering college for women in India, which now enrolls about 1,800 students, many of whom the company hopes will help it meet its goal of a 50% female workforce in that country. Efforts like these follow the example that Irwin Miller set decades ago in Indiana, Wall says: "We take this model with us all around the world." Brezonick of *Diesel Progress* also sees a little bit of Columbus in the company's global investments. "When push comes to shove," he says, "they're a straight-shooting Indiana company." Albeit one with employees in Pune, Xiangyang, and São Paulo.

A version of this article appears in the June 15, 2015 issue of Fortune magazine with the headline 'An Engine Maker's High-Tech Makeover.'

Clarification, June 9, 2015: *An earlier version of this article said that Nissan would soon offer a version of the Cummins ISF 2.8 in its Frontier pickup; Nissan used the engine in a concept version of the truck in 2014, but has opted not offer it in production versions.*

EXHIBIT 14

Clear all data and reset fields >

SECRETARY OF THE SENATE
06 AUG 14 AM 11:32

Clerk of the House of Representatives	Secretary of the Senate
Legislative Resource Center	Office of Public Records
B-106 Cannon Building	232 Hart Building
Washington, DC 20515	Washington, DC 20510

LOBBYING REPORT

Lobbying Disclosure Act of 1995 (Section 5) - **All Filers Are Required to Complete This Page**

1. Registrant name

Cummins Inc.

2. Address ☐ Check if different than previously reported

601 Pennsylvania Avenue, NW — North Building, Suite 625

Washington — DC — 20004 — USA

3. Principal place of business (if different than line 2)

City — State/Zip or Country

4a. Contact Name	b. Telephone number	c. E-mail	5. Senate ID #
Mr. Steve May	202-393-8585	steve.may@cummins.com	11470-12

7. Client Name ☒ Self

Cummins Inc.

6. House ID # 33632000

TYPE OF REPORT 8. Year 2006 Midyear (January 1-June30) ☒ OR Year End (July 1-December 31) ☐

9. Check if this filing amends a previously filed version of this report ☐

10. Check if this is a Termination Report ☐ ⇨ Termination Date _____ 11. No Lobbying Activity ☐

INCOME OR EXPENSES - Complete Either Line 12 OR Line 13

12. Lobbying Firms

INCOME relating to lobbying activities for this reporting period was:

Less than $10,000 ☐

$10,000 or more ☐ ⇨ $ _____

Provide a good faith estimate, rounded to the nearest $20,000, of all lobbying related income from the client (including all payments to the registrant by any other entity for lobbying activities on behalf of the client).

13. Organizations

EXPENSES relating to lobbying activities for this reporting period were:

Less than $10,000 ☐

$10,000 or more ☒ ⇨ $ 720,000

14. REPORTING METHOD. Check box to indicate expense accounting method. See instructions for description of options.

☒ **Method A.** Reporting amounts using LDA definitions only

☐ **Method B.** Reporting amounts under section 6033(b)(8) of the Internal Revenue Code

☐ **Method C.** Reporting amounts under section 162(e) of the Internal Revenue Code

Edit Form > | File with House >

Senate Password _____ | File with Senate >

Signature _____ Date 8/14/2006

Printed Name and Title Stephen L. May - Vice President, Government Relations

LD-2DS (Rev. 4.07)

00001923 56

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code TRA - Transportation (one per page)

16. Specific lobbying issues

Development of diesel technology for heavy and light duty trucks and other applications (H.R.5427) Emissions standards, fuel regulations and enforcement for on-road vehicles; Diesel Emissions Reduction Act (DERA) funding (H.R.5386).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Energy; Environmental Protection Agency; Office of Management and Budget; Department of Transportation; Council on Environmental Quality.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Tina	Vujovich		☐
Joe	Loughrey		☐
Mike	Cross		☐
Amy	Boerger		☐
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Signature Date 8/14/2006

Printed Name and Title Stephen L. May - Vice President, Government Relations

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code BUD - Budget/Appropriations (one per page)

16. Specific lobbying issues

FY07 Energy & Water appropriations, energy efficiency and emissions R&D programs (H.R.5427); FY07 Interior appropriations (H.R.5386); FY07 Department of Defense appropriations (H.R.5631).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Energy; Environmental Protection Agency; Office of Management and Budget.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Vinod	Duggal		☐
Emily	Foster		☐
Tom	Linebarger		☒
			☐
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

LD-2DS (Rev. 4.07)

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code CAW - Clean Air & Water (Quality) (one per page)

16. Specific lobbying issues

Vehicle emissions, fuel regulations and enforcement issues - no bill; FY07 Interior appropriations (H.R. 5386); Diesel Emissions Reduction Act (DERA) funding (H.R.5386).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Energy; Environmental Protection Agency; Office of Management and Budget; Department of Transportation; Council on Environmental Quality.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Tina	Vujovich		☐
Louis	Renjel		☐
Joe	Loughrey		☐
Amy	Boerger		☐
Mike	Cross		☐
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code ENG - Energy/Nuclear (one per page)

16. Specific lobbying issues

FY07 Energy & Water appropriations (H.R.5427); Standardized generator interconnection activities - no bill; Deep ocean drilling issues (H.R.4761, S.3711).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Energy; Environmental Protection Agency; Office of Management and Budget; Federal Energy Regulatory Commission (FERC).

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Tom	Linebarger		☐
Eric	Wong		☐
Thad	Ewald		☐
			☐
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code TAX - Taxation/Internal Revenue Code (one per page)

16. Specific lobbying issues

Incentives for combined heat and power and distributed generation projects, Incentives for diesel emissions reduction technologies and fuel efficient vehicles and engines; R&D tax credit extension (H. R.4297, H.R.2830, S.1783).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Energy; Environmental Protection Agency; Office of Management and Budget; Department of Treasury; Department of Commerce.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Vince	Akers		☐
Thad	Ewald		☐
Tom	Linebarger		☐
Emily	Foster		☒
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code TRD - Trade (Domestic & Foreign) (one per page)

16. Specific lobbying issues

China trade/export promotion/China "catch all" regulations - no bill; Iraq reconstruction activities - no bill; foreign trade barriers - no bill; export promotion activities, multiple countries - no bill.

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Commerce; Department of State; U.S. Trade Representative; Office of Management and Budget; U.S. Agency for International Development; Department of the Treasury; Department of Defense; Environmental Protection Agency; Department of Energy.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Tom	Linebarger		☐
John	Oliver		☐
Steve	Chapman		☐
John	Watkins		☐
Marya	Rose		☐
Ed	Pence		☐
Louis	Renjel		☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

Go to 'Form Completed' >

Registrant Name Cummins Inc.   Client Name Cummins Inc.

ADDENDUM for General Lobbying Issue Area TRD

18. Name of each individual who acted as a lobbyist in this issue area (continued from previous page)

First Name	Last Name	Suffix	Covered Official Position (if applicable)	New
John	Becker			☐

Add a page to continue additing lobbyists for this issue >

Form LD-2DS

00000192353

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code DEF - Defense (one per page)

16. Specific lobbying issues

Army vehicle and Navy ship programs (H.R.5122, S.2766); FY07 Department of Defense appropriations (H.R.5631); FY07 Department of Homeland Security appropriations (H.R.5441).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Defense; Department of Homeland Security; Office of Management and Budget.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Mike	Guthrie		☐
			☐
			☐
			☐
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

LD-2DS (Rev. 4)

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code RET - Retirement (one per page)

16. Specific lobbying issues

Pension reform legislation (H.R.2830; S.1783); Deficit Reduction Act of 2005 (H.R.4241, S.1932).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of the Treasury; Department of Labor; National Economic Council.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Emily	Foster		☐
Kelly	Higgs		☐
Joe	Loughrey		☐
Jill	Cook		☐
Steve	Greenlee		☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

LD-2DS (Rev. 4)

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code HOM - Homeland Security (one per page)

16. Specific lobbying issues

Homeland Security, critical infrastructure - no bill; port security issues - no bill; FY07 Homeland Security appropriations (H.R.5441).

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Defense; Department of Homeland Security; Office of Management and Budget.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Tom	Linebarger		☐
			☐
			☐
			☐
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

LD-2DS (Rev. 4)

Registrant Name Cummins Inc. Client Name Cummins Inc.

LOBBYING ACTIVITY. Select as many codes as necessary to reflect the general issue areas in which the registrant engaged in lobbying on behalf of the client during the reporting period. **Using a separate page for each code,** provide information as requested. Attach additional page(s) as needed.

15. General issue area code IMM - Immigration (one per page)

16. Specific lobbying issues

Immigration polices and issues - no bill; The Border Protection, Antiterrorism, and Illegal Immigration Control Act of 2005 (H.R.4437); Comprehensive Immigration Reform Act of 2006 (S.2611); Visa processing concerns - no bill.

17. House(s) of Congress and Federal agencies contacted ☐ None ☒ House ☒ Senate ☒ Other

House of Representatives; Senate; Department of Labor; Department of State; Department of Homeland Security; Department of Commerce.

18. Name of each individual who acted as a lobbyist in this issue area

Name		Covered Official Position (if applicable)	New
Steve	May		☐
Catherine	Van Way		☐
Louis	Renjel		☐
Emily	Foster		☐
John	Watkins		☐
Steve	Chapman		☐
			☐
			☐
			☐

19. Interest of each foreign entity in the specific issues listed on line 16 above ☒ Check if None

Printed Name and Title Stephen L. May - Vice President, Government Relations

LD-2DS (Rev. 4/)

Registrant Name Cummins Inc. Client Name Cummins Inc.

Information Update Page - Complete ONLY where registration information has changed.

20. Client new address

21. Client new principal place of business (if different than line 20)

City State/Zip

22. New general description of client's business or activities

LOBBYIST UPDATE

23. Name of each previously reported individual who is **no longer** expected to act as a lobbyist for the client

Louis Renjel

Molly Cue

ISSUE UPDATE

24. General lobbying issues that **no longer** pertain

TOR

AFFILIATED ORGANIZATIONS

25. Add the following affiliated organization(s)

Name	Address	Principal place of Business (city and state or country)

26. Name of each previously reported organization that is **no longer** affiliated with the registrant or client

FOREIGN ENTITIES

27. Add the following foreign entities

Name	Address	Principal place of business (city and state or country)	Amount of contribution for lobbying activities	Ownership percentage in client
				%

28. Name of each previously reported foreign entity that **no longer** owns, **or** controls, **or** is affiliated with the registrant, client or affiliated organization

Signature _____ Date 8/14/2006

Printed Name and Title Stephen L. May - Vice President, Government Relations

LD-2DS (RM07)

EXHIBIT 15

Dodge Introduces Cleaner, Quieter and More Powerful 6.7-liter Cummins Turbo-Diesel Engine at State Fair of Texas

Engine available in January on new 2007 Dodge Ram 2500/3500 models

* Increased output with 350 horsepower and 650 lb.-ft. of torque * New, fuel-saving six-speed automatic transmission features best-in-class gear-ratio spread; standard Electronic Range Select (ERS) * First-ever integrated exhaust brake available direct from the factory * 50-percent quieter engine; 3 Dba reduction in cabin sound levels * Life-to-major overhaul intervals of 350,000 miles, providing more than a 100,000-mile advantage over the competition

Sep 28, 2006, 01:00 ET from Chrysler Group (http://www.prnewswire.com/news/chrysler-group)

DALLAS, Sept. 28 /PRNewswire-FirstCall/ -- The war among America's diesel- powered pickup trucks rumbles into a new round with Dodge announcing more horsepower, torque, refinement and a host of advanced towing features.

Today at the State Fair of Texas, Dodge will reveal more details about the 2007 Dodge Ram Heavy Duty's new 6.7-liter Cummins turbo-diesel engine, which replaces the current 5.9-liter engine. Producing 350 horsepower at 3,000 rpm and 650 lb.-ft. of torque at 1,500 rpm, the 6.7-liter engine features an all-new six-speed automatic transmission that delivers improved fuel economy and performance.

The engine will be available in 2007 Dodge Ram 2500 and 3500 models beginning January 2007. A commercial-use 6.7-liter Cummins turbo-diesel engine was introduced in early 2006 with the all-new Dodge Ram Chassis Cab, which is available now.

"The 2007 Dodge Ram Heavy Duty's new 6.7-liter Cummins turbo-diesel engine sets the performance standard with an outstanding combination of horsepower, torque, refinement and emissions-reducing technology," said Scott Kunselman, Chief Engineer - Dodge Ram. "Providing superior trailer towing, acceleration, throttle response and drivability, the new 6.7-liter engine is not only more powerful, it's also cleaner with B5 biodiesel compatibility and a reduction in particulates and nitrogen oxide (NOx) that comply with the 50-state 2007 heavy-duty emission standards."

Based on the proven DNA of the 5.9-liter Cummins turbo-diesel engine, the new 6.7-liter engine is 50-percent quieter, while featuring a 107mm bore by 124mm stroke (versus 102mm bore by 120mm stroke for the 5.9-liter engine). The new engine retains more than 40 percent of its components from the 5.9- liter engine and shares more than 80 percent of its components with the new Dodge Ram chassis cab.

The high-performance 408-cubic-inch inline-six intercooled turbo-diesel is clean and quiet, and meets all 2007 U.S. federal and state emission requirements, which require a 90-percent reduction in particulate matter and 50-percent reduction in NOx.

Offered for the first time in Dodge Ram Heavy Duty trucks are features including an integrated exhaust brake, standard Electronic Range Select (ERS) and "Smart" tow/haul controls that provide customers flexibility and increased safety when towing heavy loads.

Improved Performance, Durability and Emissions

Dodge Ram Heavy Duty's new 6.7-liter turbo-diesel engine features improved performance, durability and significantly reduced emissions.

Enhancing diesel-powered performance of 2007 Dodge Ram Heavy Duty trucks is an electronically-controlled Variable Geometry Turbocharger (VGT), which precisely matches boost pressure with the engine's needs. The 6.7-liter engine's VGT utilizes 16 fixed vanes and a sliding yoke, providing variable geometry, as well as an electric valve. The VGT produces optimum combustion control, reduced emissions and a quiet and lag-free throttle response.

Decreasing NOx emissions is a next-generation cooled Exhaust Gas Recirculation (EGR) system. The Cummins 6.7-liter engine's EGR system is water cooled, with the air reintroduced into the intake system, keeping turbo and intercooler components clean, which increases the engine's durability.

Within the 6.7-liter Dodge Ram Heavy Duty exhaust system, reducing particulate matter is achieved through a self-cleaning Diesel Particulate Filter (DPF). The muffler is isolated from the emissions control system, therefore customers may remove the muffler without violating emissions compliance. The emissions system is designed for a government-certified 120,000 miles.

As durable as it is powerful, the Cummins 6.7-liter turbo-diesel engine has life-to-major overhaul intervals of 350,000 miles, providing more than a 100,000-mile advantage over the competition.

Quiet and Refined Driving Experience

In addition to improving emissions and durability, occupant comfort is central to the 2007 Dodge Ram Heavy Duty. The new 6.7-liter turbo-diesel engine incorporates several new features that contribute to a 50-percent quieter engine and a 3 Dba reduction in cabin sound levels, increasing the vehicle's overall refinement.

New engine mounts, a constrained-layered oil pan, intake silencer and engine-block shield create a quiet cabin environment inside the 2007 Dodge Ram Heavy Duty. In addition, an over-running alternator pulley eliminates sounds generated from the diesel engine shut down process, and machined crankshaft counter weights significantly contribute to quiet acceleration.

First-ever Optional Exhaust Brake

For the first time in a Dodge Ram Heavy Duty truck, an integrated exhaust brake is available direct from the factory. Utilizing the 6.7-liter Cummins turbo-diesel engine's new turbocharger, the exhaust brake significantly improves control when towing heavy applications, such as pulling RV fifth wheels and horse trailers, providing added control and brake savings by transforming horsepower into braking power.

"Towing and hauling capability is critical for our customers, as more than 90 percent of Dodge Ram Heavy Duty customers tow with their truck," said Kunselman.

Benefits of the exhaust brake include:

* Increased vehicle control to provide the owner additional peace of mind when towing
* Enhanced safety by reducing overheating and fading of brakes on downhill grades
* Lower cost of ownership, extending brake life by as much as three times
* Capability for faster cold-weather cab warming

The 2007 Dodge Ram Heavy Duty's 6.7-liter Cummins turbo-diesel engine's VGT is capable of creating the maximum exhaust restriction through a wide range of operating speeds, improving braking performance at low and high engine speeds. Testing has shown more than a 30 percent improvement in retarding torque at 2000 rpm compared with traditional brake exhaust methods.

Six-speed Automatic Transmission with Electronic Range Select (ERS)

Mated to the 6.7-liter Cummins turbo-diesel engine is a new six-speed 68RFE automatic transmission, which delivers optimum fuel economy and performance. A new Electronic Range Select (ERS) system is integrated with the transmission, enabling customers to select desired gears that match driving conditions.

The new six-speed automatic transmission features a best-in-class gear ratio spread of 5.16:1, allowing for superior launch capability. The sixth gear, also known as the second overdrive gear, provides an extremely low rpm at highway speeds, improving Dodge Ram Heavy Duty's fuel economy and passenger comfort. In addition, an added compounder and two clutches provide optimal shift quality, improved quietness and durability.

The transmission's new ERS system complements the 2007 Dodge Ram Heavy Duty's tow/haul mode, allowing for driver-actuated gear selection with a shifter-mounted switch. ERS provides greater control in unique driving conditions, such as towing heavy loads on severe inclines. The system includes electronic safeguards to prevent shifting that could cause engine damage.

Towing/Hauling

In addition to more horsepower and torque, Dodge Ram Heavy Duty boasts towing capability of 16,400 lbs., a payload of 5,020 lbs. and Gross Combined Weight Rating (GCWR) and Gross Vehicle Weight Rating (GVWR) of 23,000 lbs. and 12,200 lbs., respectively.

The 2007 Dodge Ram Heavy Duty provides a combination of standard and optional features that make towing easier, such as a Class IV hitch receiver with a seven-circuit wiring harness, 750-amp battery, heavy-duty engine cooling and an auxiliary transmission oil cooler.

Distinctive trailer-tow mirrors featured on Dodge Ram Heavy Duty trucks offer a large rear-viewing area that may be customized to drivers' needs and preferences. Mirrors provide two views on both sides: close-up and wide-out. In addition, mirrors flip up 90 degrees for viewing beyond wide trailers.

Chrysler Group Diesel-Powered Models

In the United States, current diesel-powered models include the Dodge Ram Heavy Duty, Dodge Sprinter and the new 3.0-liter V6 diesel Jeep Grand Cherokee, which hits the market in early 2007. In 1988, the Chrysler Group made a significant impact with the introduction of the Cummins 5.9-liter I-6 in heavy duty applications. Customer recognition is still exceptional and will continue with the new Cummins 6.7-liter turbo diesel.

In Europe, diesel-powered models account for more than half of Chrysler Group sales. The Chrysler 300C, Chrysler PT Cruiser and Dodge Caravan models continue to be popular.

Advanced diesel technology is part of the Chrysler Group's advanced propulsion technology umbrella, which also includes efficient gasoline engines, hybrids, flex-fuel vehicles and biodiesel capability.

Dodge Brand

With a U.S. market share of 7 percent, Dodge is the Chrysler Group's best- selling brand and the fifth largest nameplate in the U.S. automotive market. In 2005, Dodge sold more than 1.4 million vehicles in the global market. Dodge continues to lead the minivan market with a 19 percent market share in the U.S. In the highly competitive truck market, Dodge has a 16 percent market share. This year, Dodge enters key European volume segments.

Cummins

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions, and electrical power generation systems. Headquartered in Columbus, Indiana, Cummins serves customers in more than 160 countries through its network of 550 company-owned and independent distributor facilities and more than 5,000 dealer locations. Cummins produces the diesel for the Dodge Ram 2500 and 3500 series.

2007 Dodge Ram Heavy Duty Cummins 6.7-liter Turbo-diesel Engine Details

Engine
6.7L 107mm bore x 124mm stroke
High swirl (2.4 DCS) combustion system
17.2:1 Compression ratio
Machined crankshaft counter weights
Viscous vibration damper

Air Handling
VGT - sliding nozzle (16 vane to eliminate turbine blade pass whistle)
Cooled EGR with cold-side EGR valve
Air inlet throttle
EGR cooler bypass
CCV with coalescing filter

Oil system
Tested with low ash oil API CJ4 (PC10)
Drain interval - 7500 miles
Total capacity - 13 qts on initial fill
Sump capacity - 9 qts low, 11 qts high
Typical oil change capacity - 12 qts
Dump to sump to provide oil pressure quicker
Constrained layer oil pan to reduce transmitted noise

Fuel system
Bosch 3rd generation common rail system
7 micron spin on filter
Tested with ultra low sulfur fuel - 15 ppm
Approved for bio-diesel fuel

Cooling system
Molded composite impeller for improved coolant flow

Electronics
CM2100 ECM
Double the CPU processing speed (40 to 80 MHz)
40% increase in memory

NVH
Constrained layer oil pan
Over running alternator pulley (eliminate shut down squeal)
Intake silencer
Machined crankshaft counter weights
Combustion system (multi injection events)

Block shields
Pulleys modified to reduce 'speaker' effect
Stuffer between transmission adapter and pan
Viscous vibration damper

Specifications

ENGINE: 6.7-LITER HIGH OUTPUT CUMMINS TURBO DIESEL I-6
Availability ---- Opt. - 2500, 3500; available Jan. 1, 2007
Type and Description ---- Six-cylinder, inline, liquid-cooled, turbocharged, intercooled
Displacement ---- 408 cu. in. (6690 cu. cm)
Bore x Stroke ---- 4.21 x 4.88 (107 x 124)
Valve System ---- OHV, 24 valves, solid lifters
Fuel Injection ---- Electronic high-pressure common rail
Construction ---- Cast-iron block and head
Compression Ratio ---- 17.3:1
Power (SAE net) ---- 350 bhp (261 kW) @ 3,000 rpm
Torque (SAE net) ---- 650 lb.-ft. (881 N*m) @ 1,500 rpm w/6-spd. automatic;
610 lb.-ft. (827 N*m) @1,400 rpm w/6-spd. manual
Maximum High-idle Engine Speed ---- 3,500 rpm
Fuel Requirement ---- Ultra Low Sulfur Diesel
Oil Capacity ---- 12 qt. (11.3L) with filter
Coolant Capacity ---- 29.5 qt. (28.0L)
Emission Controls ---- Exhaust after-treatment systems and internal engine features

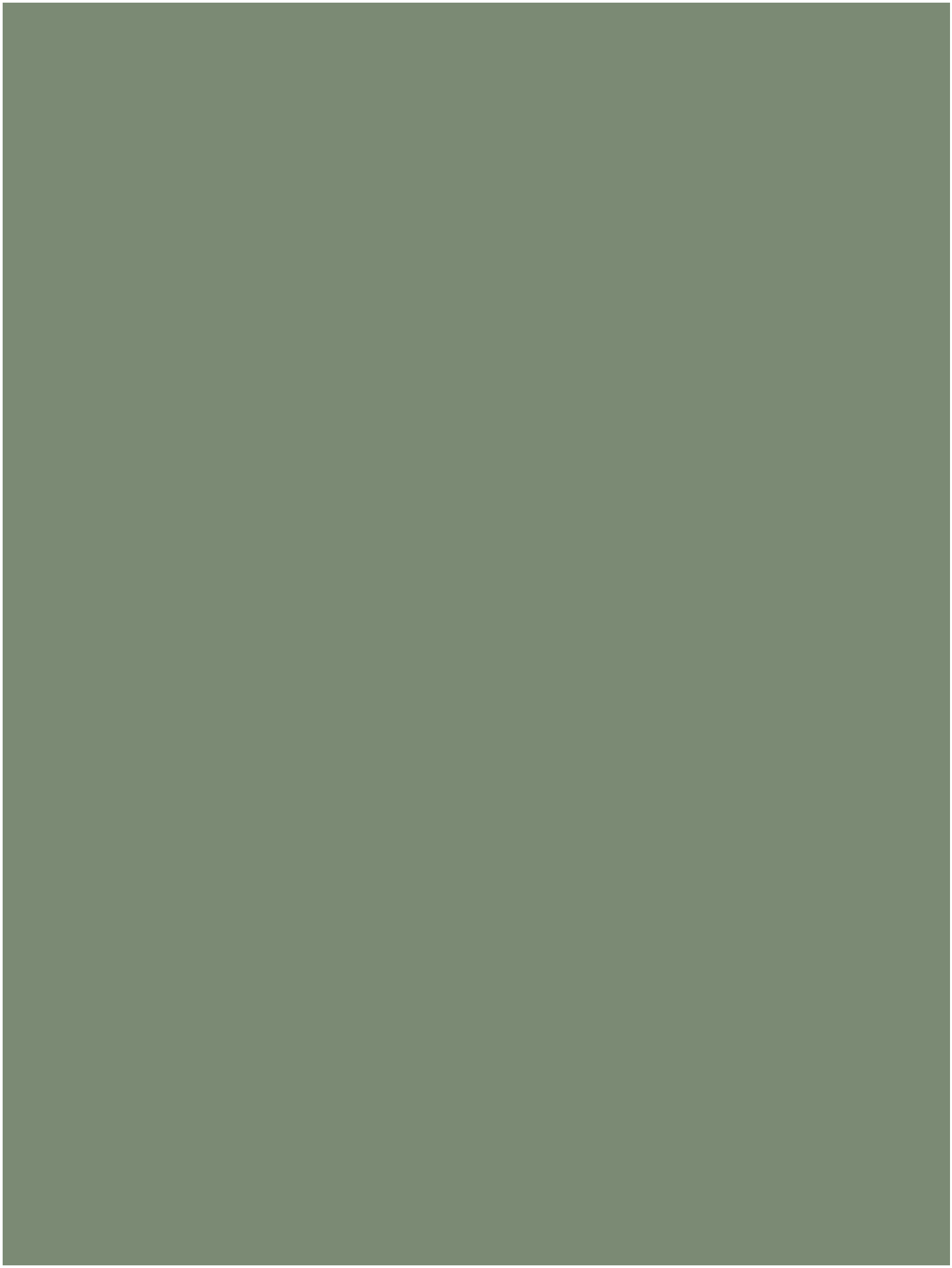
TRANSMISSION: 68RFE ORION-AUTOMATIC, SIX-SPEED
Availability ---- Opt. with 6.7L turbo diesel engine; available Jan. 1, 2007
Description ---- Three planetary gear sets, one overrunning clutch, full electronic control, electronically controlled converter clutch
Gear Ratios
1st ---- 3.231
2nd ---- 1.837
3rd ---- 1.410
4th ---- 1.0
5th ---- 0.816
6th ---- 0.625
Reverse ---- 4.444
Overall Top Gear Ratio ---- 2.33 with 3.73 axle ratio; 2.56 with 4.10 axle ratio

SOURCE Chrysler Group

EXHIBIT 16

Cummins Inc.

2007 Sustainability Report



2007 Sustainability Report

I am Cummins.

I know what my company stands for. I am ready to carry out its mission of returning value to our customers, shareholders and communities—and to be a good steward of the environment along the way. I bring my unique perspective to work every day, as do thousands of my colleagues around the world. Together we create a rich diversity of cultures and views. I understand my company's vision includes all the communities we serve around the globe, not just my own. And I believe my success will contribute to the success of everyone we serve, everywhere. I am Cummins. You can depend on me.

Cummins Inc.

About this Report

The information in this report is presented in the spirit of the guidelines set by the Global Reporting Initiative (GRI). The aim of the GRI is to develop a consistent way for companies around the world to voluntarily report on the economic, environmental and social components of their business.

Started in 1997 by the Coalition for Environmentally Responsible Economies (CERES), the GRI became independent in 2002 and today works in collaboration with the United Nations Environment Program (UNEP) and the UN Secretary-General's Global Compact.

We are proud of the positive impact Cummins products and the people who manufacture them have on our society. We look forward to the opportunity to make a difference, not just today, but for future generations as well.

Contacts

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General Counsel
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Christine M. Vujovich, Vice President,
Marketing and Environmental Policy
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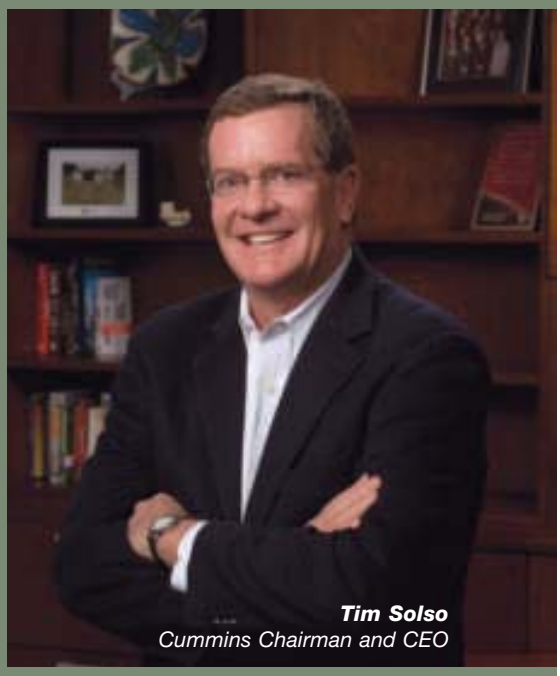
Mark D. Land, Director of Public Relations
One American Square, Suite 1800
Indianapolis, IN 46282
Telephone: 317-610-2456
Mark.D.Land@cummins.com

Table of Contents

Letter from the Chairman



Tim Solso
Cummins Chairman and CEO

"Corporate responsibility and working toward a cleaner, healthier, safer environment are primary components of Cummins' commitment to sustainability."

Throughout its history, Cummins has been committed to corporate responsibility and the goal of improving the communities where our employees live and work. The primary driver behind this ongoing effort is the enthusiasm of thousands of individuals who have donated countless hours of their personal time to projects and programs that make people's lives better.

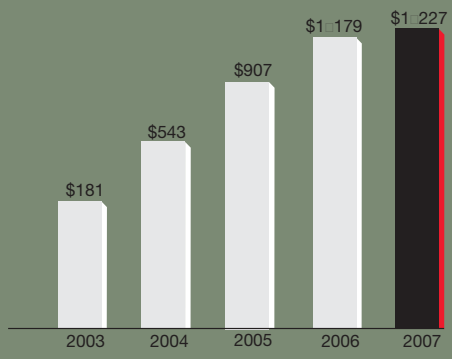
Employees also have an ongoing interest in the environment and global climate change. While Cummins is a leader in developing new products to meet tough emission standards, I am equally impressed by the work people in our plants are doing to reduce energy usage and focus on the prudent use of our natural resources. Not only is it the right thing to do, but it makes good business sense for the Company.

Corporate responsibility and working toward a cleaner, healthier, safer environment are primary components of Cummins' commitment to sustainability. We are also very serious about our obligations to the Company's stakeholders, including shareholders, employees, customers and suppliers. We have had a number of achievements on their behalf since our last Sustainability Report. Highlights of our efforts include:

- Our fourth straight year of record financial performance and a five-year average annual total shareholder return of 58 percent.

Net Sales ($ in billions)

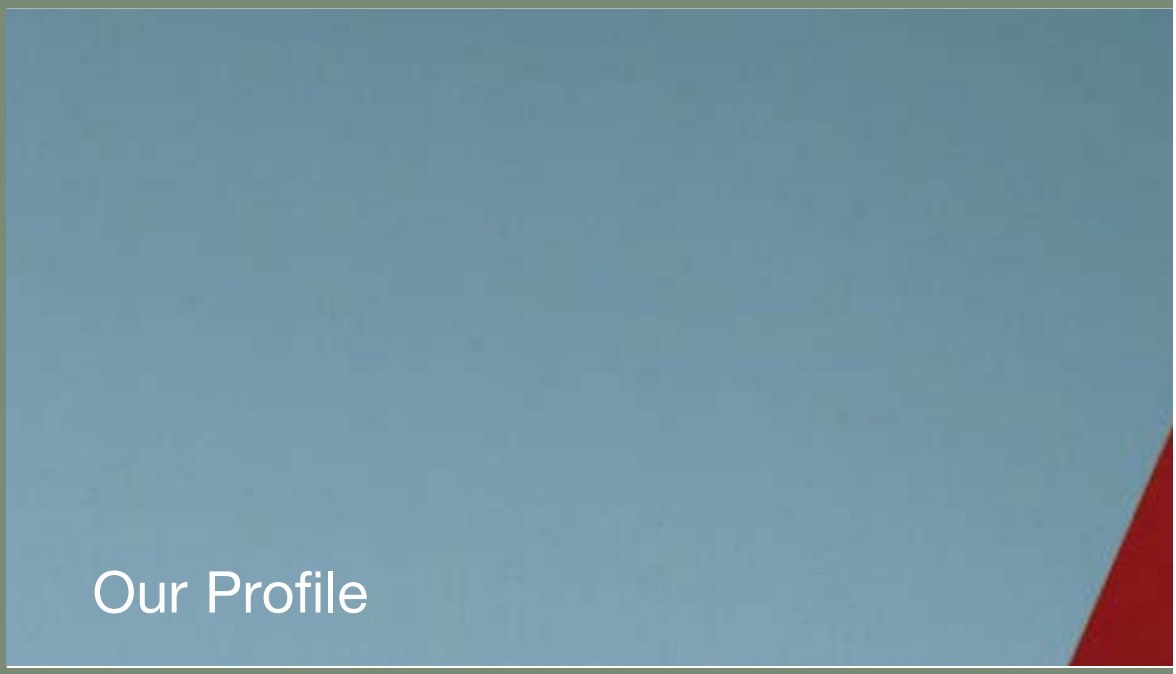
EBIT ($ in millions)



- The launch of exciting new products in 2007, including engines that meet tough global emissions standards.
- Expansion of our Customer Support Excellence initiatives to all parts of the corporation.
- Recognition of technological innovation for many Cummins products.
- Awards for excellence in corporate governance and business ethics.
- The revamping of our Code of Business Conduct for employees.
- Acknowledgment of our leadership in diversity and our employment of Asians and Asian-Americans.
- Recognition as one of the top companies for leaders.
- Inclusion in the Dow Jones Sustainability Index for the third straight year.

Now more than ever, we understand that operating with an eye toward sustainability is not only vital to our society and our environment, it also nourishes us as a company, enabling our growth today and in the future.

Tim Solso
Chairman and Chief Executive Officer
Cummins Inc.
April 2008



Our Profile

The power of our Company is not just our products, but the ideas, energy and passion of our employees.

Vision and Strategy

Our Vision

Making people's lives better by unleashing the power of Cummins.

That simple statement is the framework for Cummins Inc. and its employees worldwide. The Company takes pride in manufacturing high quality products that serve the needs of our customers. But the power of our Company is not just our products, but the ideas, energy and passion of our employees. That passion fuels employee energy and commitment, making it possible for Cummins to maintain a leadership position in the markets it serves.

Cummins also recognizes that with its role as a corporate leader comes the responsibility to make positive contributions in the communities in which employees work and live. Accordingly, Cummins' corporate mission and values reflect its desire to return value to its customers, employees, shareholders and communities.

Mission

- To motivate people to act like owners working together
- To exceed customers' expectations by always being first to market with the best products
- To partner with our customers to ensure their success
- To demand that everything we do leads to a cleaner, healthier, safer environment
- To create wealth for all our stakeholders

Values

Integrity
We strive to do what is right and what we say we will do.

Innovation
We will apply the creative ingenuity necessary to make us better, faster, first.

Deliver Superior Results
Our goal is to consistently exceed expectations.

Corporate Responsibility
We will serve and improve the communities in which we live.

Diversity
We embrace the diverse perspectives of all people and honor both with dignity and respect.

Global Involvement
We seek a world view and to act without boundaries.

Strategic Principles

Cummins has five key elements to its business strategy. This strategy has not changed in recent years. What has changed is our improved performance and our continued ability to deliver on commitments.

Being a low cost producer

Cummins realizes that to successfully compete in the marketplace, it must offer the best products at the best prices. To do that, we leverage our innovative technology, economies of scale, global presence and customer partnerships.

The Six Sigma quality program, launched in 2000, is an integral part of that strategy. Since the program's inception, Cummins has completed almost 9,000 Six Sigma projects and 7,000 "belts" have been trained in Six Sigma tools.

"On any given day, there are approximately 12,000 people in our workforce involved in Six Sigma projects – helping us work smarter, produce better products and making our customers more successful."

George Strodtbeck

The Company estimates this program generates savings of approximately 2 percent of annual revenue per year, while infusing quality into every process. Cummins also has expanded the program to include processes with customers, suppliers, distributors and corporate social responsibility with positive results.

Cummins pursues cost leadership in other ways: through global sourcing, global research and development access, sharing development costs with original equipment manufacturer (OEM) partners and technical productivity, including the use of computer design and modeling instead of building expensive physical prototypes.

Profitable growth

The Company will continue to focus its growth initiatives on related businesses where it can use its existing investments in products or technology, leading brand names or market presence to establish a competitive advantage. The focus is on ventures that complement its capital-intensive and cyclical core businesses, for example, the production of light-duty diesel engines in an existing Cummins facility that will introduce Cummins to a new consumer customer base.

Creating shareholder value

Return on capital—specifically return on average net assets (ROANA) and return on equity (ROE)—is our primary measure of financial performance. Each of our business segments uses ROANA targets and the Company, as a whole, has an ROE target.

Cummins has dramatically improved its return on capital in recent years; for example, since 1999 (the last peak in the heavy-duty truck cycle), ROE has increased from 10 percent to 20.8 percent in 2007. ROANA in 2007 was 28.9 percent.

Complementary businesses that work together to create value

Increasingly, Cummins looks for ways to leverage the synergies among its four business segments. These synergies capitalize on shared capabilities including technology, distribution systems, common customers (cross selling), joint venture partners for global growth and cost reduction through the larger scale of shared services.

Creating the right environment

At Cummins, creating the right environment for success means an inclusive, learning environment that is reinforced by a performance ethic that attracts, develops and retains high-quality talent. We measure our success through strategic skill and competency mapping, leadership development outcomes and participation in tailored individual development and training programs.

Cummins employees share information about their award-winning projects at the annual Six Sigma Expo.

Who We Are

Cummins roots are planted in soil nourished by innovation, persistence and a commitment to community. Founded in Columbus, Ind., in 1919 as the Cummins Engine Company, for its namesake Clessie Lyle Cummins, the fledgling firm was among the first to see the commercial potential of an unproven engine technology invented two decades earlier by Rudolph Diesel.

The Company has grown to be a global power leader. Today, half of Cummins 37,800 employees and half the Company's sales are from outside the United States.

Since the early part of the decade, we have reshaped the Company into what we are calling a "New Cummins" – a company that is less cyclical, more diversified, more results-oriented and committed to turning a greater share of its sales into profits. We have adapted to changes in the competitive landscape by vertically integrating through partnerships with original equipment manufacturers (OEMs) and establishing ourselves as a global technology leader in a constantly changing emissions environment.

All Cummins businesses and products are united under the Cummins name, with the Company's earliest historical colors, red and black, representing it along with the large Cummins "C" in contrasting white or black.

Our brand is the sum total of all our years in business. From the beginning, when the Company's founders first stood behind the products they sold to the ongoing growth of our diversified business, Cummins has maintained a reputation for integrity. In terms of a brand, that translates into a single vision: dependability. We want stakeholders to know they can depend on Cummins. And we want employees to be able to unify around the Cummins brand to create value and a competitive advantage.

Cummins is at its core a family of four interrelated, yet diversified business segments that create or enhance value as a result of those relationships and doing business with one other. These four business segments are Engine, Power Generation, Components and Distribution.

Cummins products can be found in nearly every type of vehicle, from the heavy-duty diesel-powered trucks that travel the world's highways, to tractors that till the soil, large trucks that carry natural resources from the mine and ships that travel the world's waterways. Cummins-built generators supply both prime and auxiliary power around the globe. Filters and related components help engines run cleaner and more efficiently. A network of distributors provide repair and maintenance service for customers worldwide.

As of the end of 2007, Cummins was participating in 57 joint ventures in 18 countries.

Cummins Engine

Cummins Engine manufactures and markets a complete line of diesel and natural gas-powered engines for on-highway and off-highway use. Its markets include heavy- and medium-duty truck, bus, recreational vehicles, fire truck and emergency vehicles, light-duty automotive and a number of industrial applications, including power generation, agricultural, construction, mining, marine, oil and gas, rail and government equipment. Cummins also provides a full range of new parts and services and remanufactured parts and engines through an extensive distribution network.

Cummins engines range in size from 31 to 3,500 horsepower and from 1.4 liters to 91 liters.

Cummins Power Generation

Cummins Power Generation is a global provider of power generation systems, components and services in standby power, distributed power generation, as well as auxiliary power in mobile applications to meet the needs of a diversified customer base. Cummins Power Generation also provides a full range of services and solutions, including long-term operation and maintenance contracts and turnkey and temporary power solutions.

Cummins Power Generation products include diesel and alternative-fueled electrical generator sets from 2.5 to 2,700 kilowatts, alternators from 0.6 kilovolt-amps to 30,000 kilovolt-amps, automatic transfer switches from 40 amps to 4,000 amps, paralleling switchgear and generator set controls.

Cummins Components

Cummins Filtration designs, manufactures and distributes air, fuel, hydraulic and lube filtration, chemicals and exhaust system technology products for diesel and gas-powered equipment.

Cummins Turbo Technologies designs and manufactures turbochargers and related products on a global scale for diesel engines above 3 liters.

Cummins Emission Solutions develops and supplies Cummins and other engine manufacturers with catalytic exhaust systems and related products for the medium- and heavy-duty diesel engine markets. The exhaust systems include packaging of catalytic exhaust systems, engineered aftertreatment components and system integration services for engine

Driver Dave Evans, mechanic Jiggee Johnson, with Don and Clessie Cummins (in suits), prepare to qualify for the 1934 Indy 500

manufacturers, as well as catalytic exhaust products for retrofit of engines in the existing population.

Cummins Fuel Systems designs, develops and manufactures new fuel systems and remanufactures electronic control modules in the United States. In Mexico, it assembles new Cummins fuel systems and also remanufactures Cummins fuel systems as well as fuel systems from other manufacturers. This business serves engines ranging from 8 to 78 liters.

Cummins Distribution

Cummins Distribution drives a comprehensive global distribution strategy and channel management. Capitalizing on synergies in parts and services, this business helps Cummins by providing outstanding support to our customers, while growing a less cyclical and less capital intensive business.

Distribution operates within this network with 17 company-owned and 15 joint venture distributors in approximately 300 locations in more than 70 countries and territories. Company-owned distributors are located in key geographic markets such as China, India, Russia, Japan, Korea, South East Asia, Australia, Europe, Africa, the Middle East and Latin America.

Joint Ventures

Cummins has entered into a number of joint venture agreements and alliances with business partners and affiliates in various areas of the world to increase market penetration, expand product lines, streamline supply chain management and develop new technologies. As of the end of 2007, Cummins was participating in 57 joint ventures in 18 countries.

Commitment to Stakeholders

Cummins recognizes that its duty goes beyond the bottom line. While the Company must deliver value to shareholders, it also strives to responsibly and effectively serve all stakeholders – customers, employees, business partners and the communities in which it operates.

The Company actively engages all stakeholders, seeking feedback and doing its best to keep them informed of Cummins' actions and performance. The Company's policies reflect a commitment to financial excellence, environmental stewardship, workplace equity, corporate responsibility and fair competition.

Our activities related to the community are detailed in the Corporate Responsibility section of this book, which begins on Page 90.

"Cummins can create an advantage over our competitors when we understand our customer's feelings and provide a positive experience for him or her."

Jose Parra-Morzan

Customers

Cummins is dedicated to exceeding the expectations of its customers, making products and providing support that give customers a competitive advantage in the marketplace.

Cummins works with key customers during development and production to ensure that products are manufactured to the customers' satisfaction. Increasingly, Cummins is using Six Sigma tools to help its customers and suppliers reduce costs and improve quality.

The Company's goal for using Six Sigma with customers is to create the shared belief that Cummins cares as much about the customer's business as the customers themselves. Cummins currently has approximately 220 active customer-focused Six Sigma projects and has completed nearly 640 projects since 2005.

In some cases, Cummins has sent Six Sigma "belts" to work directly with a customer to solve a specific challenge. In other instances, Cummins has trained and provided support to belts working for our customers. Some recent examples of Cummins' customer-focused Six Sigma efforts:

- Reducing a customer's soot filter field issues without an adverse effect on the aftertreatment system.
- Increasing the fuel filter change interval on certain heavy-duty trucks from 30,500 miles to 34,500 miles.
- Increasing a co-generation plant's average monthly availability to 90 percent and meeting all emissions requirements of the operating permit.

Customer Care

One of the biggest challenges for Cummins in our extremely competitive global business environment is becoming and staying the first choice of customers. That is why Cummins launched its Customer Support Excellence (CSE) initiative.

As a company, we realize it is not enough to develop the most innovative technology or build the most dependable engines. Our customers have to believe, and we must show them, we care as much about their

The Dodge Ram 3500 heavy-duty pickup achieves 2010 emission standards.

The Dodge Ram: An Environmental Winner

The Cummins Dodge Ram pickup heavy-duty engine received top honors among the 2007 winners of Chrysler's environmental awards. Cummins was a winner in the Product Related Environmental Protection category.

In 2007, new heavy-duty diesel engine emission regulations took effect in the United States that required the diesel-powered Dodge Ram to make dramatic reductions in oxides of nitrogen (NOx) and particulate matter (PM) emissions. The new 2007 Dodge Ram heavy-duty engine uses a diesel particulate filter to virtually eliminate PM emissions and a NOx adsorber catalyst to reduce NOx by as much as 90 percent from 2006 levels.

In presenting the award, Chrysler noted the following: "Working in a close partnership, Chrysler and Cummins achieved remarkable results in meeting and exceeding both regulatory requirements and customer needs. The new Dodge Ram 2500 and 3500 are the first vehicles to achieve the stringent NOx 'phase-in' emission standard in all 50 States, and to do so three years early. The 6.7-liter Cummins Turbo Diesel maintains fuel efficiency as compared to the 2006 model. It also maintains the diesel engine's 30 percent fuel economy savings over gasoline engines, and thus lower CO2 emissions."

success as they do. Cummins uses the voice of the customer to drive improvement and we strive to execute critical customer work flawlessly.

Each business unit has a leader responsible for developing projects to meet the needs of its customers. Also, each business unit is charged with developing customer-focused Six Sigma projects that tackle the issues and problems facing individual customers.

Customers are noticing. In fact, Knight Transportation, a key national trucking company in the southwestern U.S., asked to join Cummins in the Company's Six Sigma training. Working together, Knight and Cummins have been able to focus on a specific customer need – elimination of billing errors and instituting more reliable processes – that saved the customer more than $300,000 a year.

Cummins has developed several corporate-wide initiatives to improve the level of customer support across the Company. Notable is the CSE training, which includes a different approach to meeting customer needs by looking at an issue through the customer's perspective.

Since the program started, more than 19,000 employees have received CSE awareness training in 17 different countries, with 57 groups implementing customer-focused projects. We are now moving beyond Cummins employees and are reaching out to independent distributors.

By focusing on making measurable improvements in the things that matter most to customers, we move closer to our objective of becoming the first choice of customers.

Cummins uses a voice of the customer approach to drive improvement, and we strive to execute critical customer work flawlessly.

The Cummins Operating System

The Cummins Operating System (COS) helps develop common practices and approaches designed to improve customer satisfaction and profitability. The COS is designed to reduce waste, improve quality, increase responsiveness and develop people.

The COS consists of 10 operating practices that are common across the Company. It is supported by nine common functions, each with a Functional Excellence framework. The Functional Excellence framework at Cummins provides standards, measures, skills requirements and an individual work plan so each function in the Company can provide service or support at world-class levels. Employees are trained on the COS and Functional Excellence approaches and their importance to Cummins future success.

A key aspect of the Functional Excellence approach at Cummins involves promoting leadership across all business units and groups. Leaders at Cummins are measured on their ability to:

- Drive the organization toward the Vision by accomplishing the Mission
- Live and foster the Cummins core values of integrity, innovation, delivering superior results, diversity, global involvement and corporate responsibility
- Focus on customer success and deliver results
- Create an environment in which people can develop and flourish, and where championship teams flourish.

In 2006, Cummins began conducting COS assessments. These assessments allow us to demonstrate that the 10 COS practices are embedded in our key processes. They also allow us to identify improvement opportunities and develop an improvement plan to close the gaps.

Employees

Cummins has a long history of being an employer of choice. That reputation continues to this day and is reinforced by the Company's competitive salary and benefits offerings, training and career development opportunities and positive work environment.

Cummins employees enjoy a full slate of benefits, including innovative and competitively priced health-care coverage; pension and retirement programs; generous tuition reimbursement benefits for continuing education; access to world-class child development centers; flexible work schedules; employee assistance programs and more. These benefits also were made available to non-spousal domestic partners in 2000.

Cummins places a premium on its workers treating one another with respect and dignity. Treatment of others at work is a key component of the Company's Code of Business Conduct and is the subject of mandatory training for all new hires. Training and career development opportunities also play a crucial role in Cummins' success and in the Company's efforts to attract and retain a talented workforce.

All new hires must attend mandatory training courses covering treatment of others, diversity, information and physical security, sexual harassment issues, the Cummins performance management system and the Cummins Operating System. In addition, the Company's Powertrain program offers on-line training on a variety of subjects, ranging from business software applications to project management skills to interpersonal and communications skills to presentation and leadership skills.

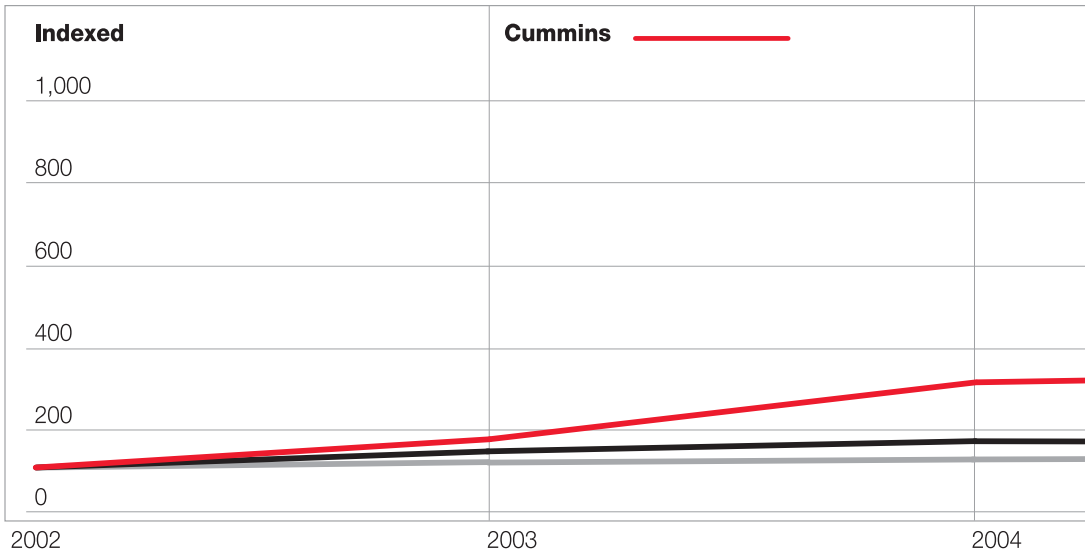
Nekedia Gaillard, Assembly Technician, Cummins Turbo Technologies

Employees' performance and development plans are reviewed through the Cummins performance management system called OnTrack. Through OnTrack, employees work with their supervisors to create challenging work plans that reflect the goals of the Company and its individual performance cells. Employees receive formal feedback from supervisors and peers quarterly, in addition to a comprehensive annual evaluation.

Cummins also offers its employees opportunities for growth within the Company as their skills and interests dictate. Cummins has a strong history of "growing its own" leaders, and employees regularly move freely from one part of the Company to another.

Employees are encouraged to seek out new challenges and to continually broaden their skill sets. High-potential employees are identified and offered comprehensive leadership training as part of the Company's ongoing efforts to develop its leaders from within.

Five-Year Total Shareholder Return at Year-End 2007



Cummins has launched a focused effort to ensure the Company's most critical suppliers are committed to improvement through Six Sigma.

Business Partners

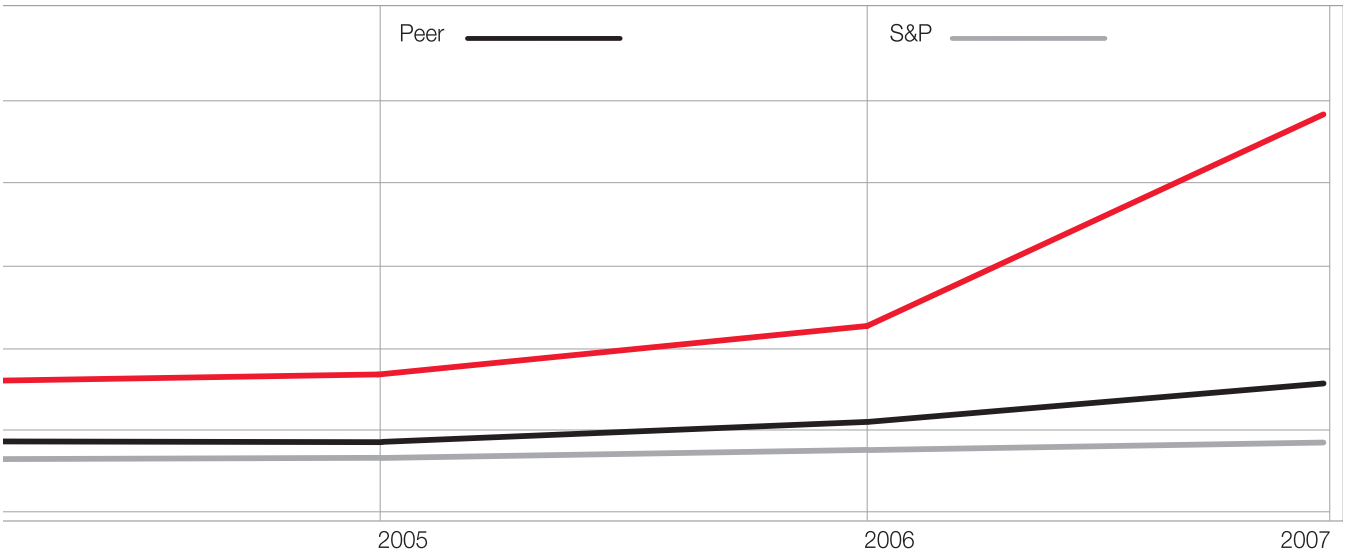
Cummins has working relationships with distributors and suppliers across the world. Similarly, the Company acts as a supplier of components to a number of equipment manufacturers, and has been able to build strong bonds with its business partners.

The Company is proud of its efforts to earn "preferred supplier" status with customers. For example, Eicher Motors Limited recently recognized Tata Holset, one of our joint ventures in India that manufactures turbochargers, as Best Supplier for outstanding contribution to supply chain management in the category of proprietary items. Judging criteria for best vendor included parts per million (PPM) level, quality certification, adherence to schedule, on-time delivery, cost reduction, response time and service support.

Suppliers

Cummins has launched a focused effort to ensure that the Company's most critical suppliers are committed to improvement through Six Sigma. Critical suppliers to Cummins must meet particular Six Sigma performance requirements. Cummins' quality is heavily dependent on the quality of our suppliers' products. Our experience is that Six Sigma is a reliable approach to quality improvement.

Columbus Components Group, a minority-owned Cummins supplier located in Columbus, Indiana, has been recognized for its use of Six Sigma tools to assess quality control and create an overall quality improvement plan. Columbus Components Group closed its first Six Sigma project, which resulted in a significant improvement in quality for components supplied to the



Cummins Jamestown Engine Plant. This improvement was a significant factor in awarding Columbus Components Group additional business for the model year 2007 Dodge Ram pickup engine.

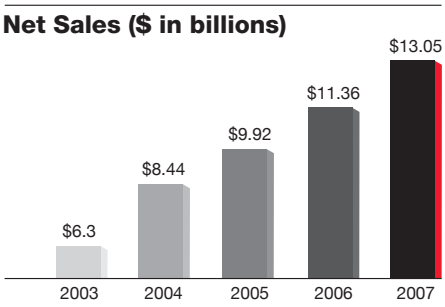
Shareholders

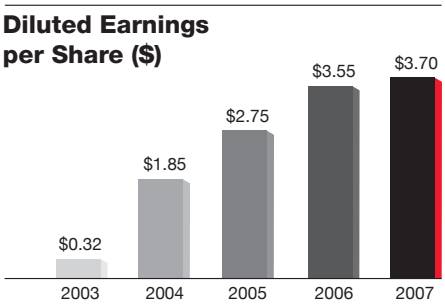
Returning value, in terms of profits, rising stock prices and dividends, is a primary measure of a company's commitment to its shareholders. Beyond returning financial value, Cummins believes it owes investors a transparent window into its financial workings.

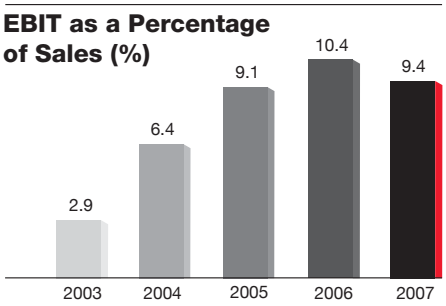
Cummins goes to great lengths to keep the investing community up-to-date on its performance and future outlook. Top executives hold quarterly teleconferences with industry analysts to discuss financial results. Company representatives also host or attend a number of investor conferences during the year, and meet or talk directly with individual analysts and investors on nearly a daily basis.

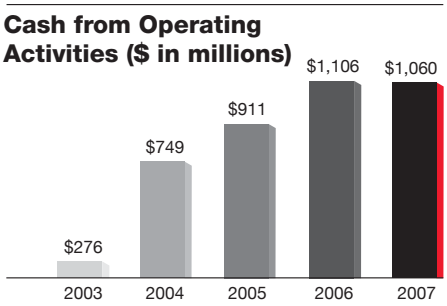
Cummins' positive corporate governance practices on behalf of the shareholders include the following:

- The full board of directors is elected annually.
- The audit, compensation and nominating committees are made up of independent outside directors.
- The company has a designated lead director.
- Executive and directors are subject to stock ownership guidelines.
- All stock-based incentive plans have been approved by shareholders.









We continuously work with customers to develop new products to improve the performance of their vehicles, equipment or systems at competitive cost levels.

Economic Performance

Cummins' financial performance in 2007 was the best in its history. Sales exceeded $13 billion – a 15 percent increase over 2006. Earnings before interest and taxes were $1.2 billion – or 9.4 percent of sales. Net earnings were $739 million, compared to $715 million for the previous year.

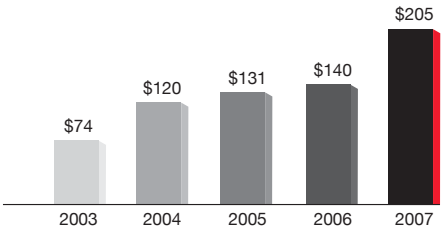
This fourth straight year of record sales and profits reinforces our value promise to shareholders. As of the end of 2007, Cummins investors have enjoyed a five-year average annual total return of 58 percent.

Along with this outstanding performance, we have increased our dividends by 67 percent and purchased almost $500 million in stock over the last two years. In December, we announced plans to buy back another $500 million worth of shares. We also executed a pair of two-for-one stock splits, one during 2007 and the other in early 2008.

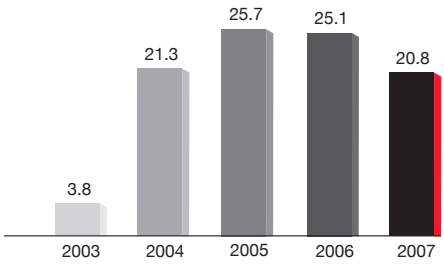
Cummins has benefited from strong demand across a number of our more cyclical markets, and our focus on execution has delivered excellent bottom-line results. We are seeing margin expansion and profitable market share growth with disciplined pricing, a focus on cost reduction and superior product performance in existing and emerging markets. And we are building a core base of stable, diversified earnings that will continue to provide increased stability in our financial performance.

Our extended effort to build relationships and infrastructure in China and India and other emerging markets has positioned us to capture significant growth opportunities

JV Income ($ in millions)



Return on Equity (%)



JV income is recorded as Investee Equity, Royalty and Other Income in regulatory filings.

EBIT is a non-GAAP measure, defined as earnings before interest expense, income taxes and minority interests.

The return on equity calculation is a non-GAAP measure as it excludes pension and other post-retirement benefit amounts in shareholders' equity.

in those markets. Several new product platforms also offer us great profitable growth opportunities across all of our business units. However, our future success is directly dependent on our ability to build the infrastructure and operating system, create excellent customer support worldwide and recruit the diverse talent necessary to get this done.

Detailed financial information can be found in the Investors and Media section of the Company's website, www.cummins.com. The Cummins' Fact Book, also found on the web site, provides a brief summary of the Company and contains income statement and balance sheet trends for the past 10 years.

Competitive Strengths

We believe the following competitive strengths are instrumental to our success:

Leading Brand. Our product portfolio includes products and services marketed and branded under various trademarks and trade names, primarily Cummins, throughout the world.

During 2006, we successfully re-branded our major operating business units to reflect the Cummins name and brand to further our overall branding strategy. In part, as a result of this investment, we also are gaining additional recognition across our markets.

Customers and Partners. To maintain technology leadership and a global presence in a cost-effective manner, we have established strategic alliances with a number of our leading

"We rely on our core values to guide us through difficult issues, including the daily challenges of conducting business in a complex, global marketplace."

Inness Liu

customers. These partnerships provide us with a knowledge and understanding of our customers' technology and business needs and enable us to develop products and services that better meet their requirements at lower costs.

For example, we have both customer and supplier arrangements with Komatsu, Ltd., including manufacturing joint ventures and a product development joint venture that has led to the development of several engines. We are also the exclusive supplier of engines for Komatsu mining equipment.

In addition, we have been the exclusive diesel engine supplier to Chrysler for its Dodge Ram truck since 1988. We have long-term agreements with Volvo and International Truck and Engine Corporation for the supply of heavy-duty truck engines and with PACCAR for the supply of both heavy-duty and medium-duty engines.

These agreements afford us long-term price stability and eliminate certain dealer and end-user discounts, while offering closer integration on product development.

Global Presence. We have a strong global presence including a worldwide distribution system, manufacturing and engineering facilities and a network of global supply sources. Our worldwide presence has enabled us to take advantage of growth opportunities in international markets, with sales outside the U.S. growing from 43 percent of total consolidated net sales in 2000 to 54 percent of total consolidated net sales in 2007.

Leading Technology. We have an established reputation for delivering high-quality, technologically advanced products. We continuously work with customers to develop new products to improve the performance of their vehicles, equipment or systems at competitive cost levels. We are a leader in developing technologies to reduce diesel engine emissions, a key concern of our customers and regulators around the world.

We were able to meet the EPA's 2007 heavy-duty on-highway emissions standards that went into effect on January 1, 2007, and we announced in January 2007 that our Dodge Ram 6.7-liter Turbo Diesel engine meets the EPA's 2010 emissions standards a full three years ahead of the requirements.

We have also developed low-emission, high-performance natural gas engines as an alternative-fuel option for the on-highway, industrial and power generation markets. Our technology leadership in filtration, exhaust aftertreatment, air handling and fuel systems allows us to develop integrated product solutions for the on-highway, off-highway and power generation markets.

The Zeus highly advanced propulsion system offers up to 30 percent better fuel economy and unsurpassed handling at high and low speeds. In addition, a Zeus-equipped vessel delivers precise turning and tight maneuvering even in strong currents and windy conditions.

Leading Technology; Driven by Zeus

Cummins has produced dependable marine engines since the 1920s, but it recently took an innovative new approach when, as part of a joint venture, it created an advanced propulsion system called Zeus.

Zeus delivers up to 30 percent better fuel economy, up to 550 horsepower, a proven level of safety and unsurpassed handling at high and low speeds. The system was 15 years in development at Cummins MerCruiser Diesel, Brunswick and Mercury Marine.

Zeus incorporates a familiar looking, yet totally new pod with counter-rotating stainless steel, rear-facing propellers and a through-hub exhaust. Independent vectoring for each pod delivers dramatically improved high-speed handling. Docking is easier than ever.

These steerable pods, along with an advanced joystick control system, deliver precise turning and tight maneuvering, keeping a Zeus-equipped vessel on a fixed heading within a tight area, even in strong currents and windy conditions. An intelligent station-keeping system reads GPS coordinates and keeps the boat in position without the captain having to touch the wheel or controls.

And safety is engineered in the product. If the pod strikes debris or bottom, the gear case and skeg (the fin at the stern of the boat) protect the propellers. In the event of a catastrophic collision above the depth of the keel, the gear case is designed to shear away and remain water tight so there is no compromise of hull integrity.

“Zeus-powered boats track true and respond instantly to helm commands,” said *Motor Boating* magazine in its 2007 review. The first orders for the system were taken early in 2007.

Going back to its earliest days, Cummins has been as much about people as products.

Corporate Governance

Over the past nearly 90 years, Cummins has developed a reputation as a company that places a premium on the well-being of its employees and that strives to improve the communities in which it operates.

Going back to its earliest days, when the founding family kept the company afloat during difficult times because it felt a responsibility to provide jobs to the young men of Columbus, Indiana, Cummins has been as much about people as products. That legacy was built by longtime former Cummins Chairman J. Irwin Miller and is carried out today through the leadership of Cummins' senior executives and 38,700 employees worldwide.

Cummins' management and its employees around the world continue to work as partners today, building leading-edge products in clean, safe environments, while working together to strengthen the community. "Creating a great place to work" is one of Cummins' strategic business principles. At the core of that approach are the Company's efforts to engage employees and other stakeholders in understanding and living the Company's values, as well as playing an active role in pursuing continuous improvement across the Company.

That engagement and commitment to ethical behavior takes many forms, some of which are discussed in the pages that follow.

Cummins' Revised Code of Business Conduct

Cummins updated its Code of Business Conduct in early 2008 for the first time

since early this decade, with an emphasis on making the Code easier to find, read and understand.

The updated Code, which was approved by senior leadership and the Cummins Board of Directors, is built around 10 “Statements of Ethical Principles” that provide the foundation for ethical behavior at Cummins. The principles are backed by Corporate Policies and other key documents that give specific guidance on topics and issues addressed by the statements.

The 10 Statements of Ethical Principles are:

- We will follow the law everywhere.
- We will embrace diverse perspectives and backgrounds, and treat all people with dignity and respect.
- We will compete fairly and honestly.
- We will avoid conflicts of interest.
- We will demand that everything we do leads to a cleaner, healthier and safer environment.
- We will protect our technology, our information and our intellectual property.
- We will demand that our financial records and processes are accurate and that our reporting processes are clear and understandable.
- We will strive to improve our communities.
- We will communicate with honesty and integrity.
- We will create a culture where all employees take responsibility for ethical behavior.

Work on the updated Code began in 2007 and the effort included feedback from Cummins employees around the world. Rollout of the

"Cummins has created an environment that fosters ethical behavior and a commitment to honesty that characterizes our dealings with each other, as well as those from outside the Company."

Martha Whiteman

Cummins Compliance Training

Course		Languages Offered	Subscriptions	Completed	Completion Rate
Code of Conduct	Professional and Office	American and International English, Spanish, Portuguese, French, German, Chinese	15,805	15,191	96.1%
Treatment of Each Other	Professional and Office	American and International English, Spanish, Portuguese, French, German, Chinese	14,835	13,186	88.9%
Export Controls	SG 8/25 and above	American and International English, Spanish, Portuguese, French, German, Chinese	8,159	7,517	92.1%
FCPA*	SG 8/25 and above	American and International English, Spanish, Portuguese, French, German, Chinese	8,245	7,531	91.3%
Antitrust	SG 8/25 and above and all Sales and Marketing	American English	3,306	3,257	98.5%
EU Competition**	SG 8/25 and above	American and International English, Spanish, Portuguese, French, German, Chinese	801	721	90.0%

Code will continue well into 2008 as the Code is translated into multiple languages and employee training materials are updated.

New to this version are question and answer sections to illustrate each of the principles in action, enhanced contact information and a section on "living the Code." The Code features a set of "FAQs" to help employees find other resources related to the Code and for reporting ethical concerns. The Company also has increased its commitment to updating the Code by creating a process to annually review and solicit employee feedback on the Code and supporting policies and information.

(To view the current Cummins Code of Business Conduct, go to www.cummins.com and click on the link from the home page.)

Compliance Training

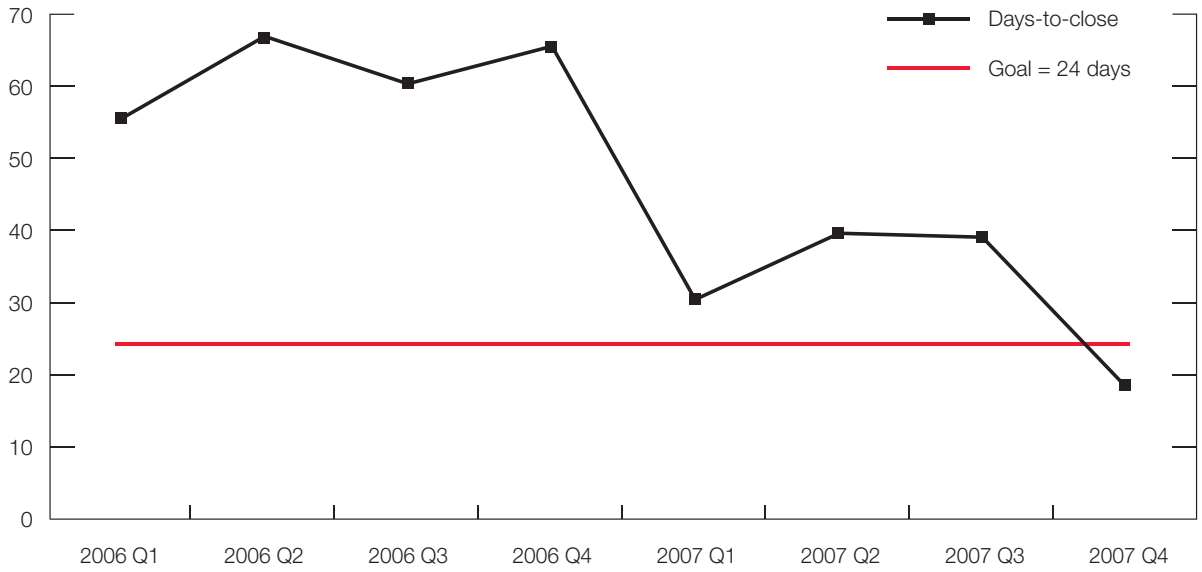
Cummins is committed to ensuring that its employees, and those with whom it does business, follow all applicable laws in the locations we do business.

Since late 2005, Cummins has introduced six online compliance training courses targeted at the appropriate employee groups. This training includes:

- Code of Business Conduct
- Treatment of Each Other at Work
- Export Controls
- Federal Corrupt Practices Act*
- Antitrust
- European Union Competition**

These courses are made in multiple languages where necessary and employee completion is tracked. Altogether, more than 51,000 training subscriptions have been offered to employees since late 2005

Ethics Cases — Quarterly Days-to-Close Trend



(many employees must take more than one course due to the nature of their work) with a 93 percent completion rate. The Company expects to offer nearly 45,000 training subscriptions to its employees in 2008, and is working to improve its reporting system to ensure closer to 100 percent compliance.

In addition, Cummins in 2007 began offering training courses to key employees at its Distributors in many locations outside the United States, and has plans to expand the compliance training offerings to these groups in 2008.

Ethics Violations, Reporting and Investigations

Cummins employees are encouraged to report suspected violations of the Company's Code of Business Conduct or any type of misconduct, and are given several different means of sharing their concerns.

The Company's third-party reporting system, EthicsPoint, allows employees around the globe to report concerns either on-line or through toll-free numbers in multiple languages. Employees can report concerns anonymously where allowed by law. Still, more than half of all complainants in 2007 identified themselves, showing a large degree of trust in the Company's ethics investigation process. Those who report about any topic are protected under the Company's anti-retaliation policy.

Cummins has a global team of trained Master Investigators who investigate complaints and ensure that appropriate action is taken in a timely fashion. In 2007, Cummins investigated 541 ethics-related complaints, compared to 264 in 2006. The numbers grew because of increased training and promotion of the reporting process. Of the cases investigated in 2007, 46 percent resulted in a finding that the complaint had some merit – and of those 28 percent (61) resulted in employee termination.

Complaints of unprofessional behavior and those grouped into the Human Relations category accounted for more than half the total ethics cases investigated in 2007.

In 2007, the Company completed a Six Sigma quality project aimed at reducing the time necessary to close investigations. As a result, the average time to close fell from more than 60 days at the end of 2006 to just under 20 days at the end of 2007, despite an increased number of investigations over that period.

The Company's reporting system and its commitment to investigate, take action and protect those who raise concerns help us bring our Code of Business Conduct to life.

Ethics Certification Process

In 2007, more than 10,000 Cummins employees completed an Ethics Certification in which they certified their compliance with the Company's Code of Business Conduct and underlying policies and reported any exceptions to Company policy. Internal Audit and the Cummins Law Department reviewed all exceptions to ensure they were handled correctly under Company policy.

In 2007, Internal Audit issued more than 130 audit reports and audit memos covering functions and businesses around the globe.

Diversity Audits

Rigorous diversity audits have been conducted at Cummins' facilities for more than a decade and are today a central component of our efforts to ensure that employees enjoy a positive, safe and productive work environment.

The process began in 1997, led by the Cummins Law Department, and is focused on making sure that our locations are in compliance with the laws, are operating in a way consistent with our commitment to diversity and equal opportunity, and are taking the right steps to provide employees with a great place to work. In that time, the Company has conducted 56 diversity audits at 30 sites in the United States and Europe.

The audits are conducted by teams of four to eight employees with diverse backgrounds who have no direct connection to the site being audited. The team tours the facility and also examines satisfaction surveys, training records, personnel files and other documents to ensure full legal compliance and assess the work environment. The audit also examines the diversity of employees and the site's commitment to creating an inclusive and representative workforce.

A key component of the audit involves team members conducting confidential one-on-one interviews with a randomly selected cross section of approximately 10 percent of the site's workforce. Employees are asked a variety of questions regarding their work environment, knowledge of workplace policies and procedures, and their perceptions as to whether local management is committed to the Company's values, most notably our Code of Business Conduct, Treatment of Each Other at Work policy and diversity.

Results of the audits are shared with local management and with the Company's senior leadership. If issues are discovered, the site must create an action plan to address issues. Currently, the Company conducts audits at its facilities in the United States and Europe and is exploring how to expand the program to locations in other parts of the world.

Yancey Jones, a Cummins new hire, meets with a member of his diverse group. On his immediate work team, there are people representing four of the seven continents around the globe.

Supplier Code of Conduct

Cummins places a premium on doing business with companies that share its values and that treat their employees with dignity and respect. In 2005, Cummins created a Supplier Code of Conduct, which it has rolled out to more than 2,800 suppliers representing nearly all the Company's supplier spending.

The Code spells out standards of employee treatment to which it expects its suppliers to adhere, including provisions banning child or forced labor and those which encourage suppliers to provide a safe workplace their employees.

Suppliers were asked to establish a process ensuring compliance with the intent of the code and to provide a means for workers to anonymously report violations without fear of retribution.

At the end of 2007, Cummins had received a 99.5 percent response rate, with 99.6 percent of those responding indicating that they were in compliance with every element of the code. In certain regions where Cummins conducts a significant part of its business, including India and China, response and compliance rates reached 100 percent. Cummins is working with those suppliers who have not responded to attain our goal of 100 percent participation.

An examination of the self-reported non-compliance information revealed no significant variance to the intent of the policy. In addition, Cummins has begun a process to assess compliance with the Supplier Code while on visits to customers in China and Japan.

Internal Audit

Cummins has a robust global Internal Audit department that provides the Board of Directors and management with independent, objective information on the performance of the Company's control environment.

The Executive Director — Internal Audit reports to the Audit Committee of the Board of Directors and helps the Audit Committee ensure the integrity of the

"Cummins leverages the expertise of its supplier partnerships to receive and deliver high quality results."

Madhavi Gosalia

Company's financial statements and financial reporting, identify operational efficiency improvement opportunities, as well as the Company's compliance with ethics policies and legal and regulatory requirements.

In 2007, Internal Audit issued more than 130 audit reports and audit memos covering functions and businesses around the globe. Internal Audit also has a formal implementation plan follow-up process to ensure management has addressed identified risks and implemented corrective actions. When a function or business receives an "Unacceptable" audit grade, the Business Unit leadership must present the corrective action plans to the Audit Committee of the Board of Directors.

Joint Venture Relationships

Cummins does business around the world through a number of joint venture agreements and alliances with business partners to increase our market penetration, expand our product lines, streamline our supply chain management and develop new technologies. Regardless of whether Cummins directly manages the joint venture entity, we take appropriate steps to ensure that the joint ventures share our values.

First, we carefully screen potential partners and only create joint ventures with partners we know and trust. Through our employees' participation on the Boards of these entities, we make sure that Cummins values are embodied in the joint venture.

We are taking new steps to ensure that our joint venture entities treat their employees in a fair and equitable fashion. By the end of 2008, all of our North American joint venture partners and distributors will have adopted our Code of Business Conduct or a substantially similar code that embodies the same principles. We also have begun an audit of the existing codes in place at all our international joint venture partners, and will ensure that such entities have or adopt codes in line with our own.

In 2007, we developed a training package to orient Cummins employees who serve as directors of our joint ventures to their responsibilities. The training emphasizes the internal review processes that we use in selecting a joint venture partner. This training focuses on the role of the Cummins director in the management of the joint venture and stresses the support available to the directors from Cummins specialists in the areas of finance, human resources, operations, safety, environmental and other functions. The training also stresses the establishment and maintenance of a favorable relationship with the JV partner as an aid in resolution of disputes that arise.

During 2007, six training sessions were conducted in Indiana, India, China and England. Approximately 100 JV directors, general managers and financial leaders have been trained. The training will continue in 2008 in Brazil and Central Indiana with an additional four-to-six training events.

In addition to this face-to-face training, Cummins also has launched a pilot program to deliver some of its on-line compliance and ethics courses – such as courses on anti-bribery and export controls – to employees of JVs. This program has been launched with the joint venture distributor network in North American and also is being rolled out to targeted international joint ventures.

Cummins rewrote its export policy to prohibit all sales into the Sudan, except for humanitarian purposes approved under strict guidelines.

Addressing a Pressing Human Rights Concern Head-on

In June 2006, Cummins received a letter from Amnesty International indicating that the group had evidence that "Cummins engines" were being used to power military trucks owned by the Sudan government, which is engaged in an ongoing civil war.

The Company immediately launched an investigation into the matter and discovered that a small number of engines manufactured by a Cummins joint venture in China had been sold by our partner to its truck-making subsidiary, which then sold the trucks to Sudan. Cummins had no knowledge of the final destination of those engines and the sale violated no U.S. laws.

Still, Cummins was intent on doing what was right and not just following the letter of the law. The Company sent its top U.S.-based executive with responsibility for China to discuss the matter with our partners to persuade them to ensure that products made by the joint ventures don't end up in Sudan.

Cummins also rewrote its export control policy toward Sudan in late 2006 to prohibit all sales into the country from any Cummins location in the world, except for humanitarian purposes approved under a strict set of guidelines. The policy goes well beyond existing U.S. law and includes stronger controls to safeguard against sales to Sudan. In addition, thousands of Cummins employees have been trained on export controls issue in the past year.

Cummins' actions prompted the Sudan Disinvestment Task Force to remove the Company from its watch list in August 2007 and to publicly commend Cummins for its aggressive response to the situation.

Cummins Board of Directors

Cummins is governed by a nine-member Board of Directors. Among the directors, only Cummins Chief Executive Officer Theodore (Tim) M. Solso and Cummins President Joe Loughrey are current employees of the Company. Board members are:

Theodore (Tim) M. Solso – Chief Executive Officer and Chairman of the Board at Cummins since 2000, after serving as Company President since 1995.

Robert J. Darnall – Retired Chairman and Chief Executive Officer of Inland Steel Industries and a Cummins director since 1989.

Robert K. Herdman – Managing Director of Kalorama Partners LLC, a Washington D.C.-based consulting firm, appointed in 2008.

Alexis M. Herman – Chairman and Chief Executive Officer of New Ventures Inc. and a director since 2001.

F. Joseph (Joe) Loughrey – Named President and Chief Operating Officer in May 2005 and to the Board in July 2005, after serving as Executive Vice President and President – Engine Business for more than five years.

Georgia R. Nelson – President and CEO of PTI Resources, LLC. She joined the Cummins Board in 2004.

William I. Miller – Chairman and CEO of Irwin Financial Corp. and a director since 1989.

Carl Ware – President and Chief Operating Officer of Ware Investment Properties, LLC. He was named a director in 2004.

J. Lawrence Wilson – Retired Chairman and Chief Executive Officer of Rohm and Haas Co. and a director since 1990.

The primary mission of the Board of Directors is to represent and protect the interests of the Company's stakeholders.

Corporate Governance Principles for the Board

The primary mission of the Board of Directors is to represent and protect the interests of the Company's stakeholders. In so doing, the Board has the legal responsibility for overseeing the affairs of the Company, and has certain specified powers and authorities with respect to corporate action provided by Indiana statutes.

The Board's oversight function is exercised through the election and appointment of competent officers. The Board relies on the integrity, expertise and competency of these officers in carrying out its oversight function.

The Board's responsibilities include the following:

- Adopt corporate governance principles consistent with the Company's Vision, Mission and Values.
- Exercise sound and independent business judgment with respect to significant strategic and operational issues, including major capital expenditures, diversifications, acquisitions, divestitures and new ventures.
- Advise senior management.
- Monitor:
  - The performance of the Company
  - The performance of senior management

Ravi Pandit (right), KPIT Cummins Chairman and Group CEO, accepts India's prestigious Golden Peacock Award for Excellence in Corporate Governance 2007.

- The effectiveness of internal controls and risk management practices
- Compliance with all applicable laws and regulations
- Communications and relationships with stakeholders

In discharging its fiduciary duties to act in the best interests of the Company, the Board considers the effect of its actions on shareholders, employees, suppliers, customers, communities and the interests of society as represented by our regulators. The Board has seven standing committees: Executive Committee, Audit Committee, Compensation Committee, Governance and Nominating Committee, Finance Committee, Technology and Environment Committee and Proxy Committee. The responsibilities of the Audit, Compensation, Governance and Nominating, Finance and Technology and Environment committees are set forth in written committee charters approved by the Board.

The Company complies with all NYSE and regulatory requirements concerning the membership of certain committees, including the requirements with respect to independence and financial expertise. The Governance and Nominating Committee reviews the committee structures of the Board and the membership of the various committees annually, and makes recommendations for any changes to the Board.

Managing Risks

Controlling Exports

As an international Company, Cummins faces a complex set of export controls. The United States frequently imposes trade embargoes against certain countries and places restrictions on items that can be shipped to certain other countries.

Cummins follows all applicable U.S. export laws, but goes further in some instances. For example,

"Every employee at Cummins should feel valued, because there is a recognition that it takes all of us working together to make this a great company."

Tamica Wright

the Company bars transactions with any person or organization where the end destination of a Cummins product is Sudan or Myanmar (Burma); or where any Cummins product or service would be used in a military application in Syria, Libya, North Korea or Iran.

Cummins' policy on exports is comprehensive, but can be summed up in the following manner: We will know which countries are subject to sanctions. We will know our customers and business partners. We will know our products and be aware of their export control status. We will obtain necessary licenses where warranted and will strictly follow their conditions. We believe our reputation for ethical and responsible conduct is our most important and valuable asset, and we encourage employees to raise compliance concerns to the highest levels of the Company.

All Cummins employees who complete the Annual Ethics Certification must certify their compliance with our most recent Export Control Policy.

Crisis Communications

Making sure that Cummins is prepared if a crisis occurs is a key Company responsibility. To assist facility managers and others involved in emergency planning, Cummins routinely updates its Crisis Communications Plan. The plan includes vital information for facilities on how to communicate effectively during a crisis, as well as templates and forms to assist employees in gathering and updating information.

Cummins also has developed business continuity plans for each business unit or critical function within the business unit.

Managing Travel Risks

Cummins serves customers in more than 70 countries and territories, so global travel is part of many employees' jobs. Travel always involves an element of risk, but in today's world it is especially important to manage that risk to the best of our ability.

We found ourselves working with numerous travel agencies across the world as Cummins' business expanded globally, which made data gathering and reporting difficult. In 2007, we moved to a single, global travel agency that could not only measure up in terms of economics, but also capability, systems and emergency reporting. Cummins used Six Sigma tools to develop the bid package and sign the best agency for the job.

A world map tool is available to Cummins management, enabling the instant location of Cummins personnel worldwide.

Pandemic Planning

Over the past several years, reports of avian flu outbreaks have made headlines around much of the world. Much has been made about the consequences of a possible pandemic should the avian flu virus gain the ability to easily spread via human-to-human contact.

At Cummins, the well-being of our employees is extremely important. As such, the Company has taken steps to ensure the health and safety of employees should a flu pandemic occur.

The Company formed a Pandemic Planning Team with individuals representing medical, safety, risk management, human resources, facilities,

communications, business continuity and other key areas to help create a strategic response plan in the event of a pandemic.

The team has identified key components of the Company's response should a pandemic occur. Our plans take into account the full range of our stakeholders – employees, customers, investors, suppliers, vendors and the communities in which we live and work. A critical part of successfully managing a situation such as this one is providing open lines of communication to those stakeholders. Employees at Cummins receive regular updates on the avian flu and on our efforts to keep them and our facilities safe.

Should a widespread outbreak of flu affect Cummins operations, the Company is prepared to deal with the issue.

Government Relations

In August 2001, Cummins opened an office in Washington, D.C. to coordinate government relations activities for the corporation. The Washington office provides strategic insight and advice to Cummins business leaders on emerging government issues and activities, provides top level access to government officials and key policymakers, develops and implements government relations strategies to achieve business objectives and advances business marketing objectives relative to government programs.

The office elevates government issues to senior management, ensures alignment with Cummins businesses and objectives, and identifies and aggressively resolves key government issues for the corporation. Specific areas of activity include energy policy, environment, tax, trade, transportation, government research and development, government markets, workplace and human resources issues, defense and homeland security, and facility and infrastructure programs.

In 2007, the office worked closely on the energy bill with Congress and other engine companies to create a new fuel efficiency program for medium and heavy-duty trucks. In addition to increasing Corporate Average Fuel Economy (CAFE) standards for cars, the legislation increases the use of renewable fuels substantially, prompting the office to focus on providing for the responsible growth of biodiesel, such as requiring labeling so that consumers know what they are putting in their engines and ensuring the adoption of broad quality standards. The Washington office also championed provisions that promote the installation of energy efficiency technologies, including clean and efficient combined heat and power projects, at industrial sites across the country.

Cummins continued to collaborate with a broad group of environmental, industry and public groups for funding of the Diesel Emissions Reduction Act, a national grant program to promote the retrofit of older diesel engines with emission reduction technologies. For the first time in FY2008, our efforts successfully secured funding for this program and resulted in a seven-fold increase in retrofit funding over the previous year. Cummins also secured increased funding for Department of Energy research and development programs that promote energy efficiency in stationary and transportation applications.

Environment

As a result of our outstanding technology, Cummins Heavy Duty monthly market share averaged above 40 percent for the last two-thirds of the year.

Managing Carbon Emissions

Cummins Climate Strategy

Governments, companies, consumers and Cummins customers around the world are exploring ways to curb their energy consumption, and by so doing, reduce the creation of greenhouse gases such as carbon dioxide. Cummins is actively engaged in creating solutions to this global concern.

Why is Cummins involved in this? First of all, it is a natural fit with our mission to demand that everything we do lead to a cleaner, healthier, safer environment. Making energy improvements is good business because it gives Cummins the opportunity to improve the efficiency of our facilities and drive cost reduction. It's also good for our customers because we work with them to get best fuel economy out of our products.

As part of our continued commitment to sustainable practices, Cummins is participating in the U. S. Environmental Protection Agency's (EPA) Climate Leaders program.

Launched in February 2002, EPA Climate Leaders is an industry-government partnership that works to develop long-term comprehensive corporate climate change strategies. Climate Leaders Partners set a corporate-wide greenhouse gas reduction goal, inventory their emissions to measure progress and report that data to the EPA.

As a result of our involvement, Cummins has pledged to reduce its corporate-wide greenhouse gas (GHG) emissions intensity by 25 percent by 2010, against a base year of 2005. The Company will track greenhouse gas emissions at Cummins-managed facilities worldwide. The GHG

reduction goal is in addition to the 20 percent reduction in GHG intensity that Cummins has already achieved.

The Climate Change Team

Early in 2007, Cummins formed a Climate Change team to take both a holistic and tactical view of climate change and sustainability at Cummins. The team's members are from across business units and functions and represent facilities, product planning, corporate strategy, environmental policy and government relationship, among others.

The team looks at issues that range in complexity from domestic and international energy policy and fuel economy standards to simpler challenges, such as buildings best suited for occupancy sensors and daylight harvesters.

Collaborating with Customers

Cummins' efforts to reduce carbon intensity encompass both our products and our collaborative efforts with customers.

Engines

Cummins has numerous initiatives in this area, with key ones focused on the management of automotive heavy-duty engine idle, cruise control and speed.

Idle management features supported within the Electronic Control Modules (ECMs) of our engines can help our customers reduce fuel consumption by shutting off the engine after a specified amount of time at idle or allowing the fleet manager/owner to make decisions about "rewarding" drivers with slightly more cruise control maximum set speed if they have minimized their idle time. Customers can allow a driver a little more speed but retain a positive balance on fuel saved — and fuel saved is fuel not burned and therefore less carbon released.

"We believe we can't be successful unless we focus on working toward a cleaner, healthier, safer environment. This is a core value at Cummins."

Peter Jensen-Muir

The second aspect of reducing/managing the carbon risks involves our fuel economy features. We have a long list of features within our ECMs that are specifically designed to help customers minimize the amount of fuel they burn. Again, this ultimately becomes a means of minimizing carbon.

Some of these features are:

Road Speed and Cruise Control Governor: The feature limits the maximum vehicle speed with the driver's foot on and off the throttle. Power required, and therefore fuel burned, is directly proportional to vehicle speed.

Smart Torque: By allowing high torque in the top two gears, you can minimize the number of down shifts required to maintain speed on the highway. By avoiding a downshift, overall engine speed is lowered and a lower engine speed generally equates to less fuel burned.

In addition to these "active" features, Cummins engines also have a number of "information features" where "trip" or "duty cycle" information is stored. By reviewing these data, a fleet manager can look for variations between drivers or trucks, look for trends and use the data for driver coaching or to schedule maintenance.

Engine Testing

Cummins is working to reduce energy consumption, lower pollution levels and reduce costs through initiatives to reduce engine testing in product development and in manufacturing. These initiatives encompass design, the verification of manufacturing quality and the advanced diesel engine quality verification process.

Power Generation

A typical long-haul truck spends an average of 2,000 hours a year idling with the base engine fuel consumption of one gallon per hour at idle. A product developed by our Power Generation business, the Cummins ComfortGuard Auxiliary Power Unit (APU), mounts to the frame of the tractor and can provide heating and air conditioning while using only about 0.2 gallons of fuel per hour.

In addition, the APU can keep the main engine heated in cold ambient conditions so it will start when needed. All of these requirements can be achieved with the APU as an alternative to running the main engine. Use of the APU can reduce the fuel consumption of a typical long-haul truck fleet by 1,600 gallons of diesel fuel per truck each year.

Combined Heat and Power Applications

Cogeneration, or Combined Heat and Power (CHP), is the production of two kinds of energy – usually electricity and heat – from a single source of fuel. Cogeneration can replace the traditional method of supplying energy from multiple sources, e.g., purchasing electricity from the power grid and burning natural gas or oil separately in a furnace to produce heat or steam. These methods can waste up to two-thirds of the energy in the original fuel – losses that translate into high utility rates.

Carbon Disclosure Project and the Dow Jones Sustainability Index

Cummins seeks to partner with groups that help us be a better steward of the environment.

In 2006 and 2007, we participated in the Carbon Disclosure Project (CDP), an institutional investor consortium that seeks to encourage greater environmental reporting among companies. On behalf of investors representing $31 trillion in assets under management, CDP asks companies to provide details on their carbon emissions, their positioning in response to the impact of climate change on their markets and regulatory environment, their use of energy and planning for the future.

The Company was named to the Dow Jones World Sustainability Index for the third year in row, being recognized again for its economic, environmental and social leadership. This index represents the top 10 percent of the world's largest 2,500 companies in these corporate sustainability metrics.

In addition, Cummins is a member of the Business Round Table Climate RESOLVE (Responsible Environmental Steps, Opportunities to Lead by Voluntary Efforts), whose members have voluntarily committed to reduce or offset greenhouse gas (GHG) emissions. Cummins also is a member of the Global Environmental Leadership Council of the Pew Center on Climate Change and Resources for the Future Climate Forum.

Performance Indicators: Products

The Right Technology for Reducing Emissions

Leadership in combustion research, fuel systems, air-handling systems, electronics, filtration and aftertreatment allows Cummins to maintain its goal of maximizing customer value by providing the most appropriate emissions control for each market served.

Cummins' diverse product portfolio meets or exceeds all emissions requirements, and at the same time, delivers on customer needs for fuel economy, performance, reliability and durability.

In the fall of 2007, Cummins announced its technology approach for on-highway engines to meet the more stringent 2010 U.S. Environmental Protection Agency's diesel emissions standards. The Company will use an evolution of its proven 2007 solutions to maintain power and torque with comparable fuel economy and maintenance intervals the same as today. Cummins will offer a complete lineup of on-highway engines to meet the near-zero 2010 emissions standards.

Having the ability to meet a broader range of customer needs with an expanded product line using Cummins proven technology is our formula for success in 2010 and beyond.

Heavy-Duty Solutions

Key ingredients of the Cummins 2010 Heavy-Duty lineup include:

- NOx reduction will be achieved by an integrated technology solution comprised of the XPI High Pressure Common Rail (HPCR) fuel system, next-generation cooled Exhaust Gas Recirculation (EGR), advanced electronic controls, proven air handling and the Cummins Particulate Filter.
- Cummins will expand the Heavy-Duty X platform in North America to three displacements with the introduction of an 11.9L engine and a 16L engine to complement its flagship 15L product.

The engines will share a common architecture including the XPI HPCR fuel system. The expansion will enable Cummins to meet a broader array of customer needs, and marks the first time in nearly 20 years the Company has had a common architecture across its industry-leading Heavy-Duty products.

Having the ability to meet a broader range of customer needs with an expanded product line using Cummins' proven technology is our formula for success in 2010 and beyond. Designing and producing the best-in-class Heavy-Duty diesel requires expertise in combustion, air handling, fuel systems, electronic controls and exhaust aftertreatment. That expertise and the ability to balance customer and environmental needs drive Cummins' innovation.

The next-generation cooled EGR is key to reducing emissions and oxides of nitrogen (NOx). EGR technology will not add complexity to the vehicle; and power, torque, fuel economy and maintenance intervals will stay the same. Cummins presently leads the U.S. on-highway truck market with cooled-EGR technology.

Cummins also will continue to use its proven Variable Geometry Turbocharger (VG Turbo), which bolsters total engine performance from power output to response to superior engine braking,

This Cummins-powered boat uses biodiesel fuel to take people to view killer whales in their natural habitat.

Cummins Mercruiser Diesel Powers Efficiency and Economy on Puget Sound

Ivan Reiff's childhood memories of life with a fisherman father in Florida led him to Washington State's Puget Sound, where he found little San Juan Island and a wonderful profession.

In 2003, he and his wife, Jacquelyn, bought the Western Prince II, a 46-foot fiberglass boat used to take people to see orcas, the beautiful mammal commonly known as killer whales, in their natural habitat.

The Reiffs have been careful to maintain an environmentally responsible operation out of concern for the future of the whales. They are members of the Northwest Whale Watcher Operators Association and adhere to that group's guidelines for operating power boats in the vicinity of whales. On their own, they also began burning biodiesel fuel in the boat's two-cycle main engines. Recently, they replaced the Western Prince's aging engines with a pair of Cummins' new Tier II compliant QSL9-405 MCD engines from Bellingham's Tri-County Diesel.

These 400 bhp 9-litre 6-cylinder engines have evolved to meet the stringent emissions requirements of the EPA. A high-pressure common rail fuel system virtually eliminates start-up white smoke and black smoke, improves fuel economy and significantly reduces noise.

While the Cummins QSL9 meets the Tier II emission requirements, it also has other significant advantages for a boat like the Western Prince II, which routinely takes 30 passengers on natural history tours. By incorporating the latest engine technology, the new engines add to passenger comfort while generating bottom-line savings.

while working in tandem with the cooled-EGR subsystem.

The Cummins Particulate Filter, designed and manufactured by Cummins Emission Solutions and introduced in 2007, will be the only aftertreatment required for Heavy-Duty engines in 2010. The engine and aftertreatment work together to further reduce particulate emissions.

MidRange Engine Evolution

Cummins will enhance its MidRange on-highway product performance and reliability by adding Selective Catalytic Reduction (SCR) to its existing product to meet the near-zero 2010 emissions standards. SCR is the right technology for Cummins medium-duty truck, bus and specialty-vehicle customers who want a simple and proven solution to meet their diverse power and duty cycle needs.

Cummins has worldwide experience and leadership with a wide range of proven technologies.

Cummins MidRange engines are known for their exceptional value. With the MidRange engines, SCR enables Cummins to extend its power range while maintaining excellent fuel economy, maintenance intervals and overall low cost of ownership. This translates to even better value for MidRange customers in 2010.

SCR technology uses a chemical called urea and a catalytic converter to significantly reduce NOx emissions. SCR technology is not new to Cummins. In 2006, Cummins launched its MidRange engines certified to the Euro 4 standard using SCR for commercial vehicle applications in Europe.

Competitive Advantages

Across its entire lineup of on-highway engines, Cummins is able to meet increasingly stringent emissions regulations with speed and efficiency, due primarily to two competitive advantages.

First, Cummins benefits from an integrated business structure that enables it to tap the core competencies of Cummins Emission Solutions, Cummins Turbo Technologies, Cummins Fuel Systems and Cummins Filtration. These businesses work together to bring to market technologically superior, fully integrated systems.

Second, Cummins has worldwide experience and leadership with a wide range of proven technologies. Cummins continues to execute its carefully planned product strategy, anticipating changes and investing in the research and development necessary to meet customer needs and environmental goals.

All Cummins U. S. on-highway engines will be fully certified and compliant to the near-zero EPA 2010 emissions standards.

Controlling Emissions in the Off-Highway Market

Cummins captured the attention of the off-highway equipment industry as the first to announce a technology path to meet Tier 4 emission regulations. The EPA Tier 4 Interim and equivalent European Stage IIIB off-highway emission standards take effect across the 174-hp to 751-hp (130-560 kW) powerband in 2011.

The core technology will be Cummins Particulate Filter and cooled EGR system as part of an integrated technology solution extending from air intake to exhaust aftertreatment.

Cummins is taking a lead role in the industry because of its unique in-house technology

From left: Mike Osenga from Diesel Progress, Joe Loughrey, Cummins President, John Wall, Cummins Chief Technical Officer, and Mike Brezonick, Diesel Progress, at the presentation ceremony.

Cummins Named Newsmaker of the Year

Cummins received the highly acclaimed *Diesel Progress* Newsmaker of the Year award during a ceremony at the Cummins Corporate Office Building (COB) in Columbus, Indiana in December 2007. The ceremony was attended by representatives from *Diesel Progress* and Cummins and included a presentation of the award, followed by remarks from Mike Osenga, Publisher of *Diesel Progress*, and Cummins officials.

Osenga complimented Cummins' ability to consistently communicate engine technology in a thoughtful and timely manner, which has raised the industry standard for communications. Cummins has long enjoyed a strong relationship with *Diesel Progress* and was delighted to celebrate this achievement with members of the marketing, sales, engineering and various other employees.

The 2007 award highlights three significant Cummins technology announcements: the launch of the 2007 Dodge Turbo Diesel, the first engine to meet the 2010 heavy-duty diesel regulations; the Company's Heavy Duty and MidRange solutions for the North American EPA 2010 emission standards and the solution to meet the Tier 4 Interim/Stage IIIB regulations, which will take effect in 2011.

The award, started in 1997, honors the company, person, product, technology, market or industry subject that made the most news during the year. Cummins first received the award in 2002. *Diesel Progress* is the leading publication in the diesel industry.

"We believe the right technology matters and that nobody is better than we are at creating emissions-compliant products that meet our customers' expectations."

Virendra Kumar

and system integration. Our Tier 4 solution is driven by the need to deliver the lowest cost of ownership and most productive power solutions for operators. The 2011 off-highway regulations require a 90 percent reduction in PM and a 45 percent reduction in NOx emissions.

While meeting these stringent reductions, Cummins Tier 4 QSB to QSX products will offer enhanced performance and improved fuel efficiency compared to our current Tier 3 engines.

Integrating Tier 4 engine and aftertreatment into a wide variety of off-highway equipment types will be challenging, but Cummins' application engineering expertise will enable us to design and pre-engineer all the key subsystems in-house.

For Tier 4, Cummins will offer standardized engine, aftertreatment and air intake packages, speeding up installation work and realizing space-saving advantages for our OEM customers.

The 2010 EPA Emissions and Fuel Rule

Looking ahead to 2010, emission requirements will change dramatically for heavy-duty trucks over this period. Both NOx and PM will be reduced by 90 percent from 2004 levels.

The EPA has allowed for a NOx phase-in from 2007 through 2009. During this time, 50 percent of the engines produced must meet the stricter, 2007 NOx standard, while 50 percent may continue to meet the 2004 standard.

The PM requirement was not phased in, and, as a result, all engine production was required to be in compliance with the new standard by January of 2007.

By 2010, all heavy-duty diesel engines are expected to meet the NOx standard of 0.20 grams per brake-horsepower hour (g/bhp-hr) and the PM standard of 0.01g/bhp-hr.

Also by 2010, regulations will require the phase-in of advanced on-board diagnostics with additional sensors to monitor the effectiveness of emission-control systems on the engine, which will alert the driver if a failed emission-reduction device needs to be repaired.

Ultra-Low Sulfur Diesel Fuel (ULSD)

In addition to the new exhaust emission standards, the EPA is lowering the limit for diesel sulfur fuel from 500 parts per million (ppm) to 15 ppm. The new fuel standard began to be phased in October 2006 and will be completed by September 1, 2010 (100 percent participation).

Cummins has publicly expressed its support of ultra-low sulfur fuel. ULSD has several benefits. It produces less particulate matter from combustion, so it is a particulate matter control strategy for all equipment in use. In addition, ultra-low sulfur fuel enables the use of advanced aftertreatment control systems.

Biodiesel Fuels Now in Use

Biodiesel is a clean-burning alternative fuel made from renewable resources like soybeans, vegetable oils and even algae. It creates about 60 percent less carbon dioxide than petroleum fuels, biodegrades as quickly as sugar, and is less toxic than

The Cummins filter is an integral part of the Cummins engine, as shown on this Whole Foods Market truck in Indianapolis, Indiana. Whole Foods has been using biodiesel in its 25 Midwestern territory fleet for more than two years, covering 7 million miles and using 800,000 gallons of biodiesel fuel.

table salt. Biodiesel fuel is free from the aromatics and sulfur found in traditional fuels and is one of the few alternative fuels registered with the Environmental Protection Agency for sale and distribution.

Unfortunately, few engines today can safely use biodiesel in its pure form (called B100) without alterations. Many manufacturers will not warrant an engine for use with more than a 5 percent blend of biodiesel (B5).

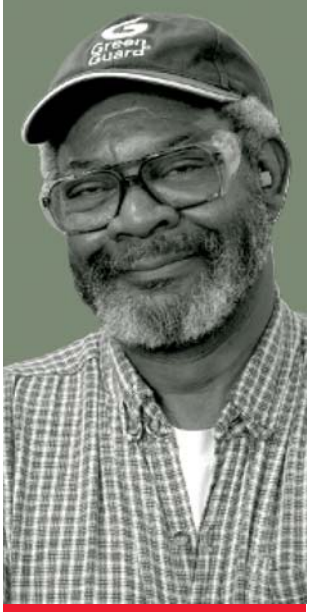
Early in 2007, Cummins completed extensive tests on five of its largest on- and off-highway engines, and announced that Cummins customers may operate any such emissions-compliant engine made after 2002 with confidence using 20 percent (B20) biodiesel fuel.

The popularity of biodiesel fuel continues to climb. Estimates are that 1.2 billion gallons will be produced in the U. S. in 2008, and more than a dozen states have passed favorable biodiesel legislation, making it a financially viable alternative.

Cummins has pledged to continue its efforts to ensure that future products will be compatible with biodiesel fuels and will continue to participate in industry efforts to develop consistent quality throughout the biodiesel industry.

Cummins Filtration and the Environment

As the global leader in providing filtration, exhaust, coolant and chemical technology for diesel and gas-powered equipment worldwide, Cummins Filtration takes its environmental responsibility seriously. With more than 525 active global patents for innovative technology, Cummins Filtration continues to provide environmental leadership by designing products for the future that extend service life, lower emissions and eliminate harmful toxins. Cummins Filtration products continually meet or exceed global emissions and noise regulations, reduce disposal issues and support extended maintenance.



"We take pride in our work and are committed to producing high-quality products that provide outstanding value to our customers."

Jerry Lawson

The Company has developed a specific line of environmentally safer products to ensure:

- Reduced environmental impact
- Lower operating costs and increased vehicle uptime
- Excellent performance

To achieve these results, Cummins Filtration offers an integrated system approach for equipment maintenance with environmentally friendly product choices for all major engine systems. This stable of green products includes the following state-of-the-art technologies:

Open Crankcase Ventilation

The Fleetguard line of Open Crankcase Ventilation meets global emission standards for 2007 and protects the environment by:

- Reducing blow-by oil emissions to the atmosphere by more than 65 percent
- Lowering PM emissions
- Reducing oily residues on the back of vehicles
- Reducing oil drip by 99 percent, eliminating oil dripping onto roads, crops, bodies of water, garages and driveways
- Reducing oil waste and clean-up costs
- Minimizing engine downtime and lowering maintenance costs

Oil and Fuel Modules with Incinerable Replacement Cartridges

For more than ten years, Cummins Filtration has partnered with our OEM customers to create oil and fuel modules for heavy-duty applications. Originally, the modules were 100 percent metal, and the replacement cartridges were complex with multiple metal pieces. Today's modules contain less metal and continue to progress toward increased sustainability. This continued evolution benefits the environment through:

- Increased integration of composite materials in the housings, improving recyclability and decreasing weight
- Replacing the need for heavy spin-on filters by using lighter-weight replacement cartridges
- Reducing the number of components in the replacement cartridges
- Removing metallic components from replacement cartridges for rust-free storage
- Eliminating adhesives, paint and cured paper from the cartridges for reduced Volatile Organic Compounds
- Reducing space in landfills with fully incinerable cartridges

Fabiola Guadalupe Alonso Zapata works in the Generator Technologies plant in San Luis Potosi, Mexico.

San Luis Potosi Gets Energized, Helps Protect Environment

The San Luis Potosi (SLP) facility hosted the city mayor and the Ministry of Ecology staff, as they delivered 2,000 kilograms of used batteries to the SLP plant for proper disposal in the summer of 2007. The batteries were collected by the municipality during the program called “Energize Yourself.”

This program encouraged the correct disposal of batteries to prevent contamination of the environment, especially the subsoil. Cummins is the only authorized storage center in the state to provide such disposal.

During the event, Mayor Jorge Lozano Armengol emphasized the importance of this program and thanked Cummins employees for their participation. SLP Plant Director Miguel Kindler also stressed the importance of supporting the environment through correctly disposing batteries.

Allen Pierce, General Manager of Parts and Service Manufacturing, received the batteries from the mayor in a symbolic act to emphasize that Cummins is committed to advancing the community and protecting the environment.

"Being a low-cost producer is essential to the Company's business tactics, and Six Sigma, with its relationship to all Cummins' business activities and processes, remains key to this strategy."

Rong Sun

Industrial Pro™ Diesel Fuel Filtration

The FH 4 Series Industrial Pro™ diesel fuel filtration system is standard on all Cummins 2007 high-horsepower engines. The all-in-one fuel filter, fuel/water separator and fuel heater combines EleMax™ filter technology and multi-layered StrataPore™ media to provide higher fuel/water separation efficiency over time and reduced restriction to flow. Other outstanding features and benefits include:

- 5-minute maintenance with self-priming port
- Clear cover showing users when NOT to change filter
- Seeing is Believing® patented technology with superior water and contaminant removal

Sea Pro® Marine Diesel Fuel Processor

The FH 4 Series Sea Pro® 5 diesel fuel processor is standard on all Cummins 2007 Tier II marine engines and may be used on other manufacturers' new and existing engines. Sea Pro® 5 includes fuel filtration, fuel/water separation, water-in-fuel sensors, and proprietary StrataPore™ media. Its unique features provide competitive benefits while protecting the environment with:

- Remote mount design allows 5-minute, no-mess filter change
- Highly durable, corrosion-resistant shell
- Superior fuel/water separation and reduced restriction
- Longer service intervals with three times the life of conventional similar-sized cellulose filters

ES Compleat™ Glycerin Premix Long-Life Antifreeze/Coolant – Sustainability and Performance

Cummins Filtration has long supported the importance of greener solutions through all product development.

In early 2008, the company announced the release of Fleetguard ES Compleat™ Glycerin Premix coolant to the global marketplace. Fleetguard ES Compleat is an innovative heavy duty engine antifreeze/coolant that uses glycerin in lieu of traditional ethylene glycol (EG) or propylene glycol (PG). Glycerin is derived from renewable sources and is the primary byproduct of the biodiesel manufacturing process.

Supporting sustainability with a glycerin coolant that also offers excellent protection is very important to the Company mission.

Cummins Filtration conducted extensive testing and field trials of the glycerin-based antifreeze. All tests confirmed that ES Compleat Glycerin Premix provides the anti-freeze, anti-boil, heat transfer and corrosion protection required of today's fully formulated, heavy-duty antifreeze coolants and meets or exceeds the performance specifications of all heavy-duty engine OEMs.

Shuttle buses pick up employees for the daily commute, helping reduce traffic and pollution in Wuxi, China.

Busing Through Wuxi

Wuxi, near the southeast coast of China, is one of the fastest growing cities in the world. Cummins has turbocharger and alternator plants nearby, employing hundreds of workers who must make their way from the city into work every day.

To help cut back on the traffic and pollution that so often accompany industrial expansion, Cummins in 2007 introduced Suzhou Kinglong shuttle buses equipped with Cummins Euro III engines. The buses pick up employees for their daily commute and return them to the city at the end of a shift.

Among their strongest supporters are the drivers who operate the buses every day. As one remarked, “The bus is strong and powerful. It makes starting and stopping on crowded city roads so much easier. Compared to other buses I’ve driven, it has excellent fuel economy, low engine noise and best of all, no black smoke from the back.”

With the new buses, Wuxi Holset is meeting the environmental policies of the Wuxi Government authorities.

With extended service intervals of 150,000 miles (250,000 km or 4000 hrs), ES Compleat Glycerin Premix offers freeze protection to -32 Degrees F and offers ultimate liner pitting, corrosion, aluminum and solder protection for longer system life. The coolant is compatible with gaskets, elastomers and other non-metallics in the engine and is suitable for all diesel, gasoline and natural gas engines.

Aftermarket: Emission Solutions

Cummins has leveraged its research, product development and technology expertise to create businesses such as Emission Solutions. This Components Group business is a market-leading global designer, manufacturer and distributor of exhaust aftertreatment systems and devices for the on and off highway medium duty, heavy duty and high horsepower engine markets.

Emission Solutions offers exhaust aftertreatment systems that control harmful emissions.

With key operations in Indiana, Wisconsin, the United Kingdom and South Africa, Cummins Emission Solutions products serve both OEM and retrofit customers.

Emission Solutions specializes in exhaust products and systems for diesel engines. Emission Solutions offers exhaust aftertreatment systems that control harmful emissions such as CO, HC, NOx and PM.

Emission Solutions products reduce PM and NOx to 99 percent less than unregulated levels. With retrofit and first-fit options, Emission Solutions has integrated service solutions to help customers understand local air quality regulations and identify sources of funding for specific emission reduction efforts. Cummins Emission Solutions has established a leadership position in the North American school and urban bus markets with its retrofit and “neofit” aftertreatment products.

The Technology Advantage

Cummins has long been a pioneer in emission research and development, investing in critical technologies to achieve future emission standards while meeting the needs of our customers. The Company’s emissions solutions are the result of a technology plan set in motion in the early 1990s. This plan will carry Cummins through 2010 and beyond.

At the core of this road map is a strategic decision to develop the right technology for each application and market served. Different operating conditions and factors can influence the technology path for each market. And while developing multiple emission solutions has required a significant investment in research and development, the Company believes it will guarantee Cummins’ customers optimum performance and reliability at the lowest possible cost of operation.

More than half of the $2.4 billion spent by Cummins on research and development in the last 10 years has been invested in emission reduction technologies.

Nothing the Company does is more important. Through our technical productivity initiatives, we have reduced our cost of research and engineering from 5 percent of sales to less than 3 percent of sales, while growing market share and extending our product lines.

It takes about 85 percent less energy to remanufacture an engine than to make one from new parts.

ReCon: Going Green, Going Global

"Reduce, reuse, recycle." That's a key slogan for environmentalists everywhere. At Cummins, we have an additional term: ReCon. ReCon is the name Cummins uses for its line of genuine, factory-remanufactured products. It takes about 85 percent less energy to remanufacture a product than to make one from new parts.

Reusing an engine block, for example, saves energy at every step along the way in mining, ore processing, transportation, casting and machining.

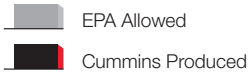
Materials reclaimed through ReCon are estimated to result in energy savings sufficient to power 10,000 homes in the U. S. Since most of that energy is fossil-fuel based, the savings also add up to greenhouse gas (GHG) reductions. Cummins reuses or recycles over 48 million pounds of material each year, with a corresponding GHG reduction of about 200 million pounds.

As good as ReCon is for the environment, it also is good for business. The countercyclical nature of the remanufactured parts business gives Cummins another opportunity to demonstrate long-term, stable earnings for shareholders. And customers like the fact that ReCon effectively extends the life of their equipment. Most ReCon products are available immediately, reducing customer wait time for a component or engine rebuild.

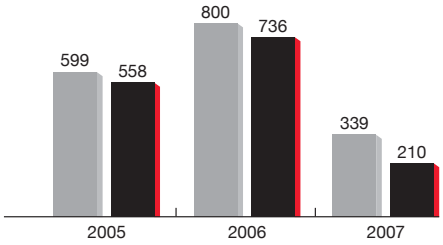
Cummins has had a ReCon business in the U. S. since the 1960s, but now is locating world-class remanufacturing sites in India and China. As we increase our global ReCon footprint, we will increase revenues through remanufacturing and add greater global diversification to our portfolio.

"The best way to have great employees is to provide a work environment that challenges them to do their best."

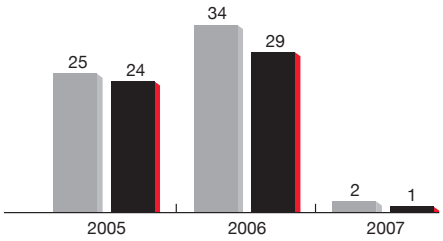
Alberta Green



Total Automotive Useful Life Emissions Nitrogen Oxides (NOx) in 1,000 Tons



Total Automotive Useful Life Emissions Particulate Matter (PM) in 1,000 Tons



One part of this strategy involves process improvement tools such as Six Sigma and Analysis-Led Design (using computer analysis and simulation tools to optimize designs analytically and eliminate expensive prototype testing). Another is to involve OEMs and joint venture partners as early as possible in the development and integration process.

This open exchange of information and technology has been – and will continue to be – instrumental in developing high-performance products that deliver optimum performance and reliability at the lowest total cost.

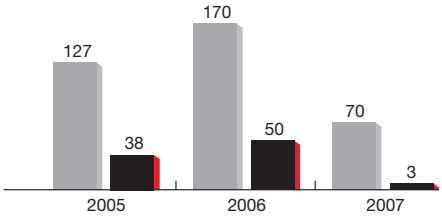
Emission Regulations and Cummins Product Goals

Since the 1970s, Cummins on-highway engines have been regulated by the EPA and similar regulatory agencies around the world for combustion emissions, including NOx, carbon monoxide (CO), hydrocarbons (HC) and PM, also known as soot.

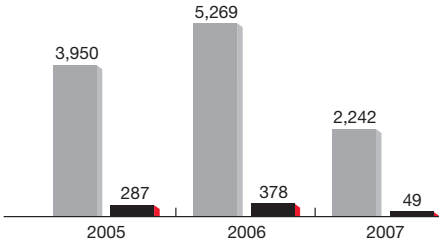
Cummins works closely with regulatory bodies to seek aggressive, but technologically feasible, emission reductions that also allow us to continue to make products that meet the exacting needs of our customers.

When compared to emissions from unregulated engines — i.e. before EPA standards became effective in 1973 — today's on-highway diesel engines emit 90 percent less PM and nearly 90 percent less NOx. Cummins and other engine-

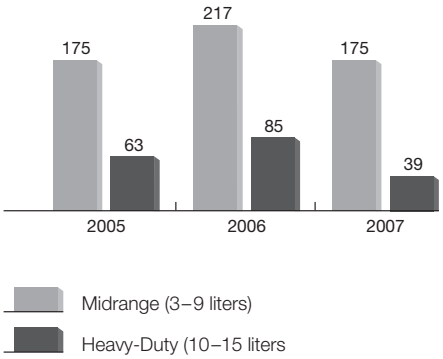
Total Automotive Useful Life Emissions Hydrocarbons (HC) in 1,000 Tons



Total Automotive Useful Life Emissions Carbon Monoxide (CO) in 1,000 Tons



On-Highway Diesel Engine Volumes (k)



For 2005, the emission tons calculation was updated to correctly reflect EPA regulated useful life since last report.

makers are required by the end of the decade to further reduce PM and NOx to levels 99 percent lower than the unregulated levels.

Off-highway engines produced by Cummins also are subject to stringent emission standards. While the combustion process for off-highway engines is fundamentally the same as for on-highway engines, the emission control strategies are not interchangeable because of the broad horsepower range, unique applications and the wide variety of duty cycles typical of off-highway products.

Between 1995 and 2006, off-highway engine emissions for NOx and PM have been reduced by 80 percent and 85 percent, respectively. And from 2010 to 2014, off-highway engines will be controlled to essentially the same level of emissions as their on-highway engine counterparts. By 2014, NOx and PM emissions from off-highway engines will be 98 percent lower than they were in 1995.

The charts on these and subsequent pages depict Cummins' commitment to the environment by demonstrating that the Company's engines often exceed U. S. emissions standards. The on-road charts for North America compare the estimated maximum allowable emissions by EPA standards versus Cummins' estimate of its engines' actual emissions for the past three years. Estimates are based on the number of engines, both heavy-duty and midrange, manufactured in the United States for on-highway use per year.

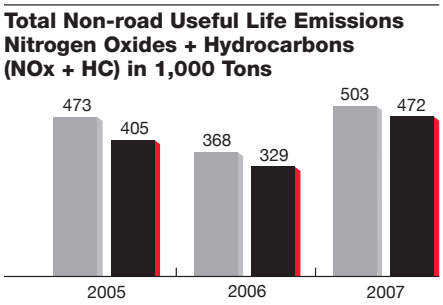
Cummins engines have released far less hydrocarbon and carbon monoxide into the environment than the maximum allowed by the EPA.

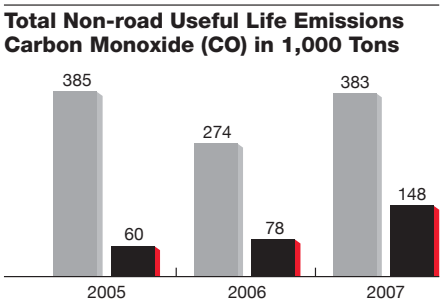
And even by the tough NOx and PM measures, Cummins has been under the standards.

The figures in the non-road charts are based on the number of midrange, heavy-duty and high-horsepower engines produced for non-road engines produced to EPA standards. As with Cummins

"Cummins' future is based on how well we develop and apply technology to our products. As an independent engine and components manufacturer, we are committed to being the best at doing this."

Bob McIlree





on-road engines, these non-road engines release far less HC and CO into the environment than the maximum allowed by regulatory agencies. Likewise, NOx and PM actual emission levels are under the applicable standards.

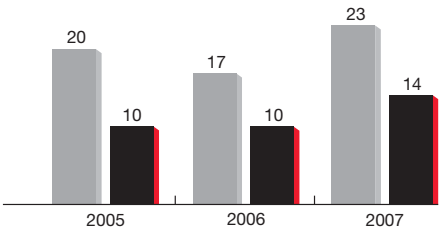
Cummins also participates in a regulatory program called Averaging, Banking and Trading (ABT). This program allows emission credits to be generated and "banked" by a company whose products generate emissions that are lower than the regulated level. These banked credits may be applied to other engines whose emissions are higher than the standard. However, some credits are discounted by a certain percentage depending on engine type and ABT program rules. As a result of this discounting process, a portion of the emissions credits go unused by the Company, and are thus an additional benefit to the environment.

Going Beyond Requirements in Other Countries

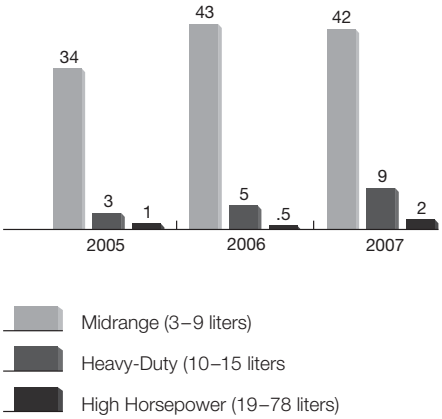
Cummins meets or exceeds emission regulations in every country that it operates. In South Africa, where there are no emission regulations for existing types, Cummins sells EPA certified 1998/1999 engines. Standards in South Africa commence in 2010. Similarly, in Taiwan, emissions regulations require EPA 1994 standards, yet Cummins sells EPA 1999 certified engines. In Mexico, the Company sells EPA 2004 certified engines, although the law requires EPA 1999 certified engines.

Cummins has worked closely with the Chinese government and OEMs to introduce "green engines" to China. Cummins is committed to bringing in advanced, low-emission environmental products to Chinese customers

Total Non-road Useful Life Emissions Particulate Matter (PM) in 1,000 Tons



Non-road Diesel Engine Volumes (k)



For 2005, the emission tons calculation was updated to correctly reflect EPA regulated useful life since last report.

concurrently with international markets, including the United States and Europe.

Cummins and its joint venture partner, Dongfeng Automotive, started limited production of Euro III diesels in late 2006 and reached volume production in the second quarter of 2007 in advance of the Chinese Government's requirements.

In addition to local production of Euro III engines, Cummins is the first foreign diesel maker to invest in the local manufacturing of key sub-systems, including fuel system and after-treatment products. This initiative supports Chinese partners and OEM customers as they work to meet future emission standards, including Euro III, Euro IV and above. Cummins Fuel Systems plant in Wuhan and Cummins Emission Solutions plant in Beijing will both start production in 2008.

A Green Leader in China

Cummins has a history of being a "green leader" in China. In 1999, Cummins was the first foreign diesel maker to power the large-scale Euro II transit fleet in South China's Shenzhen City, two years before China implemented the Euro I standards. The same year in Beijing, Cummins launched Euro II compressed natural gas engines, which were later branded through Cummins' joint venture with Westport in Canada. Beijing Public Transit is now the world's largest CNG fleet, with close to 3,000 Cummins Westport Euro II and Euro III natural gas engines installed to date.

In 2001, Cummins began introducing Euro III diesel engines into the China market. Currently, more than 20,000 Cummins Euro III diesels power transit buses and coaches across the country, making Cummins the top Euro III diesel supplier in China.

In preparation for the Beijing Olympics, Cummins started introducing Euro IV engines into Beijing

Public Transit in 2005. This summer, 2,750 transit buses in China's Capital City will be powered by Cummins Euro IV diesels and will be in use for transportation related to the Olympic Games.

Although China does not currently have a nationwide emission standard for off-road equipment, Cummins has been working closely with local OEMs to introduce emission-compliant industrial engines at the same time as the European and U.S. markets. All of the imported engines we sell for China's construction market are either Tier 2 or 3 compliant, with local production presently moving to Tier 2.

At the 2008 ConExpo in Las Vegas, Cummins formed strategic alliances with leading Chinese construction OEMs to power their export equipment with Cummins Tier 4 interim/Stage IIIB low emission off-road diesel engines. In addition, Cummins' Chinese engineers helped the local EPA draft the first generation of China's off-road emission standards.

The Cummins Science and Technology Advisory Council members regularly discuss the future of the internal combustion engine and the use of alternative power sources.

Counsel in Developing Products and Meeting Standards

In developing products to meet various standards, as well as the demands of its customers, Cummins seeks advice and counsel from its Science and Technology Advisory Council and the Technology and Environment Committee of its Board of Directors.

Cummins Science and Technology Advisory Council, formed in 1993, has given the Company access to some of the country's leading scientific thinkers and policymakers from the worlds of academia, industry and government.

The Cummins Science and Technology Advisory Council members regularly discuss the future of the internal combustion engine and the use of alternative power sources. As an example, Cummins already has pursued alternative energy options, including clean natural gas bus engines and power generation units that harness waste gases such as methane available in landfills.

The Cummins Science and Technology Advisory Council members are:

Frank S. Bates
Chairman, Chemical Engineering and Materials Science Department, University of Minnesota.

Dr. Harold Brown, Counselor
Center for Strategic and International Studies, retired Cummins Director, former Secretary of Defense and President of CalTech.

Phil Sharp
President of Resource for the Future, Washington, D.C.

Dr. Sophie V. Vandebroek
Chief Technical Officer and President, Xerox Innovation Group for Xerox Corporation, Stamford, Connecticut. Fellow of the Institute of Electrical & Electronics Engineers and served as an elected member on the IEEE Administrative Committee. Fulbright Fellow and a Fellow of the Belgian-American Educational Foundation.

Dr. George M. Whitesides
Mallinckrodt Professor of Chemistry at Harvard University.

John Sadtler (left), Second Shift Operator on the XPI nozzle production line for Fuel Systems, speaks with visiting U.S. Commerce Secretary Carlos Gutierrez at the Fuel Systems plant in Columbus, Indiana.

Dr. Gerald L. Wilson
Professor of Electrical Engineering and Mechanical Engineering, Massachusetts Institute of Technology, formerly Dean of Engineering at MIT.

The Technology and Environment Committee of the Cummins Board of Directors advises top management and the technical leadership of Cummins regarding:

- Technology strategy and planning
- Significant research and technology projects and tools
- Major new product programs
- Environmental policy and strategy within the public arena as well as maintaining an internal action plan.

Its membership includes the following Directors: Alexis M. Herman, Georgia R. Nelson, William I. Miller and Carl Ware.

The committee also encourages collaboration between Cummins and the external technical and environmental community and reviews the technology plans of the Company.

Performance Indicators: Facilities

Doing our part to promote a healthy environment goes beyond producing the cleanest possible products. Cummins' facilities have a large role to play in helping create a safe and sustainable environment for today and in the future.

Minimizing workplace injuries, reducing facility emissions and waste and conserving natural resources are fundamental to Cummins' commitment to the communities in which we work and live. These efforts also have a direct positive impact on the profitability of our business.

Cummins' approach to facilities management acknowledges the importance of protecting the environment and conserving our natural resources, and includes our formal commitment to the long-term sustainability of our operations. As we continue to meet our regulatory obligations, we also will work to identify opportunities for improvement and reduce the environmental impact of our operations.

By the end of 2007, Cummins had 42 manufacturing facilities and the corporate entity registered to the ISO 14001 Standard.

Safety and Environmental Council

Cummins Corporate Health, Safety and Environmental (HSE) Council was established in 2003 and continues to strengthen today. The HSE Council brings together manufacturing, safety and environmental leaders from across the Company's business units, along with corporate staff and the General Counsel. The Council meets quarterly with the objective of building a best-in-class safety and environmental organization across Cummins worldwide entities.

The Council meeting is the forum for developing HSE policies and strategic initiatives and is where company-wide objectives and targets are established. Among the Council's initiatives in support of performance improvement objectives are a focus on facility registration to the Enterprise Safety and Environmental Management Systems, building good HSE practices into the Company's growth strategy and organizational and individual functional excellence development.

Health, Safety and Environmental Management Systems

Cummins' safety and environmental policy drives the global Safety and Environmental Management Systems, which provide the platform for setting key objectives and ongoing monitoring of our HSE performance. Cummins has incorporated the elements of the ISO 14001 Standard and the OHSAS 18001 Safety Guidelines into the two systems and has committed to registration by an independent third-party. Cummins has taken a multi-site "enterprise" approach to registration of these management systems, rather than a customary individual site registration. This global, single registration employs a centralized management review process that captures key HSE performance data for analysis at every level in the organization. This approach allows Cummins to leverage superior environmental and safety management programs and practices for implementation worldwide. The enterprise allows for flexibility in development of a management system within a framework

Environmental Management System Registrations to ISO 14001

Site	Reg. Year	Location	Business Unit
Cummins – Daventry Engine Plant	2001	UK	Engine
Cummins Filtration – Quimper	2001	France	Components
Cummins Turbo Tech. – Huddersfield	2001	UK	Components
Cummins – Darlington Engine Plant	2002	UK	Engine
Emissions Solutions – Mineral Point	2001	USA	Components
Cummins – San Luis Potosi	2002	Mexico	Engine
Cummins Filtration – Viroqua	2002	USA	Components
Cummins Filtration – Arcadia	2002	USA	Components
Cummins Filtration – Wautoma	2002	USA	Components
Cummins Industrial Center/Cummins Komatsu Engine Co.	2002	USA	Engine
Cummins Generator Tech. – Stamford	2002	UK	Power Gen
Cummins Turbo Tech. – Charleston	2002	USA	Components
Dongfeng Cummins Engine Co. Ltd/ Cummins Xiangfan Machinery Co. Ltd	2002	China	Engine
Tata Cummins Limited	2003	India	Engine
Cummins – Fuel Systems Plant	2003	USA	Components
Cummins Brazil Ltd.	2003	Brazil	Engine
Cummins – MidRange Engine Plant	2003	USA	Engine
Cummins Filtration – Lake Mills	2003	USA	Components
Cummins Filtration – Black River Falls	2003	USA	Components
Cummins – Corporate	2003	Worldwide	Corp
Cummins Filtration – Bloomer	2003	USA	Components
Cummins Filtration – Neillsville	2003	USA	Components
Cummins Turbo Tech. – Dewas	2004	India	Components
Cummins Filtration – Findlay	2004	USA	Components
Cummins Turbo Tech. – Wuxi	2004	China	Components
Consolidated Diesel Company	2004	USA	Engine
Cummins – Jamestown Engine Plant	2004	USA	Engine
Cummins Power Generation – Fridley	2004	USA	Power Gen
Diesel ReCon – Juárez/El Paso	2004	USA/Mexico	Engine
Cummins Generator Tech. – San Luis Potosi	2005	Mexico	Power Gen
Cummins Filtration – San Luis Potosi	2005	Mexico	Components
Diesel ReCon – Memphis	2005	USA	Engine
Cummins Power Generation – Kent	2005	UK	Power Gen
Cummins Filtration – Brazil	2006	Brazil	Components
Cummins Filtration – Cookeville	2006	USA	Components
Cummins – Columbus Engine Plant	2006	USA	Engine
Cummins Power Generation – Beijing	2007	China	Power Gen
Cummins Power Generation – Singapore	2007	Singapore	Power Gen
Cummins Generator Tech. India	2007	India	Power Gen
Cummins Generator Tech. Wuxi	2007	China	Power Gen
Cummins India Ltd.	2007	India	Engine
Cummins Sales and Service	2007	India	Distribution

Highlighted sites represent enterprise registrations

"I am honored to work at a company where success is defined by more than how much money the corporation makes."

Linda Shi

that facilitates implementation of a common health, safety and environmental management system (HSEMS) when new manufacturing locations are commissioned.

The two systems have now been successfully integrated at the corporate level, supported by the development of integrated audit protocols. These efforts are paving the way for the future development of a combined HSEMS enterprise.

Environmental Management System

The Enterprise EMS was first registered by an independent third-party registrar in 2004, when a total of four sites participated. In 2007, Cummins recertified the enterprise EMS for another three-year period. By the end of 2007, Cummins had 42 manufacturing facilities and the corporate entity registered to the ISO 14001 Standard.

Auditor Certification Program

The program was launched to support Cummins' efforts to develop more consistently robust auditing capabilities and develop employee functional excellence. Audit trainees are called on to participate with HSE Council leaders in site audits that are conducted to support new HSEMS registrations and satisfy Cummins' annual internal audit requirement. Through successful participation as a team member in several audits and a supervised event as a lead auditor, audit trainees themselves become certified as lead auditors.

Not only has this initiative bolstered subject matter expertise and reduced Cummins' dependence on contractors, it has substantially facilitated the sharing of best practices. Auditors observe first-hand the effective practices in place at the audited site and bring a fresh perspective to the auditee by sharing their own winning environmental management strategies. Lead auditors are recognized at Cummins annual HSE Awards Banquet. Selected auditors with both safety and environmental responsibilities and expertise are being certified within both disciplines to support the integration of these systems and the continued development of a HSEMS.

Environmental Objectives and Targets

Each year, the HSE Council sets objectives and targets for the organization to ensure the continual improvement of Cummins' environmental performance. The business units supplement these with initiatives of special importance and interest to their respective businesses. The Enterprise EMS is the mechanism for driving these improvements, which can take any form that supports the Company's efforts to address our environmental policy commitments. The Engine Business has reaped significant environmental benefits from their focus on paint reformulations. Also, all businesses were engaged in the work necessary to develop our greenhouse gas emissions (GHG) inventory and the setting of an emissions reduction goal as part of an overall objective to reduce our carbon footprint.

Sites worldwide have completed innovative environmental projects – such as reducing packaging waste, recycling solvents and coolants and capturing rain water for re-use. Recent objectives and targets have included

Cummins' joint venture with Westport Innovations Inc. has resulted in cutting-edge technologies that allow engines to operate on natural gas, hydrogen and hydrogen-enriched natural gas. About 1,500 C Gas Plus engines are in service in transit buses for major U.S. fleets, including this one in Tacoma, Washington.

Introducing the Next Generation of Clean, Natural Gas Engines

In June 2007 Cummins Westport introduced the next generation of heavy-duty natural gas engines, the ISL G. The ISL G includes a maintenance-free, three-way catalyst aftertreatment and Cummins proven exhaust gas recirculation, enabling it to meet Environmental protection Agency 2010 on-road NOx standards today. It also confirms Cummins Westport and Cummins as leaders in reliable, efficient power with the cleanest emissions.

Both Orange County and Sacramento California, Cummins Westport's biggest market, have already ordered the ISL G for use in transit applications.

"While we're at 2010 emissions today, the real traction for our product in the marketplace is the emerging economic benefits, and those are driven by the price differential of the fuel," said Gordon Excel, Vice President and General Manager, Americas. Available in ratings from 250 to 320 hp, the ISL G is also an ideal engine for refuse, street sweepers, medium-duty trucks and shuttle applications.

"Working for a winning organization and a company with outstanding financial performance like Cummins are significant factors in keeping employee morale high."

Tina DeMaio

improvements of the tools and processes that support collection and reporting of key environmental performance indicators, auditor training and other functional excellence initiatives. Addressing water conservation and emphasis on pollution prevention opportunities will continue to be focus areas as well.

Cummins Launches Energy Efficiency Initiative

To meet one of our key climate change objectives, a Cummins global Energy Efficiency Team conducted energy assessments at the largest Cummins' sites. They identified more than 500 capital projects alone at the first 15 sites in the United States. Information from these energy assessments was used to set an investment strategy and define an improvement approach based on energy-use categories. These categories, such as heating and cooling, capturing waste energy and improved lighting are driving improvements in our facilities.

Grassroots energy champions, working with the Energy Efficiency Team, also are engaging employees to initiate and participate in energy conservation projects.

For example, at the Consolidated Diesel Company, Cummins' joint venture in Rocky Mount, North Carolina, a project was launched to reduce the amount of electricity used by the plant's lighting. As a result, more than 800 standard lights were replaced with fluorescent T5 fixtures. This led to a reduction in electrical costs of 40 percent and a savings of 2.4 million kilowatt hours a year.

Manufacturing Operations

For perspective on our areas of environmental focus at the facility level, a general description of the manufacturing operations by business unit follows.

Cummins Engine: Within the Cummins Engine Business, manufacturing facilities employees conduct product design, research and development, engine manufacturing and engine and component reconditioning. Engine assembly facilities perform engine block and component machining, assembly, painting, alkaline bath parts washing and engine performance testing. Product design and engine testing are the primary operations in the research and development technical centers where production processes are limited.

Engine testing is conducted in stationary test stands or cells, where product performance information is measured as engines run at various duty cycles. Test cells also are used for certification testing to ensure products meet emissions requirements. Rebuild/ reconditioning facilities perform engine tear-down and reassembly, using alkaline parts washing processes.

Cummins Components:
The Components Group includes four separate business units; Cummins Filtration, Cummins Fuel Systems, Cummins Turbo Technologies and Cummins Emission Solutions. Facility operations primarily involve filtration and exhaust product design, research and development, filter and exhaust component assembly, and product distribution and warehousing. Key operations conducted among the Components Group divisions

include filter, fuel systems, turbocharger and exhaust component assembly, metal stamping, tube bending, component machining, welding, product assembly, painting and performance testing.

Cummins Power Generation: Cummins Power Generation Business facility operations primarily involve product design, research and development, alternator manufacturing, assembly of generator sets, switchgear and controls and product testing. Alternator manufacturing facilities perform component machining, lamination stamping, rotor and stator winding, resin impregnation and alternator assembly.

Assembly facilities perform housing fabrication, genset assembly, switchgear and controls assembly, painting, alkaline bath parts washing and genset performance testing. Product design and performance testing are conducted in the research and development technical centers. Genset testing is conducted in stationary test stands/cells, where product performance information is measured while gensets are run at various duty cycles. Test cells also are used for certification testing to ensure products meet emissions requirements.

Waste Streams

The primary waste streams generated at Cummins manufacturing facilities include waste paint and associated materials, paint and other filter media, wastewater sludge and filter cake, machine coolant, used oil and resins. Metals and metal parts that cannot be reconditioned for re-use in Cummins products are salvaged for off-site recycling, as are used oils. Other waste streams include filter media and resins. At most facilities, machine coolant is recycled until ineffective and ultimately added to the wastewater stream for pretreatment prior to discharge to public treatment works.

Environmental Performance Measures

Reporting Sites

Cummins has collected key environmental sustainability measures from our facilities for many years, focusing on operations with the greatest potential environmental impact. Performance measures were originally gathered and reported internally in an effort to identify environmental performance improvement opportunities. Data has subsequently been aggregated for inclusion in Cummins' Sustainability Report and other reporting initiatives.

Because of Cummins' participation in the EPA's Climate Leaders Program and its comprehensive GHG inventory scope requirements, the number of sites taking part in data gathering has broadened significantly. In 2008, all of Cummins-controlled sites worldwide will provide data for all applicable sustainability indicators irrespective of facility size and operational scope. For the purposes of this report, performance data have been compiled from two different data sets, which are indicated in the following sections of this report.

The full complement of sustainability metrics, including water use, recycled materials, commodities consumed and wastes, as well as fuels and electrical power usage and their associated direct and indirect emissions included herein were derived from manufacturing and large non-manufacturing sites. These include several large joint venture facilities that are not under Cummins' operational control. Fuels, electricity and other GHG sources and emissions were collected from all facilities, irrespective of size or function, where Cummins maintains operational control and therefore are in scope of our Climate Leaders GHG reduction commitment. The 2007 population of sites in scope of Climate Leaders is 233 facilities. Greenhouse gas and other fuel/energy related emissions from Cummins' unconsolidated joint venture businesses are not included in this report.

Materials

Category	2005	2006	2007
Materials Other Than Water			
Diesel Fuel/Fuel Oil (Gallons)	8,706,939	9,771,249	9,634,265
Natural Gas (Cubic Feet)	1,342,803,937	1,381,792,175	1,312,025,265
Propane (Cubic Feet)	13,869,356	15,848,347	16,630,595
Oil (Gallons)	1,686,505	2,403,690	2,323,739
Paint (Gallons)	293,802	501,743	460,860
Coolant (Gallons)	825,214	1,430,599	975,424
Solvent (Gallons)	99,250	160,759	219,593
Total Water Use			
Total Water Use (Gallons)	958,525,983	2,031,633,771	1,302,703,844
Significant Discharges to Water (Gallons)	770,551,878	1,805,807,888	1,121,493,491
Total Amount of Waste by Type			
Industrial Waste (Metric Tons)	2,074	2,698	2,543
General Refuse (Metric Tons)	10,351	13,619	14,136
Recycled Materials			
Iron (Metric Tons)	99,298	114,960	113,114
Aluminum (Metric Tons)	978	874	666
Copper & Brass (Metric Tons)	326	551	1,396
Cardboard (Metric Tons)	6,601	8,431	9,757
Paper (Metric Tons)	281	358	453
Wood (Metric Tons)	9,541	16,510	21,834
Plastic (Metric Tons)	255	398	735
Reused Liquid Waste (Gallons)	2,750,151	1,086,218	3,222,670
Number of Reporting Sites — Fuels	229	229	233
Number of Reporting Sites — All Other Metrics	38	54	75

Other Significant Direct Air Emissions

Category (Metric Tons)	2005	2006	2007
NOx	2,565	2,863	2,816
CO	566	631	620
PM10	172	193	190
VOC	791	2,537	848
Number of Reporting sites — NOx, CO and PM10	229	229	233
Number of Reporting sites— VOCs	38	53	75

Data for NOx, CO, PM and CO_2 for 2005 and 2006 were developed from the 229 sites reporting fuels and electricity for the GHG inventory. Totals for VOC for these same years are based on data from the manufacturing and larger non-manufacturing sites, of which, 38 reported in 2005 and 53 in 2006.

Emissions from diesel fuel used in product testing applications and No. 2 fuel oil, propane and natural gas used in boilers and furnaces were derived using EPA AP-42 Compilation of Air Pollutant Emission Factors, 1996.

AP-42 emissions conversions used for large diesel engines are based on obsolete technology, so emissions data is overstated.

Materials

Cummins' materials data collection includes process compounds commonly used in the Company's manufacturing processes. In addition, quarterly data is reported and compiled for wastes, recycled materials, utilities and other key measures.

Cummins has increased the population of facilities reporting sustainability metrics substantially over the last several years. The population of reporting sites in 2006 represents essentially all of the most significant manufacturing and non-manufacturing operations in the company. In 2008 and beyond, all controlled sites will systematically report all metrics, which will simplify data trend analysis.

An additional 16 facilities reported data in 2006 versus 2005. The substantially larger data set, better measurement processes and continued company growth are collectively responsible for the increases for all metrics in 2006. Reductions in diesel and natural gas were experienced in 2007 as compared to the prior year, as well as for oil, paint and coolant. These measures are likely due in part to reduction in engine production volumes over the same timeframe. Natural gas use is tied closely to weather and may be in part explained due to overall milder winter temperatures in the regions in which Cummins operates. Increases in quantities of recycled materials generally reflect improvements in supporting processes worldwide.

Totals for recycled paper, plastic and wood are understated because at several locations load weights are unavailable. Significant discharges to water also are estimated because these are not directly measured at all worldwide locations.

Re-used liquid wastes represent estimated quantities of industrial process wastes reclaimed for re-use or otherwise returned to process as feedstock in cement kilns or blended fuels. These include oil, coolants, solvents and thinners and residual fluids primarily from painting processes.

Energy and Fuels/Greenhouse Gas Emissions

Category	2005	2006	2007
Direct (Gigajoules)			
Fuel Oil/Diesel	1,258,524	1,412,362	1,392,562
Natural Gas	1,487,520	1,540,257	1,453,473
Propane	36,401	41,595	43,648
Indirect			
Electricity (Gigajoules)	2,599,207	2,623,729	2,727,567
Electricity (KwH)	722,001,873	728, 813, 588	757,657,400

The above table lists direct and indirect energy consumption calculated on the basis of use of fuels and electricity over the reporting timeframe.

Greenhouse Gas List

Cummins' inventory includes CO_2, CH_4, N_2O emissions from electricity and fuel consumption, HFC emissions from refrigerant use, and CO_2 and SF_6 emissions from manufacturing process use. Cummins has no emissions of PFCs.

Direct Emission Sources

Direct Sources

Electricity use is the most significant source of GHG emissions associated with Cummins' operations. In addition, as an organization that manufactures and assembles diesel engines and related components, a substantial portion of Cummins' overall GHG emissions are a direct result of the engine testing operations related to production and research and development. Many of the Cummins facilities in the various businesses employ processes that use natural gas-fired or electric industrial ovens or other heat treatments and related processes.

The Energy Solutions Business (ESB) is a business of Cummins Power Generation that sells the natural gas and biogas-fueled generator sets as well as cogeneration and other power plant equipment. ESB commercializes these sets through sales, design and construction of turnkey power plant solutions and, in some cases, operates the plant after construction and maintains some equity ownership in the project.

Cummins measures the fuel consumption and emissions in support of the Climate

Direct Emission Sources

Emissions Type	Emissions Sources
Stationary Combustion Sources	• Industrial Boilers (Natural Gas and Diesel Fuel) • Industrial Furnaces (Natural Gas and Electric) • Engine Test Cells (Natural Gas, Diesel Fuel, Gasoline and Propane) • Generator Sets (Diesel Fuel) • Process ovens/heating units (Natural Gas and Electric) • Electricity generating systems at customer sites
Mobile Sources	• Company owned/leased vehicles (Diesel Fuel and Gasoline) • Forklift Vehicles (Propane and Diesel Fuel) • Corporate Aviation (Jet Fuel)
Process / Fugitive Emissions	• Manufacturing process – SF_6 • Welding operations – CO_2 • Air conditioning equipment – HFCs

This table identifies the sources of direct GHG emissions that are associated with Cummins' manufacturing, assembly and distribution operations.

Leaders initiative where the Company manages the complete operations and maintenance services.

Historically, fugitive GHG emissions were generated at the Findlay, Ohio facility through the process of injection of sulfur hexafluoride (SF_6) into sealed gas bags, which were sold as product. This process was discontinued in mid-2008. Other fugitive emissions are associated with use of CO_2 gas as a welding shield systems and refrigerant loss typical through use of heating, ventilation and air-conditioning systems.

Indirect Sources

The inventory includes consumption of electricity, which is used by all facilities. It also includes purchased steam consumption from one facility in China and purchased hot water consumption from one facility in Romania.

Greenhouse Gas Emissions Calculations

Indirect emissions calculations from electricity use take into account the carbon intensity of the fuel and technology used to generate the power. A determination of the electricity emissions in the U.S. was made using emission factors from the EPA eGRID emissions database. All other greenhouse gas emissions are calculated using emission quantification methodologies taken from the Climate Leaders Greenhouse Gas Inventory Protocol: Core Module Guidance documents for the appropriate emissions sources. These factors are kept up to date by reviewing any revisions to Climate Leaders guidance documents.

U.S. and Non U.S. Greenhouse Gas Emissions Inventory – CO_2-eq. (metric tons)

U.S. Emissions	2005	2006	2007
Direct Emissions			
Stationary Combustion Sources	108,455	114,775	104,395
Mobile Combustion Sources*	7,868	9,115	9,160
Process / Fugitive	117,353	127,594	161,978
Total Direct Emissions	**233,676**	**251,483**	**275,533**
Indirect Emissions			
Purchased and Used Electricity	348,280	346,399	354,379
Total Indirect Emissions	**348,280**	**346,399**	**354,379**
Direct + Indirect			
Total U.S. Emissions	**581,956**	**597,882**	**629,911**

Non U.S. Emissions	2005	2006	2007
Direct Emissions			
Stationary Combustion Sources	55,836	62,805	68,105
Mobile Combustion Sources*	14,557	14,557	14,693
Process / Fugitive	2,514	2,595	3,129
Total Direct Emissions	**72,907**	**79,956**	**85,927**
Indirect Emissions			
Purchased and Used Electricity	99,243	101,389	116,614
Purchased and Used Steam*	65	65	65
Purchased and Used Hot Water*	531	531	531
Total Indirect Emissions	**99,839**	**101,985**	**117,210**
Total Non-U.S. Emissions	**172,746**	**181,941**	**203,138**

Total U.S. and Non-U.S. Emissions	2005	2006	2007
Direct Emissions			
Stationary Combustion Sources	164,291	177,580	172,500
Mobile Combustion Sources*	22,425	23,672	23,853
Process / Fugitive	119,867	130,188	165,108
Total Direct Emissions	**306, 583**	**331,440**	**361,461**
Indirect Emissions			
Purchased and Used Electricity	447,523	447,787	470,992
Purchased and Used Steam*	65	65	65
Purchased and Used Hot Water*	531	531	531
Total Indirect Emissions	**448,119**	**448,383**	**471,588**
Total Worldwide Emissions	**754,701**	**779,823**	**833,049**

* Estimates

Significant emissions reductions have been accomplished at Cummins through increased efficiencies resulting from Six Sigma projects.

Total GHG Emissions in Metric Tons CO_2e

Emissions Source	2005	2006	2007
Electricity	447,523	447,787	470,992
Stationary combustion	164,291	177,580	172,500
Fugitive SF6, CO2	114,426	124,638	159,080
Mobile sources, other	28,462	29,818	30,477
Total	**754,701**	**779,823**	**833,049**

Ozone Depleting Substances

In 1995, Cummins implemented a policy that stationary equipment using chlorofluorocarbons (CFCs) would no longer be purchased by Cummins. Equipment already in place would be considered for conversion or replacement depending on its age and repair costs. As a result of this policy, Cummins has replaced an estimated 60 percent of its equipment containing ozone-depleting substances.

Interactions with Regulatory Agencies

Cummins Filtration – Lake Mills

On June 20, 2006, the U.S. Environmental Protection Agency (EPA) inspected the Cummins Filtration facility in Lake Mills, Iowa. As a result of the inspection, the EPA issued a Notice of Preliminary Findings (NOPFs) that included the following details:

- Failure to mark used oil piping with the words "used oil";
- Failure to ensure containers of hazardous waste remained closed;
- Failure to manage universal waste in closed containers.

The facility implemented the necessary corrective measures and submitted evidence of those measures to the Environmental Protection Agency. No monetary penalties were imposed.

Cummins Filtration – Cookeville

On September 13, 2006, the Tennessee Division of Solid Waste Management conducted a compliance evaluation at the Cummins Filtration facility in Cookeville, Tennessee. As a result of the inspection, a Notice of Violation (NOV) was received by the plant on October 6, 2006, for failing to manage the frames from the silk screen printing

"We view our vendors and suppliers as partners, and we understand that their success will help us achieve our goals."

Rachel Quisenberry

process as a hazardous waste. Immediately following the September 13, 2006, inspection, Cummins Filtration implemented all of the necessary corrective measures. On March 9, 2007, Cummins Filtration paid $1,258.88 in damages and $9,100.00 in Civil Penalties to the State of Tennessee.

Cummins Filtration – Cookeville

On June 13, 2007, the Cummins Filtration facility in Cookeville, Tennessee received a NOV letter from the Tennessee Department of Environment and Conservation, that was related to the failure of the facility to submit a Title V Semi-Annual report within sixty days of the June 30, 2006, due date. Cummins Filtration immediately implemented the necessary corrective measures and no further action was taken by the State of Tennessee.

Cummins Inc. – Olympic Testing Facility

On November 9, 2006, the Indiana Department of Environmental Management (IDEM) issued a NOV letter stating they had not received the Title V Annual Compliance Certification Report due from the facility on July 1, 2006. Although Cummins had mailed the report via certified mail in March of 2006, IDEM was unable to locate the report and Cummins was unable to produce the receipt. As a result, Cummins was ordered to pay a fine of $2,750.00, which was received by IDEM on January 8, 2007.

Environmental Clean-Up Efforts

Cummins has also been identified as a PRP at 17 waste disposal sites under federal and state environmental statutes, three of which we expect could result in expenditures in excess of $100,000 or more based upon our estimated proportional volume of waste disposed at these sites.

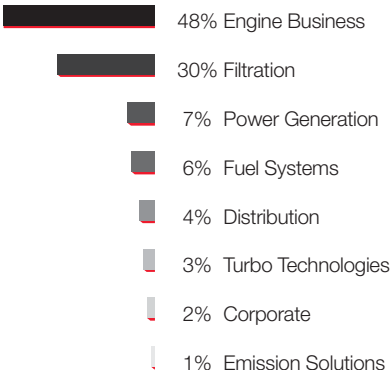
These sites and our estimated exposure are as follows: the Operating Industries, Inc. Site in Monterey Park, California ($211,000), the Casmalia Site in Santa Barbara, California ($150,000) and the Double Eagle Refinery Site in Oklahoma City, Oklahoma ($100,000).

Finally, Cummins has environmental remediation projects ongoing under the auspices of local regulatory agencies at our plant in Brazil; our plant in Memphis, Tennessee, and a former facility in Canton, South Dakota; and at one of our plants in the United Kingdom. The cost of each of these projects may exceed $100,000. Cummins does not believe that the aggregate liability for resolution of the Superfund Sites or the plant remediation projects will be material for 2008.

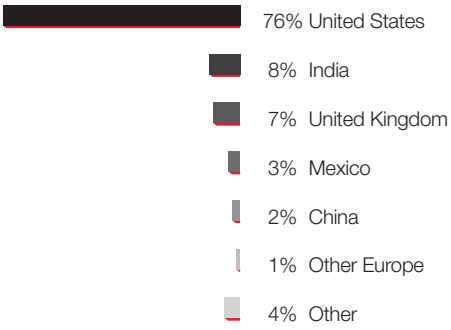
Cummins MidRange Engine Plant Recognized for Environmental Leadership

IDEM recently recognized Cummins Columbus Midrange Engine Plant (CMEP) for its commitment to minimizing environmental impacts. In a ceremony at the plant in April, 2008. IDEM Commissioner Thomas W. Easterly

2007 GHG Emissions by Business Unit



2007 GHG Emissions by Country



These charts illustrate the relative share of 2007 emissions by business unit and by country.

and Assistant Commissioner Rick Bossingham announced Cummins' acceptance into of Indiana's Environmental Stewardship Program (ESP). Engine Business President Jim Kelly, CMEP Plant Manager Andy Cesarksi and the CMEP environmental team were on hand to receive the award.

IDEM invited Cummins to join ESP because of the Company's compliance record, implemented environmental management system and its commitment to continual improvement in the environmental arena. CMEP's successful reduction of volatile organic compound emissions resulting from the substitution of a solvent-based paint to a water-based paint for the engines it produces was highlighted.

"Cummins Columbus MidRange Engine Plant has earned its place as a new ESP member," said Easterly. "Indiana wins when companies like Cummins use sound business practices to demonstrate their core value of environmental protection."

ESP is a voluntary, performance based leadership program designed to recognize and reward Indiana regulated entities for going above and beyond current environmental regulations. Regulatory flexibility incentives earned by members are designed to provide business value, reduce regulatory oversight, allow a shift in resources from compliance driven to achieving results and provide the member with increased operational flexibility.

The Columbus Engine Plant and the Columbus Fuel Systems Plant have also been accepted into the Indiana ESP.

Normalized GHG Emissions Goal Tracking

2005 to 2007 Greenhouse Gas Emissions, Normalized to Revenue

	2005	2006	2007	2005-2007 % change
Total emissions (metric tons CO_2-equivalent)	754,701	779,823	833,049	10.4%
Gross revenue ($ millions)	$9,917.80	$11,362.40	$13,048.00	31.6%
Inflation-adjusted Revenue (constant 2005 $ millions)	$9,917.80	$10,935.90	$12,157.50	22.6%
Normalized Emissions (tCO_2e per 2005 $ millions)	76.10	71.31	68.52	-10.0%

Greenhouse gas emissions increased by 6.8% from 2006 to 2007 and 10.4% as compared to the base year 2005. Sales increased 15% year over year over the same timeframe — equating to an overall increase in sales of 31.6%. After an adjustment for inflation to 2005 dollars, Cummins has achieved a normalized reduction of 10% over the timeframe.

Operational Methods that Improve Energy Use

Continual Improvement and Six Sigma

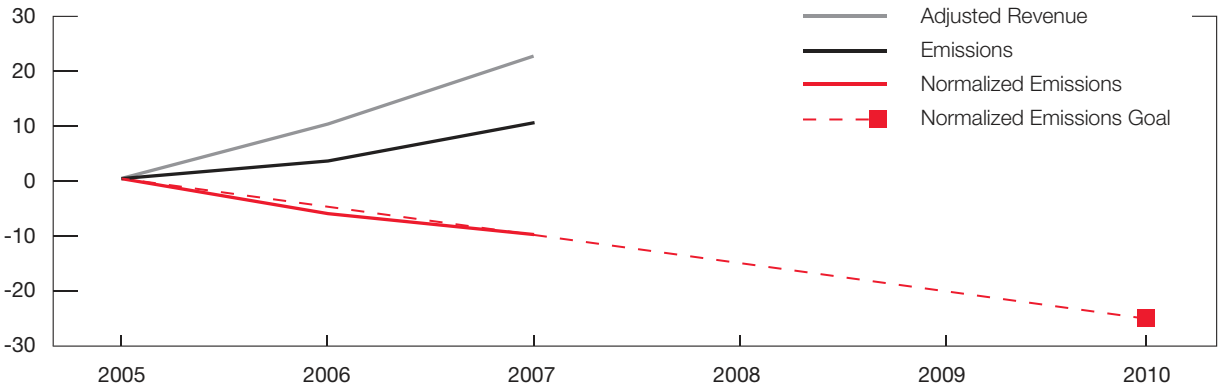
Six Sigma is the key problem-solving tool used by Cummins for environmental improvement projects. From a facilities perspective, Cummins has implemented a number of projects to address sustainability issues, including natural resource conservation and pollution prevention. Both of these have been a continual improvement focus at Cummins for several years.

A good example of our Six Sigma efforts includes the work Cummins Filtration did with paint suppliers to reformulate coatings applied to exhaust products to significantly reduce the metals content. Successful reformulations were developed, which met product quality requirements and resulted in a more environmentally-friendly coating. As a result of the largely metal-free formulation, hazardous wastes generated at six Wisconsin exhaust component manufacturing plants were reduced by 70 percent. In addition, each of the six participating plants reduced their hazardous waste generator status from large quantity to that of a small quantity generator.

Analysis-Led Design

In analysis-led design, computer simulations replace traditional hardware testing, which involves building and testing many expensive prototypes. Instead, a “virtual engine” is built and then tested in a computer simulation that allows us to look at more designs in a shorter time.

Normalized GHG Emissions Change from 2005 to 2007 (%)



This graph depicts Cummins' progress against its stated reduction goal of 25% normalized to sales, and shows that the Company is on the path to achieving its goal. This goal tracking graph will be updated and revisited as the Company implements the many energy efficiency projects that have been identified.

Using analysis-led design on our recent product launches has allowed us to increase the number of analysis hours by as much as 200 percent, while cutting total program costs by more than 20 percent. In one engine family alone, more than 10,000 hours of testing was avoided – along with the prototypes that go along with it.

The process yields better designs faster, at a lower cost and with substantial reductions in test cell time and the fuel use and its associated emissions.

Verification of Manufacturing Quality

Engine attribute testing requirements have been reduced on certain product lines because in-process verification allows the identification of potential problems upstream of the test cell process. This product quality initiative promotes the concept of "Right First Time," a more effective means of testing a component and engine system, with an associated environmental benefit.

Energy Conservation and Cost Containment at Cummins Facilities

Cummins' energy costs are increasing, although we try to minimize the financial impact of these increases by informed and competitive buying strategies in areas where we have manufacturing operations.

Cummins' consumption of fossil fuels and electric power represented significantly less than 1 percent of sales in 2005 and in 2006. With the forward contract purchases of utilities in selected regions, we are able to postpone or lessen the impact of rising energy costs on our facilities worldwide.

In early 2006, Cummins' European Operations contracted for delivery of 63 million kWh of electricity, generated from 'Good Quality Combined Heat and Power' (GQCHP), which was delivered in the fall of 2006 for one year. This represented 97 percent of Cummins' U.K. requirements for the contract year.

GQCHP is the simultaneous generation of electricity and useful heat from a single fuel source, and is a generation technology that significantly reduces carbon dioxide emissions to the atmosphere. It is recognized as a 'green' generation source by the U.K. government and, as such, is exempted from the U.K. Government's 'Climate Change Levy' charge.

Electrical power procured for U.K. manufacturing sites for a year-long contract beginning in October 2007 not only allowed for cost reductions of 31 percent, but with an added bonus of 100 percent 'true green' power sources. The technologies that provide the power yield zero GHG emissions.

Cummins' suppliers of zero emissions power include the following technologies:

- 1300MW of "Run of the River" hydro-electric power from the North of Scotland
- 238MW from wind farms
- Tidal power under trial in Orkney, Scotland
- Biomass fueling of thermal power

The environmentally-friendly U.K. power purchase in 2007 will have saved an estimated 27,000 metric tons of CO_2 emissions associated with Cummins' U.K. operations.

In addition, electricity for Cummins' operations in Mechelen, Belgium includes 1.005MW of 100 percent Norwegian hydro power procured at a competitive price. This power source also yields zero GHG emissions.

And, once again, power generation capability at two of our U.K. sites allowed us to sell some excess energy back into the U.K. distribution network, although on a lesser scale than in previous years.

Natural gas procurement for all U.K. sites from mid-year 2007 to 2008 allowed for cost reductions at all entities with an average savings of 41.5 percent.

The outlook for 2008/2009 for both electricity and natural gas is not very optimistic, with significant increases in cost anticipated across Europe.

The User-Friendly Filter: A Sustainability Success Story Follow-Up

In our previous Sustainability Report, we featured the new User-Friendly Filter. Its success is continuing to grow.

At the 2007 Technology and Maintenance Council (TMC) meeting in Tampa, Fla., the Technical Writers of North America (TWNA) recognized Cummins Filtration's Fleetguard user-friendly line of fuel and oil filters as the top Technical Achievement for 2006.

Among an impressive group of finalists, the Fleetguard user-friendly filters were the unanimous choice of the selection committee for the achievement award. The selection committee said the Fleetguard filter was "a shining example that innovation is everywhere."

Other awards received by Cummins Filtration for the user-friendly filters are Equipment World's Top 5 Most Innovative Products, Heavy Duty Trucking's Nifty Fifty Award and Construction News' Top 100 Award.

The filter has significantly less environmental impact than a steel filter; requiring a third less in material cost and presenting unprecedented design serviceability for customers, including ribbed "grips" for easy installation.

In 2007, Cummins replaced 650,000 filters with user-friendly filters, saving 350 gallons of paint annually and an associated reduction in volatile organic compounds emissions (VOCs) of 1,250 pounds.

In addition, the reformulated paper filter media for this product line, with the "no cure" plant process, further reduced VOCs by an additional 4,500 pounds. Finally, eliminating plastisol adhesive in approximately 1.1 million plastic and metal filters has reduced another 1,200 pounds of VOCs.

Safety

Our goal is to make Cummins a best-in-class company when it comes to safety.

Providing a Safe Working Environment

By many measures, Cummins does a good job of providing clean, safe and healthy workplaces for its employees. For example, the company-wide incidence rate in 2007 was 1.26 – better than the target of 2.0 and significantly better than our industry average. We had 30 sites go the entire year without a single reportable incident. Likewise, a severity rate of 0.58 was below the target of 1.0, while lost work days rate was just a bit above target.

These are positive signs that Cummins takes this issue seriously and is doing many of the right things. Still, we had too many major safety incidents in 2007 – including two deaths and a serious injury late in the year. Even a single major safety incident is one too many, and obviously a work-related death in our facilities is simply intolerable.

The majority of those incidents can be directly traced to a lack of standard operating procedures in facilities or failure to enforce safety procedures, followed by workers being injured as a result of poor quality equipment.

The most severe injuries have occurred when workers were performing non-routine work on manufacturing equipment without first following the necessary Lock Out, Tag Out procedures. Additionally, analysis has shown that contract workers in our facilities are less informed and less trained on our safety practices, resulting in a greater risk of injury to those workers.

In addition to some specific actions aimed at improving safety in our China facilities, which suffered two fatalities late in 2007, Cummins will be implementing a number of actions and process changes across the Company. These changes are aimed at better educating our employees on key safety practices, identifying and implementing best

practices and uncovering gaps in our safety efforts – and then closing them as quickly as possible.

They include:

- Implementing standard Lock Out, Tag Out procedures worldwide
- Improving safety training for contract workers
- Improving materials handling practices
- Implementing a leadership safety and awareness and accountability program
- Implementing a driver safety program

In addition, we will strengthen our reporting and auditing processes around safety, provide clearer safety policies at our JV operations and recommit to our zero tolerance policy for safety violations.

As part of this effort, we also are tightening our safety targets companywide. The new targets will be: Incidence rate – 1.0 (vs. 2.0 in 2007); Severity case rate – 0.5 (vs. 1.0); Severity lost work days rate – 6.0 (vs. 8.0).

Our goal is to make Cummins a best-in-class company when it comes to safety.

Safety Management System

The Cummins Safety System is one way Cummins can ensure safety programs like those mentioned above become ingrained as a way of working, managing and operating at Cummins. Cummins Safety System is based on the Occupational Health and Safety Assessment Series (OHSAS) 18001 specification, an international occupational health and safety management system. The purpose of the specification is to enable the organization to control its occupational health and safety risks and improve its safety performance. Registration of the Corporate

"The safety and well-being of our employees is a primary concern of Cummins, and we are renewing our efforts to enhance performance in this critical area."

Karl Mindeman

and three site systems meeting the OHSAS 18001 specification was completed in 2007, with aggressive growth planned in 2008.

The following sites have been successfully registered to the OHSAS 18001 specification:

- Cummins Filtration, Viroqua
- Cummins Parts and Service, SLP, Mexico
- Cummins Generator Technologies, SLP, Mexico

Cummins Safety System (CSS Audits)

The CSS Audit is based on the 10 Cummins Operating System statements, and defines within its eight criteria statements the minimum safety requirements for the Company. Audit scores enable Cummins facilities globally to benchmark themselves against each other and against the Company's standards. Sites whose previous year performance did not meet the Incidence Rate (iR) and SLWR targets are required to participate in the CSS Audit program.

CSS Audits are conducted in three phases:

Pre-Audit: A pre-audit is performed to identify the gaps between current site practices and the system requirements. The pre-audit is conducted three to six months before the formal audit.

Formal Audit: A formal audit is conducted with the participation of corporate lead auditors, to determine level of conformance to CSS criteria. The site must have participated at least in the formal audit stage to be eligible for the Company's internal Health and Safety recognition program.

Verification Audit: A verification audit is performed following the formal audit when the site needs to demonstrate safety system performance has been maintained or improved.

Safety and Environmental Awards

In order to recognize outstanding performance, the Health, Safety and Environmental Council presents awards to those Cummins entities that best demonstrated excellence in one or both of these areas. Through their efforts, these sites are instrumental in helping Cummins meet the commitments of the Company's Vision and Mission. The Council evaluated the performance of each entity, using the following criteria:

- Benefit to environment and safety
- Level of management and employee commitment
- Economic efficiency
- Innovation
- Ability to serve as a model for use by others

The environmental awards focus on projects and initiatives that promote sustainability, emissions reductions and the conservation of natural resources. Bonus points are awarded for site recognition in government and non-governmental organizations' environmental stewardship programs.

Entities are recognized at four distinct levels; Chairman, Business Unit/HSE Council, Director and Best Practice. The HSE Council also honored several individuals, including facility HSE leaders and plant managers, for their personal commitment and efforts to improve safety and environmental performance.

Mark Dhennin (second from left) was honored in 2007 for his safety leadership in the Power Generation business. Over the last two years, Power Generation's overall safety incident rate, lost day's rate and severity case rate have improved by 20-40 percent.

Fridley's Safety Secrets

Fridley, Minnesota serves as headquarters for Cummins Power Generation and as a manufacturing center for Cummins generator sets and electronic controls. In 2007, the Fridley plant reached a new goal of more than 2 million work hours without a lost time injury.

An ever-evolving safety program at Fridley has resulted in a steady decline in safety incidents over the past six years. The secret stems from two simple, but effective practices.

First, "near-hit" reviews have become a standard practice. While every recordable injury is investigated, far more common is the "near-hit" review. A near-hit includes a condition or act that could have resulted in injury or property damage. Any employee may report a near-hit to the Safety department. The number of near-hit reviews has outnumbered recordable reviews by more than 6-to-1 over the past few months, resulting in a wide range of proactive fixes.

The second practice is the weekly safety orientation that details available plant safety resources, safety practices and a review of facility standards and expectations. A scan of recordable injury data revealed that more than one third of Fridley's recordable injuries involved new employees or those who had recently moved to a different department. Safety orientation now occurs every Monday and is attended by all new hires and contingent employees before they even step into their departments.

To recognize achievements in areas where Cummins has widened its environmental focus, we have now established awards for the following categories:

- Design for Environment
- Chairman's Awards for Energy Efficiency
- Chairman's Award for Green Building

The Jamestown, New York Engine Plant was awarded the Chairman's Award for Environment in 2006. JEP was selected for this award based on a three-year project to switch the eight colors of production paint used at the plant from solvent-based paint to water-borne paint. The project began as a Six Sigma effort, integrating a product quality enhancement with an environmental management system focus on reduction of emissions of volatile organic compounds. This product change resulted in:

- 56 percent reduction of VOCs emitted per engine
- 77 percent decrease in hazardous waste per engine, and
- Eliminated the use of toluene solvent, avoiding 42 tons of volatile emissions while saving the Company more than $300,000 in 2006.

This is another fine project that underscores the concept that the work we do to decrease our environmental impact is also good for the bottom line.

Another Chairman's Awards winner for environment is the Columbus Engine Plant. The plant is currently undergoing substantial renovations to prepare for the installation of the Light-Duty Diesel Engine assembly operations. The CEP environmental management team took recycling to another level by diverting demolition wastes from the landfill.

Among the would-be wastes was demolished concrete, which was re-used as rip-rap in a Bartholomew County, Indiana erosion control project. A total of 15,588 tons of rubble in 870 tri-axle truck loads were re-used on the project. Office equipment and supplies, from projectors to staplers, were donated to the United Way and the "Little Red Schoolhouse Too" program, the latter serving as a resource for area teachers to obtain school supplies at no cost. In addition, lumber collected from demolition activities and shipping containers was either given to project contractors for re-use or donated to the City of Columbus, which chipped the material for re-use as landscaping mulch.

The environment award winners were:

Chairman

- Jamestown Engine Plant
- Columbus Engine Plant

Business Unit/HSE Council

- Cummins Turbo Technologies, Huddersfield
- Columbus MidRange Engine Plant
- Cummins Fuel Systems Plant, Columbus
- Cummins Power Generation, Stamford

Director

- Cummins Turbo Technologies Limited, India
- Emission Solutions, Mineral Point
- Cummins Power Generation, Fridley
- Daventry Engine Plant

Cummins has partnered with Cardiac Science to install automated external defibrillators and train responders at plants and other facilities.

Lifesaving Cardiac Care Equipment On Site

On January 16, 2007, Sy Rooney, a 39-year employee working at Cummins' Fridley, Minnesota facility, was assembling switchgear in the Systems Department.

"The last thing I remember," he said, "was feeling very weak and short of breath, so I sat down." Sy suddenly collapsed, a victim of cardiac arrest. More than 300,000 persons die each year from sudden cardiac arrest in the U.S. alone. Restoring circulation as fast as possible improves one's chances of survival.

Sy's co-workers immediately began cardiopulmonary resuscitation and called for the plant's emergency response team. First responders quickly arrived, followed by the plant's emergency medical technician, equipped with an automated external defibrillator (AED).

Cummins had partnered with Cardiac Science to install AEDs and train responders at all global manufacturing plants, research facilities, and any other sites with 100 employees or more. (By the end of 2008, all facilities with 10 employees or more will be so equipped.)

Sy's condition by now was critical—unconscious, no breathing and no pulse; his face blue in color. So the EMT immediately applied the AED electrodes; the instrument automatically analyzed Sy's condition and delivered a life-saving shock.

Five weeks after the incident, Sy was back at his normal job. "Now I take the world day by day ... I didn't even know we had AEDs, but they saved my life," he said. "How can you put a price on that?"

"Creating a great place to work is not only one of Cummins' strategic business principles, it's at the core of the Company's future business success."

Andrea Litz

Best Practice

- Columbus MidRange Engine Plant

Design For Environment

- Filtration Business Design Team: "User Friendly Filter Project"

Chairman's Award for Green Building

- Cummins Generator Technologies, India

Chairman's Award for Energy Efficiency

- Cummins Mexico Components Plant

Cummins Health and Safety Recognition Program

Sites are eligible for Health and Safety recognition at three performance levels; Chairman's Award, Business Unit (BU) Award and Director's Award. In addition, awards are given by the business units in recognition of best practices the sites have implemented.

The Corporate Health and Safety 2007 Recognition is based upon the following performance criteria:

Chairman's Award: To be eligible for this award, a site must achieve an IR of 0.0 to 0.5 and a minimum CSS Formal or Verification Audit level 3, with 95 points.

Business Unit Award: To be eligible for this award, a site must achieve an IR of 0.6 to 1.0 and a minimum CSS Formal or Verification Audit level 3, with 85 points. The site may not win this award in successive years, as we strive for improvements.

Director's Award: To be eligible for this award, a site must achieve the corporate health and safety targets: IR less than 2.0 and a minimum CSS Formal or Verification Audit level 3, with 70 points. The site may not win this award in successive years.

The Health and Safety Performance Award winners for 2007 are:

No sites qualified for Chairman's Award or HSE Council's Award for safety in 2007.

Director

- Columbus MidRange Engine Plant
- Cummins Filtration, Neillsville
- Consolidated Diesel Co.
- Cummins Generator Technologies, Brazil
- Cummins Turbo Technologies, Brazil
- Cummins Turbo Technologies
- Jamestown Engine Plant
- Parts and Service Memphis Plant
- Cummins Power Generation, Fridley
- Tata Cummins Limited

Best Practice

- Cummins Filtration South Africa
- Cummins South Pacific
- Fuel Systems Plant Juarez
- Cummins Power Generation, Brazil
- Parts and Service San Luis Potosi

Cummins Pilots Ray Rising (left) and Chris Raskob review a preflight safety checklist.

Aviation Safety

Cummins Corporate Aviation Department has achieved the International Standard Business Aviation Operations (IS-BAO) registration, an accomplishment that means the Company met the rigorous safety standards of the global organization.

The IS-BAO registration was introduced by the International Business Aviation Council, an association of corporate aviation departments, to promote the highest safety standards in the industry. Dozens of corporations, from Coca-Cola to Cardinal Health, have met the standards.

Achieving the registration required Cummins to revise the flight operations manual, document procedures and incidents, and make some other changes to promote safety. For example, the door from the hangar to the lobby is now locked, preventing late passengers from running onto the runway to catch a flight, and passengers are asked to show their IDs before boarding.

Safety has always been a priority for Corporate Aviation. But to meet the IS-BAO standards the department underwent an audit that revealed areas for improvement.

Corporate Aviation has 14 pilots, flies four aircraft – including three eight-passenger planes and one 19-passenger shuttle – flies 18-24 flights per week and ferries 130-140 passengers each week.

"Every person must be treated with dignity and respect, and be provided fair pay and benefits for the work they do…"

Treating Others with Dignity and Respect

"We have a far better chance of attracting and retaining the best talent available if we create a work environment that encourages talented people to join us and, once here, to contribute to their full potential. To do so means that every person must be treated with dignity and respect, and be provided fair pay and benefits for the work they do…"

Tim Solso
Cummins Chairman and CEO

"In the search for character and commitment, we must rid ourselves of our inherited, even cherished, biases and prejudices … When we indulge ourselves in such irrational prejudices, we damage ourselves most of all and ultimately assure ourselves of failure in competition with those more open and less biased."

J. Irwin Miller
Former Cummins Chairman and CEO

The words of two Cummins chairmen – spoken years apart – demonstrate that Cummins' commitment to diversity has not wavered with the passage of time or a change in leadership. At Cummins — which does business around the world — the message is powerful:

From a business perspective, the Company believes that successfully managing diversity strengthens relationships with an increasingly diverse customer base. Beyond that, a diverse work force – in terms of race, ethnicity, age, gender, sexual orientation and educational background – ensures a variety of perspectives to best address the Company's business needs. Cummins' diversity initiatives include the following:

- All employees complete a comprehensive diversity training program designed exclusively for Cummins. Second generation (advanced diversity management topics) training is a mandatory part of career development for leaders.
- In all, 48 Local Diversity Councils (LDCs) have been created to address diversity issues in the communities in which Cummins does business. In addition, the LDCs focus on recruiting, retention and cultural differences in the workplace. Affinity groups, or employee resource groups, have been instrumental in Cummins' diversity journey. Currently, we have affinity groups for African and African- Americans, Asians, Chinese, Latino, new hires and lesbian, gay, bisexual and transgender employees.
- Cummins' long-standing commitment to use qualified minority-owned suppliers has yielded good results in recent years. In 2006, Cummins spent $298.8 million with small business and minority-owned suppliers. In 2007, Cummins spent $453.8 million with small business and minority-owned suppliers.

"Being a successful company means that we have to embrace diverse cultures, and attract the most talented employees regardless of where they live."

Deborah Jones

- Cummins offers health care and other benefits to non-spousal domestic partners. In making these benefits available to employee life partners, Cummins recognizes that it must provide attractive and flexible programs to all employees.

- Cummins has received a perfect score on the Human Rights Campaign's Corporate Equality Index every year since 2005.

- Cummins has won the prestigious Australian Government Business Achievement Award for the advancement of women in the workplace. Cummins was also a finalist for the Outstanding Initiative/ Result for the Advancement of Women, presented by Australian government's Equal Opportunity for Women in the Workplace Agency.

- Cummins Parts and Service is participating in a university program in which students intern locally and at our international remanufacturing locations. This program helps increase cultural awareness and diversity appreciation, and enables the next generation workforce to function effectively in our increasingly global enterprise.

- Cummins India Foundation (CIF) and Cummins College of Engineering for Women (CCEW) recently launched a four-year Mechanical Engineering Division, which opened in August 2007 with 60 students in Pune, India. CCEW was established in 1991 as the result of a significant contribution from CIF. It was the first college of engineering for women in India and is the first to offer a mechanical engineering major to aspiring women engineers.

Cummins' concept of diversity in the workplace has two parts. The first is creating a diverse workplace in terms of the representation of people from many different backgrounds. The second is creating an environment that manages people's differences effectively and, in doing so, inspires innovative ideas and solutions. Making sure that everyone has a voice can lead to creative solutions that address real-time problems.

The Company relies on the insight that comes from a diverse workforce to enter new markets and geographies. The Company depends on the varied talents of its people, systems and organizational knowledge to solve complex problems, reduce costs, and create differentiated products and services that delight customers.

Diversity provides Cummins with a competitive advantage in the following areas:

New markets and new businesses: Sales in markets outside of the United States currently are growing faster than in the U.S. Nearly all world growth to 2050 is projected to occur in Africa, Asia and Latin America. The best way to grow into new businesses and more geographic regions is to have employees who understand the culture or are part of it.

Customer requirements: Purchasing materials and services from a diverse supply base puts Cummins in a position to take advantage of all opportunities to be the low-cost producer. Cummins' customers demand we create economic opportunity for all parts of society, especially those under-represented in today's economy.

Changing demographics: Successful companies understand how the world's population is being transformed by immigration and changing birthrates. The population of Latinos, people of African

Cummins employees serve as volunteers as the annual Indiana Black Expo, which attracts more than 350,000 people and celebrates African-American heritage and culture.

Cummins Participation Grows at Indiana Black Expo

Black Expo began in 1971 in Indianapolis and has grown to become the largest African-American event in the United States. Today, more than 350,000 people attend the 11-day Black Expo Summer Festival, which includes business workshops, a focus on health and wellness, employment opportunities, exhibits, youth activities and entertainment.

Local and national celebrities, along with individuals, families and members of the corporate community, join in celebration of the African-American heritage and culture.

Cummins' involvement in the Black Expo Summer Festival has grown significantly over the last three years. Volunteers for the Cummins booth have increased from 34 to 54. In 2007, a Six Sigma workshop was added to the program. In addition, eight more groups from various Company organizations participated in Expo-related activities, bringing the total to 17, including employees from the Company's Tennessee and Minnesota operations. As a result of our involvement in the Black Expo employment fair, a total of nine new hires have joined Cummins.

Cummins also sponsored several IBE events, including the Employment Opportunity Fair, where a record 52 percent of resumes routed to hiring managers were requested for interviews.

Cummins Named Among Top 50 Companies for Diversity

In 2007, Cummins was named to the list of the Top 50 companies for diversity by *DiversityInc* magazine, a publication that educates businesses about the benefits of promoting diversity in the work place.

This marks the first time that Cummins has been named to *DiversityInc's* Top 50 list, now in its seventh year. Cummins also earned the No. 1 spot on the magazine's top work places for Asian-Americans, the same position it held in 2005.

"It is an honor to be named to the Top 50 Companies for Diversity and be recognized for our efforts to make Cummins an inclusive work place," said Jill Cook, Vice President, Human Resources. "At Cummins, we believe that our workforce should reflect the communities where our employees live. We want a work environment where people can be creative and innovative because that is what makes us a stronger, more successful Company."

Cummins was ranked No. 38 by *DiversityInc* after responding to a detailed survey answering questions that included the commitment of the chief executive officer to diversity, human capital, corporate communications and supplier diversity. Any company that does not offer domestic partner benefits is automatically excluded from the list.

Creating a great place to work means having a diverse group of employees whose varied experiences, background and ethnicity can stimulate new ideas and innovation and bring different perspectives to the workplace.

"Cummins is much different from the average corporation; it is a true champion of diversity," said Luke Visconti, partner and co-founder of *DiversityInc*, a monthly business magazine and daily Website. "A total of 317 companies competed for a spot, a 100 percent increase in corporate participation in the Top 50 competition over the last three years."

Cummins has a history of commitment to diversity. The Company was named to *Fortune* magazine's list of 50 best places for minorities in 2000 and has been listed on *CRO* magazine's "Best Corporate Citizen" list nine years in a row.

Having a diverse workforce enables a company to solve complex problems, innovate and otherwise adapt more quickly in a competitive environment.

"At Cummins, we strive to foster an environment where employees are encouraged to challenge traditional thinking and ways of doing business in the search for better answers."

Aisha Goens

descent and Asians is growing and more women occupy positions of authority in business and government. Companies that understand and adapt to these demographic changes will thrive in the economy of the future.

Competitive performance: Having a diverse workforce enables a company to solve complex problems, innovate and otherwise adapt more quickly in a competitive environment.

Attracting and retaining the best people: Employees who feel welcome and valued in the workplace will be more innovative, act as owners and engage customers to provide superior products and service.

A company that promotes diversity in hiring and increases an understanding and appreciation of differences will reap the following benefits:

- A positive work environment where all people can perform at the highest levels
- Increased employee engagement and creativity
- Attraction and retention of the best talent
- A positive reputation in the community
- Improved decision-making capabilities provided by more viewpoints and choices
- Improved problem resolution
- Doing the right thing – A company is only as healthy as the environment and communities in which its employees work and live. It is in Cummins' self-interest, not selfish interest, to create an environment in which people treat others as they want to be treated. This is consistent with the Company's core values.

The MLK Memorial Ground breaking Ceremonies occurred on Nov. 13, 2006. Among those in attendance were Presidents Bush and Clinton and Dr. King's children Yolanda, Martin III and Bernice.

Cummins Contributes to King Memorial

Cummins has pledged $1 million to help create the Martin Luther King Jr. Memorial in Washington D.C. as a way to honor both Dr. King and the legacy of former Cummins Chairman J. Irwin Miller.

The monument, on the National Mall, is being created by the National Memorial Project Foundation to commemorate the life and work of Dr. King, and to honor his contributions to world peace through nonviolent social change.

Cummins' contribution to the project will be in the name of J. Irwin Miller, who worked closely with Dr. King during the height of the U.S. civil rights movement and who was tireless in his support for equality.

"Dr. King and Mr. Miller shared many of the same values — equality, fairness, racial harmony and compassion among them — and this monument provides Cummins the opportunity to honor the memories and legacies of two great men," said Tracy Souza, Executive Director, Corporate Social Responsibility.

The four-acre site of the Memorial is on the northeast corner of the Tidal Basin in Washington D.C., north of the Franklin D. Roosevelt Memorial and on a direct line between the Lincoln and Jefferson memorials. The location was chosen to create a create a visual 'line of leadership' from the Lincoln Memorial, where Dr. King gave his famous "I Have a Dream" speech, to the Jefferson Memorial.

Corporate Responsibility

Cummins' focus on corporate responsibility supports our business and philosophical commitment to serving and improving the communities in which we live and work.

Making a Difference

Now more than ever, corporations – with their significant resources and expertise – have the ability to create social impact on a substantial scale.

This opportunity to "do the right thing" is more than an exercise in philanthropy. The positive change that results from a well-defined and strategic approach to corporate responsibility makes good business sense. The actions a company takes to "make a difference" can benefit shareholders, communities, customers, employees, business partners and other company stakeholders, as well.

Nearly 40 years ago, J. Irwin Miller, former Chairman and CEO of Cummins, captured the value of a thoughtful approach to corporate responsibility in remarks delivered to the National Industrial Conference Board Public Affairs Conference in New York City.

"Business has a very large stake in the quality of the society within which it operates," he said. "We flourish only as we are rooted in a society which is healthy, orderly, just, and which grants freedom and scope to individuals and their lawful enterprises."

Mr. Miller's words ring true today. Cummins' focus on corporate responsibility also supports our business and philosophical commitment to integrity, diversity, global involvement and serving and improving the communities in which we live and work. These values are especially critical at this time in the Company's history when we are looking at significant growth both globally and in the U.S.

Because Cummins believes it is only as healthy as the communities in which it operates, the Company and its employees are actively engaged in improving people's lives in the areas where they live and work.

A good example of this philosophy in action was the decision to use the Columbus (Indiana) Engine Plant (CEP) as the production facility for its new family of light-duty, clean-diesel engines. In deciding to refurbish this under-used facility, Cummins did more than just select a manufacturing location. Cummins chose Columbus in large part because of a strong package of educational programs offered by the state to ensure a robust and skilled workforce in southeastern and central Indiana.

For example, the Indiana Department of Workforce Development – in alignment with Ivy Tech Community College – offered up to $1.5 million to support advanced manufacturing training. The Department of Workforce Development committed $2 million to grow awareness and interest in advanced manufacturing careers. That total included funds to cover the start-up costs for the "Dream It. Do It." careers campaign created by the Manufacturing Institute of the National Association of Manufacturers. The goal of this program is to educate young adults and their parents on the career opportunities available in advanced manufacturing.

The Company also encourages employees to get heavily involved in the communities where they live and work. Volunteer efforts among its employees are a supplement to Cummins' corporate giving program, which makes funds available to worthwhile community causes – with an emphasis on education, employment, health issues and the environment.

As a result of the Company's commitment to living its vision and mission, Cummins has been named

"While some still argue that business has no social responsibility, we believe that our survival in the very long run is as dependent upon responsible citizenship in our communities and in the society, as it is on responsible technological, financial and production performance."

Cummins 1972 Annual Report

From raking leaves to reading to children, from painting to stocking food pantries, Cummins employees have participated in a wide range of projects through the annual EEEC program.

among the top 100 corporate citizens by *CRO* magazine, formerly known as *Business Ethics* magazine. Cummins is one of a few companies to be named to the "top 100" list every year for the last nine years. The 2008 rankings are limited to the Russell 1000 – companies that represent the largest impact on business-to-business and consumer markets.

Companies were ranked on eight categories: climate change, employee relations, environment, financial, governance, human rights, lobbying and philanthropy. CRO determined the final ranking as a weighted average of these eight categories.

Every Employee, Every Community

Throughout its 89-year history, Cummins has made corporate responsibility a fundamental part of who we are and how we do business. Cummins has several ways of promoting this essential value in our global communities. A Corporate Responsibility Department oversees strategies and programs to encourage community involvement and responsible citizenship.

The Cummins Foundation plays a role in promoting and developing programs or processes that enable the Company to perform well. However, the most important work is done by Cummins employees through its Community Involvement Teams and record-breaking United Way participation.

One of our newer initiatives, Every Employee, Every Community (EEEC), allows employees to give back to their communities by volunteering on Company time. Each Cummins site around the world has the flexibility to schedule community service projects according to local needs, their facility and employee work schedules.

Each year, Cummins Mechelen (Belgium) holds a breakfast in support of a Rwandan orphanage to help purchase uniforms, pencils and other school equipment for the children, ages 6 to 14. Some 600 orphans attend the school, and their education costs about $30 Euros (US $41) per year per student.

From raking leaves to reading to children, from painting to stocking food pantries, Cummins employees have participated in a wide range of projects through the annual EEEC program.

More than 9,000 employees contributed more than 38,000 hours of community service through the EEEC program in 2007 – a 60 percent increase in both participation and hours over 2006.

At Cummins, corporate responsibility has three major areas of focus: community involvement, corporate donations and the Cummins Foundation. When special needs arise, Cummins has several avenues through which to provide assistance.

Community Involvement Teams

Community Involvement Teams (CITs) are employee-led committees that represent the diversity of the workforce and all levels of management. They are driven by the philosophy that a company cannot function without a healthy community.

Each team establishes a work plan, a budget and a focus area for community service. Every two years, these teams are audited against a set of Functional Excellence criteria. The audit process ensures that corporate responsibility remains an important business objective across all business units, provides a measurement and recognition process and identifies areas for development over the next two-year cycle.

Community Involvement Teams have the responsibility of developing an annual plan, organizing volunteer activities, responding to community requests for donations and developing proposals for the Cummins Foundation.

Here are some recent examples of CIT involvement around the globe:

- Employees from Cummins Business Services (CBS) Mexico volunteered their time and hands to paint and plumb the Family Development Centre located at the Colonia Satellite, a community of San Luis Potosi, Mexico. The Centre's mission is focused on productive education through training and

"Six Sigma is an indispensable improvement methodology and toolset at Cummins that has permanently changed the culture."

Sameer Samudra

development of skills among people who live in Colonia Satellite and surrounding areas.

More than 190 students are benefiting from elementary and high school classes at this Centre. English, computing, cooking, artistic chocolates and handcrafts are just a few of the many courses students can take.

- The Mechelen (Belgium) Community Involvement Team, made up of Parts and Service and Filtration, worked with the Belgian organization Les Enfants du Père Martin to collect $2,500 in support of an orphanage in Rwanda where children ages 6 to 14 attend primary school classes. The support goes toward the purchase of uniforms that are made locally, as well as school books, pencils and other school equipment. Some 600 orphans attend the school.

- During 2006 and 2007, the Darlington Engine Plant (DEP) supported Action for Blind People (AFBP), a national charity. Employees' efforts included both fund raising, as well as direct employee engagement. DEP volunteers have been instrumental in helping AFPB develop an Actionaires Club that gives visually impaired children – between the ages of 4 and 16 – the opportunity to participate in different sports and leisure activities.

- In late July 2007, torrential rains, lightning strikes and mudflows battered cities in central and southern China, resulting in the worst flooding in more than 100 years. More than 1 million people were left homeless. The rains left the Chongqing Cummins (CCEC) plant and the homes of many local employees water-soaked and covered with mud.

In response to the needs, the local Corporate Social Responsibility (CSR) committee worked tirelessly to provide short-term housing, food and support. Additionally, the national CSR team initiated the "One Family" flood relief fundraising campaign for reconstruction of local employee homes and shared community infrastructure.

Corporate Donations

Donations provide a means for Cummins to participate in community events that are more appropriately funded by the Company than the Foundation. These activities include memberships, sponsorships, dinners or other events. Cummins made approximately $2.9 million in corporate donations to charitable causes in 2006 and $3.4 million in 2007.

The Cummins Foundation

The Cummins Foundation is one of the oldest corporate charitable foundations in the United States. The Foundation serves to improve the communities in which Cummins does business by providing the tools and means for people living on the edge of society to overcome the barriers they face. The Foundation's President serves as Cummins' Executive Director of Corporate Social Responsibility, providing leadership and coordination to all the Company's social work. Cummins also has formed foundations in Mexico and India over the last decade.

The Foundation focuses on embracing the diverse perspectives of all people, seeking innovative ways to address societal needs by emphasizing partnerships and

Cummins Business Services Mexico helped with painting and plumbing the Family Development Centre in San Luis Potosi, Mexico. More than 190 students benefit from classes at the Centre.

leveraging people, money, products and services to make a difference. The Foundation awarded grants totaling $5.4 million in 2007.

The Cummins Foundation sets aside an innovation grant fund which is available to Cummins Community Involvements teams that conduct a community needs assessment, identify a need that is not being adequately addressed and propose a creative way to address that need. Teams may apply for grants of up to $25,000. In 2007, 10 communities were awarded community innovation grants. A few example of innovation grants include:

- In Minneapolis, Minnesota, Cummins teamed up with the Amherst Wilder Foundation on an Elderly Falls Prevention Project. This study identified leading causes for falls among seniors and developed a tool kit to address the most serious issues. This toolkit can be shared in all the Cummins communities, with the goal of helping keep seniors leading independent lives as long as possible.
- Cummins employees in Melbourne, Australia teamed up with Concern Australia on the Hand Brake Turn Program, which provides disadvantaged 15 to 19-year-olds with educational mentoring and job training opportunities. This program is specifically designed to provide participants with a certificate in engine mechanics.
- Charleston, South Carolina employees identified hunger among children attending schools near our manufacturing facilities as a community concern. They teamed up with the Low Country Food Bank as a partner as well as the Back Pack Buddy Program, which confidentially provides nutritious snacks for elementary and middle school children to take home over the weekend.

The Cummins Foundation Report

Cummins Foundation Directors and Committees

Foundation Management

Directors of the Foundation
Tim Solso, Chairman
Tracy Souza, President
Jean Blackwell, Secretary/Treasurer
Mark Gerstle, Board Member
Tom Linebarger, Board Member
Joe Loughrey, Board Member
Will Miller, Board Member

Audit Committee
Marsha Hunt, Committee Chair
Luther Peters
James Guilfoyle

Investment Committee
Richard Harris, Committee Chair
Nadeem Ali
Marsha Hunt

Domestic Committees

Columbus, IN Committee
Joe Loughrey, Committee Chair
Rich Freeland
Ignacio Garcia
Mark Gerstle
Jim Kelly
Will Miller
Tracy Souza
Don Trapp
Tina Vujovich
John Wall

Indianapolis, IN Committee
Jean Blackwell, Committee Chair
Susan Hanafee
Marya Rose
Tim Solso
Tracy Souza

International Committees

C3-Cummins Community Connection — Central Area
Raymond Eyres, Committee Chair

Cummins Community Cares — South Pacific
Gino Butera, Committee Chair
Csilla Csorba, Manager

Cummins India Foundation
Anant Talaulicar,
Chairman of Foundation

Asociacion Filantropica de Cummins AC
Rafel Dorador,
Chairman of Foundation
Edgar Freeman Rubio, Director

The Cummins Foundation Inc.

Statements of Financial Position

Assets	**December 31, 2007**	**December 31, 2006**
Cash and cash equivalents	$4,580,212	$ 2,708,329
Contributions Receivable	-	-
Program-related investments	12,167,632	10,990,444
Other assets	500	9,915
	$16,748,344	$13,708,688
Liabilities and Net Assets		
Liabilities		
Grants payable	$5,113,215	$1,028,441
Total Liabilities	5,113,215	1,028,441
Unrestricted net assets:		
Undesignated	5,059,737	2,433,104
Board-designated grant fund	50,000	192,643
Board-designated Columbus committee fund	248,992	54,500
Board-designated architecture fund	1,276,400	5,000,000
Board-designated reserve fund	5,000,000	5,000,000
	11,635,129	12,680,247
	16,748,344	13,708,688

The Cummins Foundation – 2007 Grants

Grantee	Community	Purpose	Amount
ABC – Stewart School	Columbus, IN	Scholarship Support	$15,000.00
Adult Day Care Corporation	Columbus, IN	General Support	$2,000.00
Court Appointed Advocates for Children	Columbus, IN	Program Expansion Support	$22,500.00
American Indian College Fund	Denver, CO	General Support	$2,500.00
American Red Cross	Clovis, NM	Tornado Relief Effort	$10,000.00
American Red Cross International Response Fund	Peru, South America	Earthquake Relief	$10,000.00
American Wind Symphony Orchestra	Mars, PA	General Support	$25,000.00
Amherst H. Wilder Foundation	Fridley, MN	Elderly Falls Prevention	$25,000.00
Ashoka Innovators for the Public	Arlington, VA	Youth Ventures	$39,800.00
Asociacion Filantropica Cummins, A.C.	San Luis Potosi, Mexico	Tabasco Flood Relief	$10,000.00
ATLCF Collections Inc.	Atlanta,GA	MLK Papers	$250,000.00
Autism Speaks	New York	Kickoff for a Cure	$25,000.00
Bartholomew Area Legal Aid, Inc.	Columbus, IN	General Support	$5,000.00
Bartholomew Consolidated School Foundation	Columbus, IN	Diversity Initiatives	$5,500.00
Bartholomew Consolidated School Foundation	Columbus, IN	Transportation Safety Training Facility	$50,000.00
Bloomer Fire Department	Stoughton, WI	Fire Safety Prevention	$1,500.00
CAF Australia	Australia	Hand Brake Turn Program	$25,000.00
CAF Australia	Australia	Shop 16 Project	$33,000.00
Clovis-Carver Public Library	Clovis, NM	Summer Reading Program	$1,000.00
Clovis-Carver Public Library	Clovis, NM	General Support	$5,500.00
CASA of Chautauqua County	Jamestown, NY	General Support	$8,000.00
CASA/GAL of Hancock County	Findlay, OH	Volunteer Training	$2,500.00
Cedar Grove Elementary School	Nashville, TN	Playground Accessibility	$2,500.00
Central Indiana Community Foundation	Indianapolis, IN	Cultural Trail	$100,000.00
Central Indiana Corporate Partnership	Indianapolis, IN	Conexus Indiana	$100,000.00
Charleston Orphan House, Inc.	Charleston, SC	Youth Leadership Program	$6,100.00
Children's Museum of Indianapolis	Indianapolis, IN	Power of Children: Making a Difference Exhibit	$50,000.00
City of Columbus	Columbus, IN	Urban Design Plan	$17,740.06
City of Columbus	Columbus, IN	Parking Garage Design	$500,186.17
City of Stoughton	Stoughton, WI	Youth Programs	$2,500.00
Columbus Area Arts Council	Columbus, IN	UnCommon Cause Gala	$5,000.00
Columbus Area Arts Council	Columbus, IN	CNHS Presentation	$500.00
Columbus Area Arts Council	Columbus, IN	Columbus Indian Film Lover's Association	$4,000.00
Columbus Area Arts Council	Columbus, IN	General Support	$20,000.00
Columbus Area Chamber of Commerce Foundation	Columbus, IN	Connected Community Partnership	$10,000.00
Columbus Area Chamber of Commerce Foundation	Columbus, IN	Speaker Fee	$2,000.00
Columbus Indiana Architectural Archives	Columbus, IN	Symposium	$5,000.00
Columbus Indiana Architectural Archives	Columbus, IN	Staff Support	$100,000.00
Columbus Symphony Orchestra	Columbus, IN	Family Concert	$1,500.00
Cummins India Foundation	Pune, India	Mechanical Engineering Program at Cummins College of Engineering for Women	$1,000,000.00
Decatur County United Fund, Inc.	Indiana	General Support	$6,938.00
DePauw University	Greencastle, IN	Student Honors Ethics Symposium	$50,000.00
Duke University	Durham, NC	US-Southern Africa Center for Leadership and Public Values-Emerging Leaders Program	$40,000.00

Grantee	Community	Purpose	Amount
Ecumenical Assembly of Bartholomew County Churches	Columbus, IN	Emergency Assistance Fund	$20,000.00
Edgecombe County Public Schools	Rocky Mount, NC	Playground Renovation for Phililps Middle School	$25,000.00
Fathers and Families Center	Indianapolis, IN	General Support	$5,000.00
Findlay Area Chamber of Commerce Foundation	Findlay, OH	Park Enhancement	$5,000.00
Findlay Hope House for the Homeless Inc.	Findlay, OH	Revolving Loan Fund	$25,000.00
Food Allergy & Anaphylaxis Network (FAAN)	Indianapolis, IN	General Support	$2,500.00
Franklin Boys & Girls Club	Franklin, IN	General Support	$25,000.00
Franklin College	Franklin, IN	Cummins Lectures on Ethical Leadership	$25,000.00
Gleaners Food Bank	Indianapolis, IN	General Support	$5,000.00
The Greater Indianapolis Progress Committee	Indianapolis, IN	Mindtrust	$150,000.00
Greater Twin Cities United Way	Fridley, MN	General Support	$164,918.00
Hartley House	Clovis, NM	Refurbish Safe House	$25,000.00
Heritage Fund of Bartholomew County	Columbus, IN	EOS Maintenance Fund	$2,000.00
Heritage of Hope, Inc.	Hope, IN	General Support	$10,000.00
Hospice of South Central Indiana, Inc.	Columbus, IN	Facility Improvement	$41,507.50
Human Services, Inc.	Columbus, IN	Horizon House Homeless Shelter	$5,000.00
Indiana Achievement Awards	Indianapolis, IN	Program Sponsor	$1,000.00
Indiana Commission on the Social Status of Black Males	Indianapolis, IN	National Conference	$1,000.00
Indiana Grantmakers Alliance	Indianapolis, IN	Fall Conference	$3,000.00
Indianapolis Opera	Indianapolis, IN	Education Sponsorship	$10,000.00
Indianapolis Symphony Orchestra	Indianapolis, IN	Support for Educational Programs	$3,000.00
Jackson County United Fund	Indiana	General Support	$46,737.00
Jefferson County United Way	Indiana	General Support	$2,848.00
Jennings County Senior Resource Center	Indiana	Food Bank	$3,100.00
Jennings County United Way	Indiana	General Support	$16,794.00
Kids Voice of Indiana	Indianapolis, IN	Parent Child Visitation Program	$5,000.00
Kuaba Humanitarian Foundation	Indianapolis, IN	Shipment of Donations to Zimbabwe	$10,000.00
Lake Mills Ambulance Service	Lake Mills, IA	AED Support	$5,000.00
Lake Mills Community School	Lake Mills, IA	Literacy	$25,000.00
Lakeside Baptist Church	Rocky Mount, NC	Meals on Wheels	$5,000.00
Legal Momentum	Columbus, IN	General Support	$1,500.00
LeMoyne-Owen College	Memphis, TN	General Support	$200,000.00
LeMoyne-Owen College Community Development Corporation	Memphis, TN	Teen Mothers Program	$5,150.00
LeMoyne-Owen College Community Development Corporation	Memphis, TN	General Support	$5,000.00
Lowcountry Food Bank	Charleston, SC	Back Pack Buddy Program	$25,000.00
McFarland School District	Stoughton, WI	Project Lead the Way Program	$5,000.00
Metro United Way of Clark County	Indiana	General Support	$1,657.00
Metro United Way of Floyd County	Indiana	General Support	$288.00
The Minneapolis Foundation	Fridley, MN	I35W Bridge Collapse	$2,678.00
Minnesota Indian Women's Resource Center	Fridley, MN	Native American Parenting Traditions Revisited Program	$104,855.00
The Oasis - Children's Advocate Center	Clovis, NM	General Support	$3,500.00

Grantee	Community	Purpose	Amount
Parental Stress Center	Stoughton, WI	General Support	$25,000.00
Rocky Mount Area United Way	Rocky Mount, NC	General Support	$154,915.00
Rocky Mount Children's Museum	Rocky Mount, NC	Planetarium	$100,000.00
School on Wheels Corp.	Indianapolis, IN	Parents as Partners Program	$25,000.00
Senior Services of Northern Kentucky	Covington, KY	General Support	$25,000.00
Shelby County United Fund, Inc.	Indiana	General Support	$3,396.00
St. Vincent Jennings Hospital Foundation	North Vernon, IN	Golf Tournament	$10,000.00
Stoughton Area Resource Team	Stoughton, WI	General Support	$2,500.00
Su Casa Columbus Inc.	Columbus, IN	Spanish Newspaper	$1,800.00
Su Casa Columbus Inc.	Columbus, IN	General Support	$5,000.00
Tarboro Community Outreach Inc.	Rocky Mount, NC	Homeless Shelter	$5,000.00
Trident United Way	Charleston, SC	General Support	$57,073.00
United Communities Ministries	Rocky Mount, NC	Homeless Shelter	$5,000.00
United Fund of Dearborn County	Indiana	General Support	$72.00
United Negro College Fund	Indianapolis, IN	Annual Campaign	$25,000.00
United Way of Bartholomew County	Columbus, IN	General Support	$670,618.00
United Way of Bartholomew County	Columbus, IN	Youth Fest	$5,000.00
United Way of Bartholomew County	Columbus, IN	Capacity Building Project	$10,000.00
United Way of Bartholomew County	Columbus, IN	Childhood Connections	$50,000.00
United Way of Bloomington & Monroe County, Inc.	Indiana	General Support	$4,383.00
United Way of Central Indiana	Indianapolis, IN	General Support	$53,261.00
United Way of Dane County, Inc.	Stoughton, WI	General Support	$38,501.00
United Way of Eastern New Mexico, Inc.	Clovis, NM	General Support	$8,136.00
United Way of El Paso County	El Paso, TX	General Support	$2,536.00
United Way of Fayette County	Indiana	General Support	$48.00
United Way of Greater Cincinnati Northern Kentucky	Florence, KY	General Support	$10,432.00
United Way of Hancock County	Findlay, OH	General Support	$8,987.00
United Way of Johnson County	Indiana	General Support	$55,550.00
United Way of Metropolitan Nashville	Nashville, TN	General Support	$75,716.00
United Way of North Central Iowa	Lake Mills, IA	General Support	$23,241.00
United Way of Putnam County	Cookeville, TN	General Support	$23,506.00
United Way of Scott County	Indiana	General Support	$2,834.00
United Way of South Central Indiana	Indiana	General Support	$576.00
United Way of Southern Chautauqua County	Jamestown, NY	General Support	$111,982.00
United Way of the Central Savannah River Area, Inc.	Waynesboro, GA	General Support	$16,040.00
United Way of the Mid-South	Memphis, TN	General Support	$33,375.00
Vance Avenue Youth Development Center	Memphis, TN	General Support	$5,000.00
West Ohio Food Bank	Findlay, OH	General Support	$5,000.00
WFYI TelePlex	Indianapolis, IN	Communities Building Community Series	$5,000.00
Women On Maintaining Education & Nutrition	Nashville, TN	HIV/AIDS Awareness	$2,500.00
World Vision USA	Sichuan Province, China	Construction of Beimiao Primary School	$43,200.00
Y-Med, Inc.	Columbus, IN	Consultant	$35,000.00
Youth for Christ USA	Lake Mills, IA	After School Program	$5,000.00
Youth Leadership Bartholomew County	Columbus, IN	Student Leadership Seminar	$300.00
YWCA	Jamestown, NY	General Support	$2,000.00
Total Grants			**$5,378,274.73**

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(812) 377-5000

www.cummins.com

Bulletin Number 4986066

EXHIBIT 17

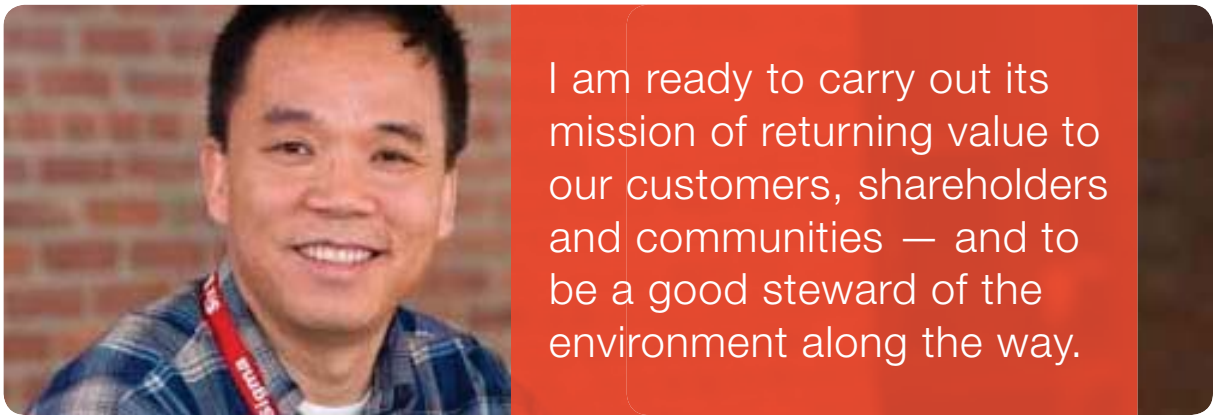
Sustainability Report

A Legacy of Dependability and Responsibility

July 2009

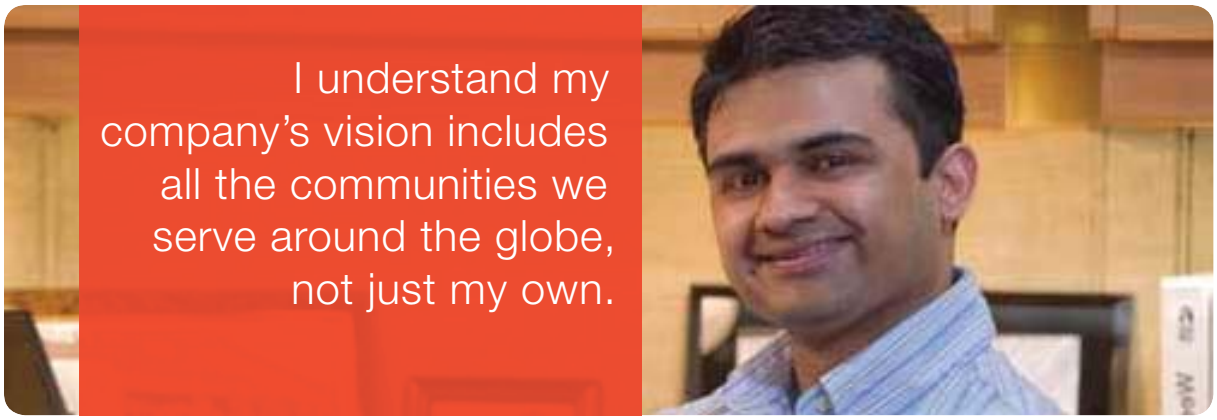
2009 marks the 90th anniversary of Cummins Inc. Over the last nine decades, the Company has grown into a global leader in the production of diesel and natural gas engines, power generation systems and related components. Our commitment to customers, employees and communities is rooted in our heritage and has made us Cummins. Dependable. Since 1919.


I know what
my company
stands for.

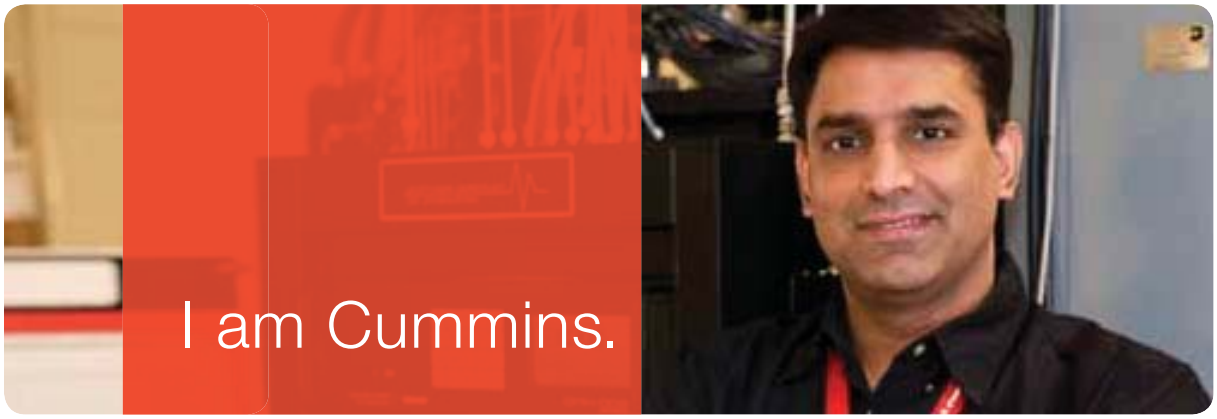

I am ready to carry out its
mission of returning value to
our customers, shareholders
and communities — and to
be a good steward of the
environment along the way.

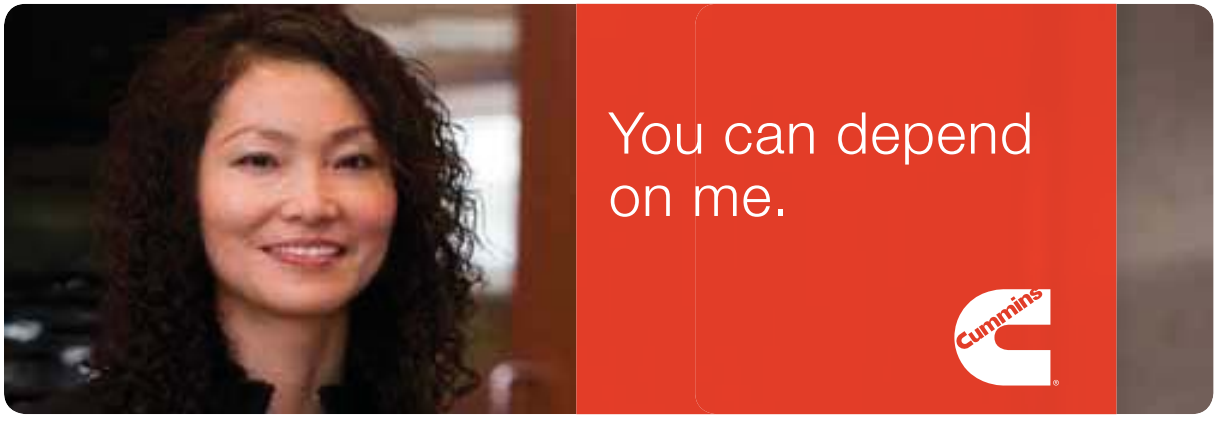

I bring my unique
perspective to
work every day,
as do thousands
of my colleagues
around the world.


Together we create
a rich diversity of
cultures and views.


I understand my company's vision includes all the communities we serve around the globe, not just my own.


And I believe my success will contribute to the success of everyone we serve, everywhere.


I am Cummins.


You can depend on me.
Cummins

About This Report

The information in this report is presented in the spirit of the guidelines set by the Global Reporting Initiative (GRI). The aim of the GRI is to develop a consistent way for companies around the world to voluntarily report on the economic, environmental and social components of their business. Started in 1997 by the Coalition for Environmentally Responsible Economies (CERES), the GRI became independent in 2002 and today works in collaboration with the United Nations Environment Program (UNEP) and the UN Secretary-General's Global Compact. We are proud of the positive impact Cummins products and the people who manufacture them have on our society. We look forward to the opportunity to make a difference, not just today, but for future generations as well.

Contacts

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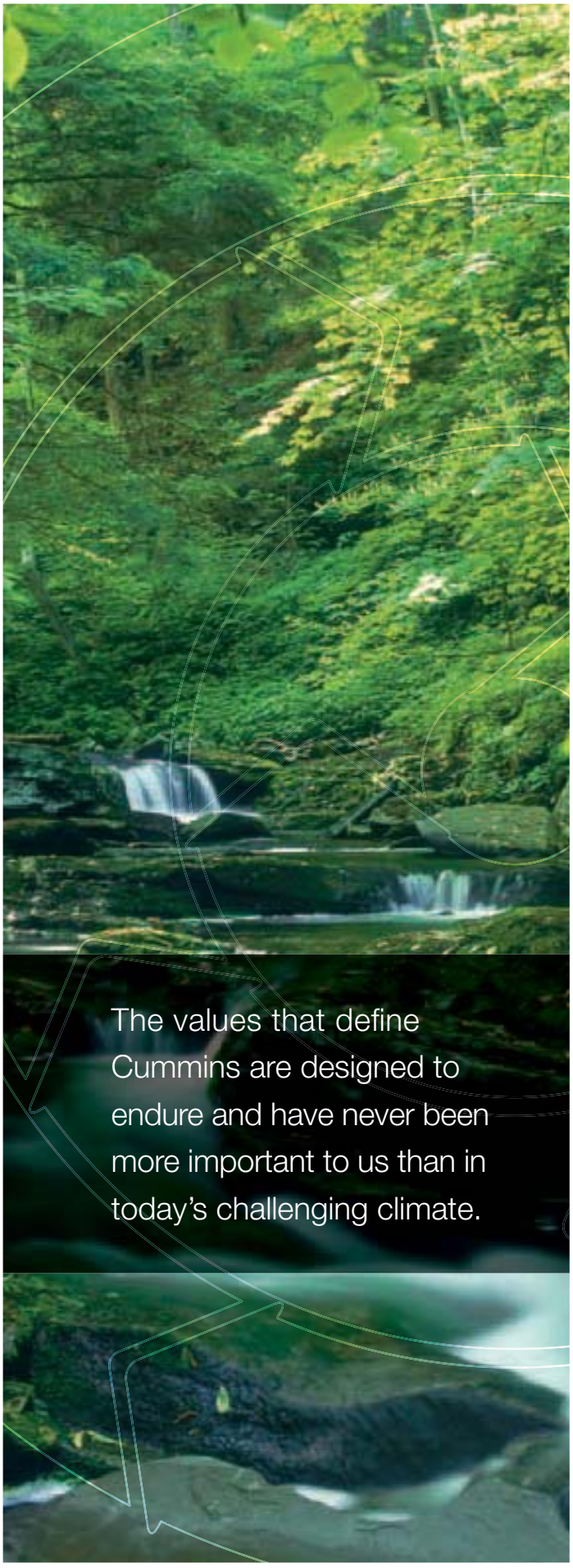


Letter from the Chairman

The global economic situation has changed significantly since we published our Sustainability Report last year. At Cummins, we began to feel the effects of the recession in most of our markets late in 2008. Our current business climate will continue into next year, making 2009 and 2010 very challenging years.

Cummins has devoted significant time and energy to ensuring that our company remains strong during the recession and emerges well-positioned to resume our profitable growth once the recovery begins.

At the same time, a critical determinant of Cummins' success over the long term is our ability to create an organization that is focused on delivering on our commitments to the full range of stakeholders we serve. The values that define Cummins are designed to endure and have never been more important to us than in today's economic climate.

Acting with integrity. Doing our part to improve the communities where we live and work. Embracing diversity. Operating with a global vision. Striving to always exceed the expectations of our customers. Being first to market with innovative products and services.

These statements represent Cummins' core values and I am proud to say that our more than 35,000 employees worldwide continue to demonstrate their commitment to bringing these words to life every day. Cummins' sixth annual Sustainability Report highlights the progress we have made in the past year around several of these values, particularly corporate responsibility and our commitment to the environment.

Our approach to corporate responsibility is grounded in a stakeholder model articulated nearly 40 years ago by then-Chairman J. Irwin Miller, who believed that businesses have a responsibility to help to create healthy communities. The tools and actions that define our work to remain a responsible company may have changed over the years, but the underlying principles have not.

Our commitment to corporate responsibility also contains an element of self-interest. Cummins operates under the philosophy that corporate responsibility contributes directly to the long-term financial health of our company.

Building successful, vibrant communities leads to stronger markets for our products. Being seen as a company that cares about all its stakeholders, in addition to generating strong financial return for shareholders, is essential to our efforts to attract the most talented workers from around the world. Creating a culture that encourages employees to become active in their communities is central to our goal of creating a great place to work, which is the best way we know to retain those talented workers.

In the past year, Cummins has strengthened its commitment to corporate responsibility and we are in the midst of some exciting changes that will make our efforts in this area more global, more focused and more effective. A full discussion of our work, including details of the goals and vision of our recently created Corporate Responsibility organization, can be found starting on page 88 of this report.

Ensuring that everything we do leads to a cleaner, healthier and safer environment has been part of the Cummins Mission statement for many years. In practice, that means we are unwavering in our commitment to producing the cleanest diesel engines in the world and in reducing the Company's environmental footprint.

Since our last Sustainability Report, Cummins has raised the stakes on both fronts. We have invested significantly in new products and technologies designed to further lower exhaust emissions from our products and are in the final stages of preparing for the most extensive new product launch in our history. At the same time, we have increased our commitment to addressing the global impact of climate change.

Early this year, we introduced our first set of 10 climate change principles. These principles address ways that Cummins plans to become a greater part of the solution and also articulates the Company's positions on key public policy issues surrounding climate change. They are:

Company directed principles

- Improve product efficiency
- Grow and develop new businesses
- Collaborate with suppliers and customers
- Make work spaces green spaces
- Harness the energy of employees
- Support community efforts

Public policy principles

- Develop responsible regulations
- Promote technology development
- Accelerate progress through incentives
- Create a balanced global approach

This work, which seeks to leverage the interest and expertise of our employees around the world, is the next step in an ongoing effort that has seen Cummins decrease waste, improve energy efficiency and lower its greenhouse gas emissions significantly in recent years. A detailed description of our key environmental initiatives can be found starting on page 39 of this report.

At Cummins, we have long worked under the premise that our strength as a company is dependent on the health of the communities in which we operate and where our products are sold. From that perspective, the notion of sustainability is not a luxury, but rather a critical component to our long-term success.

I hope you will read our current Sustainability Report and learn more about our work to remain a responsible corporate citizen that is responsive to the needs of all our stakeholders.

Tim Solso
Chairman and Chief Executive Officer
Cummins Inc.

Who We Are

Cummins Inc. was made possible by the two men who dominated its early years—Clessie Cummins, who wanted to build engines, and W.G. Irwin, whose family fortune backed the venture.

The Irwin family settled near Columbus, Indiana, about 1821, with its members soon playing key roles in the religious, political, business and cultural affairs of their community. Irwin family enterprises tended to blend the search for profits with a sense of community mission and a desire to help local entrepreneurs.

Clessie Cummins, a local man with a lifelong fascination for machines, served as W.G. Irwin's driver and mechanic. With W.G.'s permission, Clessie opened an auto repair shop in a vacant forge building. That venture, started in 1913, developed into a machine shop that employed 50 people and performed a variety of Army and Navy ordnance jobs during W.W. I.

The Cummins Engine Company was born 14 weeks after the end of W.W. I, when postwar need and opportunity came together with Clessie's willingness to devote his considerable mechanical and promotional talents to diesel technology. Just as important was the willingness of W.G. Irwin to finance the enterprise with family resources.

In 1947 J. Irwin Miller was elected president of Cummins Engine Company. Miller, a grand-nephew of W.G. Irwin who was educated at both Yale and Oxford, had been involved in the company's operations for more than a decade. As he took up the reins, Miller brought a new sense of strategic planning to the company along with a more assertive philosophy of corporate responsibility. As he said in the Cummins 1972 Annual Report,

> *While some still argue that business has no social responsibility, we believe that our survival in the very long run is as dependent upon responsible citizenship in our communities and in the society, as it is on responsible technological, financial and production performance.*

It was under Mr. Miller's watch that Cummins took on the properties that characterize it in the minds of so many today: environmental consciousness, integrity, diversity, global involvement, and service and improvement to the communities in which we live and work. It was also under Mr. Miller that Cummins sought and found overseas markets and operations.

Our commitment to corporate responsibility continues to shape our business decisions today. The Company has grown to be a global power leader, with more than half of its employees and sales from outside the United States. Most recently, the Company has been reshaped into the "new Cummins"—a company that is less cyclical, more diversified, more results-oriented and committed to turning a greater share of its sales into profits. But the star we continue to steer by mandates that everything we do leads to a cleaner, healthier, safer environment.

As we have since 1919, Cummins has made it our obligation to meet the needs of both our customers and the communities where we work and live. The ultimate goal is always the same: create sustainable wealth and well-being for all our stakeholders.

All Cummins businesses are united under the Cummins name, with the Company's earliest historical colors, red and black.

Our brand is the sum total of all our years in business. From the beginning, when the Company's founders first stood behind the products they sold to the ongoing growth of our diversified business, Cummins has maintained a reputation for integrity. In terms of a brand, that translates into a single vision: dependability. We want stakeholders to know they can depend on Cummins. And we want employees to be able to unify around the Cummins brand to create value and a competitive advantage.

Cummins is a family of four interrelated, yet diversified business segments that create or enhance value as a result of those relationships and doing business with each other. These four business segments are Engine, Power Generation, Components and Distribution.

Cummins products can be found in nearly every type of vehicle, from the heavy-duty diesel-powered trucks that travel the world's highways, to tractors that till the soil, large trucks that carry natural resources from the mine and ships that travel the world's waterways. Cummins-built generators supply both prime and auxiliary power around the globe. Filters, turbochargers, fuel systems, exhaust aftertreatment and related components help engines run cleaner and more efficiently. A comprehensive network of distributors provide repair and maintenance service for customers worldwide.

Cummins has entered into a number of joint venture agreements and alliances with business partners and affiliates in various areas of the world to increase market penetration, expand product lines, streamline supply chain management and develop new technologies. As of the end of 2008, Cummins has 55 joint ventures in 18 countries, 45 of which are unconsolidated.

Cummins' first diesel was the 1.5 and 3 hp HVID used by farmers for powering pumps. Founded by Clessie Cummins and W.G. Irwin, the Company is located in Columbus, Indiana.

1919

Mission

• To motivate people to act like owners working together	A record year for Six Sigma in savings and projects launched p. 13
• To exceed customers' expectations by always being first to market with the best products	First to meet EPA's stringent on-highway 2010 emission standards p. 46
• To partner with our customers to ensure their success	Customer-focused fuel economy projects save millions of gallons of fuel p. 42
• To demand that everything we do leads to a cleaner, healthier, safer environment	An energy use challenge saves nearly $1 million and 7,000 tons of GHGs p. 41
• To create wealth for all our stakeholders	Fifth consecutive year of record sales and profits and No. 10 in the Fortune 500 in earnings per share growth p. 14 and 22

Making people's lives better by unleashing the power of Cummins.

That simple statement is the framework for Cummins and its employees worldwide. The Company takes pride in manufacturing high quality products that serve the needs of our customers. But the power of our Company is not just our products, but the ideas, energy and passion of our employees. That passion fuels employee energy and commitment, making it possible for Cummins to maintain a leadership position in the markets it serves.

Cummins also recognizes that with its role as a corporate leader is a responsibility to make positive contributions in the communities in which employees work and live. Accordingly, Cummins' corporate mission and values reflect its desire to return value to its customers, employees, shareholders and communities.

Values

Integrity: We strive to do what is right and what we say we will do.	2,800 major suppliers comply with our Supplier Code of Conduct p. 28
Innovation: We will apply the creative ingenuity necessary to make us better, faster, first.	Innovative filter has environmental and customer-friendly design p. 49
Deliver Superior Results: Our goal is to consistently exceed expectations.	133 percent increase in the dividend since 2006 p. 22
Corporate Responsibility: We will serve and improve the communities in which we live.	Employees give financial aid to earthquake and flood victims p. 97
Diversity: We embrace the diverse perspectives of all people and honor both with dignity and respect.	National recognition for Darlington's (U. K.) activities and initiatives designed to increase gender diversity p. 15
Global Involvement: We seek a world view and to act without boundaries.	Since 2000, non-U.S. sales have grown from 43 percent to 60 percent p. 23

Strategic Principles

Cummins has five key elements to its business strategy. This strategy has not changed in recent years. What has changed is our improved performance and our continued ability to deliver on commitments.

Being a low cost producer

Cummins realizes that to successfully compete in the marketplace, it must offer the best products at the best prices. To do that, we leverage our innovative technology, economies of scale, global presence and customer partnerships.

The Six Sigma quality program, launched in 2000, is an integral part of that strategy. Cummins belts launched 4,100 projects in 2008, with closed projects saving $500 million.

And here is what 10 years of Six Sigma has meant for Cummins:

- Projects successfully completed: 13,367
- Total savings: $2.5 billion
- Green belts trained: 9,320
- Green belts certified: 1,492
- Black belts certified: 465

The Company estimates this program generates savings of approximately 2 percent of annual revenue per year, while infusing quality into every process. Cummins also has expanded the program to include processes with customers, suppliers, distributors and our communities with positive results.

Cummins pursues cost leadership in other ways: through global sourcing, global research and development access, sharing development costs with original equipment manufacturer (OEM) partners and technical productivity, including the use of computer design and modeling instead of building expensive physical prototypes.

Profitable growth

Despite the recessionary environment that exists today, the Company will continue to focus its growth initiatives on related businesses where it can use its existing investments in products or technology, leading brand names or market presence to establish a competitive advantage. The focus is on ventures that complement its more capital-intensive and cyclical core businesses.

Creating shareholder value

Return on capital—specifically return on average net assets (ROANA) and return on equity (ROE)—is our primary measure of financial performance. Each of our business segments uses ROANA targets and the Company, as a whole, has an ROE target. Cummins has dramatically improved its return on capital in recent years; for example, since 1999 (the last peak in the heavy-duty truck cycle), ROE has increased from 10 percent to 20 percent in 2008. ROANA in 2008 was 28 percent.

Complementary businesses that work together to create value

Increasingly, Cummins looks for ways to leverage the synergies among its four business segments. These synergies capitalize on shared capabilities including technology, distribution systems, common customers (cross selling), joint venture partners for global growth and cost reduction through the larger scale of shared services.

Creating the right environment

At Cummins, creating the right environment for success means an inclusive, learning environment that is reinforced by a performance ethic that attracts, develops and retains high-quality talent. We measure our success through strategic skill and competency mapping, leadership development outcomes and participation in tailored individual development and training programs.

Recognition of Good Works

Governance, Ethics and Sustainability

- For the fourth consecutive year, Cummins was named to the Dow Jones World Sustainability index, which recognizes the top 10 percent of the world's largest 2,500 companies in economic, environmental and social leadership.
- Cummins was named one of the"World's Most Ethical Companies" for 2009 by the Ethisphere Institute, an organization "dedicated to the research, creation and sharing of best practices in ethics, compliance and corporate governance among its membership companies." In all, 99 companies were honored as "most ethical."

2009 WORLD'S MOST ETHICAL COMPANIES
WWW.ETHISPHERE.COM

- Cummins received in 2008 an overall global rating of 10 – the highest award – for best-in-class corporate governance standards. The rating from GovernanceMetrics International was based on research of nearly 4,200 companies. Cummins was one of only 43 companies that achieved this rating.
- Cummins China was among 48 companies named as a top corporate citizen for its corporate responsibility activities and its substantial contribution to the public good. The award was presented by the China Corporate Citizen Committee and China Central Television.
- The company was ranked No. 10 in Fortune 500 EPS growth last five years.
- Cummins was No. 1 in Fortune 500 Industry Group Total Shareholder Return last 10 years.
- Cummins has been notified that it meets the FTSE4Good Human and Labor rights standards in full.

The 104 Power Shovel from Northwest Engineering was one of the very earliest tracked earth movers available with diesel power as an alternative to steam. With a 12.5 hp 4-cylinder Model F, the shovel was the first land-based mobile equipment powered by Cummins.

1926

Social Issues, Diversity and People

- Cummins was ranked 42nd in the 2009 DiversityInc Top 50 Companies for Diversity.
- Cummins Power Generation in Fridley, Minn., was named Minnesota's Outstanding Philanthropic Organization in 2008 by the Association of Fundraising Professionals (AFP).
- The Company earned a 100 percent rating for the fourth consecutive year from the largest U.S. advocacy group for gay, lesbian, bisexual and transgender employees.
- Cummins South Pacific was named 2008 Employer of Choice for Women, one of only 99 organizations in Australia to receive the award from the Australian Government's Equal Opportunity for Women in the Workplace Agency. It was the second consecutive year the unit has won the award.
- Cummins was selected as one of the "100 Best Places to Work in IT" by IDG Computerworld. This is the second consecutive year the Company has made the list.
- Cummins was awarded the 2008 Circle of Excellence Award by the Indiana Minority Supplier Development Council for its commitment to supplier diversity.
- Cummins received the "Amigo Estrella Award" from the National Society of Hispanic MBAs Indianapolis chapter in 2008 for a second consecutive year.
- Cummins Darlington (U.K.) Engine Plant won the Institution of Mechanical Engineers/ U.K. Resource Centre for Women in Science, Engineering and Technology Award for Diversity and Inclusion in June 2008 for superior diversity programs and policies.

Products

- Cummins received the leadership in Lifting Equipment and Aerial Platforms (LLEAP) Gold Award for Design Leadership for Tier 4 QSB6.7 for both the engine and particulate filter.
- Cummins was recognized as "best in class" for Enterprise Quality Management by Aberdeen Group, a research and market intelligence organization. The Company was cited for top performance in operational metrics and reducing the cost of quality.
- The Power Generation unit of Cummins India Limited won the Confederation of Indian Industry (CII) National Award for Excellence in Energy Management in the category of "Innovative Energy Saving Product / Service" for the third successive year. Cummins received the award for its Power Quality and Adequacy Analysis service, which checks source and load compatibility.
- Cummins received the PACE Award for significant product innovation for the 6.7L Turbo Diesel Engine from Automotive News.
- In December, Cummins Power Generation was named the recipient of the 2008 Frost & Sullivan North American Generator Set Product Quality Leadership of the Year Award.
- Cummins Generator Technologies India Ltd., of Ranjangaon, Pune, received the Greentech Environmental Excellence Award in recognition of its commitment to environmental management. CGT was cited for the design of the new plant at Ranjangaon, which combined outstanding design with environmental management principles.

Operating Segments

Engines

SALES
$8.8 billion

EBIT Margin
6.1%

Mid-Range Engines

Diesel engines for on-highway applications from 120 – 425 horsepower. Natural gas- and LPG-fueled version from our Cummins Westport joint venture. Mid-range engines for off-highway of 31-365 horsepower

Heavy-Duty Engines

Diesel engines for on-highway applications from 280 – 600 horsepower and off-highway applications from 290 – 630 horsepower

Power Generation

SALES
$3.5 billion

EBIT Margin
10.7%

Commercial Power Systems

Generator sets, control systems and power electronics for a wide range of power requirements primarily powered by diesel and natural gas engines. Turn-key systems, combined heat and power installations, rental power, and plant operation and maintenance services

Consumer Systems

High performance diesel, LPG, natural gas and gasoline fueled generator sets with associated control systems from 2 to 99 KW for use as auxiliary power in a range of consumer, mobile, and specialty equipment

Components

SALES
$3.2 billion

EBIT Margin
5.4%

Filtration

Air, fuel, hydraulic, coolant and lube filtration, crankcase ventilation, chemical and exhaust system technology products for all engine powered systems

Aftertreatment

Catalytic exhaust systems and related products, including packaging of catalytic exhaust systems, engineered aftertreatment components, and system integration services for engine manufacturers

Distribution

SALES
$2.2 billion

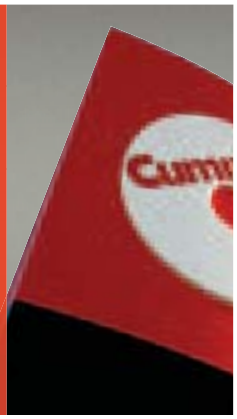
EBIT Margin
11.4%

Engines and Power Generation

Wholesale and retail distribution of Cummins engines, generator sets and related components. Application Engineering and assembly of Cummins products into packages per customer needs for: Marine and RV applications, Small original equipment manufacturers, and standby and prime Power Generation systems

Geographic Breadth:

The segment consists of 18 company-owned and 18 joint venture distributors in 300 locations in more than 70 countries and territories



Note: Sales figures exclude intercompany sales

High-Horsepower Engines
Diesel and natural gas engines from 380 – 3,500 horsepower

Aftermarket Support
New and reconditioned parts distribution and service support for customer, distributors, and dealers worldwide

Customers and Markets
- Light-duty automotive, RV, medium-duty truck, specialty vehicle, bus, heavy-duty truck, agriculture, construction, mining, marine, rail, defense, logging, power generation, oil and gas markets
- Original Equipment Manufacturers (OEMs) who install Cummins engines in their vehicles and equipment
- Global dealer and distributor network

Alternators
Newage Stamford, AVK, and Markon synchronous AC alternators from 0.6 to 30,000 kVA. Variable speed alternators, converters and control systems

Engines
Cummins diesel engines engineered for use in generator sets

Customers and Markets
- Customers needing standby power, distributed power or auxiliary power
- Public and investor-owned utilities, telecommunication providers, manufacturing and industrial facilities, mining and petrochemical sites, healthcare, retail and financial facilities, water treatment plants, and residential homes
- RV, specialty vehicle, and marine pleasure craft OEMs
- Generator set assemblers

Turbochargers
Holset turbochargers and related products, including variable geometry and wastegate turbochargers, high-pressure ratio and multi-stage solutions, for Engines ranging from 3 to 25 liters

Fuel Systems
Diesel fuel pumps, injectors, and components, high pressure common rail fuel systems for diesel engines, controls for diesel fuel systems. Reconditioned diesel pumps, injectors and electronic control modules

Customers and Markets
- Original Equipment Manufacturers (OEMs) who manufacture vehicles and equipment for all fuel powered systems
- OEMs and Aftermarket distributors, dealers, and end users who serve all engine powered systems
- Light-duty automotive, RV, medium-duty truck, bus, heavy-duty truck, agriculture, construction, mining, marine, small engines, rail, oil and gas and stationary industrial markets

Service and Parts
Sales and distribution of parts, components and related consumables. Repairs, overhaul, maintenance of all Cummins products. Develop and support a servicing dealer network to meet customers needs in their local market place

Solutions
Comprehensive business solutions using Cummins powered equipment, including rental, operation and maintenance, cost-per-hour contracts

Customers and Markets
- Customers who use Cummins-powered equipment in their business endeavors
- Dealers
- Local and regional OEMs producing lower volumes

Commitment to Stakeholders

Cummins recognizes that its duty goes beyond the bottom line. While the Company must deliver value to shareholders, it also strives to responsibly and effectively serve all stakeholders – customers, employees, business partners and the communities in which it operates.

The Company actively engages all stakeholders, seeking feedback and doing its best to keep them informed of Cummins' actions and performance. The Company's policies reflect a commitment to financial excellence, environmental stewardship, creating a great place to work, corporate responsibility and fair competition.

Our activities related to the community are detailed in the Corporate Responsibility section of this book, which begins on page 88.

Customers

As a company, we realize it is not enough to develop the most innovative technology or build the most dependable engines. Our customers have to believe, and we must show them, we care as much about their success as they do.

Cummins works with key customers during development and production to ensure that products are manufactured to customers' satisfaction. Increasingly, Cummins is using Six Sigma tools to help its customers and suppliers reduce costs and improve quality.

The Company's goal for using Six Sigma with customers is to create the shared belief that Cummins cares as much about the customer's business as the customer itself. Cummins currently has approximately 270 active customer-focused Six Sigma projects underway and has completed more than 880 projects since 2005.

Each business unit has a leader responsible for developing projects to meet the needs of its customers. Also, each business unit is charged with developing customer-focused Six Sigma projects that tackle the issues and problems facing individual customers.

Cummins has developed several corporate-wide initiatives to improve the level of customer support across the Company. Notable has been the Customer Support Excellence (CSE) training, which includes a different approach to meeting customer needs by looking at an issue through the customer's perspective.

The CSE program has made great progress since its inception in 2005. More than three-quarters of our employees say they clearly understand how their jobs impact the customer experience, while nearly one quarter are involved in Customer Focused Six Sigma projects

Our "Through the Lens of the Customer" initiative to date has trained 26,000 employees in 12 countries. The Net Promoter Score® (NPS) program and training are beginning to be rolled out globally. The NPS is a simple way to create a clear measure of a company's performance in its customers' eyes. NPS also creates a link between the quality of a company's customer relationships and its profitable growth.

The Cummins Operating System

The Cummins Operating System (COS) helps develop common practices and approaches designed to improve customer satisfaction and profitability. The COS is designed to reduce waste, improve quality, increase responsiveness and develop people.

The COS consists of 10 operating practices that are common across the Company. It is supported by nine common functions, each with a Functional Excellence framework. The Functional Excellence framework at Cummins provides standards, measures, skills

requirements and an individual work plan so each function in the Company can provide service or support at world-class levels. Employees are trained on the COS and Functional Excellence approaches and their importance to Cummins' future success.

In 2006, Cummins began conducting COS assessments. These assessments allow us to demonstrate that the 10 COS practices are embedded in our key processes. They also allow us to identify improvement opportunities and develop an improvement plan to close the gaps.

Employees

As of December 31, 2008, approximately 36 percent of our employees worldwide were represented by various unions under collective bargaining agreements that expire between 2010 and 2014.

Cummins has a long history of being an employer of choice. That reputation continues to this day and is reinforced by the Company's competitive salary and benefits offerings, training and career development opportunities and positive work environment.

Cummins employees enjoy a full slate of benefits. In the U.S., for example, we offer innovative and competitively priced health-care coverage; disease management and wellness programs; flexible spending accounts for medical and dependent care; pension and retirement programs; access to world-class child development centers; flexible work schedules; employee assistance programs and more. These benefits also were made available to non-spousal domestic partners in 2000. We offer employees similar programs at all of our locations around the world.

Cummins places a premium on its workers treating one another with respect and dignity. Treatment of others at work is a key component of the Company's Code of Business Conduct and is the subject of mandatory training for all new hires. Training and career development opportunities also play a crucial role in Cummins' success and in the Company's efforts to attract and retain a talented workforce.

The company provides to new employees training courses covering treatment of others, diversity, information and physical security, sexual harassment issues, the Cummins performance management system and the Cummins Operating System. In addition, the Company's Powertrain program offers on-line training on a variety of subjects, ranging from business software applications to project management skills to interpersonal and communications skills to presentation and leadership skills.

Employees' performance and development plans are reviewed through the Cummins performance management system called OnTrack. Through OnTrack, employees work with their supervisors to create challenging work plans that reflect the goals of the Company and its individual performance cells. Employees receive formal feedback from supervisors and peers quarterly, in addition to a comprehensive annual evaluation.

Cummins also offers its employees opportunities for growth within the Company as their skills and interests dictate. Cummins has a strong history of "growing its own" leaders, and employees regularly move freely from one part of the Company to another. Employees are encouraged to seek out new challenges and to continually broaden their skill sets. High-potential employees are identified and offered comprehensive leadership training as part of the Company's ongoing efforts to develop its leaders from within.

Business Partners

Cummins has working relationships with distributors and suppliers across the world. Similarly, the Company acts as a supplier of components to a number of equipment manufacturers, and has been able to build strong bonds with its business partners.

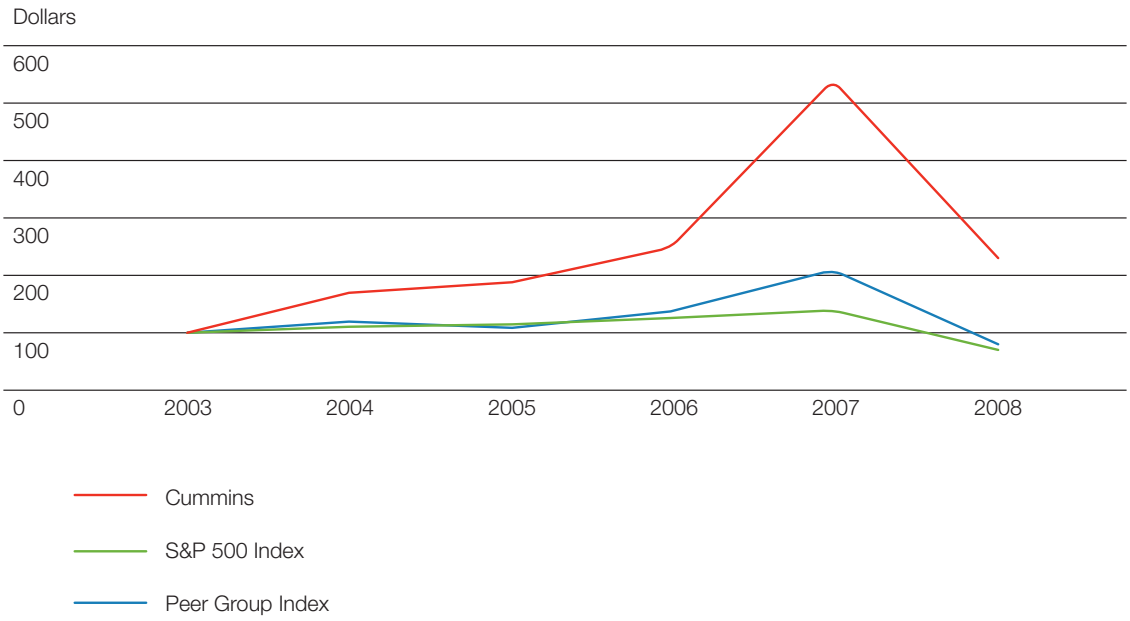
One of the Cummins Operating System principles is to treat preferred suppliers as business partners. In China, that practice is best exemplified by Cummins' relationship with Yinlun, a supplier of oil coolers. All four Cummins engine joint ventures in China are supplied by Yinlun, and Cummins' China International Purchasing Organization exports more than $20 million in Yinlun products annually to Cummins engine plants around the world.

Yinlun in turn has embraced several Cummins practices, including Six Sigma and Lean Manufacturing. Yinlun has invested in agents and joint ventures globally to ensure that quality work and service support are available in the U.S., U.K. and Brazil. One outcome of its excellent, ongoing performance is a series of awards for cost reduction, quality, delivery, technical innovation, service and leadership given by Cummins joint ventures in China.

Suppliers

Cummins has launched a focused effort to ensure that the Company's most critical suppliers are committed to improvement through Six Sigma. Critical suppliers to Cummins must meet specific Six Sigma performance requirements. Cummins' quality is heavily dependent on the quality of our suppliers' products. Our experience is that Six Sigma is a reliable approach to quality improvement.

Comparison of 5-Year Cumulative Total Return at Year-end 2008



Cummins' Jamestown Engine Plant, which produces the heavy-duty engines that power Class 8 trucks, relies on metal components and sub-assemblies supplied by outside manufacturers. One such supplier was experiencing high rejection rates early in 2008, causing disruptions on the factory floor. A supply-focused Six Sigma project declared a goal of reducing this rejection rate by more than 93 percent. We found that failures resulted from three basic problems for which the supplier was not inspecting. With new procedures, this supplier has now reduced its failure rate by 98 percent, improving its reputation as a precision manufacturer and increasing efficiency at the Jamestown Engine Plant.

Shareholders

Returning value, in terms of profits, rising stock prices and dividends, is a primary measure of a company's commitment to its shareholders. Beyond returning financial value, Cummins believes it owes investors a transparent window into its financial workings.

Cummins goes to great lengths to keep the investing community up-to-date on its performance and future outlook. Top executives hold quarterly teleconferences with industry analysts to discuss financial results. Company representatives also host or attend a number of investor conferences during the year, and meet or talk directly with individual analysts and investors on nearly a daily basis.

Cummins' corporate governance practices on behalf of the shareholders include the following:

- The full board of directors is elected annually.
- The audit, compensation and nominating committees are made up of independent outside directors.
- The company has a designated independent lead director.
- Executives and directors are subject to stock ownership guidelines.
- All stock-based incentive plans have been approved by shareholders.

Economic Performance

Cummins reported its fifth consecutive year of record sales and profits in 2008, despite significant global economic challenges that negatively affected fourth quarter performance.

For the year, sales increased 10 percent to $14.3 billion, compared to $13.05 billion in 2007. Net income rose 2 percent to $755 million, or $3.84 per share. Earnings Before Interest and Taxes (EBIT) were $1.2 billion, or 8.5 percent of sales.

As of the end of 2008, Cummins investors have enjoyed a five-year average annual total return of 18 percent. The Company also has increased dividends by 133 percent since July 2006. We also executed a pair of two-for-one stock splits; one during 2007 and the other in early 2008. Cummins increased its dividend for the third time since July 2006 and repurchased 2.3 million shares of stock worth $128 million as part of its $500 million repurchase program announced in December 2007.

During the fourth quarter of 2008, the Company took several steps, including a significant workforce reduction, to respond to what has become the worst global recession since World War II. The Company's goal is to maintain a solid profit level through the downturn and to preserve our ability to grow profitability in the future.

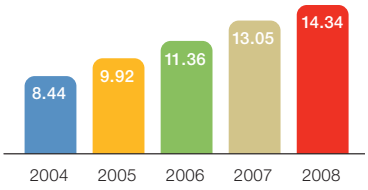
Still, we expect 2009 to be extremely challenging. The recession almost certainly will last through the end of this year, and we are assuming it could take until 2011 for the global economy to fully recover.

We remain confident that the Company is well positioned to achieve its long term growth targets once our global markets improve. But for the short term our focus will be on:

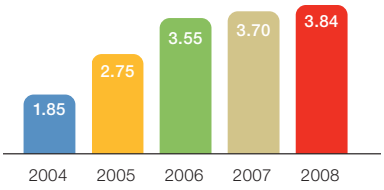
- Reducing costs and manufacturing capacity to align them with demand.
- Managing the business to ensure that we are generating positive cash flow.
- And, strategically investing in critical technologies and products for 2010 and beyond.

Detailed financial information can be found in the Investors and Media section of the Company's website, www.cummins.com. The Cummins' Fact Book, also found on the web site, contains income statement and balance sheet trends for the past 10 years.

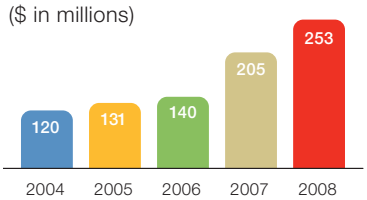
Net Sales ($ in billions)



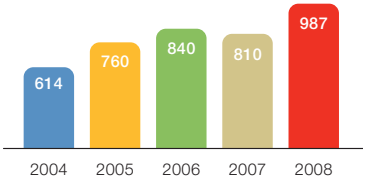
Diluted Earnings per Share ($)



Investee Equity, Royalty and Other Income ($ in millions)



Cash from Operating Activities ($ in millions)



Competitive Strengths

We believe the following competitive strengths are instrumental to our success:

Strong balance sheet. Cummins has worked hard over the past several years to strengthen its balance sheet. The company has a low debt-to-captal ratio of 17 percent and access to nearly $2 billion in liquidity. Despite a sharp decline in the financial markets in 2008, Cummins pension fund experience less of a decline than other large funds and is still funded at 85 percent.

Technology leadership. The Company's leadership in combustion research, fuel systems, air handling, turbochargers, electronics, filtration and aftertreatment plays a critical role in helping us meet emissions regulations and reducing greenhouse gas emissions.

Growing market share. Our technology leadership has earned us increased share in many markets over the past several years. Here are some examples of our market share by products and regions:

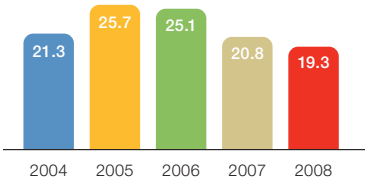
- U.S./Canada heavy-duty truck – 45 percent
- Brazil medium-duty truck – 33 percent
- India industrial equipment markets - 30 percent
- Alternators globally – 25 percent
- High-horsepower genset globally – 22 percent

Global footprint. Sixty percent of our sales in 2008 came from outside the U.S. compared to just 43 percent in 2000. We had $3.7 billion in exports in 2008 and $11 billion in the past three years. We have an established presence and strong joint venture partners in large emerging markets. Our Power Generation business is poised to take advantage of future need for power in developing regions such as Africa and the Middle East. We have a global distribution system with some ownership of 85 percent of channel revenue.

Strong partnerships. Cummins has 55 joint ventures in 18 countries. We have long-term sales agreements in North America with leading truck Original Equipment Manufacturers (OEMs). In China, India and Russia, we partner with local OEMs, reducing investment risk and giving us ready access to those markets. We also have several joint ventures with Komatsu on a global basis to develop applications for the industrial segment.

Experienced management team. Cummins is fortunate to be led by a management team that has deep and broad management experience across businesses and roles in Cummins. The team has experience in managing in both growth and recessionary periods and has returned business units to profitability. They know how to align costs with business demand while still taking care of customers,

Return on Equity (%)

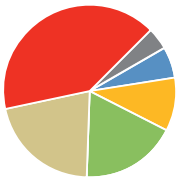


Total Sales by Market (calculated before intercompany eliminations)

20 Power Generation
18 Components
17 Industrial
13 Heavy-Duty Truck
12 Light-Duty Truck and RV
9 Stationary Power
6 Medium-Duty Truck and Bus
3 Distribution

(by percentage)

Total Sales by Geography (2008)



41 United States
21 Europe and the CIS
18 Asia and Australia
10 Mexico and Latin America
6 Africa and Middle East
4 Canada

(by percentage)

Governance

Over the past 90 years, Cummins has developed a reputation as a company that places a premium on the well-being of its employees and that strives to improve the communities in which it operates.

Going back to its earliest days, when the founding family kept the company afloat during difficult times because it felt a responsibility to provide jobs to the young men of Columbus, Indiana, Cummins has been as much about people as products. That legacy was built by longtime former Cummins Chairman J. Irwin Miller and is carried out today through the leadership of Cummins' senior executives and employees worldwide.

Cummins' management and its employees around the world continue to work as partners today, building leading-edge products in clean, safe environments, while working together to strengthen the community.

"Creating a great place to work" is one of Cummins' strategic business principles. At the core of that approach are the Company's efforts to engage employees and other stakeholders in understanding and living the Company's values, as well as playing an active role in pursuing continuous improvement across the Company.

That engagement and commitment to ethical behavior take many forms, some of which are discussed in the pages that follow.

Cummins Code of Business Conduct

The Cummins Code, which was approved by senior leadership and the Cummins Board of Directors, is built around 10 "Statements of Ethical Principles" that provide the foundation for ethical behavior at Cummins. The principles are backed by Corporate Policies and other key documents that give specific guidance on topics and issues addressed by the statements.

The 10 Statements of Ethical Principles are:

- We will follow the law everywhere.
- We will embrace diverse perspectives and backgrounds, and treat all people with dignity and respect.
- We will compete fairly and honestly.
- We will avoid conflicts of interest.
- We will demand that everything we do leads to a cleaner, healthier and safer environment.
- We will protect our technology, our information and our intellectual property.
- We will demand that our financial records and processes are accurate and that our reporting processes are clear and understandable.
- We will strive to improve our communities.
- We will communicate with honesty and integrity.
- We will create a culture where all employees take responsibility for ethical behavior.

In late 2008 Cummins began rolling out "second generation" online training for salaried and office workers around the world on the Code. This training will continue in 2009 and is being offered in multiple languages.

To view the current Cummins Code of Business Conduct, go to www.cummins.com and click on the link from the home page.

Cummins Compliance Training

Cummins is committed to ensuring that its employees, and those with whom it does business, follow all applicable laws in the locations we do business.

Since late 2005, Cummins has introduced 10 online compliance training courses targeted at the appropriate employee groups. This training includes:

- Code of Business Conduct
- Treatment of Each Other at Work
- Export Controls
- Anti-bribery/Foreign Corrupt Practices Act
- Antitrust
- European Union Competition
- Careful Communication
- Intellectual Property
- Managing Within the Law
- Lobbying and Political Action

These courses are offered in multiple languages where necessary and employee completion is tracked. More than 79,000 training subscriptions have been offered to employees since late 2005 (many employees must take more than one course due to the nature of their work) with a 96 percent completion rate. The Company expects to update both the Export Controls and Anti-bribery/Foreign Corrupt Practices Act courses in 2009 and offer those courses to targeted employees to ensure that they have the most current information. Cummins is also working to provide reference materials for each course for employees to refer to on a day-to-day basis.

In addition, Cummins in 2007 began offering training courses to key employees at its distributors in many locations both inside and outside the United States. Today 97 distributors worldwide participate in the Compliance Training program. Employees at these distributors are enrolled in Export Controls and Anti-bribery/Foreign Corrupt Practices Act courses and have a 91% completion rate. In 2009, training will be expanded to additional distributors.

Compliance Training (2008)

Course	Subscriptions	Completion Rate
Code of Conduct (05 ver)	16,263	98%
Code of Conduct (08 ver)	3,214	95%
Treatment of Each Other	17,261	95%
Export Controls	10,411	94%
Foreign Corrupt Practices Act	10,972	94%
Antitrust	3,631	99%
European Union Competition	137	100%
Careful Communication	12,537	95%
Intellectual Property	3,742	94%
Managing Within the Law	128	81%
Lobbying and Political Action	344	99%

Ethics Violations, Reporting and Investigations

Cummins employees are encouraged to report suspected violations of the Company's Code of Business Conduct or any type of misconduct, and are given several different means of sharing their concerns.

The Company's third-party reporting system, EthicsPoint, allows employees around the globe to report concerns either on-line or through toll-free numbers in multiple languages. Employees can report concerns anonymously where allowed by law. Still, more than half of all complainants in 2008 identified themselves, showing a large degree of trust in the Company's ethics investigation process. Those who report about any topic are protected under the Company's anti-retaliation policy.

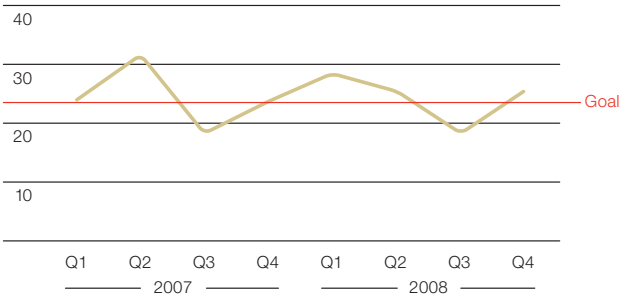
Cummins has a global team of trained Master Investigators who investigate complaints and ensure that appropriate action is taken in a timely fashion. In 2008, Cummins investigated 682 ethics-related complaints, compared to 541 in 2007. The numbers grew because of increased training and promotion of the reporting process. Of the cases investigated in 2008, 52 percent resulted in a finding that the complaint had some merit – and of those 27 percent (95) resulted in employee termination. Cummins is currently meeting its goal for average closure of ethics cases of 24 days.

Complaints of unprofessional behavior and those grouped into the Human Relations category accounted for more than half the total ethics cases investigated in 2008.

Cummins has a robust process for monitoring complaints and how they are handled. Each quarter, we provide each Business Unit leader with a summary of the complaints in his or her region and their resolution. Our CEO also receives a quarterly update. In addition, once a year we provide data regarding complaints to the Audit Committee of our Board of Directors.

The Company's reporting system and its commitment to investigate, take action and protect those who raise concerns help us bring our Code of Business Conduct to life.

Ethics Cases (Days-to-Close)



Ethics Certification Process

During the fourth quarter of 2008, approximately 12,700 Cummins employees completed their annual Ethics Certification. Employees certified their compliance with the Company's Code of Business Conduct and underlying policies and reported any exceptions to Company policy. Internal Audit and the Cummins Law Department reviewed all exceptions to ensure they were documented and investigated according to Company policy.

Diversity Audits

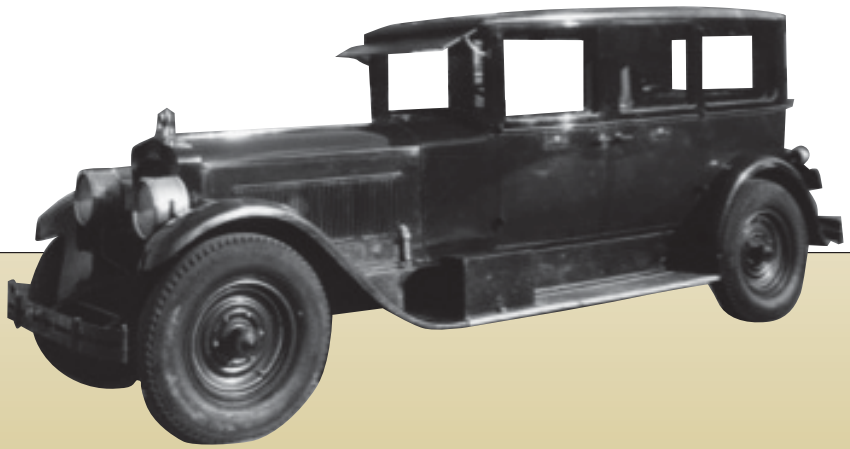
Rigorous diversity audits have been conducted at Cummins' facilities for more than a decade and are today a central component of our efforts to ensure that employees enjoy a positive, safe and productive work environment.

The process began in 1997, led by the Cummins Law Department, and is focused on making sure that our locations are in compliance with the laws, are operating in a way consistent with our commitment to diversity and equal opportunity, and are taking the right steps to provide employees with a great place to work. In that time, the Company has conducted more than 60 diversity audits at 30 sites in the United States and Europe.

The audits are conducted by teams of four to eight employees with diverse backgrounds who have no direct connection to the site being audited. The team tours the facility and also examines satisfaction surveys, training records, personnel files and other documents to ensure full legal compliance and assesses the work environment. The audit also examines the diversity of employees and the site's commitment to creating an inclusive and representative workforce.

A key component of the audit involves team members conducting confidential one-on-one interviews with a randomly selected cross section of approximately 10 percent of the site's workforce. Employees are asked a variety of questions regarding their work environment, knowledge of workplace policies and procedures, and their perceptions as to whether local management is committed to the Company's values, most notably our Code of Business Conduct, Treatment of Each Other at Work policy and diversity.

Results of the audits are shared with local management and with the Company's senior leadership. If issues are discovered, the site must create an action plan to address issues.



Clessie Cummins installed a Model U marine engine in a Packard Limousine, the first car in America with a diesel engine and one of the earliest in the world. The Packard drove 800 miles from Indianapolis to New York, the first ever long distance diesel trip in the U.S.

1929

Supplier Code of Conduct

Cummins places a premium on doing business with companies that share its values and that treat their employees with dignity and respect.

The Code spells out standards of conduct to which it requires its suppliers to adhere, including provisions banning child or forced labor, respecting employee rights and providing a safe workplace for employees.

In 2009, Cummins released a new Supplier Code. The new Supplier Code was updated to align with the Company's internal Code of Conduct and to better emphasize the standards that suppliers must meet.

To date, the new Supplier Code has been translated into 14 languages. This new Supplier Code makes it clear that its expectations of conduct exceed mere compliance with local law and that suppliers are held to a higher standard.

At the end of 2007, Cummins had sent the Cummins Supplier Code of Conduct to more than 2,800 suppliers and had received a 99.5 percent response rate, with 99.6 percent of those responding indicating that they were in compliance with every element of the code. Cummins is currently reviewing the supply base to ensure that suppliers which represented greater than 80 percent of purchases in 2008 have responded to the Supplier Code of Conduct. When new suppliers are added, compliance is established in one of two ways. If a legal contract is in place, the Cummins Supplier Code of Conduct is a part of the agreement. If the terms and conditions of the relationship are confined to a purchase order, Cummins purchasing department solicits a response from the suppliers and addresses any areas of concern. Cummins is working with those suppliers who have not responded to attain our goal of 100 percent participation.

The Cummins Number 8 Duesenberg racecar was the first diesel to break the 100 mph barrier on the hard sand at Daytona Beach, Florida. Powered by a 100 hp Model U, the racecar was also the first to complete the Indy 500 non-stop.

1931

Cummins Noted for Excellence in Governance and Ethics

Cummins has been selected as one of the world's "Most Ethical Companies" for 2009 by the Ethisphere Institute. Ninety-nine companies were selected for the recognition from an initial pool of more than 10,000 companies.

ETHISPHERE
GOOD. SMART. BUSINESS. PROFIT.

This is the third year Ethisphere, which describes itself as organization "dedicated to the creation, advancement and sharing of best practices in business ethics, corporate social responsibility, anti-corruption and sustainability," has compiled its list of most ethical companies. Cummins has been recognized each of the past two years.

Reviewers for the Ethisphere Institute examined a wide range of information in selecting the companies for its list including: codes of ethics; litigation and regulatory infraction histories; investment in innovation and sustainable business practices; activities designed to improve corporate citizenship; nominations from senior executives, industry peers, suppliers and customers; and feedback from consumer action groups.

Cummins received the highest possible rating for its corporate governance practices from GovernanceMetrics International (GMI). Cummins was one of just 43, or 1 percent of the companies rated, that received GMI's highest rating of 10.0.

GMI rated companies based on six areas of analysis: board accountability, financial disclosure and internal controls; executive compensation; shareholder rights; ownership base; takeover provisions and corporate behavior; and responsibility. Companies are rated from 0 to 10.

GovernanceMetrics International monitors and rates corporate governance for approximately 4,200 businesses worldwide. Companies are measured using objective data, starting with a review of public information about each business that includes regulatory filing, websites and news articles. GMI assigns both global and national ratings to companies, allowing each corporation to compare itself to both businesses around the world and at home.

GMI

Internal Audit

Cummins has a robust global Internal Audit department that provides the Board of Directors and management with independent, objective information on the performance of the Company's control environment.

The Executive Director — Internal Audit reports to the Audit Committee of the Board of Directors and helps the Audit Committee ensure the integrity of the Company's financial statements and financial reporting, identify operational efficiency improvement opportunities, and monitor the Company's compliance with ethics policies and legal and regulatory requirements.

In 2008, Internal Audit issued 150 audit reports and audit memos covering functions and businesses around the globe. Internal Audit also has a formal implementation plan follow-up process to ensure management has addressed identified risks and implemented corrective actions. When a function or business receives an "Unacceptable" audit grade, the Business Unit leadership must present the corrective action plans to the Audit Committee of the Board of Directors.

Joint Venture Relationships

Cummins does business around the world through a number of joint venture agreements and alliances with business partners to increase our market penetration, expand our product lines, streamline our supply chain management and develop new technologies. Regardless of whether Cummins directly manages the joint venture entity, we take appropriate steps to ensure that the joint ventures share our values.

First, we carefully screen potential partners and only create joint ventures with partners we know and trust. Through our employees' participation on the Boards of these entities, we make sure that Cummins values are embodied in the joint venture.

We are taking new steps to ensure that our joint venture entities treat their employees in a fair and equitable fashion. In 2009, all of our North American joint venture partners and distributors had adopted our Code of Business Conduct or a substantially similar code that embodies the same principles. We also have begun an audit of the existing codes in place at all our international joint venture partners, and will ensure that such entities have or adopt codes in line with our own.

In 2007, we developed a training package to orient Cummins employees who serve as directors of our joint ventures to their responsibilities. The training emphasizes the internal review processes that we use in selecting a joint venture partner. This training focuses on the role of the Cummins director in the management of the joint venture and stresses the support available to the directors from Cummins specialists in the areas of finance, human resources, operations, safety, environmental and other functions. The training also stresses the establishment and maintenance of a favorable relationship with the JV partner as an aid in resolution of disputes that arise.

During 2007, six training sessions were conducted in Indiana, India, China and England. Approximately 100 JV directors, general managers and financial leaders have been trained. The training continued in 2008 in Brazil and Indiana.

In addition to this face-to-face training, Cummins also has launched a pilot program to deliver some of its on-line compliance and ethics courses – such as courses on anti-bribery and export controls – to employees of JVs. This program has been launched with the joint venture distributor network in North American and also is being rolled out to targeted international joint ventures.

Cummins Board of Directors

Cummins is governed by an nine-member Board of Directors. Among the directors, only Cummins Chief Executive Officer Theodore (Tim) M. Solso and President and Chief Operating Officer N. Thomas Linebarger are current employees of the Company. Board members are:

Robert J. Bernhard Vice President for Research and an engineering professor of the University of Notre Dame, appointed in 2008.

Robert J. Darnall Retired Chairman and Chief Executive Officer of Inland Steel Industries and a Cummins director since 1989.

Robert K. Herdman Managing Director of Kalorama Partners LLC, a Washington D.C.- based consulting firm, appointed in 2008.

Alexis M. Herman Chairman and Chief Executive Officer of New Ventures Inc. and a director since 2001.

N. Thomas Linebarger President and Chief Operating Officer of Cummins. He was elected director in 2009.

Georgia R. Nelson President and CEO of PTI Resources, LLC. She joined the Cummins Board in 2004.

William I. Miller Chairman and CEO of Irwin Financial Corp. and a director since 1989.

Theodore (Tim) M. Solso Chief Executive Officer and Chairman of the Board at Cummins since 2000, after serving as Company President since 1995.

Carl Ware President and Chief Operating Officer of Ware Investment Properties, LLC. He was named a director in 2004.

Corporate Governance Principles for the Board

The primary mission of the Board of Directors is to represent and protect the interests of the Company's stakeholders. In so doing, the Board has the legal responsibility for overseeing the affairs of the Company, and has certain specified powers and authorities with respect to corporate action provided by Indiana statutes.

The Board's oversight function is first exercised through the election and appointment of competent officers. The Board relies on the integrity, expertise and competency of these officers in carrying out its oversight function.

The Board's responsibilities include the following:

- Adopt corporate governance principles consistent with the Company's Vision, Mission and Values.
- Exercise sound and independent business judgment with respect to significant strategic and operational issues, including major capital expenditures, diversifications, acquisitions, divestitures and new ventures.
- Advise senior management.
- Monitor:
  - The performance of the Company
  - The performance of senior management
  - The effectiveness of internal controls and risk management practices
  - Compliance with all applicable laws and regulations
  - Communications and relationships with stakeholders

A 32-seater Mack bus repowered with Cummins 125 hp Model H diesel set a transcontinental bus record time from New York to Los Angeles in just over 91 hours. The test bus reached speeds up to 65 mph, achieving a faster travel time than by express train.

1932

Wuxi Cummins Turbo Technologies Produces 3 Millionth Turbocharger

On August 5, 2008 Wuxi Cummins Turbo Technologies achieved a significant milestone, completing the facility's three millionth turbocharger.

Turbochargers are a vital component of modern diesel engines. They enable the engine to "breathe" more deeply, introducing more oxygen, which enables the addition of more fuel—and thus, more power. Since they are driven by exhaust gases, turbochargers do not need any power from the engine to operate. Thus, they have proven vital in the trade-off between increased efficiency and reduced emissions in diesel engines. China's growing economy needs these components, and Wuxi Cummins Turbo Technologies is increasing its ability to supply them.

Wuxi's millionth turbocharger was produced after eight years of production, with the two millionth turbocharger coming after a further three years. It was only 15 months later when the three millionth turbocharger was lifted off the production line. It is testament to the hard work of employees at the facility and sums up the rapid development of Wuxi Cummins Turbo Technologies over its short history.

A ceremony celebrating this achievement was opened by Chen Hua, General Manager of Wuxi Cummins Turbo Technologies. Joining the employees at the ceremony were key leaders from FAW Wuxi Diesel, the company's business partner. Mark O'Connor, Country Manager of China, addressed the employees and guests with expressions of appreciation. Quang Huanrong, General Manager of FAW Wuxi Diesel, followed with a speech in which he congratulated Wuxi Cummins Turbo Technologies on its swift development, commending the partnership between Wuxi Cummins Turbo Technologies and FAW Wuxi Diesel over recent years.

In discharging its fiduciary duties to act in the best interests of the Company, the Board considers the effect of its actions on shareholders, employees, suppliers, customers, communities, regulators and the broader interests of society. The Board has seven standing committees: Executive Committee, Audit Committee, Compensation Committee, Governance and Nominating Committee, Finance Committee, Proxy Committee, and Safety, Environment and Technology Committee and. The responsibilities of the Audit, Compensation, Governance and Nominating, Finance, and Safety, Environment and Technology committees are set forth in written committee charters approved by the Board.

The Company complies with all NYSE and regulatory requirements concerning the membership of certain committees, including the requirements with respect to independence and financial expertise. The Governance and Nominating Committee reviews the committee structures of the Board and the membership of the various committees annually, and makes recommendations for any changes to the Board.

Managing Risks

Controlling Exports

As an international company, Cummins faces a complex set of export controls. The United States frequently imposes trade embargoes against certain countries and places restrictions on items that can be shipped to certain other countries.

Cummins follows all applicable U.S. export laws, but goes further in some instances. For example, the Company bars transactions with any person or organization where the end destination of a Cummins product is Sudan or Myanmar (Burma); or where any Cummins product or service would be used in a military application in Syria, Libya, North Korea or Iran.

Cummins' policy on exports is comprehensive, but can be summed up in the following manner:

- We will know which countries are subject to sanctions.
- We will know our customers and business partners.
- We will know our products and be aware of their export control status.
- We will obtain necessary licenses where warranted and will strictly follow their conditions.

We believe our reputation for ethical and responsible conduct is our most important and valuable asset, and we encourage employees to raise compliance concerns to the highest levels of the Company.

All Cummins employees who complete the Annual Ethics Certification must certify their compliance with our Export Control Policy.

Crisis Communications

Making sure that Cummins is prepared if a crisis occurs is a key Company responsibility. To assist facility managers and others involved in emergency planning, Cummins routinely updates its Crisis Communications Plan. The plan includes vital information for facilities on how to communicate effectively during a crisis, as well as templates and forms to assist employees in gathering and updating information.

Cummins also has developed business continuity plans for each business unit or critical function within the business unit.

Pandemic Planning

At Cummins, the well-being of our employees is extremely important. As such, the Company has taken steps to ensure the health and safety of employees should a flu pandemic occur.

The Company formed a Pandemic Planning Team with individuals representing medical, safety, risk management, human resources, facilities, communication, business continuity and other key areas to help create a strategic response plan in the event of a pandemic.

As Cummins entered the summer of 2009, each Cummins facility was following an existing plan to cope with outbreaks of the H1N1 influenza virus. The Cummins Pandemic Response Plan includes six progressive stages, with local response growing stronger as the number of probable H1N1 cases reported near a Cummins facility grows, and declining as the number of reported cases declines. Local management has the discretion to respond to local circumstances, and the directives of local health agencies are always followed.

At higher stages, face-to-face meetings may be limited, and non-essential gatherings may be postponed. Those seeking to enter Cummins facilities may be asked to assess themselves for symptoms and are advised to seek immediate health care if they display them. At the very highest stage, management might even consider suspending operations until an “all clear” is given. No Cummins location had reached that stage, but teams continue monitoring the situation.

Managing Travel Risks

Cummins serves customers in countries and territories around the world, so global travel is part of many employees’ job. Travelers need a smooth, efficient travel process in order to reach a company’s business objectives. And during times of national, corporate, or personal crisis, travel management is crucial to reducing the risk to a company and its travelers through employee tracking and emergency assistance.

Travel management is a specialized business function that balances employee needs with corporate goals, financial and otherwise. Travel management ensures cost tracking and control, facilitates adherence to corporate travel policies, realizes savings through negotiated discounts, and serves as a valuable information center for employees and managers in times when travel is not as smooth and carefree as it used to be.

Two years ago Cummins used Six Sigma tools to develop a bid package to find a global travel management company that could measure up in terms of economics, capability, systems and emergency reporting. In the past, Cummins’ worked with numerous travel agencies across the world, which made data gathering and reporting difficult.

Today, by working closely with a limited number of global travel management companies and security intelligence suppliers, we are getting all the data needed to understand the location and disposition of global travelers. Cummins is updated on the latest developments worldwide. Whether those developments include the risk of insurrections in an unstable region or the state of a recent viral outbreak, managers can assess situations and respond in a rapid and effective manner to situations that impact personal safety and security.

Government Relations and Political Activity

Cummins maintains an office in Washington, D.C. to coordinate government relations activities. The Washington office provides strategic insight and advice to Cummins’ business leaders on emerging government issues and activities, provides top level access to government officials and key policymakers, develops and implements government relations strategies to achieve business objectives and advances business marketing objectives relative to government programs.

The office elevates government issues to senior management, ensures alignment with Cummins’ values and businesses objectives, and identifies and resolves key government issues that impact us.. Specific areas of activity include energy policy, environment, tax, trade, transportation, government research and development, government markets, workplace and human resources issues, defense and homeland security and facility and infrastructure programs.

In 2008, the office continued efforts with a broad group of environmental, industry and public groups to fully fund the Diesel Emissions Reduction Act, a national grant program to promote the retrofit of older diesel engines with emission reduction technologies. The office worked closely with the Administration and Congress on review and scoping activities for a new fuel efficiency program for medium and heavy-duty trucks. Cummins helped lead efforts to promote the installation of energy efficiency technologies, including clean and efficient combined heat and power projects, at industrial sites across the country. We also worked to promote responsible trade measures and debate, competitiveness measures such as extension of the R&D tax credit, and expanded federal research funding for energy efficient products in the transportation and energy sectors.

Cummins belongs to a number of trade organizations in order to further its business interests. We believe these organizations help us by leveraging our resources on issues where we have a similar interest. While we may not agree with the positions these associations take on every issue, we believe that participating in these organizations ensures that our voice is heard. Some of these organizations may use a portion of member dues either directly or indirectly for lobbying or other political activities.

The following is a list of trade organizations to which Cummins paid dues in excess of $50,000 during calendar year 2008. The numbers represent our estimation of the portion of our dues used by those organizations for lobbying or other political expenditures.

Trade association	Dues spent on lobbying
American Trucking Associations	$11,930
Business Roundtable	$31,000
Diesel Technology Forum	< $4,000
Emissions Control Technology Association	n/a
Engine Manufacturers Association	$10,378
National Association of Manufacturers	$13,132
U.S. Chamber of Commerce	$18,000

As a general practice, Cummins does not make political contributions with corporate funds. However, the Company maintains a corporate policy that allows for certain state and local contributions, where permissible by law. Political contributions with corporate funds may only be made with prior approval from the Company's Executive Committee. In 2008, Cummins made no political contributions of any kind using corporate funds.

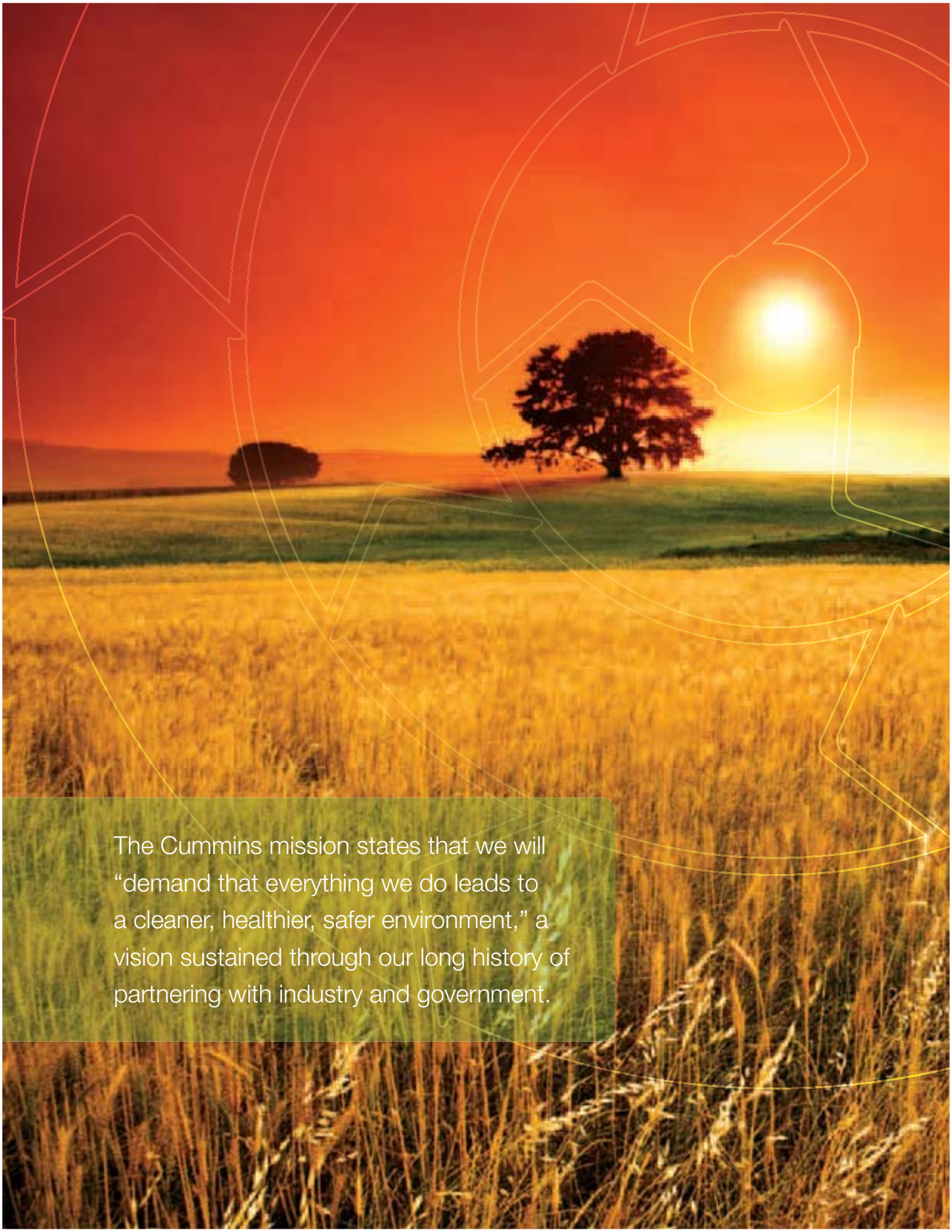
The Cummins Inc. Political Action Committee (CIPAC) makes contributions to candidates for federal office on a bipartisan basis after review and approval by the CIPAC Executive Committee and according to federal election law. A complete listing of CIPAC's contributions to candidates can be found on the Federal Election Commission website at www.fec.gov.

The Cummins Inc. Political Action Committee is strictly governed by corporate policies and by-laws that expressly state the following:

- All CIPAC contributions are strictly voluntary.
- The Company will not reimburse employees directly or indirectly for political contributions.
- Employees will not be pressured to contribute to CIPAC or make any other personal political contribution.
- No employee will be solicited by his or her immediate supervisor.
- Prior approval by a majority of the CIPAC Executive Committee shall be required for all contributions or other expenditures in the excess of $100.
- Contributions to political candidates and political organizations are based on the following criteria:
  - a. Public integrity of the candidate.
  - b. Representation of a Cummins facility or employees.
  - c. Support for issues of importance to Cummins.
  - d. Timely and effective constituent service.
  - e. Political leadership or organization.
  - f. Financial need of the candidate.
  - g. Support for our core values.
- All of our political activities are disclosed to the Cummins Board of Directors in an annual political contribution report.

A venture to build locomotives in Columbus established Cummins as one of the pioneers of diesel-electric rail power, featuring experimental 500 hp 12-cylinder VL engines. The locomotive business and the unique twin-engine design was transferred to General Electric Company.

1935


The Cummins mission states that we will
“demand that everything we do leads to
a cleaner, healthier, safer environment,” a
vision sustained through our long history of
partnering with industry and government.

Environmental Stewardship

Cummins and Climate Change

Early in 2007, Cummins formed a climate change team to take both a holistic and tactical view of climate change and sustainability at Cummins. The team's members are from across business units and functions and represent facilities, product planning, corporate strategy, environmental policy and government relations, among others. The team looks at issues that range in complexity from domestic and international energy policy and fuel economy standards to simpler challenges, such as buildings best suited for waste heat recovery and daylight harvesters.

The group's current focus is structured around newly developed principles to serve as our framework to meet the challenges of climate change going forward. Six of these principles direct company actions for our products, businesses, employees and communities, while four of them shape our partnerships with legislative and regulatory entities to develop sound public policy to address climate change

The Cummins mission states that we will "demand that everything we do leads to a cleaner, healthier, safer environment," a vision sustained through our long history of partnering with industry and government.

A few examples of how we are fulfilling our mission:

- Cummins was the first to certify to U.S. EPA's 2010 emissions standards, a full three years ahead of schedule
- Through Cummins Diesel Recon, we reuse and recycle more than 50 million pounds of material each year
- Using Six Sigma process improvement tools, we work with our customers to reduce the fuel consumption of their fleets and with our suppliers to develop more environmentally-friendly components for our products
- Cummins certifies the use of biodiesel blends up to B20 in our new on- and off-highway engines
- Cummins powers 100 percent of new natural gas urban transit buses in the U.S. as well as more than 3,000 buses in Beijing, China and 4,200 in New Delhi, India
- Cummins is reducing facility greenhouse gas emissions 25 percent below 2005 levels by 2010 as part of the U.S. EPA's Climate Leaders program.

Cummins Climate Change Principles

Consistent with our past practices and shared values, Cummins has developed 10 principles to serve as our framework to meet the challenges of climate change. Six of our principles direct company actions for our products, businesses, employees and communities:

1 **Improve Product Efficiency** We will be a leader in developing new power technologies and products to meet the needs of a carbon constrained economy.

2 **Grow and Develop New Businesses** We will identify opportunities to grow current businesses and develop new ones to deliver products and services that meet global power needs with less carbon usage.

3 **Collaborate with Suppliers and Customers** We will work with our suppliers, customers and end-users to help reduce their carbon footprint and learn from them.

4 **Make Work Spaces Green Spaces** We will reduce the greenhouse gas emissions of our facilities globally.

5 **Harness the Energy of Employees** We will build an awareness of climate change with our employees, draw on their energy and ingenuity and empower them to make a difference at work and home.

6 **Support Community Efforts** We will support communities as they reduce their greenhouse gas emissions and transition to a carbon constrained economy.

Climate Change Principles for Public Policy

Four of our principles shape our partnerships with legislative and regulatory entities to develop sound public policy to address climate change.

7 **Develop Responsible Regulations** We support regulations that meet the needs of the environment, allow appropriate time for technology development and provide for the transition to a carbon constrained economy.

8 **Promote Technology Development** We support policies to develop the right technologies and products to meet short and long-term goals for greenhouse gas reductions.

9 **Accelerate Progress through Incentives** We support incentives to encourage the commercialization and adoption of greenhouse gas reducing technologies, products and processes.

10 **Create a Balanced Global Approach** We support an international framework for climate change that reduces emissions without leading to trade inequities or barriers to global commerce.

Cummins Unplugged Challenge saves nearly $1 million and reduces carbon dioxide emissions by 7,000 tons

Cummins employees have shown that a few simple actions can make a meaningful environmental difference through their performance on the Company's first "Unplugged Challenge."

Cummins employees were challenged to improve shutdown procedures for electrical equipment over the recent Christmas holiday period to see how much money and energy the Company could save. Their efforts yielded a savings of $908,710, compared to the same period during the holiday shutdown last year – or more than 7,000 tons of carbon dioxide that was not released into the atmosphere.

The Unplugged Challenge asked employees to examine power-down procedures for ways to save both money and energy. Teams used sign templates to identify powered-down systems and documented the steps for restoring operation. Systems were set at minimal levels that would safeguard against freezing damage or problems upon startup. Employees also did sweeps on the first shutdown day to ensure lights and electronics were turned off.

Fifty-four Cummins sites across the world representing 90 percent of the Company's energy use participated in the Unplugged Challenge. Results from our Unplugged Challenge exceeded all expectations, thanks to an extraordinary participation level across every business unit. Employees were diligent in doing both the small actions that can really add up and creative in applying new procedures to save energy. The challenge produced outstanding results and set the bar high for future efforts.

Best Performance Awards

Best Energy Cost Savings
Cummins Turbo Technologies, Huddersfield
$81,373

Best Percent Energy Reduction
Cummins Turbo Technologies, Dewas
85 percent

Best Greenhouse Gas Reduction
Engine Business, Cummins Industrial Center/Cummins Komatsu Engine Co.
583 tons CO2e

Best Engagement Awards

Best Employee Communications
Cummins Filtration, Black River Falls

Best Employee Engagement
Engine Business, Jamestown Engine Plant

Best Energy Innovations
Cummins Emission Solutions, Mineral Point

Cummins helps customers improve fuel economy and reduce greenhouse gas emissions

As a leading global engine supplier in many geographic regions and engine applications, Cummins is committed to helping customers achieve the lowest operating costs. Fuel economy represents the largest single cost factor in many customers' operations. Customers count on Cummins not only for the most fuel efficient products, but also to use Six Sigma tools to help them measure, optimize, and control the critical factors that impact fuel consumption.

Cummins' ongoing efforts to help customers reduce operating costs also deliver substantial reductions in greenhouse gas emissions. From 2004 to 2008, Cummins completed 44 customer-focused Six Sigma projects, which resulted in a savings of 40 million gallons of fuel globally and 406,128 metric tons of CO2 eliminated cumulatively. This is equivalent to taking 74,382 passenger vehicles off the road.

Cummins territory managers are equipped with the skills and tools necessary to support our customers as fuel economy experts. One such tool that has been developed by Cummins is the software application known as PowerSpec. PowerSpec gives our representatives the ability to:

– Configure trucks to maximize fuel economy for a customer's unique needs

– Analyze customer data to pinpoint areas for MPG improvements

– Set adjustable features which include road speed governor, cruise control, and idle reduction

Barney Trucking, a Utah truck fleet, is an example of the success of using both PowerSpec and the Six Sigma methodology. The Cummins team worked closely with Barney Trucking on a Six Sigma miles per gallon improvement project in 2008. The objective of the project was to evaluate Barney Trucking's electronic engine settings to improve fuel economy and balance the proposed changes with required performance. Using Cummins patented features such as Load Based Speed Control and Gear Down Protection, Barney Trucking realized a 10 percent fuel economy improvement.

Cummins Energy Efficiency Team

CLIMATE LEADERS®
U.S. Environmental Protection Agency

The EPA's Climate Leaders program offers a rigorous approach to greenhouse gas reduction that yields credible results. Cummins took the most comprehensive stance possible, choosing to include in its baseline audit all management controlled entities worldwide. All GHGs at 262 sites are currently being tracked and reported in metric tons of carbon dioxide-equivalent. We have automated much of the data collection with a web-based worldwide Environmental Metrics System.

A corporate Energy Efficiency Team was chartered in the second quarter of 2007 with leaders from each business unit and related environmental functions. The team developed a strategic plan and an intensive study of energy assessments at our largest facilities was completed by the end of 2007.

These formal assessments created a working list of more 1,000 viable capital projects that we prioritized according to their financial and environmental benefits. A corporate Energy Efficiency Strategic Capital Fund supports these projects.

Collaborating with Customers

Cummins' efforts to reduce carbon intensity encompass both our products and our collaborative efforts with customers.

Engines

Cummins has numerous initiatives in this area, with key ones focused on the management of automotive heavy-duty engine idle, cruise control and speed. Idle management features supported within the Electronic Control Modules (ECMs) of our engines can help our customers reduce fuel consumption by shutting off the engine after a specified amount of time at idle. When fuel is saved less carbon is released.

The second aspect of reducing/managing the carbon risks involves our fuel economy features. Some of these features are:

- **Road Speed and Cruise Control Governor:** The feature limits the maximum vehicle speed with the driver's foot on and off the throttle. Power required, and therefore fuel burned, is directly proportional to vehicle speed.
- **Smart Torque:** By allowing high torque in the top two gears, you can minimize the number of down shifts required to maintain speed on the highway. By avoiding a downshift, overall engine speed is lowered and a lower engine speed generally equates to less fuel burned.
- **Information Features:** In addition to these "active" features, Cummins engines also have a number of "information features" where "trip" or "duty cycle" information is stored. By reviewing these data, a fleet manager can look for variations between drivers or trucks, look for trends and use the data for driver coaching.

Combined Heat and Power Applications

Cogeneration, or Combined Heat and Power (CHP), is the production of two kinds of energy – usually electricity and heat – from a single source of fuel.

Cogeneration can replace the traditional method of supplying energy from multiple sources, e.g., purchasing electricity from the power grid and burning natural gas or oil separately in a furnace to produce heat or steam. These methods can waste up to two-thirds of the energy in the original fuel. With cogeneration, 70–90 percent of the energy in the original fuel is put to productive use and total energy savings can be 30 percent or more.

A cogeneration system normally consists of a prime mover turning an alternator to produce electricity and a waste heat recovery system to capture the heat from the exhaust and cooling water jacket. The prime mover can be a diesel engine, a lean-burn gas reciprocating engine or a gas turbine.

Cummins Power Generation designs and builds cogeneration systems used around the globe in various applications. These applications include greenhouses that utilize the electricity for lighting, waste heat to keep the greenhouses at the ideal growing temperature, and the CO2 in the exhaust as food for the plants. Another application operates on the methane created in a wastewater treatment plant digester instead of venting the methane to the atmosphere. The waste heat from the generator set keeps the treatment plant digester at the ideal temperature. Other CHP applications include hospitals, schools, sports complexes, and commercial facilities.

Cummins has 430 MW of installed cogeneration installations globally with and average project size of 2 MW. These installations represent a GHG reduction of about 500,000 metric tons of CO2 per year for our customers.

New York Plant Turns Waste into Energy

Jamestown Engine Plant (JEP) is the first Cummins facility to go landfill free. Its waste now joins other waste streams from across New York State, Michigan, Ohio and Canada to be burned in a controlled incineration process. Covanta Niagara, a waste to energy (WTE) incineration facility located in Niagara Falls, New York, has been contracted by JEP to burn all of the plant's waste that was previously sent to the local landfill.

By this incineration of waste, the plant will be reducing its carbon footprint and the waste will be transformed into immediate usable power, rather than taking up space in a landfill, slowly decomposing over the next millennia.

It is this decomposition and subsequent emission of methane gas that persuaded JEP to turn to incineration of waste. According to the EPA, decomposition of trash in open landfills contributes to 131 million tons of methane being released into the atmosphere annually.

This is significant because methane is considered to be a major contributor to global warming. By eliminating landfill waste, JEP will lessen its

CO_2E (carbon dioxide equivalent) production by over 1,454 tons a year. The combustion of the JEP's trash will produce 5 million pounds of high pressure steam and generate more than 3,400 megawatt/hours of electricity over the course of a year.

Engine Testing

Cummins is working to reduce energy consumption, lower pollution levels and reduce costs through initiatives to reduce engine testing in product development and in manufacturing. These initiatives encompass design, the verification of manufacturing quality and the advanced diesel engine quality verification process. See discussion of analysis-led design on page 73.

Sustainability Reporting and Partnerships

Cummins seeks to partner with groups that help us be a better steward of the environment. For the past three years, we have participated in the Carbon Disclosure Project (CDP), an institutional investor consortium that seeks to encourage greater environmental reporting among companies.

On behalf of investors representing $31 trillion in assets under management, CDP asks companies to provide details on their carbon emissions, their positioning in response to the impact of climate change on their markets and regulatory environment, their use of energy and planning for the future.

The Company was named to the Dow Jones World Sustainability Index for the fourth year in row, being recognized again for its economic, environmental and social leadership. This index represents the top 10 percent of the world's largest 2,500 companies in these corporate sustainability metrics.

In addition, Cummins is a member of the Business Round Table Climate RESOLVE (Responsible Environmental Steps, Opportunities to Lead by Voluntary Efforts), whose members have voluntarily committed to reduce or offset greenhouse gas (GHG) emissions. Cummins also is a member of the Global Environmental Leadership Council of the Pew Center on Climate Change and Resources for the Future Climate Forum.

The Right Technology for Reducing Emissions

Products as Performance Indicators

Leadership in combustion research, fuel systems, air-handling systems, electronics, filtration and aftertreatment allows Cummins to maintain its goal of maximizing customer value by providing the most appropriate emissions control for each market served.

Cummins' diverse product portfolio meets or exceeds all emissions requirements, and at the same time, delivers on customer needs for fuel economy, performance, reliability and durability.

Cummins' technology approach for on-highway engines to meet the more stringent 2010 U.S. Environmental Protection Agency's diesel emissions standards will use an evolution of its proven 2007 solutions to maintain power and torque with comparable fuel economy and maintenance intervals the same as today. Cummins will offer a complete lineup of on-highway engines to meet the near-zero 2010 emissions standards.

The 2010 EPA Emissions and Fuel Rule

Looking ahead to 2010, emission requirements will change dramatically for heavy-duty trucks over this period. Both NOx and PM will be reduced by 90 percent from 2004 levels.

By 2010, all heavy-duty diesel engines are expected to meet the NOx standard of 0.20 grams per brake-horsepower hour (g/bhp-hr) and the PM standard of 0.01g/bhp-hr. Also by 2010, regulations will require the phase-in of advanced on-board diagnostics with additional sensors to monitor the effectiveness of emission-control systems on the engine, which will alert the driver if a failed emission-reduction device needs to be repaired.

Ultra-Low Sulfur Diesel Fuel (ULSD)

In addition to the new exhaust emission standards, the EPA is lowering the limit for diesel sulfur fuel from 500 parts per million (ppm) to 15 ppm. The new fuel standard began to be phased in October 2006 and will be completed by September 1, 2010.

Cummins has publicly expressed its support of ultra-low sulfur fuel. ULSD has several benefits. It produces less particulate matter from combustion, so it is a particulate matter control strategy for all equipment in use. In addition, ultra-low sulfur fuel enables the use of advanced aftertreatment control systems.

Ready for 2010

Cummins' entire on-highway product range will be ready to meet the new Environmental Protection Agency (EPA) regulations for the North American market beginning in 2010. The breadth of Cummins' 2010 product offerings demonstrates the Company's commitment to its customers as well as to the environment.

Cummins will offer a range of engines from the 6.7-liter ISB to 15-liter ISX, delivering best-in-class fuel economy and performance, while complying with the EPA's newest and most stringent emissions standards. This is a formula that customers need in today's economy and environment, and is why Cummins advocates and supports the implementation of EPA's commitment to the lowest diesel emission levels in the world in 2010.

For 2010, Cummins will introduce the ISX15, which will provide substantial fuel economy improvement, stronger performance, faster throttle response and overall best-in-class drivability and reliability compared to today's industry leading ISX engine. The ISX15 will feature the new Cummins XPI fuel system, next generation cooled EGR system, advanced VGTTM turbocharger and a new Cummins Aftertreatment System that incorporates Selective Catalytic Reduction (SCR) catalyst technology.

Cummins also will introduce the new ISX11.9 for vocational trucks, emergency vehicles and motor coach applications.

The ISX engine is the market leader today in the North America heavy duty on-highway truck market. Cummins' market share of the heavy duty on-highway business has grown from 27 percent in 2006 to more than 45 percent in 2008.

Cummins also will offer its ISB6.7, ISC8.3 and ISL9 engines for 2010. Cummins MidRange engines deliver best-in-class fuel economy and reliability with high power-to-weight ratios, and have made significant market share gains in medium-duty trucks and bus applications.

In addition to the fuel economy gains associated with SCR and Cummins XPI fuel system, the performance and reliability enhancements that come with decreased EGR rates are even greater than first estimated, which is more evidence that SCR is the right technology for 2010.

Competitive Advantages

Across its entire lineup of on-highway engines, Cummins is able to meet increasingly stringent emissions regulations with speed and efficiency, due primarily to two competitive advantages.

First, Cummins benefits from an integrated business structure that enables it to tap the core competencies of Cummins Emission Solutions, Cummins Turbo Technologies, Cummins Fuel Systems and Cummins Filtration. These businesses work together to bring to market technologically superior, fully integrated systems.

Second, Cummins has worldwide experience and leadership with a wide range of proven technologies. Cummins continues to execute its carefully planned product strategy, anticipating changes and investing in the research and development necessary to meet customer needs and environmental goals.

Earthrace Smashes World Record for a Greener Planet with Cummins MerCruiser Diesel Power

After a thrilling high speed run through the Suez Canal, the world's fastest vessel stopped briefly in Port Suez, Egypt. Fueled with 100 percent biodiesel fuel, the Earthrace was on its final leg of a global circumnavigation that set a new world's record. Earthrace is a 24-meter, wave-piercing trimaran vessel powered by twin Cummins MerCruiser Diesel QSC8.3-540hp engines running on 100 percent biodiesel fuel, creating tremendous power (maximum speed 90 kilometers an hour) while leaving a net zero carbon footprint.

From its start In May 2008 in Sagunto, Spain, the Earthrace, an advanced endurance vessel, traveled through the Panama Canal, the Pacific, into the Indian Ocean and through the Suez Canal with the support of an amazing number of individuals determined to see it succeed. The Earthrace faced many challenges during its journey, the second attempt in as many years by a group dedicated to proving that being environmentally conscious does not require sacrificing performance.

In the last leg of the journey, Earthrace was the only vessel in the world to receive special dispensation to pass through the Suez Canal at full speed to continue on its journey through the Mediterranean to Spain, a full 2,550 miles ahead of the world record pace set by the British Cable and Wireless team in 1998 (also using Cummins engines). According to Pete Bethune, Earthrace's captain, "Breaking the world record by such a large margin using a boat with a net zero carbon footprint proves that being green does not mean skimping on performance or design. We're hoping this big gesture will have an effect on the way people think about every aspect of their everyday lives."

Evolution of Alternative Fuel Engines

Cummins has a joint venture with Cummins Westport, which manufactures and sells the world's widest range of low-emissions alternative fuel engines for commercial transportation applications such as trucks and buses.

Cummins Westport has established its leadership position as a global provider of alternative fuel and natural gas engines. More than 2,000 buses in Beijing, more than 2,000 in Dehli, 1,000 in the Los Angeles Metro fleet and hundreds in the San Diego MTS fleet are using Cummins Westport engines. Natural gas is becoming a mainstream fuel solution and Cummins Westport engines such as the ISL-G, the first natural gas engine for trucks and buses to be 2010 EPA certified, is rapidly becoming the global standard.

In addition, Cummins Westport offers an engine that runs on both affordable, low-carbon natural gas and zero- carbon biogas. For example, refuse dumped today produces significant amounts of landfill gas or biomethane. The biogas is captured, processed and put back in the very truck that brought the refuse. This 'recyclable' business solution is driving natural gas engine orders, and reducing dependence fossil fuels.

Cummins and Biodiesel Fuels

Biodiesel is a clean-burning alternative fuel made from renewable resources like soybeans, vegetable oils and even algae. It creates about 60 percent less carbon dioxide than petroleum fuels, biodegrades as quickly as sugar, and is less toxic than table salt. Biodiesel fuel is free from the aromatics and sulfur found in traditional fuels and is one of the few alternative fuels registered with the Environmental Protection Agency for sale and distribution.

In February 2009, Cummins announced that B20 biodiesel blend can be used in its 19- to 78-liter high-horsepower engine platforms manufactured after January 1, 2008. This approval provides a significant expansion of Cummins engine compatibility with B20 usage, bringing the environmental benefits of using a 20 percent renewable fuel blend to high-horsepower applications in mining, oil and gas, rail, industrial and power generation markets.

Cummins high-horsepower engines approved for use with B20 biodiesel include the Quantum Series engine platforms from the QSK19 to the QSK78, covering a wide 506- to 3500-hp range (377 to 2610 kW).

Cummins K Series engine platforms from the K19 to the K2000E are also approved for use with B20 biodiesel across a 450- to 2000-hp range (336 to 1491 kW).

These high-horsepower engines will join Cummins EPA Tier 3 and EU Stage IIIA industrial engines already B20-approved down to the 80-hp (60 kW) QSB3.3.

Cummins understands the environmental benefits of biodiesel and has worked diligently in completing all necessary testing and evaluations to ensure approval of B20 usage in our engines. This enables us to offer guidance and information to our customers on the proper use of biodiesel in Cummins engines. For further information, a question-and-answer document is available on everytime.cummins.com.

Cummins has pledged to continue its efforts to ensure that future products will be compatible with biodiesel fuels and will continue to participate in industry efforts to develop consistent quality throughout the biodiesel industry.

The “Bubblenose” tractor with cab-over-engine played a major role in establishing Freightliner as a recognized truck manufacturer. With a compact 225 hp HR600 Cummins, very short cab length and much use of lightweight aluminium, the innovative tractor enabled heavier and bulkier loads to be carried.

1949

San Luis Potosi (Mexico) Cummins employees recycled 39,000 containers in one month to celebrate Earth Day in 2008.

Cummins Filtration and the Environment

As the global leader in providing filtration, coolant and chemical technology for diesel and gas-powered equipment worldwide, Cummins Filtration takes its environmental responsibility seriously.

With more than 525 active global patents for innovative technology, Cummins Filtration continues to provide environmental leadership by designing products for the future that extend service life, lower emissions and eliminate harmful contaminants. Cummins Filtration products continually meet or exceed global emissions regulations, reduce disposal issues and support extended maintenance.

To achieve these results, Cummins Filtration offers an integrated system approach for equipment maintenance with environmentally friendly product choices for all major engine systems. This stable of green products includes the following state-of-the-art technologies:

User-Friendly Filter

The User-Friendly filter was the winner of Cummins first Design for Sustainability award in 2007. The filter is made of composite material and has significantly less environmental impact than previous steel models. The user-friendly filter requires a third less in material cost and is easier for customers to install and service. Volatile organic compounds are reduced because the filter does not need to be painted, its reformulated paper media does not require curing and the use of plastisol adhesive is avoided.

Crankcase Ventilation Filtration

Cummins Filtration's crankcase ventilation filtration products provide world-class aerosol filtration performance, as rewarded by the 2008 Frost & Sullivan Award for Product Innovation. Cummins Filtration technologies enable very clean Open Crankcase Ventilation systems, protecting both humans and the environment. Crankcase blow-by aerosol emissions to the atmosphere are reduced by more than 90 percent. Liquid oil drip is reduced by 99 percent – eliminating oil dripping onto roads, crops, bodies of water, garages and driveways – among many benefits.

Reducing Greenhouse Gases by the Ton

As with most companies in our industry, the largest part of our carbon footprint comes from energy use—chiefly the "indirect GHG" our electric utilities emit for the power we use, followed by our "direct GHG" from combusted fuels like natural gas for heating, then by "fugitive gases" directly released in manufacturing. Potent GHGs from fugitive gases were eliminated through several projects stemming from our baseline work. Reducing Cummins' carbon footprint further is fundamentally about driving energy efficiency.

Cummins Official 2005 GHG Baseline by Source

Electricity (indirect GHG) 59%

Stationary combustion (direct GHG) 22%

Fugitive Gases (process GHG) . .15%

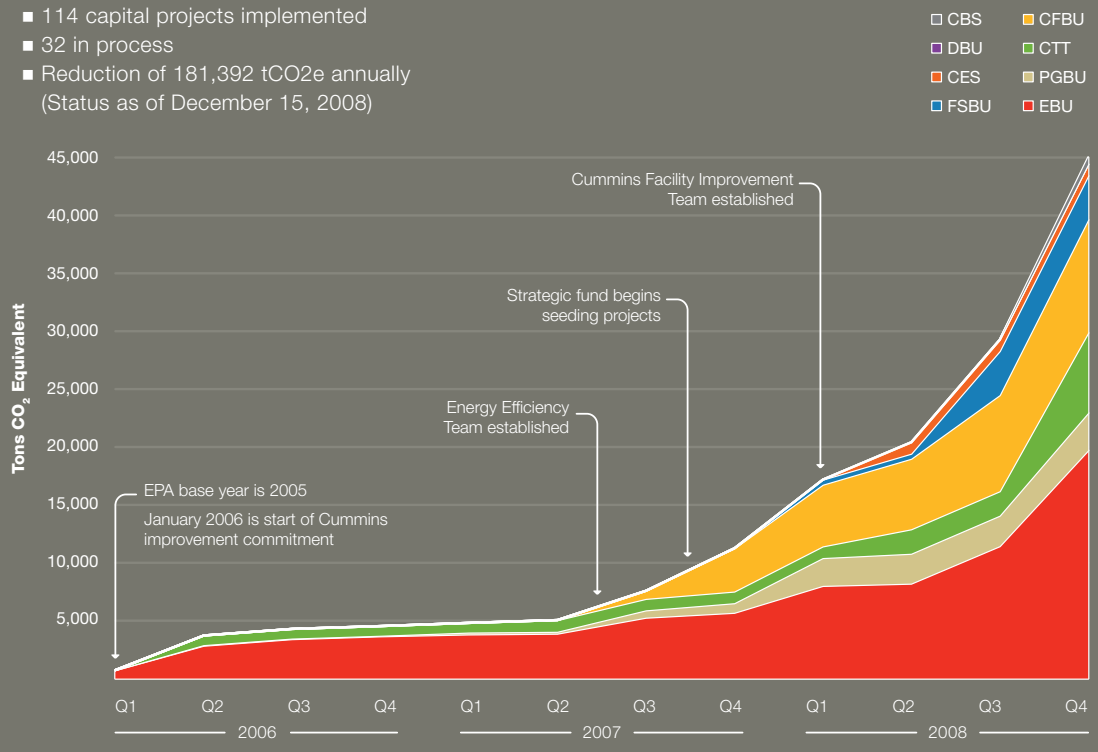
Mobile sources (owned auto/air) . . 3%

Other 1%

The mountain chart shows how rapidly the structured approach taken by the Energy Efficiency Team has enabled improvements. One hundred fourteen energy efficiency projects have been implemented, with another 32 in process by the end of 2008. More than 181,000 metric tons of GHG are now being eliminated annually. A $20 million investment is returning approximately $13 million in annual energy and maintenance savings. Cummins is on target to meet its voluntary commitment to the Climate Leaders program.

GHG Improvement from Energy Efficiency Projects (2006–2008)

- 114 capital projects implemented
- 32 in process
- Reduction of 181,392 tCO2e annually (Status as of December 15, 2008)



ES Compleat™ Glycerin Premix Long-Life Antifreeze/Coolant

The Fleetguard ES Compleat is an innovative heavy duty engine antifreeze/coolant that uses glycerin instead of traditional ethylene glycol (EG) or propylene glycol (PG). Glycerin is derived from renewable sources and is the primary byproduct of the biodiesel manufacturing process.

Oil and Fuel Modules with Incinerable Replacement Cartridges

For more than 10 years, Cummins Filtration has partnered with our OEM customers to create oil and fuel modules for heavy-duty applications. Originally, the modules were 100 percent metal, and the replacement cartridges were complex with multiple metal pieces. Today's modules contain less metal and continue to progress toward increased sustainability.

Nanofiber Media

Engineers from Cummins Filtration in 2008 received the prestigious Diploma of Recognition from the International Federation of Automotive Engineering Societies (FISITA) for their research paper on the company's innovative Direct Flow engine air filter with nanofiber filter media. The role of fine, more efficient engine filtration has increased due to new engine exhaust particulate and evaporative emission regulations, as well as the introduction of new international test standards that focus on the sizes of dust particulate that penetrate the filter. Engine lifetime, fuel consumption and engine emissions greatly depend on the design of all engine filtration systems. To meet these expectations, filter development lately has focused on reduced volume filters and ultrafine, nanofiber filter media.

Direct Flow

Direct Flow is a new technology that offers greater filtration performance in a smaller, more versatile size. Direct Flow optimizes the utilization of the filtration media and creates a direct air flow path into the engine providing higher performance than conventional product designs. The Direct Flow filter system uses recycled material in up to two-thirds of the system components with some components being constructed entirely from recycled materials. The filter contains no metal and is fully incinerable.

Filter in Filter

Filter in filter significantly reduces weight, volume of material. For more than ten years, Cummins Filtration has partnered with our OEM customers to create oil and fuel modules for heavy-duty applications.

Diesel Exhaust Fluid

Diesel Exhaust Fluid (DEF), known as AdBlue in Europe, is a urea-based chemical reactant designed specifically for use in SCR systems to reduce NOx emissions. Cummins Fleetguard's DEF is API certified and meets ISO22241 specifications for purity and composition, with environmentally-friendly features such as: non-toxic and non-polluting, non-flammable and non-hazardous.

Emission Regulations and Cummins Product Goals

Since the 1970s, Cummins on-highway engines have been regulated by the EPA and similar regulatory agencies around the world for combustion emissions, including NOx, carbon monoxide (CO), hydrocarbons (HC) and PM, also known as soot.

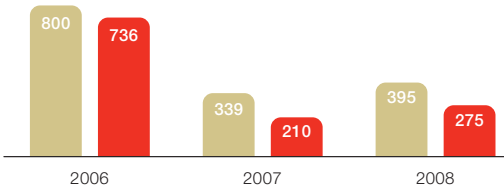
Cummins works closely with regulatory bodies to seek aggressive, but technologically feasible, emission reductions that also allow us to continue to make products that meet the exacting needs of our customers.

When compared to emissions from unregulated engines — i.e. before EPA standards became effective in 1973 — today's on-highway diesel engines emit 90 percent less PM and nearly 90 percent less NOx. Cummins and other engine-makers are required by the end of the decade to further reduce PM and NOx to levels 99 percent lower than the unregulated levels.

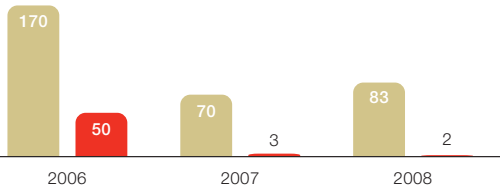
Off-highway engines produced by Cummins also are subject to stringent emission standards. While the combustion process for off-highway engines is fundamentally the same as for on-highway engines, the emission control strategies are not interchangeable because of the broad horsepower range, unique applications and the wide variety of duty cycles typical of off-highway products.

Between 1995 and 2006, off-highway engine emissions for NOx and PM have been reduced by 80 percent and 85 percent, respectively. And from 2010 to 2014, off-highway engines will be controlled to essentially the same level of emissions as their on-highway engine counterparts. By 2014, NOx and PM emissions from off-highway engines will be 98 percent lower than they were in 1995.

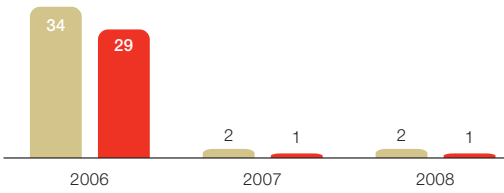
Total Automotive Useful Life Emissions Nitrogen Oxides (NOx) in 1,000 Tons



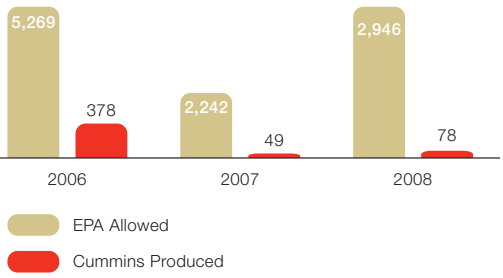
Total Automotive Useful Life Emissions Hydrocaarbons (HC) in 1,000 Tons



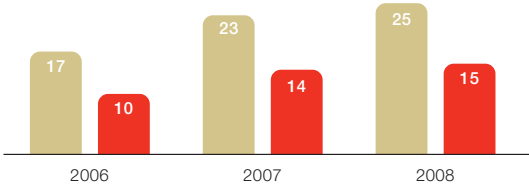
Total Automotive Useful Life Emissions Particulate Matter (PM) in 1,000 Tons



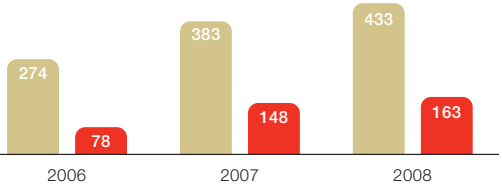
Total Automotive Useful Life Emissions Carbon Monoxide (CO) in 1,000 Tons



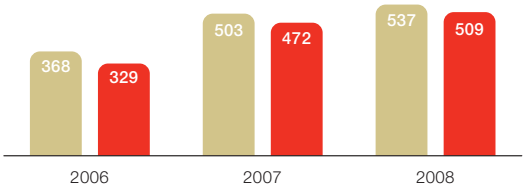
Total Non-road Useful Life Emissions Particulate Matter (PM) in 1,000 Tons

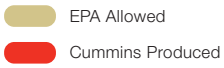


Total Non-road Useful Life Emissions Carbon Monoxide (CO) in 1,000 Tons



Total Non-road Useful Life Emissions Nitrogen Oxides + Hydrocarbons (NOx + HC) in 1,000 Tons





The charts on these and subsequent pages depict Cummins' commitment to the environment by demonstrating that the Company's engines often exceed U.S. emissions standards. The on-road charts for North America compare the estimated maximum allowable emissions by EPA standards versus Cummins' estimate of its engines' actual emissions for the past three years.

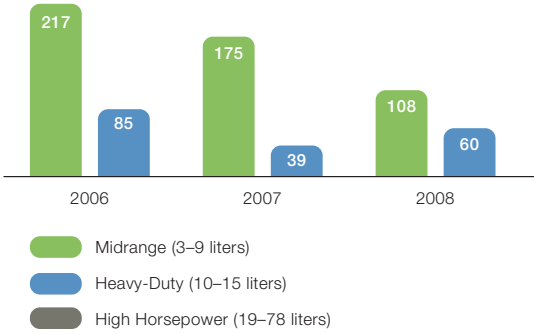
Estimates are based on the number of engines, both heavy-duty and midrange, manufactured in the United States for on-highway use per year.

Cummins engines have released far less hydrocarbon and carbon monoxide into the environment than the maximum allowed by the EPA. And even by the tough NOx and PM measures, Cummins has been under the standards.

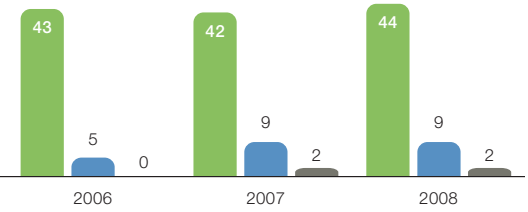
The figures in the non-road charts are based on the number of midrange, heavy-duty and high-horsepower engines produced to EPA standards. As with Cummins on-road engines, these non-road engines release far less HC and CO into the environment than the maximum allowed by regulatory agencies. Likewise, NOx and PM actual emission levels are under the applicable standards.

Cummins also participates in a regulatory program called Averaging, Banking and Trading (ABT). This program allows emission credits to be generated and "banked" by a company whose products generate emissions that are lower than the regulated level. These banked credits may be applied to other engines whose emissions are higher than the standard. However, some credits are discounted by a certain percentage depending on engine type and ABT program rules. As a result of this discounting process, a portion of the emissions credits go unused by the Company, and are thus an additional benefit to the environment.

On-Highway Diesel Engine Volumes (thousands)



Non-road Diesel Engine Volumes (thousands)



Recycling Cummins Products

"Reduce, reuse, recycle." That's a key slogan for environmentalists everywhere. At Cummins, we have an additional term. "ReCon" is the name Cummins uses for its line of genuine, factory-remanufactured products. Remanufacturing provides customers the option of same-as-new performance at a value price, especially important during challenging economic times. ReCon helps customers and Cummins alike manage the business cycle, and once again in the 2008-2009 recessionary period, sales of ReCon parts were up compared to new.

Remanufacturing also provides benefits for the environment by using about 85 percent less energy compared to the mining, refining, melting and machining of new material. Cummins reuses or recycles over 50 million pounds of material each year. The energy savings from this reclamation is equivalent to the consumption of about 10,000 homes in the U.S. Since most of that energy is fossil-fuel based, the savings also add up to greenhouse gas (GHG) reductions of about 200 million pounds.

The benefits of remanufacturing are increasingly being recognized world-wide. Cummins has established two new remanufacturing locations in India, and signed a contract to provide remanufacturing services to the holder of one of only 14 trial licenses for remanufacturing granted by the Chinese National Development and Reform Commission. These new locations will provide the benefits of remanufacturing to these growing economies.

Going Beyond Requirements in Other Countries

Cummins meets or exceeds emission regulations in every country that it operates. In South Africa, Cummins sells EPA certified 1999 engines to meet their latest regulations. Similarly, in Taiwan, emissions regulations require EPA 2004 or Euro IV standards, which Cummins sells both types of certified engines. In Mexico, the emission regulations recently enacted require EPA 2004 certified engines, Cummins has been very active in their latest rulemaking and has been selling EPA 2004 certified engines years prior to their latest requirements.

Cummins has worked closely with the Chinese government and OEMs to introduce "green engines" to China. Cummins is committed to bringing in advanced, low-emission, fuel efficient and environmentally friendly products to Chinese customers concurrently with international markets, including the United States and Europe.

In 2008, Cummins' joint ventures in China, Dongfeng Cummins and Xi'an Cummins developed Euro IV diesel engines in advance of the Chinese Government's requirements for production in 2009. In 2009, Cummins' latest joint venture with Beijing Foton will begin production of the all new ISF 2.8L and ISF 3.8L Euro IV engines in Beijing. In 2009, Cummin's Wuhan based Technical Centre began development projects with all of our joint ventures in China to develop clean diesel engines to meet the stringent Euro V emission standards worldwide.

In addition to local production of Euro IV engines, Cummins is the first foreign diesel maker to invest in the local manufacturing of key sub-systems, including turbochargers, filtration products, fuel systems

and after-treatment products. This initiative supports our Chinese partners and OEM customers as they work to meet future emission standards, including Euro IV and above. In 2008, Cummins Fuel Systems opened a new manufacturing plant in Wuhan to locally produce fuel pumps and injectors. Cummins Emission Solutions also began production of advanced after-treatment systems at our new plant in Beijing to support China's drive to low emission, fuel efficient and environmentally friendly products.

In 2009, Cummins also proactively cooperated with Chinese OEMs to develop and produce hybrid vehicles for the China market. Cummins Power Generation provided combined heat and power system (CHP) to help Chinese customers, such as Beijing South Railway Station, to achieve their energy saving targets. Cummins also continued our efforts to reduce our carbon footprint across China by working with all of our facilities in China to introduce a series of measures designed to minimize our energy consumption.

Seeking Counsel in Developing Products and Meeting Standards

In developing products to meet various standards, as well as the demands of its customers, Cummins seeks advice and counsel from its Science and Technology Advisory Council and the Safety, Environment and Technology Committee of its Board of Directors.

Cummins Science and Technology Advisory Council, formed in 1993, has given the Company access to some of the country's leading scientific thinkers and policymakers from the worlds of academia, industry and government.

The Cummins Science and Technology Advisory Council members regularly discuss the future of the internal combustion engine and the use of alternative power sources. As an example, Cummins already has pursued alternative energy options, including clean natural gas bus engines and power generation units that harness waste gases such as methane available in landfills.

The Cummins Science and Technology Advisory Council members are:

Frank S. Bates
Chairman, Chemical Engineering and Materials Science Department, University of Minnesota.

Dr. Harold Brown, Counselor
Center for Strategic and International Studies, retired Cummins Director, former Secretary of Defense and President of CalTech.

Phil Sharp
President of Resource for the Future, Washington, D.C.

Dr. Sophie V. Vandebroek
Chief Technical Officer and President, Xerox Innovation Group for Xerox Corporation, Stamford, Connecticut. Fellow of the Institute of Electrical & Electronics Engineers and served as an elected member on the IEEE Administrative Committee. Fulbright Fellow and a Fellow of the Belgian-American Educational Foundation.

Dr. Gerald L. Wilson
Professor of Electrical Engineering and Mechanical Engineering, Massachusetts Institute of Technology, formerly Dean of Engineering at MIT.

The Safety, Environment and Technology Committee of the Cummins Board of Directors advises top management and the technical leadership of Cummins regarding:

- Technology strategy and planning
- Significant research and technology projects and tools
- Major new product programs
- Environmental policy and strategy within the public arena as well as maintaining an internal action plan.

Its membership includes the following Directors: Alexis M. Herman, Georgia R. Nelson, William I. Miller and Carl Ware.

The committee also encourages collaboration between Cummins and the external technical and environmental community and reviews the technology plans of the Company.

Making Work Spaces into Green Spaces

Facilities as Performance Indicators

Doing our part to promote a healthy environment goes beyond producing the cleanest possible products. Cummins facilities have a critical role to play in helping create a safe and sustainable environment for today and in the future.

Minimizing workplace injuries, reducing facility emissions and waste and conserving natural resources are fundamental to Cummins' commitment to the communities in which we live and work. These efforts also have a direct positive impact on the profitability of our business.

Cummins' approach to facilities management acknowledges the importance of protecting the environment and includes our formal commitment to the long-term sustainability of our operations. As we continue to meet our regulatory obligations, we also will work to identify opportunities for improvement and reduce the environmental impact of our operations.

Safety and Environmental Council

Cummins Corporate Health, Safety and Environmental (HSE) Council was established in 2003 and continues to strengthen today. The HSE Council brings together manufacturing, safety and environmental leaders from across the Company's business units and corporate staff. The Council meets quarterly with the objective of building a best-in-class safety and environmental organization across Cummins worldwide entities.

The Council meeting is the forum for developing HSE policies and strategic initiatives and is where company-wide objectives and targets are established. Among the Council's initiatives in support of performance improvement objectives are a focus on facility registration to the Enterprise Environmental and Safety Management systems, building good HSE practices into the Company's growth strategy and organizational and individual functional excellence development.

Health, Safety and Environmental Management Systems

Cummins' safety and environmental policy drives the global Health, Safety and Environmental Management System (HSEMS), which provides the platform for setting key safety and environmental objectives and ongoing monitoring of our HSE performance. Cummins has incorporated the elements of the ISO 14001 Standard and the OHSAS 18001 Safety Guidelines into the two systems and has committed to registration by an independent third-party.

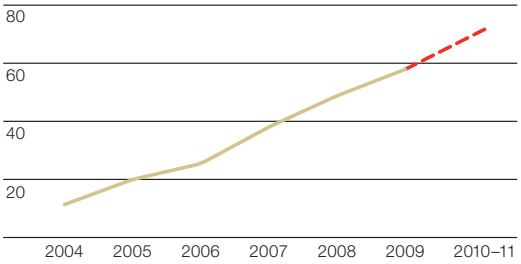
Cummins has taken a multi-site "enterprise" approach to registration of these management systems, rather than a customary individual site registration. This has allowed us to leverage the following opportunities:

- Deployment of common Cummins health, safety and environmental standards across global locations, to drive improvement beyond compliance
- Incorporation of a centrally managed model, with improved visibility of performance across all entities
- Development of a flexible management system within a framework that facilitates timely implementation and best practice sharing
- Successful integration of the safety and environmental systems at the Corporate level paving the way for integration efficiencies at the entity level

Success Story: Cummins Enterprise Environmental Management System

The Enterprise Environmental Management System EMS) was first registered by an independent third-party registrar in 2004, when a total of four sites participated. By the end of 2008, Cummins had 47 facilities and the corporate entity registered to the ISO 14001 Standard. Our projected growth is for 58 facilities successfully registered by end of 2009. We have also set a corporate objective to include all of our in-scope facilities into the EMS enterprise by end of 2011.

Certified EMS Enterprise Sites



Cummins Enterprise Environmental Management System
(ISO 14001 Standards and Corporate Requirements)

Site	Reg. Year	Location	Business Unit
Cummins - Daventry Engine Plant	2001	UK	Engine
Cummins Filtration – Quimper	2001	France	Components
Cummins Turbo Technologies – Huddersfield	2001	UK	Components
Cummins - Darlington Engine Plant	2002	UK	Engine
Cummins Emission Solutions – Mineral Point	2001	USA	Components
Cummins - SLP	2002	Mexico	Engine
Cummins Emission Solutions – Viroqua	2002	USA	Components
Cummins Emission Solutions – Arcadia	2002	USA	Components
Cummins Emission Solutions – Wautoma	2002	USA	Components
Cummins Industrial Center/Cummins Komatsu Engine Co.	2002	USA	Engine
Cummins Generator Technologies – Stamford	2002	UK	Power Generation
Cummins Turbo Technologies – Charleston Leeds Ave	2002	USA	Components
Dongfeng Cummins Engine Co. Ltd/Cummins Xiangfan Machinery Co. Ltd	2002	China	Engine
Tata Cummins Limited	2003	India	Engine
Fuel Systems - Columbus	2003	USA	Components
Cummins Brazil Ltd.	2003	Brazil	Engine
Cummins - Midrange Engine Plant	2003	USA	Engine
Cummins Filtration – Lake Mills	2003	USA	Components
Cummins Emission Solutions – Black River Falls	2003	USA	Components

Enterprise Environmental Management System Registrations (continued)

Site	Reg. Year	Location	Business Unit
Cummins - Corporate	2003	Worldwide	Corp
Cummins Filtration – Bloomer	2003	USA	Components
Cummins Filtration– Neillsville	2003	USA	Components
Cummins Turbo Technologies - Dewas	2004	India	Components
Cummins Filtration - Findlay	2004	USA	Components
Cummins Turbo Technologies – Wuxi	2004	China	Components
Rocky Mount Engine Plant	2004	USA	Engine
Cummins - Jamestown Engine Plant	2004	USA	Engine
Cummins Power Generation – Fridley	2004	USA	Power Generation
Fuel Systems – Juárez/El Paso	2004	USA	Engine
Cummins Power Generationeration - Kent	2005	UK	Power Generation
Fleetguard - Shanghai	2005	China	Components
Cummins Generator Technologies - Mexico	2005	Mexico	Power Generation
Diesel ReCon - Memphis	2005	USA	Engine
Cummins Filtration - Brazil	2005	Brazil	Components
Cummins Filtration – Cookeville	2006	USA	Components
Cummins Columbus Engine Plant	2006	USA	Engine
Cummins Power Generation - Beijing	2007	China	Power Generation
Cummins Power Generation - Singapore	2007	Singapore	Power Generation
Cummins Generator Technologies - Ahmednagar	2007	India	Power Generation
Cummins Generator Technologies - Wuxi	2007	China	Power Generation
Cummins India Ltd	2007	India	Engine
Cummins Sales and Service	2007	India	Distribution

1950

After competing in the Indy 500, Cummins No.61 Green Hornet went on to become the world's fastest diesel at 165 mph on the Bonneville Salt Flats in Utah. The 340 hp racing version of the JBS-600 engine with supercharging and new PT fuel injection set diesel speed records over 1, 5 and 10 miles.

Green Generator Technologies Plant Opens In India

Landscaping on the canteen roof of the Ranjangaon facility.

Cummins Generator Technologies India's new facility in Ranjangaon is the first truly "green" manufacturing plant in Cummins. The facility incorporates many of the sustainable green building features and practices as defined by The Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

Over the first 10 years of operation, the facility is expected to save over 14 million kWh of electricity, and avoid over 14,500 tons of carbon dioxide emissions. This is the equivalent of permanently removing 274 cars from the road. Not only energy efficient, the Ranjangaon plant is also economically sustainable. After an initial investment of $125,000 for the environmental features, energy costs will be reduced by approximately $300,000 per year, plus $10,000 in annual water savings. The plant produces alternators and will employ approximately 700 people.

Some of the environmental highlights of the CGTI – Ranjangaon plant include:

Energy and Atmosphere

Wind tower provides natural ventilation, reducing ambient temperatures for the shop, and reduced heat load for office air conditioning.

Energy efficient T5 fluorescent lighting for the shop and compact fluorescent light (CFLs) for the office.

Efficient use of natural daylight.

Automated building management system to control pump operation, and localized occupancy sensors and dimmers to adjust lighting.

Water Efficiency

High efficiency fixtures and toilets in restrooms and locker facilities.

Rain water runoff is collected, filtered and allowed to percolate, recharging ground water levels.

Treated "gray water" from canteen and sinks used for landscape irrigation.

Materials and Resources

Use of high efficiency glass for windows and skylights.

Recycled content – use of fly ash in bricks for building construction.

Low VOC-content paints, coatings, adhesives, and sealants.

CFC-free air conditioning.

Vermiculture – use of worms to decompose canteen food waste and leaves.

Sustainable Site

Buildings designed to fit the hilly site, minimizing the need for excavation and filling.

Landscaping designed to reduce irrigation need by 50 percent, and to control storm water runoff.

Tree plantations offset carbon emissions from plant operations; over 3,000 planned.

Outdoor lighting designed to minimize nighttime light pollution.

Cummins 6.7 Liter Turbo Diesel Earns PACE Award

Cummins earned a prestigious 2008 Automotive News PACE (Premier Automotive Suppliers' Contribution to Excellence) Award for innovation demonstrated by the 6.7L turbo diesel engine. The PACE Awards ceremony honors superior innovation, technological advancement and business performance among automotive suppliers.

The 6.7L Dodge Ram Turbo Diesel engine, which debuted in January 2007, is available in the Dodge Ram 2500 and 3500 models. The engine is the strongest, cleanest, quietest heavy-duty diesel pickup truck engine available on the market and is the first to meet the 2010 EPA emissions regulations in all 50 states. Cummins achieves this by using a NOx Adsorber Catalyst – a breakthrough technology designed and integrated by Cummins.

As noted by Joe Loughrey, then President and Chief Operating Officer of Cummins, as he accepted the award, "This is a significant product innovation and a terrific honor for Cummins to be recognized. We share this recognition with our customer, Chrysler, who collaborated with us in developing a common vision for a product that would deliver on our commitment to exceptional customer satisfaction while ensuring our contribution to a cleaner environment." Loughrey also acknowledged several partners who significantly contributed to Cummins success in the product including the Department of Energy, the Environmental Protection Agency and several supplier partners.

The PACE Award is viewed as the industry symbol of innovation. Cummins earned Automotive News PACE Award winner status after an extensive review by an independent panel of judges, a comprehensive written application and a site visit.

Enterprise Environmental Management System Registrations (continued)

Site	Reg. Year	Location	Business Unit
Cummins Emission Solutions - Daman	2008	India	Components
Cummins Power Generation - Beijing	2007	China	Power Generation
Cummins Technical Center - Columbus	2008	USA	Engine
Cummins UK - Wellingborough	2008	UK	Distribution
Generator Technologies - Romania	2008	Romania	Power Generation
Cummins Filtration - Shanghai	2008	China	Components
East Asia R&D - Wuhan	2008	China	Engine
Cummins Turbo Technologies - Palmetto	2008	USA	Components
Chongqing Cummins Engine Co.	2008	China	Engine

Auditor Certification Program

The program was launched to support Cummins' efforts to develop more consistently robust auditing capabilities and develop employee functional excellence. Audit trainees are called upon to participate with HSE Council leaders in site audits that are conducted to support new HSEMS registrations and satisfy Cummins' annual internal audit requirement. Corporate sponsors provide lead auditor training throughout the year and through successful participation as a team member in several audits and following a performance evaluation as a lead auditor, audit trainees become certified as lead auditors.

Not only has this initiative bolstered subject matter expertise and reduced Cummins' dependence on contractors, it has substantially facilitated the sharing of best practices. Auditors observe first-hand the effective practices in place at the audited site and bring a fresh perspective by sharing their own winning health, safety and environmental management strategies. Lead auditors are recognized at the Cummins annual HSE Awards Banquet. Selected auditors with both safety and environmental responsibilities and expertise are being certified within both disciplines to support the integration of these systems and the continued development of a HSEMS.

Auditor Certification Program

	Total Number of People
Trained Auditors	91
Auditors Participating in Program	46
Certified Environmental Lead Auditors	18
Certified Safety Lead Auditors	6

Environmental Objectives and Targets

Each year, the HSE Council sets objectives and targets for the organization to ensure the continual improvement of Cummins' environmental performance. The business units supplement these with initiatives of special importance and interest to their respective businesses. The Enterprise EMS is the mechanism for driving these improvements, which can take any form that supports the Company's efforts to address our environmental policy commitments.

For example, the Engine Business has reaped significant environmental benefits from its focus on paint reformulations. Also, all businesses were engaged in the work necessary to develop our greenhouse gas emissions (GHG) inventory and the setting of an emissions reduction goal as part of an overall objective to reduce our carbon footprint.

Sites worldwide have completed innovative environmental projects – such as reducing packaging waste, recycling solvents and coolants and capturing rain water for re-use. Recent objectives and targets included improvements of the tools and processes that support collection and reporting of key environmental performance indicators, auditor training and other functional excellence initiatives. Addressing water conservation and emphasis on pollution prevention opportunities will continue to be focus areas as well.

In 2009, Cummins will supplement its efforts to reduce energy and the associated greenhouse gas emissions by deeming energy use a "significant aspect", or risk, within the EMS, to apply to all sites worldwide. This tactic focuses all of the assets within the EMS to bear on this most critical environmental challenge. In addition, supplemental corporate objectives, targets and procedural requirements will be developed to support the Company's spotlight on energy efficiency initiatives.

Operations

For perspective on our areas of environmental focus at the facility level,a general description of the manufacturing operations by business unit follows:

Engine: Within the Cummins Engine Business, manufacturing facilities employees conduct product design, research and development, engine manufacturing and engine and component reconditioning. Engine assembly facilities perform engine block and component machining, assembly, painting, parts washing and engine performance testing. Product design and engine testing are the primary operations in the research and development technical centers where production processes are limited.

Engine testing is conducted in stationary test stands or cells, where product performance information is measured as engines run at various duty cycles. Test cells also are used for certification testing to ensure products meet emissions requirements. Rebuild/ reconditioning facilities perform engine tear-down and reassembly, using alkaline parts washing processes.

Components: The Components Group includes four separate businesses; Cummins Filtration, Cummins Fuel Systems, Cummins Turbo Technologies and Cummins Emission Solutions. Facility operations primarily involve filtration and exhaust product design, research and development, filter, and exhaust component assembly and product distribution and warehousing.

Key operations conducted among the Components Group divisions include filter, fuel systems, turbocharger and exhaust aftertreatment component assembly, metal stamping, tube bending and component machining, welding, product assembly, painting and performance testing.

Power Generation: Cummins Power Generation Business facility operations primarily involve product design, research and development, alternator manufacturing, assembly of generator sets, switchgear and controls and product testing. Alternator manufacturing facilities perform component machining, lamination stamping, rotor and stator winding, resin impregnation and alternator assembly.

Assembly facilities perform housing fabrication, genset assembly, switchgear and controls assembly, painting, alkaline bath parts washing and genset performance testing. Product design and performance testing are conducted in the research and development technical centers. Genset testing is conducted in stationary test stands/cells, where product performance information is measured while gensets are run at various duty cycles. Test cells also are used for certification testing to ensure products meet emissions requirements.

Distribution: Cummins distribution business provides parts and service for Cummins products worldwide. Distributor facilities generate used oils as their key waste stream. Selected sites are equipped with engine and chassis dynamometers and consequently, diesel fuel is consumed on-site.

Waste Streams

The primary waste streams generated at Cummins manufacturing facilities include waste paint and associated materials, paint filters, wastewater sludge and filter cake, machine coolant, used oil and resins. Metals and metal parts that cannot be reconditioned for re-use in Cummins products are salvaged for off-site recycling, as are used oils. Other waste streams include filter media and resins.

At most facilities, machine coolant is recycled until ineffective and ultimately added to the wastewater stream for pretreatment prior to discharge to public treatment works.

The split-level coach liners of the 1950s introduced long distance, luxury travel across the U.S. featuring characteristic scenic view windows. The 43-seater Beck DH with Cummins 300 hp HRBS-600 was one of the most powerful models built, with some exported to fleets in Cuba and Mexico.

1955

Cummins Columbus Midrange Engine Plant Recognized for Environmental Leadership

Indiana Department of Environmental Management (IDEM) Commissioner Thomas W. Easterly and Assistant Commissioner Rick Bossingham visited Cummins Columbus Midrange Engine Plant in April 2008 to welcome the company as a new member of Indiana's Environmental Stewardship Program (ESP).

To become an ESP member, a business must minimize environmental impacts in current and planned operations. It must maintain an exemplary compliance record, certify that it has adopted and implemented an approved environmental management system, and commit to specific measures for continued improvement. Cummins' Columbus Midrange Engine Plant, which assembles diesel engines for the Dodge Ram truck, has worked hard to reduce its environmental impact.

To earn its award, the Company has reduced volatile organic compound emissions by switching from a solvent-based paint to a water-based paint. Indiana wins when companies use sound business practices to demonstrate their core value of environmental protection.

Because of their exemplary compliance record and continual improvement, ESP members qualify for expedited permit review, flexibility in permitting, reduced reporting frequencies and coordination of compliance inspections. To maintain ESP membership, companies must report their environmental initiatives every year and reapply for ESP membership every three years.

Expanding our Environmental Measures

Cummins has collected key environmental sustainability measures from our facilities for many years, focusing on operations with the greatest potential environmental impact. Measures were originally implemented and reported internally in an effort to identify environmental performance improvement opportunities. Data has subsequently been aggregated for inclusion in Cummins' Sustainability Report and other reporting initiatives.

Because of Cummins' participation in the EPA's Climate Leaders Program and its comprehensive GHG inventory scope requirements, the number of sites taking part in data gathering has broadened significantly, including all facilities under Cummins operational control irrespective of size or function. Cummins has implemented a new data reporting process and tools in 2009. The tools support our data quality objectives as well as offer enhanced reporting functionality. As of 2009, all of Cummins controlled sites worldwide and selected joint ventures will be solicited to provide data for all applicable sustainability indicators. For the purposes of this report, measures data have been compiled from two different data sets, which are indicated in the following sections of this report.

Sustainability metrics, including water use, recycled materials, commodities and wastes, as well as fuels and electrical power usage included were derived from 89 manufacturing and large non-manufacturing sites. These include several large joint venture facilities that are not under Cummins' operational control.

Fuels, electricity and other GHG sources and emissions were collected from all facilities where Cummins maintains operational control and therefore are in scope of our Climate Leaders GHG reduction commitment. The present population of sites in scope of Climate Leaders is 262 facilities. Greenhouse gas related emissions from Cummins' unconsolidated joint venture businesses are not included in this report.

Materials

Category	2005	2006	2007	2008
Materials Other Than Water				
Diesel Fuel (Gallons)	8,630,568	9,464,041	9,800,863	10,586,012
Natural Gas (CF)	1,375,473,756	1,367,998,690	1,317,827,834	1,404,869,934
Propane (CF)	15,026,716	16,909,296	20,078,733	22,511,199
Electricity (kwh)	716,158,774	726,505,056	756,521,445	726,542,254
Oil (Gallons)	1,834,800	2,408,670	2,291,912	1,971,857
Paint (Gallons)	324,346	503,410	444,654	462,345
Coolant (Gallons)	920,145	1,431,659	977,616	1,095,795
Solvent (Gallons)	109,931	161,694	221,193	194,728
Total Water Use				
Total Water Use (Gallons)	1,247,753,509	2,037,442,344	1,305,642,376	1,397,229,924
Significant Discharges to Water (Gallons)	1,013,470,629	1,799,838,718	1,068,979,069	1,199,712,010
Total Amount of Waste By Type				
Industrial Waste (Metric Tons)	2,678	2,756	2542	2,478
General Refuse (Metric Tons)	10,757	13,257	14,110	16,107
Recycled Materials				
Iron (Metric Tons)	112,374	115,324	113,126	105,000
Aluminum (Metric Tons)	1,015	876	671	1,127
Copper & Brass (Metric Tons)	331	551	1,394	674
Cardboard (Metric Tons)	7,514	8,446	9,799	10,994
Paper (Metric Tons)	286	359	453	434
Wood (Metric Tons)	11,160	16,482	21,993	17,879
Plastic (Metric Tons)	296	398	758	910
Reused Liquid Wastes (Gallons)	2,817,773	1,089,614	3,321,242	1,422,466
Number of Reporting Sites - Energy/Fuels	250	254	258	262
Number of Reporting Sites - All Other Metrics	38	54	75	89
Other Significant Direct Air Emissions (Metric Tons)				
NOx	2,535	2,771	2,857	3,084
CO	560	610	628	678
PM10	169	186	192	208
VOC	849	2,538	846	862
Number of Reporting Sites - NOx, CO and PM10	250	254	258	262
Number of Reporting Sites - VOCs	38	54	75	89

Cummins Again Recognized as Sustainability Leader on Global, Regional Levels

The Dow Jones Sustainability Index (DJSI) named Cummins Inc. as one of the world's top 11 leaders in sustainability among industrial companies in its 2008 sustainability review.

DJSI named Cummins to two of its multi-sector indices: the World index for the fourth year in row (the top 10 percent of the world's largest 2,500 companies in corporate sustainability) and the North American index for the second year in a row.

In its annual review, the DJSI analyzes companies in three broad categories - economic, social, and environment, with a higher weighting given to environmental performance in industrial companies such as Cummins.

Specific issues considered include corporate governance, risk management, customer relationship management, climate change strategy, supply chain standards, labor practices, corporate citizenship and philanthropy, employee development, product stewardship, environmental management systems, and environmental policy and procedures and the scope of their application.

Dow Jones Sustainability Indexes
Member 2008/09

Cummins materials data collection includes process compounds commonly used in the Company's manufacturing processes. In addition, monthly data is reported and compiled for wastes, recycled materials, utilities and other key measures.

Cummins has increased the population of facilities reporting sustainability metrics substantially over the last several years. The growing number of reporters and better measurement processes are responsible for the increases for most non-energy metrics in 2006. Increases in quantities of recycled materials generally reflect improvements in supporting processes worldwide.

Totals for recycled paper, plastic and wood are understated because at several locations load weights are unavailable. Significant discharges to water also are estimated because these are not directly measured at all worldwide locations.

Reused liquid wastes represent estimated quantities of industrial process wastes reclaimed for re-use or otherwise returned to process as feedstock in cement kilns or blended fuels. These include oil, coolants, solvents and thinners and residual fluids primarily from painting processes.

Cummins continues to implement efforts supporting water conservation, waste minimization and other environmental improvements. Strong recycling programs are common in Cummins manufacturing facilities and other locations around the world. Although the increasing number of reporting sites allows the company to develop a more comprehensive understanding of its environmental footprint, the varying population makes meaningful comparisons year to year difficult.

Energy and Fuels

Category	2005	2006	2007	2008
Direct (Gigajoules)				
Fuel Oil/Diesel	1,247,485	1,367,957	1,416,642	1,530,130
Natural Gas	1,523,761	1,515,480	1,459,901	1,556,327
Propane	39,428	44,367	52,683	59,066
Indirect				
Electricity (Gigajoules)	2,578,172	2,615,418	2,723,477	2,615,552
Electricity (KwH)	716,158,774	726,505,056	756,521,445	726,542,254

Greenhouse Gas List

Cummins' inventory includes CO2, CH4, N2O emissions from electricity and fuel consumption, HFC emissions from refrigerant use, and CO2 and SF6 emissions from manufacturing process use. Cummins has no emissions of PFCs. As of June 2008, SF6 is no longer used at Cummins.

Emissions Type	Emissions Sources
Stationary Combustion Sources	Industrial Boilers (Natural Gas & Diesel Fuel) Industrial Furnaces (Natural Gas & Diesel Fuel) Engine Test Cells (Natural Gas, Diesel Fuel, Gasoline and Propane) Generator Sets (Diesel Fuel) Process ovens/heating units (Natural Gas & Diesel Fuel) Electricity generating systems at customer sites
Mobile Sources	Company owned/leased vehicles (Diesel Fuel & Gasoline) Forklift Vehicles (Propane and Diesel Fuel) Corporate Aviation (Jet Fuel)
Process/Fugitive Emissions	Manufacturing process - *SF_6 Welding operations - CO2 Air conditioning equipment - HFCs

* This process was discontinued in June 2008

With twin-radiator V shaped nose for extra cooling and huge sand tires, Kenworth's Super 953 was known as the Desert King. Available with Cummins NT 380 hp, the rugged truck was at the forefront of oilfield exploration work in remote areas of the Middle East and North Africa, with many still in service.

1958

Emission Sources

Direct Sources

Electricity use is the most significant source of GHG emissions associated with Cummins' operations. In addition, as an organization that manufactures and assembles diesel engines and related components, a substantial portion of Cummins' overall GHG emissions are a direct result of the engine testing operations related to production and research and development. Many of the Cummins facilities in the various businesses employ processes that use natural gas-fired or electric industrial ovens or other heat treatments and related processes.

The Energy Solutions Business (ESB) is a business within Cummins Power Generation that sells natural gas and biogas-fueled generator sets as well as cogeneration and other power plant equipment. ESB commercializes these sets through sales, design and construction of turnkey power plant solutions and, in some cases, operates the plant after construction and maintains some equity ownership in the project.

Cummins measures the fuel consumption and emissions in support of the Climate Leaders initiative where the Company manages the complete operations and maintenance services.

Historically, fugitive GHG emissions were generated at the Findlay, Ohio, facility through the process of injection of sulfur hexafluoride (SF6) into sealed gas bags, which were sold as product. This process was discontinued in mid-2008. Other fugitive emissions are associated with use of CO2 gas as a welding shield systems and refrigerant loss typical through use of heating, ventilation and air-conditioning systems.

Indirect Sources

The inventory includes consumption of electricity, which is used by all facilities. It also includes purchased steam consumption from one facility in China and purchased hot water consumption from one facility in Romania.

Greenhouse Gas Emissions Calculations

Indirect emissions calculations from electricity use take into account the carbon intensity of the fuel and technology used to generate the power. A determination of the electricity emissions in the U.S. was made using emission factors from the EPA eGRID emissions database. All other greenhouse gas emissions are calculated using emission quantification methodologies taken from the Climate Leaders Greenhouse Gas Inventory Protocol: Core Module Guidance documents for the appropriate emissions sources. These factors are updated by reviewing any revisions to Climate Leaders guidance documents.

Small Steps Lead to a Smaller Carbon Footprint

Cummins Emission Solutions-Mineral Point became part of the U.S. Environmental Protection Agency's ENERGY STAR Low Carbon Information Technology Campaign in 2008. The Campaign encourages businesses to enable the power management, or "sleep mode," on computers and monitors.

Placing a desktop computer in sleep mode might seem like the smallest of steps, but computers use energy, and modern businesses use a lot of computers. By activating power management features on all its monitors and computers, CES Mineral Point is managing to save 65,965 kilowatt-hours of energy annually. Over three years, this will save the facility $16,365 in power bills.

And that's only the start. Over the same term, nearly 152 tons of CO2 will be kept from the atmosphere through those small steps. That's like removing more than 25 cars from the road, which would produce that amount of CO2. Or, conversely, it is like planting more than 531 acres of trees, where the CO2 would be sequestered in organic form.

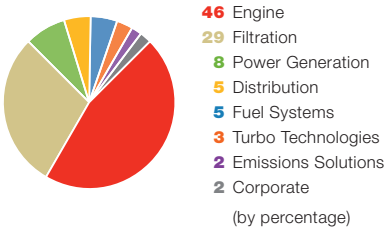
CES Mineral Point is the first Cummins facility participating in this program, but not the last.

U.S. and Non U.S. Greenhouse Gas Emissions Inventory - CO2eq. (metric tons)

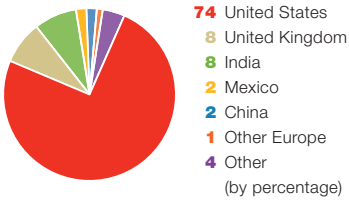
U.S. Emissions	2005	2006	2007	2008
Direct				
Stationary Combustion Sources	108,529	113,582	106,092	113,157
Mobile Combustion Sources	12,315	13,575	13,620	12,722
Process/Fugitive	117,404	127,645	162,030	166,726
Total Direct Emissions	238,248	254,803	281,742	292,605
Indirect Emissions				
Purchased and Used Electricity	348,465	351,405	348,276	325,223
Total indirect Emissions	348,465	351,405	348,276	325,223
Total U.S. Emissions	586,713	606,207	630,018	617,828

Non- U.S. Emissions	2005	2006	2007	2008
Direct				
Stationary Combustion Sources	57,164	60,478	69,155	75,252
Mobile Combustion Sources	14,815	14,815	14,815	17,015
Process/Fugitive	2,921	3,002	3,099	3,155
Total Direct Emissions	74,900	78,294	87,069	95,422
Indirect Emissions				
Purchased and Used Electricity	94,060	94,029	121,457	120,607
Purchased and Used Steam	447	447	436	461
Purchased and Used Hot Water	531	531	531	480
Total indirect Emissions	95,037	95,006	122,424	121,548
Total Non-U.S. Emissions	169,937	173,301	209,493	216,971

GHG Emissions by Business Unit (2008)



GHG Emissions by Country (2008)



Total U.S. and Non- U.S. Emissions CO2e	2005	2006	2007	2008
Direct				
Stationary Combustion Sources	165,693	174,060	175,247	188,409
Mobile Combustion Sources	27,129	28,390	28,435	29,738
Process/Fugitive	120,325	130,647	165,129	169,881
Total Direct Emissions	313,148	333,097	368,811	388,028
Indirect Emissions				
Purchased and Used Electricity	442,525	445,434	469,733	445,830
Purchased and Used Steam	447	447	436	461
Purchased and Used Hot Water	531	531	531	480
Total indirect Emissions	443,503	446,412	470,700	446,771
Total U.S. and Non-U.S. Emissions	756,650	779,508	839,511	834,799

Total GHG Emissions in metric tons CO2e				
Emissions Source				
Electricity	442,525	445,434	469,733	445,830
Stationary Combustion	165,693	174,060	175,247	188,409
Fugitive SF6, CO2	120,325	130,647	165,129	169,881
Mobile Sources, other	28,107	29,367	29,402	30,679
Total	756,650	779,508	839,511	834,799

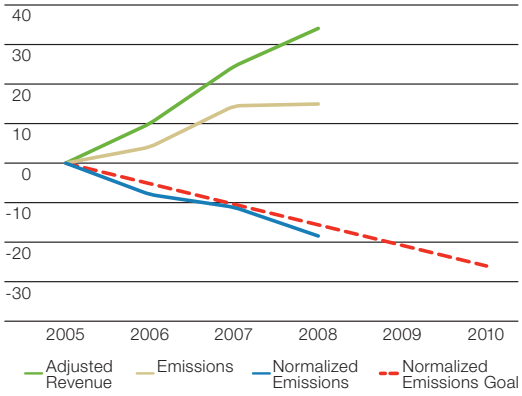
Normalized GHG Emission Goal Tracking (2005–2008 Greenhouse Gas Emissions, Normalized to Revenue)

	2005	2006	2007	2008	'05-'08 % change
Total Emissions (metric tons CO2-equivalent)	778,464	810,255	879,743	878,921	10.4%
Gross revenue ($millions)	$9,917.80	$11,362.40	$13,048.00	$14,341.91	44.6%
Inflation-adjusted revenue (constant 2005 $millions)	$9,917.80	$11,074.60	$12,361.20	$13,254.60	33.6%
Normalized emissions (tCO2e per 2005 $millions)	78.49	70.39	67.91	62.94	-17.5%

Greenhouse gas emissions declined by less than 1% from 2007 to 2008 and increased 10.4% compared to the base year 2005. Sales increased on average 13% year over year in the same timeframe – equating to an overall in sales increase of 44.6%. After an adjustment for inflation to 2005 dollars, Cummins has achieved a normalized reduction of 17.5% over the 2005-2008 timeframe.

Normalized GHG Emissions Change from 2005 to 2007 (%)

This graph depicts Cummins progress against its stated reduction goal of 25 percent normalized to sales, and shows that the Company is on the path to achieving its goal. This goal tracking graph will be updated and revisited as the Company implements the many energy efficiency projects that have been identified.



Ozone Depleting Substances

In 1995, Cummins implemented a policy that stationary equipment using chlorofluorocarbons (CFCs) would no longer be purchased by Cummins. Equipment already in place would be considered for conversion or replacement depending on its age and repair costs. As a result of this policy, Cummins has replaced an estimated 60 percent of its equipment containing ozone-depleting substances.

Interactions with Regulatory Agencies

On November 14, 2007, an inspection of the Cummins Filtration facility in Cookeville, Tennessee, was conducted by the Tennessee Department of Environment and Conservation (TDEC). As a result of the inspection, a Notice of Violation (NOV) was issued by TDEC on January 3, 2008, for the following violations:

- EPA Method 24 analysis was not used when eleven new coatings were included in the Title V report;
- EPA method 24 certification sheets were not available during the site inspection; and
- Volatile organic chemicals were calculated using information from the Material Safety Data Sheets, instead of the EPA Method 24 analysis.
- The facility immediately implemented the required corrective measures and a $1,000 fine was assessed by TDEC.

On July 23, 2008, the Tennessee Department of Environment and Conservation (TDEC) issued a Notice of Violation (NOV) to the Cummins Filtration facility in Cookeville, Tennessee, for an unauthorized wetland alteration. TDEC inspected an area located adjacent to a facility retention pond, between the front entrance and the adjacent Highway 111. A tree in this area had been uprooted during a recent storm, so the facility removed the fallen tree and restored the vegetation in the immediate area. The facility promptly implemented all of the corrective actions requested by TDEC and received a Notice of Compliance on August 6, 2008. No fines were assessed.

As a result of an inspection conducted by the Iowa Department of Natural Resources (IDNR), the Cummins Filtration facility in Lake Mills, Iowa received a Notice of Violation (NOV) on August 20, 2008. The facility had made physical changes at the site without first submitting the required air permit related documents to the IDNR. Upon receipt of the NOV, the facility promptly prepared and submitted all required documents to the IDNR. In response, the IDNR accepted these modifications and issued a new air permit that included the physical changes that had taken place at the facility. No fines were assessed.

On July 21, 2008, the Cummins Industrial Center in Seymour, Indiana, received a Notice of Violation (NOV) from the City of Seymour (Indiana). The NOV was issued to the facility for a failure to reapply for a wastewater discharge permit prior to the expiration of the facility's current wastewater discharge permit. The facility promptly completed the renewal application and submitted it to the City of Seymour. The wastewater discharge permit was renewed by the City of Seymour and no fines were assessed.

Cummins India Limited Reduces Wastewater Effluents by 90 percent

Cummins India Limited (CIL) recently earned a Cummins' Director's Award for Environment. The CIL improvements came through implementation of a Six Sigma project titled; "War on Waste" with the first stage aimed toward reduction of wastewater effluents at the Kothrud plant. The plant already had wastewater pollutant discharge limits and an absolute limit on the volume of its discharge, making wastewater reductions a matter of legal compliance as well as a good environmental practice.

The team first mapped out all sources of water to the wastewater treatment system and installed flow meters to measure the influence of each area. Improvement measures included the identification and repair of leaks, the restriction of run-on by surface water, the capture and segregation of coolant and modified piping configurations.

Wastewater effluents have now been reduced by nearly 90 percent. Contaminant content in the wastewater was also diminished through reductions of oil and coolant in the influent and enhanced oil recovery in the effluent. Treated effluent is now reused to keep the garden and landscaping green on the plant property, resulting in zero wastewater effluent to the sewer. Because of this initiative, the Pollution Control Board granted permission for plant expansion and increased production.

On December 3, 2008, the Cummins Industrial Center in Seymour, Indiana, received a Notice of Violation (NOV) from the Indiana Department of Environmental Management (IDEM). During intermittent periods in 2007, the facility neglected to conduct paint filter inspections in a manner that was consistent with the requirements contained in the Title V Air Permit. As well, the permit deviations were not appropriately catalogued and communicated to IDEM in the Annual Compliance Certification. The facility implemented the required corrective measures and no fines were assessed by IDEM.

Environmental Clean Up Efforts

As of 2009, federal and state agencies have notified us that we have been identified as a Potentially Responsible Party under Superfund and similar state laws at 19 waste disposal sites. We have established accruals that we believe are adequate for our expected future liability with respect to those sites. In addition, we have four other sites where we are working with governmental authorities on remediation projects. The costs for these remediation projects are not expected to be material.

Better Operations Use Less Energy

Continuous Improvement and Six Sigma

Six Sigma is the key problem-solving tool used by Cummins for environmental improvement projects. From a facilities perspective, Cummins has implemented a number of projects to address sustainability issues, including natural resource conservation and pollution prevention. Both of these have been a continuous improvement focus at Cummins for several years.

A task that began as a down-time reduction project at the Bloomer, Wisconsin, Filtration Plant managed to save energy as it increased productivity. The Bloomer Plant uses heaters to cure the urethane on air filters it manufactures. Employees were experiencing too much down time when heaters went out because it took so long for the lines to heat up upon restart.

A testing team found that different types of heaters, controllers, and insulation improved matters significantly. The new system, installed on a Panelette Line with one of the plant's worst changeover times, reduced wait time upon restart from 105 minutes to just 25 minutes. And since the new heaters are kept on all the time with a constant temperature, we also avoid the power surges associated with turning multiple heaters on and off all day. In a single project, we reduced time on the line by a third of a person, reduced the need for overtime, and saved significant amounts of energy.

Analysis-Led Design

In analysis-led design, computer simulations replace traditional hardware testing, which involves building and testing many expensive prototypes. Instead, a "virtual engine" is built and then tested in a computer simulation, which allows us to look at more designs in a shorter time.

Using analysis-led design on our recent product launches has allowed us to increase the number of analysis hours by more than 200 percent, while cutting total program costs by more than 25 percent. In one engine family alone, more than 14,000 hours of testing was avoided – along with the prototypes that go along with it.

The process yields better designs faster, at a lower cost and with substantial reductions in test cell time and the fuel use and its associated emissions.

Verification of Manufacturing Quality

Engine attribute testing requirements have been reduced on certain product lines because in-process verification allows the identification of potential problems upstream of the test cell process. This product quality initiative promotes the concept of "Right First Time," a more effective means to test a component and engine system, with an associated environmental benefit.

Introduced as the world's biggest crawler dozer, the Allis-Chalmers HD-41 was powered by a 524 hp V12 Cummins. Weighing up to 80 tons with 20 ft wide blade and huge rear ripper, the HD-41 was the predecessor of the super dozer class. After years of testing, the dozer started production in 1970 and was later available under the Fiat-Allis name.

1963

Energy Conservation and Cost Containment at Cummins Facilities

Cummins' energy costs are increasing, yet our consumption of fossil fuels and electric power has represented significantly less than 1 percent of sales for the past several years. We employ several methods to contain costs. We try to minimize the financial impact of these increases by informed and competitive buying strategies in areas where we have manufacturing operations. In addition, our Energy Efficiency and Facilities teams have implemented numerous projects that save energy and costs.

With the forward contract purchases of utilities in selected regions, we are able to postpone or lessen the impact of rising energy costs on our facilities worldwide.

Where markets allow, as in the U.K., Cummins teams engage in lengthy and detailed negotiations to secure the most favorable rates for the electricity and natural gas we use. They receive market intelligence twice a day, monitor the forward price of energy up to three years ahead, and gauge shifts in market sentiment that point to rising or lowering prices.

The resulting rate tariffs for electricity can be complex. This past year, for example, Cummins in the U.K. achieved savings by negotiating a seven-rate, Seasonal, Time-of-Day tariff rather than a simple day/night rate. All of our energy use in the U.K. is now metered on the half-hour. But under this contract, savings came to more than $2.8 million, nearly 30 percent better than the year before.

Natural gas prices have fallen broadly in line with oil, and U.K., facilities have saved more than $875,000 in natural gas costs.

These existing contracts will end in 2010. Cummins negotiators are already charting trends and sharpening pencils to secure the best possible terms during the next round of negotiations.

1963

The U.S. Navy LARC is the most capable amphibious boat built to carry cargo or troops from ships to shore. The 5-ton payload LARC-V with V8 Cummins 300 hp & 15-ton XV with twin V8s, switch from propeller to 4-wheel drive onshore for steep gradients and 30 mph speed. LARCs remain in use with the Navy for emergency flood relief.

Applied Recycling at Memphis Locations

An ongoing recycling effort has yielded impressive results in two of Cummins' Memphis-based facilities. Cummins' Memphis Distribution Center and ReCon plant have gradually expanded the use of recycled corrugated packaging through a program initiated several years ago by Corporate Indirect Purchasing. Both plants finally achieved 100 percent use of recycled packaging supplied by Pratt Industries, saving over 50,000 trees a year.

In addition to eliminating the consumption of new corrugated material, landfill space was also reduced by approximately 50 semi-trailer loads. Water that would normally have been used to process new paper material was reduced by almost 12 million gallons, and energy savings totaled almost 9 million kilowatt hours.

One practice mandated by the Cummins Operating System is to treat preferred suppliers as partners.

By working closely with Pratt Industries, Cummins was able to use that partnership to create a cleaner environment.

Here are some recent examples of energy and cost savings projects done at our facilities.

- The filtration distribution center in eastern Tennessee installed massive low speed fans to equalize temperatures for reduced energy use. The project will result in annualized savings of $129,000 and GHG savings of 413 tons.
- The Darlington Engine Plant in the U.K. installed high speed doors at Vantec gates to reduce heat loss at delivery times, saving $16,000 and 22 tons of GHG annually.
- Replacing leaking single pane skylights with high efficiency double pane at the light-duty diesel engine plant in Columbus, Indiana, will save $25,000 and 144 tons of GHGs annually.

Green sources of power include true renewables, wind and hydro, but there are other clean and efficient types of generation available. Good Quality Combined Heat and Power, known as GQCHP, is also one of these; Cummins has purchased 63GW of such worth around $6.7 million. GQCHP is the simultaneous generation of electricity and useful heat from a single fuel source. By capturing and reusing the heat, and not burning extra fossil fuel, GQCHP significantly reduces Carbon Dioxide (CO2) emissions This generation technology is recognized as a green source by the U.K. Government which permits exemption from the Climate tax normally imposed.

Providing a Safe Working Environment

By many measures, Cummins does a good job of providing clean, safe and healthy workplaces for its employees. For example, the company-wide incidence rate (IR) in 2008 was 1.03 – significantly better than the average incidence rate of our industry, which was 3.7. We had 31 sites go the entire year without a single reportable incident. Our severity case rate (SCR) of 0.48 was below the target of 0.5, while lost work days rate improved by 25% from 2007. These are positive signs that Cummins takes safety seriously and is doing many of the right things.

In 2008 Cummins began the implementation of a Global Driver Safety program. The effort is to elevate the Cummins Health and Safety system to best in class by extending beyond the bounds of the normal workplace and demonstrating one of its values of "serving and improving the communities in which we live." The Driver Safety program is intended to not only address the safety of Cummins employees while driving, but to ultimately provide a safer driving environment for everyone we share the road with. Road crashes are a major cause of injuries and fatalities in every market in which we operate and Cummins intends to do its part by addressing this important issue through policy, standards and education.

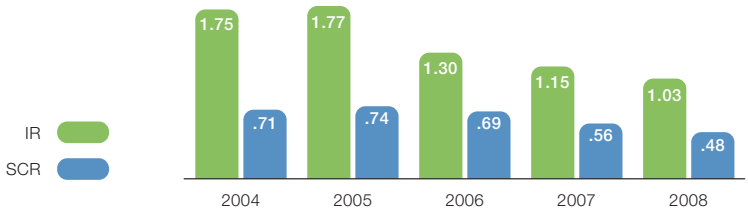
In-plant mobile equipment safety has been a focus for Cummins for several years. The Engine Business Unit carved the path for this initiative in 2006 with development of the Forklift/Pedestrian safety initiative. Since 2006, many sites have implemented the initiative, but in 2008 Cummins Turbo Technologies is leading the way to reduce this hazard.

Cummins reduced the risk of injury by segregating people and vehicles, especially in our warehouse operations. Actions taken by CTT include:

- Aggressive training and awareness campaigns,
- Segregating vehicles and people, including use of physical barriers,
- Limiting pedestrian access to warehouse locations,
- Requiring use of high visibility clothing when pedestrians must enter the warehouse, and
- Eliminating forklift use in the manufacturing operation at CTT Wuxi, China.

"Since November 2007, we have not had a single near hit incident involving a pedestrian walking out into an aisle way in the path of a forklift truck. We also have plans to continue making improvements" said Sue Manning, CTT Worldwide Safety Functional Excellence Leader.

Incidence and Severity Case Rates



Cummins also implemented a number of actions and process changes across the Company. One example is the “Red Flag” process implementation. Sites having the worst safety performance metrics and highest risk levels are identified as Red Flag sites. Initially, the Red Flag sites participate in a safety strategy review session with Business Unit and corporate safety leaders, and undergo an in-depth safety audit. Progress toward closing gaps in the site’s safety system is then closely followed.

Another improvement in 2008 was initiation of the Major Incident and Dangerous Occurrence Reporting process. Special criteria for reporting such incidents was established and reporting “Call Trees” were created for each Business Unit. Incident report communication templates were created to enable lessons-learned sharing across Cummins globally.

Safety Management System

The Cummins Safety System (CSS) is one way we can ensure safety programs like those mentioned above become ingrained as a way of working, managing and operating at Cummins. Cummins Safety System conforms with the Occupational Health and Safety Assessment Series (OHSAS) 18001 specification, an international occupational health and safety management system. But Cummins goes well beyond its requirements. Cummins Safety System is widely deployed around the world. As of 2007, a process was implemented to enlist an independent third party registrar to verify system conformance to the OHSAS 18001 specifications at selected sites.

The following sites are registered to the OHSAS 18001 specification:

- Cummins Filtration, Viroqua
- Cummins Filtration, Shanghai
- Cummins Turbo Technologies, Dewas
- Cummins Fuel Systems Juarez, Mexico
- Cummins Exhaust India Limited, Daman, India
- Cummins Generator Technologies, SLP, Mexico
- Cummins Power Generation, Singapore
- Cummins Parts and Service, SLP, Mexico
- Cummins Technical Center
- East Asia Research & Development Center

Participation in the Safety Enterprise fits well with participation in the Company’s EMS Enterprise. Cummins Exhaust India Limited (CEIL) based in Daman, India, developed an integrated heath, safety and environmental management system. This was the first Cummins Enterprise integrated HSE management system to be externally approved by Bureau Veritas and recommended for certification. Lisa Roccki, Manufacturing Functional Excellence Leader for Filtration, said, “We are extremely proud of the team at CEIL Daman for achieving this certification. It shows their commitment to safety and environment in their daily work.” Cummins Technical Center in Columbus, Indiana was the second Cummins site to have an integrated HSEMS.

Tech Center Introduces Ergonomics Program

The Columbus (Indiana) Technical Center has introduced a new Ergonomics Program, combining an ergonomics team, training and a muscle soreness clinic to create a sustainable and healthy environment for our employees.

The program's goal is to ensure that employees work in an environment that allows for maximum productivity without compromising health and well-being. The program operates under the belief that reducing work-related injuries will result in better employee morale and greater job satisfaction while reducing lost time.

Employees are encouraged to sign up for the muscle soreness clinic, adhere to some basic ergonomic tips and complete an employee comfort survey. The ergonomic team works to keep employees healthy by improving work station problems, assisting return to work issues, conducting risk identification issues and providing employee ergonomic education.

The onsite clinic helps employees suffering from aches and pains, and a licensed physical therapist performs screening exams and provides advice on self-treatment and management of these issues.

World Wide Health, Safety and Environmental Workshop

The 2008 World Wide Health, Safety and Environmental Workshop was hosted by Cummins Power Generation in Fridley, Minnesota. The workshop brought together HSE professionals from around the globe for professional development, networking, benchmarking and best practice sharing. Nearly 200 HSE and manufacturing leaders from various Cummins facilities attended, representing all Business Units and 16 different countries. The event featured exhibitions, training sessions and best practice sharing, with content for both the new and experienced Cummins HSE professionals. Topics presented included leveraging the Cummins Operating System for environmental management, electrical safety, hand safety best practices, and monitoring and measuring environmental performance, to name a few. "The participants were really energized. I've received nothing but positive feedback on the week's content and activities," said Power Generation Business HSE Director, Mark Dhennin. "It was an intense week of work, but certainly worth all the effort."

Health, Safety and Environmental Awards

In order to recognize outstanding performance, the Health, Safety and Environmental Council presents awards to those Cummins entities that best demonstrate excellence in one or both of these areas. Through their efforts, these sites are instrumental in helping Cummins meet the commitments of the Company Vision and Mission.

The Council evaluated the performance of each entity, using the following criteria:

- Benefit to environment and safety
- Level of management and employee commitment
- Economic efficiency
- Innovation
- Ability to serve as a model for use by others

The environmental awards focus on projects and initiatives that promote sustainability, emissions reductions and the conservation of natural resources. Bonus points are awarded for site recognition in government and nongovernmental organizations' environmental stewardship programs.

Entities are recognized at four distinct levels; Chairman, HSE Council, Director and Best Practice. The HSE Council also honored three individuals, including facility HSE leaders and plant managers, for their personal efforts to improve safety or environmental performance.

To recognize achievements in areas where Cummins has widened its environmental focus, we have established awards for the following categories: Design for Environment, Chairman's Awards for Energy Efficiency, Chairman's Award for Sustainable Building Practices.

Cummins Mexico Parts and Recon in San Luis Potosí, Mexico (Cummins SLP) was awarded the Chairman's Award For Environment in 2008. This is the second time the plant project and leadership team have been so recognized. The winning project was the result of efforts of the Environment and Community Involvement Teams for efforts promoting and improving recycling efforts in the San Luis Potosi community. To support the plant's "Put Your Batteries On" campaign, Cummins SLP, in partnership with community leaders and under contract with the regulatory authorities, serve as the recyclable materials collection point.

Materials, including batteries and used plastic containers were collected at the plant for recycling, diverting these wastes from the landfill and eliminating the potential pollution associated with their land disposal. An estimated 1,000 liters of water will be polluted for each battery buried in the ground because of the eventual release of the acids and metal pollutants they contain. During the two year campaign, SLP ensured that nearly 20,000 kilograms of batteries were properly managed, protecting millions of liters of precious groundwater.

The environmental award winners were:

Chairman
Cummins Mexico Parts and Recon, San Luis Potosí, Mexico, *"Get Energized" Campaign*

HSE Council
Cummins Filtration Bloomer, WI, *"Defect Box" Scrap Reduction*

Director
Cummins India Ltd., *Parts Washing Chemical Substitution*
Cummins Power Generation Kent, *Recycling Program*
Cummins Turbo Technologies Dewas, *Sludge Drying Bed*

Best Practice
Cummins Brazil Ltda., *Pollution Prevention and Water Harvesting*
Emission Solutions Mineral Point, *Low carbon IT*
Cummins Turbo Technologies Huddersfield, *Making Power Down Sustainable*

Chairman's Award For Sustainable Building Practices
Cummins Turbo Technologies, Pithampur India, *Green Construction Standards using Reused and Renewable Materials*

Chairman's Award For Energy Efficiency
Cummins Turbo Technologies, Huddersfield U.K., *Developing the Systematic Approach to Energy Shutdown Management*

Cummins Health and Safety Recognition Program

Sites are eligible for Health and Safety recognition in three performance levels: Chairman's Award, HSE Council and Director's Award. In addition, awards are given in recognition of best practices the sites have implemented.

The Corporate Health and Safety 2008 Recognition is based on the following criteria:

Chairman's Award: To be eligible for this award, a site must achieve a maximum Incidence Rate of 0.5, maximum Severity Case Rate of 0.15, maximum Lost Work Days Rate of 2.0 and a minimum CSS Formal or Verification Audit level 3, with 95 points.

HSE Council's Award: To be eligible for this award, a site must achieve a maximum Incidence Rate (IR) of 0.8, maximum Severity Case Rate (SCR) of 0.3, maximum Lost Work Days Rate (LWD) of 4.0 and a minimum CSS Formal or Verification Audit level 3, with 85 points. Sites are exempted from the CSS Audit score criteria if they participate in the OHSAS 18001 Enterprise.

Director's Award: To be eligible for this award, a site must achieve a maximum Incidence Rate of 1.0, maximum Severity Case Rate of 0.5, maximum Lost Work Days Rate of 6.0 and a minimum CSS Formal or Verification Audit level 3, with 70 points.

The Health and Safety Performance Award winners for 2008 are:

Chairman's Award
Cummins Filtration China
Cummins Turbo Technologies, Dewas
Parts Distribution Center San Luis Potosi

HSE Council's Award
Cummins Fuel Systems Juarez
Cummins Power Generation Fridley
Cummins Power Generation Singapore
Cummins Technical Center
Wuxi Cummins Turbo Technologies

Director's Award
Cummins Emission Solutions Mineral Point
Cummins Filtration Findlay, OH
Cummins Generator Technologies India, Ahmednagar
Cummins Power Generation Brazil
Cummins Turbo Technologies, Brazild
Cummins Turbo Technologies, Palmetto
Darlington Engine Plant
Dongfeng China Engine Company
Rocky Mount Engine Plant

Best Practice winners were selected based on innovation and enthusiasm in driving Health and Safety improvements at the site.

2008 Best Practice Award Winners are:

Cummins Filtration Bloomer for its "Safety Alert Program," which was developed by the site's associates, supervisors and managers to alert others to safety and ergonomic problems. Any employee is empowered to stop the production line when an unsafe act or condition was identified. When a safety alert has stopped the line, employees work together to evaluate and resolve the issue.

Cummins Power Generation Fridley for its "Powered Industrial Truck Focus Team" which resulted in increased industrial truck issue awareness, project accountability and cross-functional support. The site's logistics department recently celebrated a 12 month rolling Incidence Rate of 0.00 and led the Fridley site in 2008 with the best scores for all four quarters of Safety and 5S audits (Sort, Straighten, Sweep, Standardize, Self-discipline).

Cummins Power Generation Kent for its "Health and Wellness Improvement" project that aimed to create a more efficient and effective facility by focusing on the health and wellness of employees. Several different health and wellness programs were run over the year to improve the health and fitness of employees, both inside and outside of work. Some examples included 'Weight Loss at Work', 'Quit Smoking with Smoking Cessation' and 'On the Ball - Back to Business' classes. Nearly all of the site's employees participated in at least one of the programs.

Cummins Fuel Systems Columbus for its "Safety Football League" project, a competition between the site's departments for safety and housekeeping performance. The competition focused on improving safety awareness and getting employees more engaged in improvement activities on the shop floor. One thousand nine safety and housekeeping improvements were realized over the course of the competition.

Parts Distribution Center Mechelen for its "Rack Safety Program" in which an audit format was created that established a risk score for each rack location. A target was set out to lower the risk scores in all rack locations, in order of priority based on risk level. As a result, employees report that they feel safer when working in these areas.

Diversity

Treating Others with Dignity and Respect

Cummins 35,000 employees – more than half of whom work outside the United States – embody the Cummins' philosophy of diversity. They operate across cultures, functions, language barriers and time zones to solve the technical and logistical challenges created by a worldwide customer base.

They differ in age, gender, race, nationality and language, as well as in personality, behavior, sexual orientation and religious beliefs. They have different skills and abilities, including education, experience and functional capability. Their diversity reflects the countries and communities where they live and work, as well as the customers and constituencies they serve.

In 2008 and 2009, Cummins updated its Business Case for Diversity to strengthen the link between diversity and innovation, establish objectives for the Company to reach to maximize the benefits of diversity, and add depth to its definition of diversity. Here is an excerpt from the updated Business Case:

"Companies that value and manage diversity have a distinct advantage over those that do not when it comes to the bottom line. In fact, the ability to manage diversity could well be the difference between success and failure for businesses, as well as the communities in which they operate."

Tim Solso, Cummins Chairman and CEO

Cummins: The Business Case for Diversity

As Cummins reaches out to attract and retain global customers, the Company acknowledges that a diverse workforce is essential to its continued success. How then does Cummins define diversity within the corporation?

- On a personal level, the diversity of an individual is defined by his or her cultural and personal differences, as well as life and professional experiences.
- At the organization level, diversity is created through the distinct personalities and capabilities of each individual within the group.
- Taken together, the diversity of individuals and organizations creates an environment where innovation and ideas flourish.

When Cummins' businesses enter new markets and geographies, they employ people who understand the local culture and speak the local language – people who share the Company's values, and in most instances, who are an integral part of the local community.

A successful work environment not only includes people from different backgrounds, it also welcomes and celebrates their differences.

To derive the greatest benefit from diversity, Cummins believes it must do the following:

- Create a workplace population with representation that is similar to the markets in which it operates.
- Demand that the workplace is safe and inclusive for all individuals and organizations.
- Develop a collective behavior that encourages all individuals and employees to best use their talents.
- Capitalize on a diverse workforce to enhance the Company's competitive position in the marketplace.

Influencing Factors and Challenges

Five major factors have the potential to significantly affect Cummins and the way it does business now and in the future. They include:

Globalization: Cummins has worldwide operations, including technical centers, manufacturing operations and distribution networks. These far-reaching business connections provide the Company with numerous opportunities for low-cost sourcing, talent recruitment and profitable growth in new markets. At the same time, operating in a global environment subjects the Company to greater potential risks, ranging from political, economic and ethical issues to manufacturing, market and people management. To deal with these challenges, Cummins must employ a workforce that understands complex issues at local levels and can operate successfully within the Company's value system.

Increasing Customer Expectations: Large global customers have more leverage to demand innovative products and business solutions at the lowest cost. Delivering solutions that delight customers with superior performance requires Cummins to have a worldwide network of highly skilled people.

Changing Demographics: Immigration, emigration, changing global norms, aging populations and generational differences, coupled with varying birthrates, are driving greater complexity in all regions. Successful companies understand how demographics can affect their markets and how to effectively leverage diversity to create value by attracting and retaining the best talent.

Cummins Salutes Diverse Suppliers

Marian B. Noronha has always believed businesses have a responsibility beyond the bottom line.

That's why the chairman and president of Turbocam International has bought people out of slavery in Nepal, helped build a hospital in an impoverished part of India and worked with churches in the Netherlands to start a water company in Ghana.

"We have kind of grown up with Cummins," said Turbocam's Noronha, whose Barrington, N.H.-based business has grown from a $6 million company in 2000 to $60 million in 2008, providing Cummins with a variety of machining products along the way.

That growth, according to Noronha, a devout Christian, has allowed Turbocam to both build wealth for its employees and perform Christian service around the world.

Turbocam was one of five businesses honored in 2008 as Cummins' first Diverse Suppliers of the Year. The companies were feted at the Cummins Salute to Diversity Dinner in Columbus, Ind., on Sept. 29. The winning businesses then joined 40 other top women and minority-owned suppliers at a trade show Sept. 30 at Cummins' Columbus Engine Plant.

The suppliers were chosen for their high quality goods and services, dedication to efficiency and cost cutting, and their commitment to public service.

The dinner and trade show were designed to connect Cummins' top diverse suppliers with other parts of the Company in the hope that the diverse suppliers would bid on additional work with Cummins.

Cummins has set a goal of making 12 percent of its purchases with minority-owned businesses by 2012. Currently, the Company is just under 8 percent with the goal of reaching 9 percent by the end of 2009.

At Cummins' 2009 Diversity Procurement Summit, a meeting of purchasing employees from across the Company, Cummins Chairman and Chief Executive Officer Tim Solso noted that his personal work plan includes reaching goals for supplier diversity.

It can't be a passive thing," he said. "It has to be active. Everybody has to get in the game."

The Move Toward Sustainability: Corporations have come to understand that operating with an eye toward sustainability is vital to the society and our environment. A sustainable approach also nourishes a company – enabling growth today and in the future. This holistic attitude toward doing business requires a company, with its employees, to examine every aspect of its footprint – from product development to manufacturing practices and facilities operations. The value of a sustainable approach is recognized by Cummins' many constituents, especially investors.

Increasing Regulations: Regulations provide both a business opportunity and a challenge for Cummins. For example, the implementation of stricter global emission standards and new requirements on fuel economy are business opportunities for the Company's leading technology. Conversely, laws that affect operational issues such as financial reporting, manufacturing emissions and safety, require teams that can understand and deal with complex regulations around the world.

The Competitive Advantage of Diversity

"Character, ability and intelligence are not concentrated in one sex over the other, nor in persons with certain accents, or in certain races, or in persons holding degrees from some universities over others.

"When we indulge ourselves in such irrational prejudices, we damage ourselves most of all and ultimately assure ourselves of failure in competition with those more open and less biased."

– J. Irwin Miller, former Cummins Chairman and CEO

Mr. Miller's words, spoken over 20 years ago, identify the reasons why it is critical for Cummins to recruit talented employees from a diverse pool of candidates in every region and culture where the Company operates. Diversity provides Cummins with a competitive advantage in the following areas:

Attracting and retaining the best people
A company that promotes diversity in hiring and stimulates an understanding and appreciation of differences will do the following:

- Attract and retain the best talent
- Create an inclusive work environment that fosters innovation
- Promote differing viewpoints to enhance problem solving and decision-making
- Develop a positive reputation in its communities
- Create an inclusive and safe environment

Exceeding customer requirements
Global OEMs benefit from the innovative products and services Cummins provides through its worldwide operations and diversified workforce. The Company is better able to meet and exceed the needs of the marketplace because it has manufacturing facilities, technical, distribution and service centers along with low-cost sourcing opportunities close to where its customers do business.

Nearly all world growth in the future is projected to occur in Africa, Asia, Eastern Europe, the Middle East and Latin America. Cummins understands that the best way to grow into new businesses and more geographic regions is to have employees and organizations that understand the local culture or are part of it.

Innovation
Cummins relies on key insights from its diverse workforce to help solve complex engineering and business problems; to help reduce costs; and to help create differentiated products and services that enable the Company to delight its customers.

A greater number of innovative ideas and solutions are created from a group of people with different perspectives and backgrounds than from a homogeneous group whose members might basically act and think alike.

Doing the right thing
A company is only as healthy as the environment and communities in which its employees live and work. It is in Cummins' self-interest, not selfish interest, to create an environment in which people treat others as they want to be treated. An environment in which diversity is celebrated creates a culture that is aligned with Cummins' core values and enables the company to flourish.

Other diversity highlights at Cummins

In addition to updating the Business Case, there are many other highlights from 2008 and early 2009, including:

- In 2009, Cummins was named to the list of the Top 50 companies for diversity by DiversityInc magazine for a third consecutive year. The magazine said "Cummins demonstrates strong workplace best practices, improving supplier diversity and continued CEO commitment."
- Mandatory comprehensive diversity training for all new employees designed exclusively for Cummins. Second generation (advanced diversity management topics) training is a mandatory part of career development for leaders.
- Cummins' Sondra K. Bolte was named the winner of the 2008 William R. Laws Human Rights Award by the Columbus, Ind. Human Rights Commission. Tim Solso and Joe Loughrey shared the 2009 award. Solso, Loughrey and Bolte joined a long list of distinguished past winners including legendary Cummins CEO J. Irwin Miller, the late Richard "Dick" Stoner, a former Cummins executive and Indiana University trustee, and former U.S. Rep. Lee Hamilton. The award honors people who have made a significant contribution to improving relationships among all people, fighting stereotypes and improving understanding in the Columbus area.

Cummins' horizontal NHH855 set the power standard for underfloor "pancake" diesels in the largest ever 3-axle school buses. With the 220 hp 14-liter flat engine installed mid-bus to free up space, the Gillig 733D was able to increase capacity up to 97 seats.

1967

Cultural Assessment Survey

Cummins is an ethical company, results oriented, with high expectations for performance, according to managers who participated in the first-ever survey of the Company's culture in spring 2008.

But those same managers say Cummins' performance management system, the frequent absence of cross-business unit collaboration and Cummins' U.S.-centric focus are all potential barriers to future success.

Leaders hope the survey will help the Company preserve the best aspects of Cummins' culture and identify obstacles to growth so they can be addressed quickly.

In the wake of the survey, seven specific areas of concern were identified, and a strategic proposal advanced to deal with each one. Strategies range from fostering a more collaborative atmosphere between business units to further empowering employees to make decisions on a worldwide basis. Each strategic proposal has been assigned an officer who will sponsor it and determine the tactics necessary to achieve the objectives in each case.

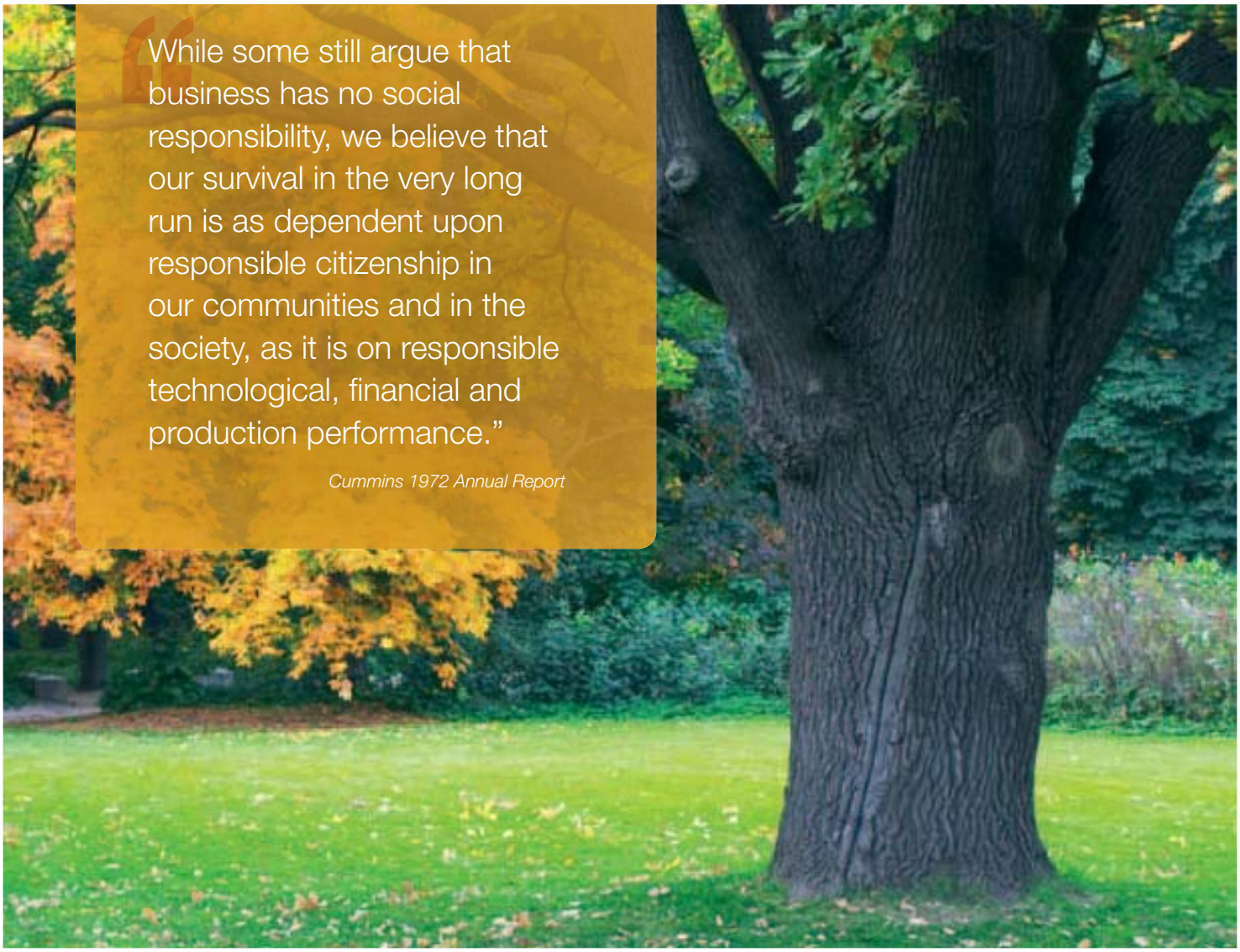
"Managers think Cummins is doing a pretty good job," said Lisa Gutierrez, Executive Director of Global Diversity at the Company and the leader of the project team that conducted the survey. "Now, it's a matter of going from good to great."

- Cummins leaders shared their career experiences with Notre Dame MBA students at the school's second annual Diversity Conference in early February 2009. in South Bend, Ind. The conference was organized by MBA students in the Mendoza College of Business at Notre Dame, which aspires to enhance the Notre Dame experience for its students by encouraging cultural, professional and spiritual diversity, in an atmosphere of academic excellence. Cummins was one of the sponsors of the event.
- Cummins' long-standing commitment to use qualified Minority Business Enterprises (MBE) suppliers has yielded positive results in recent years. In 2008, Cummins spent $483.5 million (direct and indirectly through subcontracts) with minority-owned suppliers, up from $387.8 million in 2007. Cummins spent a total of $571.6 million in diverse spend including suppliers owned by Women and Disabled Veterans in addition minority-owned suppliers.
- Cummins has received a perfect score on the Human Rights Campaign's Corporate Equality Index every since year 2005.
- More than 50 Local Diversity Councils (LDCs) addressed key diversity related matters at their particular Cummins locations. Meanwhile, more than 30 Affinity Groups (AGs) representing a specific employee demographic have also been instrumental in Cummins' diversity journey, focusing on recruitment, retention, career development and business enhancement. Currently, the Company has affinity groups for African and African- American employees, South and Southeast Asian employees, Chinese, Latino, and Lesbian, Gay, Bisexual and Transgender employees; new employees; veterans and women employees.

Corporate Responsibility

Cummins takes a broad-based approach to corporate responsibility that is grounded in a stakeholder model first articulated nearly 40 years ago by then-Chairman J. Irwin Miller. It was Mr. Miller's belief that businesses have a social contract with a full range of stakeholders as well as a self interest in helping to create healthy communities in which they can grow and prosper.

Cummins' vision of corporate responsibility has matured as the Company has grown and become more global, but the core beliefs have not changed. Fundamentally, Cummins believes that corporate responsibility contributes directly to the long-term health, growth and profitability of our company.



At Cummins, the focus is on the best way to have a sustained positive impact given the challenges facing our communities. It starts with an emphasis on responsible decision-making and leadership that takes into account the potential impact of the Company's actions on all its stakeholders.

Employee involvement also is central to Cummins' efforts to be a responsible corporate citizen. The Company actively seeks to engage its 35,000 employees to help strengthen the communities in which we work and live.

The Company's network of more than 150 Community Involvement Teams and programs such as Every Employee Every Community, (see stories on pages 92 and 93) offer Cummins the chance to leverage our greatest strength – the skills, passion and commitment of our employees – to make a meaningful difference in communities around the world.

Philanthropy is the final component to Cummins' corporate responsibility efforts. The Cummins Foundation, one of the oldest corporate charities in the United States, awarded $4.6 million in grants in 2008. Additionally, Cummins provided more than $500,000 in direct corporate donations to philanthropic causes in 2008. (For a profile of the Cummins Foundation, as well as a list of grants awarded in 2008, see pages 95-105.

Strengthening Cummins' Commitment to Corporate Responsibility

Throughout its 90-year history, Cummins has made corporate responsibility a fundamental part of who we are and how we do business. In an effort to build on its past efforts and better focus the Company's work on the challenges of tomorrow, Cummins raised the profile of its corporate responsibility organization in late 2008.

An Executive Vice President, who reports directly to the Chief Executive Officer, took charge of the Corporate Responsibility organization that drives Cummins' work in this area around the world. One of the first challenges tackled by the organization was to articulate Cummins' vision for corporate responsibility through the creation of a "business case," which defines corporate responsibility at Cummins as:

- Evaluating the effect of our business decisions and practices on a wide variety of stakeholders and recognizing our responsibility to each one.
- Seeking to establish a higher standard of corporate citizenship by always acting ethically and with integrity, and pursuing and applying "best practices" to create a cleaner, safer and healthier environment.
- Seeking to eliminate barriers to success by using our values, talents and resources to drive improvement in the communities in which we operate, as well as the broader world.
- Creating sustainable wealth for all stakeholders.

Creating sustainable wealth for all stakeholders

In order to accomplish these goals in an increasingly complex world, Cummins has committed to improving its efforts in four specific areas:

1. **Improving our global engagement.** More than half of Cummins' employees work outside the U.S. and international sales account for more than 50 percent of the Company's revenues. We have Community Involvement Teams around the globe. The large majority of our philanthropic giving, however, has been directed to organizations in the U.S. Strengthening our processes so that the Company's charitable giving better mirrors Cummins' employee and business base has become a priority.

2. **Providing greater focus to philanthropy worldwide.** In order to allow our giving to have a maximum impact on the communities in which we operate, Cummins has decided to focus its philanthropic efforts in three areas that were determined after soliciting input from hundreds of employees around the world. They are:

- Environment – Ensuring that everything we do leads to a cleaner, healthier and safer environment is part of Cummins' corporate mission. Cummins has long been a leader in creating technology that reduces harmful air emissions, and our employees have experience – and a passion for – reducing the environmental impact of our products and facilities. We intend to leverage that knowledge and commitment to improve the environment in our communities worldwide.
- Education – From helping strengthen the basic skills necessary for individual success to providing training for tomorrow's generation of advanced manufacturing employees, Cummins has a role to play in improving the quality and alignment of educational systems in our communities.

Built in Canada, the Pacific Ultra P12 6x6 was one of the strongest ever tow tractors with 500 or 800 hp Cummins. A fleet in South Africa would couple 4 Ultras with 1 more Ultra as rear pusher to make a huge towing convoy with over 3000 hp and gross weight up to 860 tons.

1973

Cummins and the Wagholi Orphanage

The Wagholi Orphanage began more than two decades ago as a simple residence on the outskirts of Pune. It was occupied by one kind woman and her son, who sheltered about a half dozen children from the streets. Today the orphanage houses and educates more than 550 homeless children, many of whom are physically or mentally disabled. The government of India funds 145 of these children. The rest are supported by donations and a lot of compassion.

The Engineering Community Involvement Team (CIT) of Cummins India Limited maintains a close relationship with the Wagholi Orphanage, contributing a share of the time and money required to keep it going. In addition to its regular support, the team contributed a "special event" in 2008.

Diwali, the annual Festival of Lights, is celebrated throughout India on the first new moon after October 13. Most Wagholi orphans are sent to celebrate the national holiday with temporary families, but some 50 children without families got a taste of the festival from the CIT. On Oct. 22, Engineering Vice President Mike Lambert led a celebration beginning with a prayer for Saraswati (Goddess of Knowledge) and Sai (God of Peace). The day was then filled with competitions as the children made drawings, wish cards, and diyas—cotton-like string wicks in small clay pots filled with coconut oil—to signify victory of good over evil within an individual. Winners received treats; all received sweets and clothing parcels.

Orphanage girls performed a traditional Indian dance by way of a thank-you, and each volunteer received a thank-you card fashioned by a child. The celebration may become an annual CIT tradition.

- Social Justice - Ensuring economic and educational opportunities for those marginalized by poverty or discrimination has long been a mainstay of Cummins' corporate responsibility work.

3. **Increasing leadership responsibility.** Creating a culture that values corporate responsibility begins with setting clear expectations for leaders across the Company. Cummins is committed to establishing basic concepts that define effective, responsible leaders, including: decision-making that engages all key stakeholders; encouraging community involvement; maintaining the highest standards for ethics and integrity; and acting as positive examples in their communities.

4. **Incorporating corporate responsibility in the Company's strategies.** It is in Cummins' self-interest to help create strong and growing markets for our products, as well as healthy communities in which to operate. As such, we need to expand our work to make corporate responsibility as much a part of the Cummins "DNA" as creating great products or providing world-class customer service.

Additionally, creating a great place to work is central to our ongoing efforts to attract and retain the very best employees. Our employees consistently tell us that they value being able to work for a company that acts responsibly. At the same time, motivated and engaged employees are a vital resource in efforts to improve our communities.

Unleashing the Power of Cummins Employees

Our employees are Cummins' best resource and they are central to our efforts to improve the communities in which we live and work. We are working to create several mechanisms to educate our employees on Cummins' vision of corporate responsibility and provide them with the tools and resources necessary to make a difference, including:

- Introducing employees to the concepts of corporate responsibility and community involvement as part of their orientation program when they join Cummins.
- Expanding the Company's donation matching program beyond the United States to better leverage employees' charitable giving in all parts of the world.
- Better supporting and training our Community Involvement Teams (CIT) so they can become even more effective in serving our communities. This effort includes making it even easier for all workers to participate in our Every Employee Every Community program and providing more community grants to support CIT efforts that are aligned with our focus areas.
- Increased use of Six Sigma tools – both at Cummins and increasingly with our local partners – to drive improvements across our communities.

Community Involvement Teams

Community Involvement Teams (CIT) are employee-led groups that represent the diversity of the workforce and all levels of management. There are more than 150 Community Involvement Teams working to solve community problems.

Community Involvement Teams have the responsibility of developing an annual plan, organizing volunteer activities, responding to community requests for donations and developing proposals for funding from The Cummins Foundation to enhance their involvement in their communities. Here are some recent examples of CIT involvement around the globe:

- The J. Irwin Miller Community Center Sewing Shop, a CIT project organized in Sao Paulo, Brazil, opened in May 2008. The Center provides homemakers with training in sewing techniques, product development, marketing, product quality, and management. For many, it is their first job opportunity. The Sewing Shop has started making uniforms for Cummins employees.
- A CIT in Fridley, Minnesota, arranged for Power Generation engineers to modify toys for the Courage Center for children with disabilities. Certain toys require physical ability to activate by pressing a button to make it sing, dance, drive, or move. The engineers adapted such toys by placing a switch jack into each item allowing an adapted switch, operable by disabled children, to be plugged into the toys.
- Employees of Cummins Filtration South Africa, in partnership with the Pietermaritzburg & District Community Chest, installed fencing and planted two gardens for families in need. Employees also donated refrigerators, stoves, toasters, kettles and cooking utensils to residents of the Shongweni community. The Shongweni community was established by Habitat for Humanity to benefit households providing shelter to children in crisis due to HIV and AIDS.

Every Employee Every Community

Started in 2005 as a way to celebrate Cummins' selection as the "top corporate citizen" by Business Ethics magazine, Cummins' Every Employee Every Community (EEEC) initiative has grown into an integral part of the Company's community involvement efforts.

EEEC allows employees to give back to their communities by volunteering on Company time. Each Cummins site around the world has the flexibility to schedule community service projects according to local needs, their facility and employee work schedules. Projects may involve cleaning a schoolyard, planting a garden, or sorting packaged goods at a local food bank. What all have in common is that they make the community better.

More than 14,700 employees contributed 52,894 hours of community service in 2008 — a 60 percent increase in the number of volunteers over 2007, and a 40 percent increase in the number of hours volunteered.

VolunteerMatch

Thanks to VolunteerMatch, the growing list of volunteer opportunities available to Cummins employees can now be communicated and tracked with ease. VolunteerMatch, launched in 2008, is a global, web-based volunteer management system connecting Cummins employees with volunteer opportunities in their local communities.

Employees can search for opportunities by ZIP code (U.S.) or by country (non-U.S.). They can select an interest area, including anything from animals to education and literacy. VolunteerMatch also allows Cummins to track employee participation and evaluate our contributions in a more data-driven way.

United Way Matching Program

One of the most powerful community building tools Cummins has at its disposal is the United Way matching program funded by the Cummins Foundation. Under the program, the Foundation provides a dollar-for-dollar match for all employee contributions to United Way fund drives in United States, effectively doubling the impact of our employee giving.

For the 2009 campaign, the Cummins Foundation provided approximately $2 million in matching funds to United Way organizations in regions where we have operations, making Cummins the largest supporter of United Way in a number of regions, including Columbus, IN; Jamestown, NY and Rocky Mount, NC. We also are currently exploring the best way to create programs similar to the United Way match in countries outside the U.S. to help our employees in those locations leverage their charitable giving to improve their communities.

Corporate Donations

Corporate direct donations provide a means for Cummins to participate in community development and events that are more appropriately funded by the Company than the Foundation. These activities include memberships, sponsorships, dinners or other events.

In 2008 Cummins charitable contributions were $11 million. Company donations to all of Cummins foundations were $6.1 million and direct donations accounted for $4.9 million. Of the direct donations, $587,960 were in support of our international communities.

Action for Blind People	Darlington, England	Sports & Leisure Activities for Blind School	$ 35,287
Artistic Senses	Juarez, Mexico	Transportation Support for Handicapped Children	$ 10,000
Bethel Ranch Training Center	Beijing, China	Sustainable Farm for Blind Orphan Foster Home	$ 50,500
Brazil Health Clinic	Sao Paulo, Brazil	Expand the Health Clinic	$ 30,000
Brazil Sewing Machine Shop Set-up	Sao Paulo, Brazil	Neighborhood Women's Sewing Machine Shop	$ 35,000
Children's House - Detskiye Domiki	Moscow, Russia	Mini-van to Take Children to Medical Appointments	$ 20,000
Chongqing Cummins Hope Primary School	Chongqing, China	Computer Access for Students	$ 25,000
The Club of the Third Age	Juarez, Mexico	Creation of a Ceramics Shop for Senior Citizens	$ 12,185
Daventry Community Association	Daventry, England	Ashby Road Community Center Heating System	$ 27,654
Den Anker	Mechelen, Belgium	Educational Excursion for Disabled Children	$ 25,000
Dongfeng Cummins Engine Co.	Dongfeng, China	Computers, Desks, Chairs - Primary Schools	$ 50,000
Global Village of Beijing	Shanghai, China	Environmental Protection Education & Activities	$ 22,700
Habitat for Humanity	Singapore	Housebuilding Project	$ 25,000
Lions Club International	Chongqing, China	Computer Room - Heyuan Zijing Yirong Primary School	$ 25,000
Lions Club International	Shenyang, China	Computer Room - Bo Zhengou Primary School	$ 22,000
Lovecoal	Seoul, Korea	Purchase Stoves for Heating for Indigent Families	$ 25,000
Masakhane Creche	Pietermartzburg, SA	Build a Child Care Centre	$ 25,000
Right to Play	Thailand	Sport and Play Program for Children and Youth	$ 35,334
Royal School for Deaf Children Margate	Kent, England	Monkshill Farm - Outdoor / Farm Classses	$ 25,000
Safe Anchor Trust	Huddersfield, England	Purchase Wheel Chair Lift for Canal Boat	$ 25,000
Worldvision - China	Kunming, China	Home for Street Children/Migrant Children's Chorus Project	$ 17,300
Zimbabwe Maulana Primary School	Zimbabwe, Africa	Safe Drinking Water	$ 20,000
Total			**$ 587,960**

The Cummins Foundation

Formed in 1954, the Cummins Foundation is one of the oldest corporate charities in the United States and is an integral part of the Company's efforts to strengthen the communities in which it operates. Cummins' Executive Vice President for Corporate Responsibility also serves as the Chief Executive Officer of the Foundation, providing further alignment between the Company's charitable giving and its broad corporate responsibility work.

The Foundation, which is funded solely by Cummins Inc., focuses its financial support on nonprofit organizations whose missions are consistent with the Company's global priorities- education, the environment and social justice in the communities where we have business interests as well as efforts supported by Cummins employees. In 2008, the Cummins Foundation awarded $4.6 million in new grants (and paid approximately $5.4 million), including $1.8 million in United Way matching grants in regions where Cummins employees live and work and $1 million in grants to projects nominated by Cummins Community Involvement Teams around the world.

While the majority of Cummins Foundation funding historically has been made to organizations in the United States, the Company has strengthened its efforts to expand future funding so that it better reflects the geographic balance of the Company's business operations. Additionally, the company has established foundations in India and Mexico, which operate under similar priorities.

Cummins Foundation Directors and Committees (as of April 1, 2009)

Foundation Management

Board of Directors
Tim Solso, Chairman
Jean Blackwell
Tom Linebarger
Will Miller
Mark Gerstle
Marya Rose
Pat Ward
*Joe Loughrey retired from the Board March 31, 2009

Officers
Jean Blackwell, Chief Executive Officer
Tracy Souza, President and Secretary
Marsha Allamanno, Treasurer

Audit Committee
Marsha Hunt, Committee Chair
Luther Peters
James Guilfoyle

Investment Committee
Richard Harris, Committee Chair
Nadeem Ali
Marsha Hunt

International Committees and Foundations

C3-Cummins Community Connection — Central Area
Raymond Eyres, Committee Chair

Cummins Community Cares — South Pacific
Gino Butera, Committee Chair

Cummins India Foundation
Anant Talaulicar, Chairman of Foundation

Asociacion Filantropica de Cummins AC
Teresita Rey, Chairman
Edgar Freeman, Director

Domestic Committee

Columbus, IN Committee
Mark Gerstle, Committee Chair

Statements of Financial Position

In 2008, The Cummins Foundation received $5,520,000 from Cummins and paid grants totaling $5,366,992.

Assets	**Dec 31, 2007**	**Dec 31, 2008**
Cash and cash equivalents	$13.580,212	$13,690,822
Notes receivable	0	350,000
Excise tax refund receivable	500	1,500
Investments	3,167,632	2,021,081
	$16,748,344	**$16,063,403**
Liabilities		
Grants payable	$5,113,215	$1,767,401
Unrestricted net assets		
Undesignated	5,109,737	4,543,602
Board-designated funds	6,525,392	9,752,400
	$16,748,344	**$16,063,403**

Employees and Disaster Relief

Cummins employees worldwide sent aid to more than 110 Cummins employees whose homes and lives were ravaged by floods that swept across the Midwest in June 2008. The Cummins Foundation reports that employees raised more than $500,000 to aid victims of the floods, which caused $100 million in damages to Cummins facilities alone.

Employees donated more than $300,000 to the American Red Cross for relief work and raised an additional $185,000 for the Cummins Employees Flood Relief Fund (CEFRF), a special account set up to provide recovery assistance. Those individuals affected by the June 2008 flood will now have help rebuilding their lives with gifts from the CEFRF ranging from $400 to $3,000.

This outpouring of support came only weeks after Cummins employees and organizations gave more than $1.3 million in money, supplies, and equipment to the victims of the May earthquake in China that killed over 70,000.

Tracy Souza, president of the Cummins Foundation, believes these efforts emphasize the generous nature of the Company and its employees. “Cummins has always tried to live up to its core value of corporate responsibility. This has been especially true during times of adversity and hardship when the Cummins family has come together to not only help each other, but also to help others in need in the communities in which we live and do business,“ she said.

Foundation Grants (paid in 2008)

Grantee	Community	Purpose	Amount
ABC - Stewart School	Columbus, IN	Support	$ 10,000
Adult Day Care Corporation	Columbus, IN	Support for At-Risk Seniors	$ 2,000
American Indian College Fund	Denver, CO	Annual Campaign	$ 2,500
American Legion Post 200	Black River Falls, WI	City Park Improvements	$ 5,000
American Red Cross	Columbus, IN	Flood Relief Campaign	$ 250,000
Amherst H. Wilder Foundation	Fridley, MN	Mobile Resource Center	$ 25,000
Arts Council for Chautauqua County	Jamestown, NY	Media Arts Education Program	$ 10,000
Autism Speaks	New York	Sponsorship	$ 50,000
Bartholomew Area Legal Aid, Inc.	Columbus, IN	General Support	$ 6,000
Bartholomew Consolidated School Corp.	Columbus, IN	Book Buddies Program	$ 50,000
Bartholomew Consolidated School Foundation	Columbus, IN	Diversity Initiatives	$ 5,000
Bartholomew County Sheriff’s Office	Columbus, IN	Purchase Physical Fitness Equipment	$ 35,000
Black River Falls Middle School	Black River Falls, WI	Technology Class Improvements	$ 10,000
Boys & Girls Club of Nash Edgecombe Counties	Rocky Mount, NC	Smart Moves Program	$ 25,000
CAP Services	Stevens Point, WI	Domestic Abuse Outreach	$ 10,000
CASA of Memphis & Shelby Counties	Memphis, TN	Child Advocates	$ 2,500
CCYHA Lakers Sled Hockey	Jamestown, NY	Sports Activities for Physically Challenged Youth	$ 25,000
The Center on Philanthropy	Indianapolis, IN	Annual Symposium Support	$ 10,000

Foundation Grants (continued)

Grantee	Community	Purpose	Amount
Central Indiana Corporate Partnership	Indianapolis, IN	Conexus - General Support	$ 50,000
Challenged Champions Equestrian Center	Findlay, OH	Expanded Program for Physically Challenged	$ 2,500
Christian Help Inc.	Indianapolis, IN	House Refurbishment for Homeless Family	$ 5,000
City of Columbus	Columbus, IN	Architecture Fees	$ 416,000
City of Columbus	Columbus, IN	Architecture Fees	$ 207,412
City of Columbus	Columbus, IN	Architecture Fees	$ 92,403
City of Columbus - Redevelopment Commission	Columbus, IN	Architecture Fees	$ 400,000
City of Lake Mills	Lake Mills, IA	Handicap Sidewalks & Shelter	$ 25,000
City of Stoughton	Stoughton, WI	Preserve America Fund	$ 1,693
City of Stoughton	Stoughton, WI	Stoughton Fire Department Support	$ 5,200
City of Stoughton	Stoughton, WI	Stoughton Area Emergency Medical Service	$ 3,107
Clark Atlanta University	Atlanta, GA	Ware Family Scholarship Endowment	$ 10,000
Columbus Area Arts Council	Columbus, IN	Support for Mill Race Players	$ 2,500
Columbus Area Arts Council	Columbus, IN	Rock the Park Sponsorship	$ 10,000
Columbus Area Arts Council	Columbus, IN	UnCommon Cause Sponsorship	$ 5,000
Columbus Area Chamber of Commerce Foundation	Columbus, IN	Connected Community Partnership	$ 10,000
Columbus Indiana Architectural Archives	Columbus, IN	Support for Archivest	$ 100,000

1989

When the Cummins Turbo Diesel was introduced to the Dodge Ram 250 and 350, the pickup truck market was transformed. The 160 hp 5.9-liter offered a huge advantage in torque, enabling owners to haul trailers 2 tons heavier than any other pickup. In the first year, orders for almost 20,000 Cummins powered Rams were double highest expectations.

Cummins South Pacific Named Employer of Choice for Women

Cummins is one of only 99 organizations in Australia receiving this citation from the Australian Government's Equal Opportunity for Women in the Workplace Agency (EOWA).

Anna McPhee, Director of the EOWA, said, "For these organizations, creating equity is about changing culture, changing expectations, breaking down the outdated myths about women and valuing the massive contribution women make to the workplace whether they are working part-time or full-time, working from home or in the office, starting their careers, or nearing retirement."

The citation follows the recent naming of Gino Butera, Managing Director – Cummins Pacific Asia Distribution, as the "Leading CEO for the Advancement of Women in Australia."

Butera received the award from EOWA for his proactive approach to achieve greater female representation in both traditional and non-traditional roles at all levels of the organization.

"This is not an individual award," said Butera, acknowledging the work of Cummins South Pacific's Local Diversity Council and Women's Leadership Network Group in his acceptance speech. "Identifying, implementing and living with diversity initiatives in the workplace takes active leadership and participation across the entire organization."

Grantee	Community	Purpose	Amount
Columbus Indiana Philharmonic	Columbus, IN	Children's Outreach Program	$ 25,000
Columbus Police Department	Columbus, IN	CHIP (Child Identification Program)	$ 21,400
Community Education Coalition	Columbus, IN	Columbus Campus Master Plan Design	$ 15,000
Community Helping Hands	Jamestown, NY	Gateway Center Renovation	$ 25,000
Cornerstone Middle School	Baxter, TN	Education Support	$ 10,000
Cummins India Foundation	Dewas, India	Support for Shree Ramkrishna Charities	$ 10,000
Cummins India Foundation	Pune, India	Visually Impaired Girls School	$ 20,000
Eastside Community Center	Columbus, IN	Flood Victim Support - Food Delivery	$ 4,000
Fathers and Families Center	Indianapolis, IN	Support At-Risk Families	$ 25,000
Food Bank of Eastern New Mexico	Clovis, NM	Kids Weekend Food Backpack Program	$ 25,000
Food Bank of Eastern New Mexico	Clovis, NM	Support for Food Bank	$ 10,000
Franklin College	Franklin, IN	Cummins Lectures on Ethical Leadership	$ 25,000
Gliding Stars of Findlay	Findlay, OH	Therapeutic Ice Skating Program	$ 2,500
Guadalupe Center of Immokalee	Immokalee, FL	Scholarship Program for Immigrant Families	$ 20,000
Habitat for Humanity of Dane County	Madison, WI	House Building Project	$ 25,000
Habitat for Humanity of Findlay/Hancock County	Findlay, OH	Women's Build 2008	$ 25,000

Cummins Emission Solutions Forges Partnership with Local Rehabilitation Center

When Cummins Emission Solutions, Mineral Point, Wis., had the need to outsource the assembly of some components, the staff did not have to look very far for someone to do it.

Less than half a mile down the road is the Hodan Center, a community rehabilitation program for persons with disabilities which, among other functions, contracts the production services of its clients to area businesses.

As one of its functions, the Hodan Center provides clients with industrial services and offers to businesses a high quality, cost effective workforce.

The assembly and packaging services may be customized to meet various business needs.

The Hodan Center started working with Cummins in April 2008 making three different sensors and clipping bars. Now, eight components are being produced with a current goal of 12. "We're sensitive; we don't want to overload the center. But, for now, we've never had an issue," says Bruce Berstler of Cummins. "They (Hodan) also do their pick-ups of the parts and delivery of the finished goods." The work orders provide employment for about 20 of the 110 clients served at the center.

Hodan Center, Inc.

"Cummins goes all over the world looking for quality and on-time delivery and we found the both with you guys," CES Plant Manager, Amit Soman, told the client-employees.

This article was written by Jean Berns Jones of the Dodgeville Chronicle, and has been reprinted for this report with permission

Foundation Grants (continued)

Grantee	Community	Purpose	Amount
Habitat for Humanity Waushara County	Wautoma, WI	House Building Project	$ 25,000
Heritage Fund of Bartholomew County	Columbus, IN	Architecture Fees	$ 60,000
Heritage of Hope, Inc.	Hope, IN	Support for Community Foundation	$ 10,000
Human Services, Inc.	Columbus, IN	Horizon House Homeless Shelter	$ 5,000
Indiana Achievement Awards	Indianapolis, IN	Program Sponsor	$ 1,000
Indianapolis Opera	Indianapolis, IN	Education Sponsorship	$ 10,000
Indianapolis Zoo	Indianapolis, IN	Indianapolis Prize Support	$ 50,000
Initiative for Global Development	Seattle, WA	Support Anti-Poverty Initiative	$ 100,000
ISO Women's Committee - Columbus Unit	Columbus, IN	Young People's Discovery Concert	$ 3,000
Kidscommons Children's Museum	Columbus, IN	2008 Winter Carnivale-China	$ 10,000
Kidscommons Children's Museum	Columbus, IN	2009 Winter Carnivale-Mexico	$ 10,000
Lake Mills Entertainment Inc.	Lake Mills, IA	Theater Renovation	$ 25,000
Lake Mills Family Center	Lake Mills, IA	Fitness Center Upgrade	$ 5,000
Lake Mills Fire Department	Lake Mills, IA	General Support	$ 2,500
Lake Mills Senior Citizens Club	Lake Mills, IA	Support for Senior Citizens	$ 2,500
Legal Momentum	Columbus, IN	Support Annual Campaign	$ 1,500

Grantee	Community	Purpose	Amount
LeMoyne-Owen College	Memphis, TN	Improvement Projects Support	$ 100,000
LeMoyne-Owen College Community Development Corp	Memphis, TN	Teen Mothers Program	$ 7,000
The Library Project	China	Support 31 Elementary / Middle School Libraries	$ 50,000
The Links	Memphis, TN	Institute of Women's Empowerment	$ 2,500
Memphis Cultural Arts Enrichment Center	Memphis, TN	Welcome to Zanesville - Watoto de Afrika	$ 10,000
Memphis Urban League	Memphis, TN	Support At-Risk Youth	$ 2,500
Memphis Youth Leadership Program	Memphis, TN	Training & Development for At-Risk Youth	$ 37,500
The Mind Trust	Indianapolis, IN	Educational Improvement in Indianapolis	$ 100,000
Mineral Point Public Library	Mineral Point, WI	Library Expansion / Improvement	$ 10,000
Mt. Healthy Elementary School	Columbus, IN	Fitness Trail & Equipment	$ 23,000
My Sister's House	Rocky Mount, NC	Strong Voices for Girls Program Support	$ 5,000
NAACP - Bartholomew County Branch	Columbus, IN	State Education Summit Support	$ 500
Nationalities Council of Indiana	Indianapolis, IN	International Festival Support-Peking Opera	$ 7,800
New Haven Elementary	Union, KY	Book Blazers Program	$ 25,000
People Serving People	Minneapolis, MN	Child Development Center Support	$ 10,000
Phoenix Theatre	Indianapolis, IN	Building for the Future Campaign	$ 25,000
Portland State University	Portland, OR	Human Powered Vehicle Development Project	$ 1,000
Rocky Mount Children's Museum	Rocky Mount, NC	Planetarium	$ 50,000
Shepherd Community Center	Indianapolis, IN	Expand Programing to Serve Closed Shelter Clients	$ 25,000
The South Carolina Maritime Heritage Foundation	Charleston, SC	Spirit of South Carolina Repairs	$ 20,000
South Decatur Youth Football	Westport, IN	Equipment Replacement	$ 5,000
Spelman College	Atlanta, GA	Endowed Scholarship Fund	$ 50,000
Spelman College	Atlanta, GA	Executive Leadership Group - Dr. Tatum	$ 10,000
Su Casa Columbus Inc.	Columbus, IN	Emergency Assistance	$ 10,000
Tennessee Baptist Children's Homes	Bartlett, TN	Support for At-Risk Youth	$ 10,000
Turning Point Shelter for Domestic Violence	Columbus, IN	Safe Harbor Light House Project	$ 25,000
United Community Ministries	Rocky Mount, NC	Homeless Shelter	$ 5,000
United Negro College Fund	Indianapolis, IN	Annual Campaign	$ 25,000
United Way Funds			
Decatur County United Fund, Inc.	Indiana	Employee Match	$ 7,177
Greater Twin Cities United Way	Fridley, MN	Employee Match	$ 192,791
Jackson County United Fund	Indiana	Employee Match	$ 50,767
Jefferson County United Way	Indiana	Employee Match	$ 2,834
Jennings County United Way	Indiana	Employee Match	$ 21,296
Metro United Way of Clark County	Indiana	Employee Match	$ 1,774
Rocky Mount Area United Way	Rocky Mount, NC	Employee Match	$ 193,450

United Way Funds (continued)

Rush County United Fund	Indiana	Employee Match	$	192
Shelby County United Fund, Inc.	Indiana	Employee Match	$	9,565
Trident United Way	Charleston, SC	Employee Match	$	84,832
United Fund of Dearborn County	Indiana	Employee Match	$	72
United Way for Clinton County	Indiana	Employee Match	$	48
United Way of Allen County	Indiana	Employee Match	$	24
United Way of Bartholomew County	Columbus, IN	Employee Match	$	712,545
United Way of Bloomington & Monroe County, Inc.	Indiana	Employee Match	$	4,907
United Way of Central Indiana	Indiana	Employee Match	$	68,870
United Way of Dane County, Inc.	Stoughton, WI	Employee Match	$	34,878
United Way of Eastern New Mexico, Inc.	Clovis, NM	Employee Match	$	9,614
United Way of El Paso County	El Paso, TX	Employee Match	$	3,804
United Way of Franklin County	Indiana	Employee Match	$	456
United Way of Greater Cincinnati Northern Kentucky	Florence, KY	Employee Match	$	18,144
United Way of Greater Lafayette & Tippecanoe County	Indiana	Employee Match	$	48
United Way of Hancock County	Findlay, OH	Employee Match	$	3,494
United Way of Johnson County	Indiana	Employee Match	$	68,956

Proteus is an ultra-light craft with wave adaptive inflatable hulls capable of ocean crossing. Large titanium springs ensure cabin stability and payload modules can switch roles from search and rescue to oceanography. *Proteus* is powered by two QSB5.9 Cummins MerCrusier engines each 355 hp.

2007

Cummins Turbo Technologies India Empowers Those With Special Needs

Cummins Turbo Technologies India has supported a local blind school for women for 10 years, but was recently challenged to step up its commitment by creating employment opportunities—placing a visually impaired person in a factory setup.

Initially, the team responsible for the step was overwhelmed. How would such a person commute between home and office? Or find access to the washroom and cafeteria? How would she cope with health and safety issues on the factory floor?

Team members used Six Sigma tools to take a structured approach to these problems, beginning with health and safety. The team created a cause-and-effect matrix to identify suitable employment opportunities and found one in aftermarket operations, packing repair kits.

Mamta, a young woman from the school for the blind, was hired at the Dewas plant and was soon achieving 100 percent accuracy at the job. Neeraj Deshpande, Aftermarket Leader, is proud to have Mamta in his team.

"This initiative was not only about empowering people with special needs, but also to remember not to overlook potential employees who have a disability," said Vikas Thapa, Head of Human Resources for Cummins Turbo Technologies India.

New employee Mamta packs repair kits in the aftermarket section of the Cummins Turbo Technologies plant in Dewas.

This was not the first time that Cummins Turbo Technologies India took such a challenge. In 2005, a Turbo Technologies Dewas team hired the first hearing and speech impaired candidate for the assembly line function. To support the initiative, the co-workers on the shop floor learned to communicate with the employee through sign language, and management took additional steps to ensure his safety and security.

The performance of that employee and the commitment of co-workers encouraged the team to hire two more hearing and speech-impaired people, who are now successfully working on assembly lines at the Pithampur and Dewas plants.

Turbo Technologies India has now listed the creation of employment opportunities for special needs people as a critical initiative on its Goal Tree.

United Way Funds (continued)				
United Way of Madison County	Indiana	Employee Match	$	972
United Way of Metropolitan Nashville	Nashville, TN	Employee Match	$	84,038
United Way of North Central Iowa	Lake Mills, IA	Employee Match	$	36,643
United Way of Putnam County	Cookeville, TN	Employee Match	$	26,603
United Way of Putnam County	Greencastle, IN	Employee Match	$	30
United Way of Scott County	Indiana	Employee Match	$	3,627
United Way of South Central Indiana	Indiana	Employee Match	$	792
United Way of Southern Chautauqua County	Jamestown, NY	Employee Match	$	124,161
United Way of the Mid-South	Memphis, TN	Employee Match	$	26,296
United Way of the Wabash Valley	Indiana	Employee Match	$	48
United Way Funds Sub Total				**$ 1,793,748**

Cummins Delivers Portable Power to Hurricane Alley

Shortly after learning that Hurricane Ike was headed for Texas in September, Cummins had more than 25 truckloads of Cummins Onan portable generators rolling into hurricane country.

"I got the calls from our retailers, and the generators were on the road within two hours," said Melissa Davis, North American Sales Manager. "They were available ahead of any threatened power outages."

Hurricane Ike was the third most destructive storm in U.S. history, and worst ever to hit Texas. Its winds reached 145 mph and caused an estimated $24 billion in damage. An estimated three million people were left without power, many of whom remained in the dark two weeks later. The Onan portable generators were shipped to areas in the anticipated path of the hurricane. Each was designed to provide 5,000 watts of continuous power and up to 5,500 watts of peak power for 9 hours of continuous operation on a tank of gas. The generators can power a refrigerator, lights, air-conditioner and more.

"In areas that have a history of hurricanes or other severe weather, people need standby power as the alternative to available power," said Davis. "A standby generator can pay for itself by just powering your refrigerator or freezer until the grid comes back online, which is especially important if you need to refrigerate expensive medicines."

Purdue, Cummins Inc., and Cummins College of Engineering for Women Expand Partnership

Although the three have worked together since 2003, Purdue University, Cummins Inc. and Cummins College of Engineering for Women (CCEW) signed a memorandum of understanding On Nov. 7, 2008 to foster important additional linkages. Research and development; student and faculty exchange; a fellowship program; and support for mechanical engineering curricula at the CCEW campus in Pune, India will all be involved.

Cummins actively recruits Purdue University students to add to its cohort of engineers. This new agreement, formalized in Mumbai by leaders of the three institutions, sets the stage for greater interaction between Purdue and the CCEW as partnerships expand over the next five years.

"Two of Cummins' strongest and longest-standing academic partners are Purdue University in Indiana and CCEW in Pune, India," said Dr. John C. Wall, Vice President and Chief technical Officer. "We are very pleased to formalize our scholarship program with Purdue to support selected outstanding young women engineers from CCEW for graduate studies in engineering and information technology at Purdue."

Created in 1991, Cummins College of Engineering for Women was the first engineering college in India established exclusively for women. It is consistently ranked among the top five colleges in Pune, an academic center.

Foundation Grants (continued)

Grantee	Community	Purpose	Amount
United Way of Johnson County	Indiana	Purchase Appliances for Flood Victims	$ 5,000
University of San Francisco	San Francisco, CA	McCarthy & Martin Scholarship Fund	$ 5,000
University of Tennessee	Memphis, TN	Summer Camp for Children with ADHD	$ 10,000
Vanderbilt University	Nashville, TN	Education Support	$ 75,000
Walton-Verona High School	Walton, KY	Education Support	$ 5,000
West Ohio Food Bank	Findlay, OH	Support for Food Bank	$ 5,000
Westwood Youth Development	Memphis, TN	Camp Care Program	$ 2,500
Women with Wings	Erlanger, KY	Support for Domestic Violence Victimes	$ 5,000
World Vision USA	China	China Earthquake Relief	$ 307,730
YMCA of the USA	Chicago, IL	National Black & Hispanic Achievers Program	$ 10,000
YMCA of the USA	Chicago, IL	Leadership Conference Speaker Support	$ 3,500
Youth Leadership Bartholomew County	Columbus, IN	Student Leadership Seminar	$ 500
Total Foundation Grants			**$ 5,366,993**

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EXHIBIT 18

Six Sigma

From Wikipedia, the free encyclopedia

Six Sigma is a set of techniques and tools for process improvement. It was introduced by engineer Bill Smith while working at Motorola in 1986.[1][2] Jack Welch made it central to his business strategy at General Electric in 1995.[3] Today, it is used in many industrial sectors.[4]

It seeks to improve the quality of the output of a process by identifying and removing the causes of defects and minimizing variability in manufacturing and business processes. It uses a set of quality management methods, mainly empirical, statistical methods, and creates a special infrastructure of people within the organization, who are experts in these methods. Each Six Sigma project carried out within an organization follows a defined sequence of steps and has specific value targets, for example: reduce process cycle time, reduce pollution, reduce costs, increase customer satisfaction, and increase profits.

The term *Six Sigma* (capitalized because it was written that way when registered as a Motorola trademark on December 28, 1993) originated from terminology associated with statistical modeling of manufacturing processes. The maturity of a manufacturing process can be described by a *sigma* rating indicating its yield or the percentage of defect-free products it creates. A six sigma process is one in which 99.99966% of all opportunities to produce some feature of a part are statistically expected to be free of defects (3.4 defective features per million opportunities). Motorola set a goal of "six sigma" for all of its manufacturing operations, and this goal became a by-word for the management and engineering practices used to achieve it.

Contents

Doctrine

Six Sigma doctrine asserts:

- Continuous efforts to achieve stable and predictable process results (e.g. by reducing process variation) are of vital importance to business success.
- Manufacturing and business processes have characteristics that can be defined, measured, analyzed, improved, and controlled.
- Achieving sustained quality improvement requires commitment from the entire organization, particularly from top-level management.

The common Six Sigma symbol

Features that set Six Sigma apart from previous quality-improvement initiatives include:

- A clear focus on achieving measurable and quantifiable financial returns from any Six Sigma project.
- An increased emphasis on strong and passionate management leadership and support.
- A clear commitment to making decisions on the basis of verifiable data and statistical methods, rather than assumptions and guesswork.

The term "six sigma" comes from statistics and is used in statistical quality control, which evaluates process capability. Originally, it referred to the ability of manufacturing processes to produce a very high proportion of output within specification. Processes that operate with "six sigma quality" over the short term are assumed to produce long-term defect levels below 3.4 defects per million opportunities (DPMO).[5][6] Six Sigma's implicit goal is to improve all processes, but not to the 3.4 DPMO level necessarily. Organizations need to determine an appropriate sigma level for each of their most important processes and strive to achieve these. As a result of this goal, it is incumbent on management of the organization to prioritize areas of improvement.

"Six Sigma" was registered June 11, 1991 as U.S. Service Mark 1,647,704 (http://tarr.uspto.gov/servlet/tarr?regser=serial&entry=1647704). In 2005 Motorola attributed over US$17 billion in savings to Six Sigma.[7]

Other early adopters of Six Sigma include Honeywell (today's Honeywell is the result of a "merger of equals" of Honeywell and Allied Signal in 1999) and General Electric, where Jack Welch introduced the method.[8] By the late 1990s, about two-thirds of the Fortune 500 organizations had begun Six Sigma initiatives with the aim of reducing costs and improving quality.[9]

In recent years, some practitioners have combined Six Sigma ideas with lean manufacturing to create a methodology named Lean Six Sigma.[10] The Lean Six Sigma methodology views lean manufacturing, which addresses process flow and waste issues, and Six Sigma, with its focus on variation and design, as complementary disciplines aimed at promoting "business and operational excellence".[10] Companies such as GE,[11] Verizon, GENPACT, and IBM use Lean Six Sigma to focus transformation efforts not just on efficiency but also on growth. It serves as a foundation for innovation throughout the organization, from manufacturing and software development to sales and service delivery functions.

The International Organization for Standardization (ISO) has published in 2011 the first standard "ISO 13053:2011" defining a Six Sigma process.[12] Other "standards" are created mostly by universities or companies that have so-called first-party certification programs for Six Sigma.

Difference between related concepts

Lean management and Six Sigma are two concepts which share similar methodologies and tools. Both programs are Japanese influenced, but they are two different programs. Lean management is focused on eliminating waste and ensuring efficiency while Six Sigma's focus is on eliminating defects and reducing variability.

Methodologies

Six Sigma projects follow two project methodologies inspired by Deming's Plan-Do-Check-Act Cycle. These methodologies, composed of five phases each, bear the acronyms DMAIC and DMADV.[9]

- DMAIC ("duh-may-ick", /dʌ.ˈmeɪ.ɪk/) is used for projects aimed at improving an existing business process.[9]
- DMADV ("duh-mad-vee", /dʌ.ˈmæd.vi/) is used for projects aimed at creating new product or process designs.[9]

DMAIC

The DMAIC project methodology has five phases:

The five steps of DMAIC

- ***D**efine* the system, the voice of the customer and their requirements, and the project goals, specifically.
- ***M**easure* key aspects of the current process and collect relevant data; calculate the 'as-is' Process Capability.
- ***A**nalyze* the data to investigate and verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered. Seek out root cause of the defect under investigation.
- ***I**mprove* or optimize the current process based upon data analysis using techniques such as design of experiments, poka yoke or mistake proofing, and standard work to create a new, future state process. Set up pilot runs to establish process capability.
- ***C**ontrol* the future state process to ensure that any deviations from the target are corrected before they result in defects. Implement control systems such as statistical process control, production boards, visual workplaces, and continuously monitor the process. This process is repeated until the desired quality level is obtained.

Some organizations add a ***R**ecognize* step at the beginning, which is to recognize the right problem to work on, thus yielding an RDMAIC methodology.[13]

DMADV or DFSS

The DMADV project methodology, known as DFSS ("**D**esign **F**or **S**ix **S**igma"),[9] features five phases:

The five steps of DMADV

- ***D**efine* design goals that are consistent with customer demands and the enterprise strategy.
- ***M**easure* and identify CTQs (characteristics that are **C**ritical **T**o **Q**uality), measure product capabilities, production process capability, and measure risks.

- *Analyze* to develop and design alternatives
- *Design* an improved alternative, best suited per analysis in the previous step
- *Verify* the design, set up pilot runs, implement the production process and hand it over to the process owner(s).

Quality management tools and methods

Within the individual phases of a DMAIC or DMADV project, Six Sigma utilizes many established quality-management tools that are also used outside Six Sigma. The following table shows an overview of the main methods used.

- 5 Whys
- Statistical and fitting tools
  - Analysis of variance
  - General linear model
  - ANOVA Gauge R&R
  - Regression analysis
  - Correlation
  - Scatter diagram
  - Chi-squared test
- Axiomatic design
- Business Process Mapping/Check sheet
- Cause & effects diagram (also known as fishbone or Ishikawa diagram)
- Control chart/Control plan (also known as a swimlane map)/Run charts
- Cost-benefit analysis
- CTQ tree
- Design of experiments/Stratification
- Histograms/Pareto analysis/Pareto chart
- Pick chart/Process capability/Rolled throughput yield
- Quality Function Deployment (QFD)
- Quantitative marketing research through use of Enterprise Feedback Management (EFM) systems
- Root cause analysis
- SIPOC analysis (**S**uppliers, **I**nputs, **P**rocess, **O**utputs, **C**ustomers)
- COPIS analysis (Customer centric version/perspective of SIPOC)
- Taguchi methods/Taguchi Loss Function
- Value stream mapping

Implementation roles

One key innovation of Six Sigma involves the absolute "professionalizing" of quality management functions. Prior to Six Sigma, quality management in practice was largely relegated to the production floor and to statisticians in a separate quality department. Formal Six Sigma programs adopt a kind of elite ranking terminology (similar to some martial arts systems, like Kung-Fu and Judo) to define a hierarchy (and special career path) that includes all business functions and levels.

Six Sigma identifies several key roles for its successful implementation.[14]

- *Executive Leadership* includes the CEO and other members of top management. They are responsible for setting up a vision for Six Sigma implementation. They also empower the other role holders with the freedom and resources to explore new ideas for breakthrough improvements by transcending departmental barriers and overcoming inherent resistance to change.[15]
- *Champions* take responsibility for Six Sigma implementation across the organization in an integrated manner. The Executive Leadership draws them from upper management. Champions also act as mentors to Black Belts.
- *Master Black Belts*, identified by Champions, act as in-house coaches on Six Sigma. They devote 100% of their time to Six Sigma. They assist Champions and guide Black Belts and Green Belts. Apart from statistical tasks, they spend their time on ensuring consistent application of Six Sigma across various functions and departments.
- *Black Belts* operate under Master Black Belts to apply Six Sigma methodology to specific projects. They devote 100% of their valued time to Six Sigma. They primarily focus on Six Sigma project execution and

special leadership with special tasks, whereas Champions and Master Black Belts focus on identifying projects/functions for Six Sigma.
- *Green Belts* are the employees who take up Six Sigma implementation along with their other job responsibilities, operating under the guidance of Black Belts.

Special training is needed[16] for all of these practitioners to ensure that they follow the methodology and use the data-driven approach correctly. This training is very important.

Some organizations use additional belt colours, such as *Yellow Belts*, for employees that have basic training in Six Sigma tools and generally participate in projects and "White belts" for those locally trained in the concepts but do not participate in the project team. "Orange belts" are also mentioned to be used for special cases.[17]

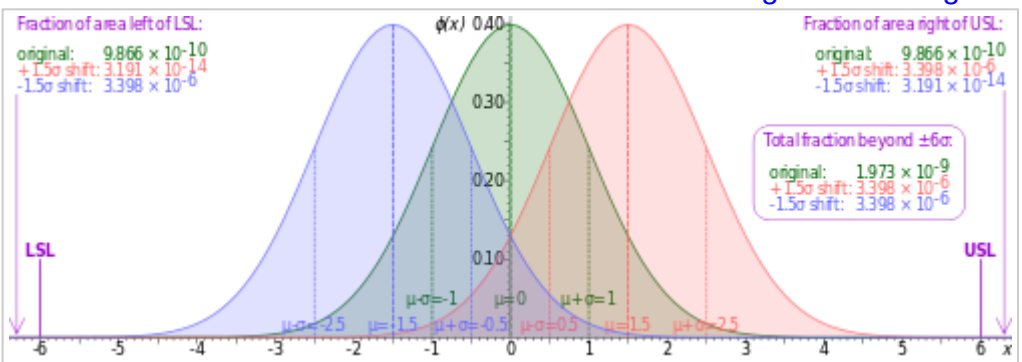
Certification

General Electric and Motorola developed certification programs as part of their Six Sigma implementation, verifying individuals' command of the Six Sigma methods at the relevant skill level (Green Belt, Black Belt etc.). Following this approach, many organizations in the 1990s started offering Six Sigma certifications to their employees.[9][18] Criteria for Green Belt and Black Belt certification vary; some companies simply require participation in a course and a Six Sigma project.[18] There is no standard certification body, and different certification services are offered by various quality associations and other providers against a fee.[19][20] The American Society for Quality for example requires Black Belt applicants to pass a written exam and to provide a signed affidavit stating that they have completed two projects or one project combined with three years' practical experience in the body of knowledge.[18][21]

Etymology of "six sigma process"

The term "six sigma process" comes from the notion that if one has six standard deviations between the process mean and the nearest specification limit, as shown in the graph, practically no items will fail to meet specifications.[5] This is based on the calculation method employed in process capability studies.

Capability studies measure the number of standard deviations between the process mean and the nearest specification limit in sigma units, represented by the Greek letter σ (sigma). As process standard deviation goes up, or the mean of the process moves away from the center of the tolerance, fewer standard deviations will fit between the mean and the nearest specification limit, decreasing the sigma number and increasing the likelihood of items outside specification. One should also note that calculation of Sigma levels for a process data is independent of the data being normally distributed. In one of the criticisms to Six Sigma, practitioners using this approach spend a lot of time transforming data from non-normal to normal using transformation techniques. It must be said that Sigma levels can be determined for process data that has evidence of non-normality.[5]



Graph of the normal distribution, which underlies the statistical assumptions of the Six Sigma model. The Greek letter σ (sigma) marks the distance on the horizontal axis between the mean, μ, and the curve's inflection point. The greater this distance, the greater is the spread of values encountered. For the green curve shown above, μ = 0 and σ = 1. The upper and lower specification limits (USL and LSL, respectively) are at a distance of 6σ from the mean. Because of the properties of the normal distribution, values lying that far away from the mean are extremely unlikely. Even if the mean were to move right or left by 1.5σ at some point in the future (1.5 sigma shift, coloured red and blue), there is still a good safety cushion. This is why Six Sigma aims to have processes where the mean is at least 6σ away from the nearest specification limit.

Role of the 1.5 sigma shift

Experience has shown that processes usually do not perform as well in the long term as they do in the short term.[5] As a result, the number of sigmas that will fit between the process mean and the nearest specification limit may well drop over time, compared to an initial short-term study.[5] To account for this real-life increase in process variation over time, an empirically based 1.5 sigma shift is introduced into the calculation.[5][22] According to this idea, a process that fits 6 sigma between the process mean and the nearest specification limit in a short-term study will in the long term fit only 4.5 sigma – either because the process mean will move over time, or because the long-term standard deviation of the process will be greater than that observed in the short term, or both.[5]

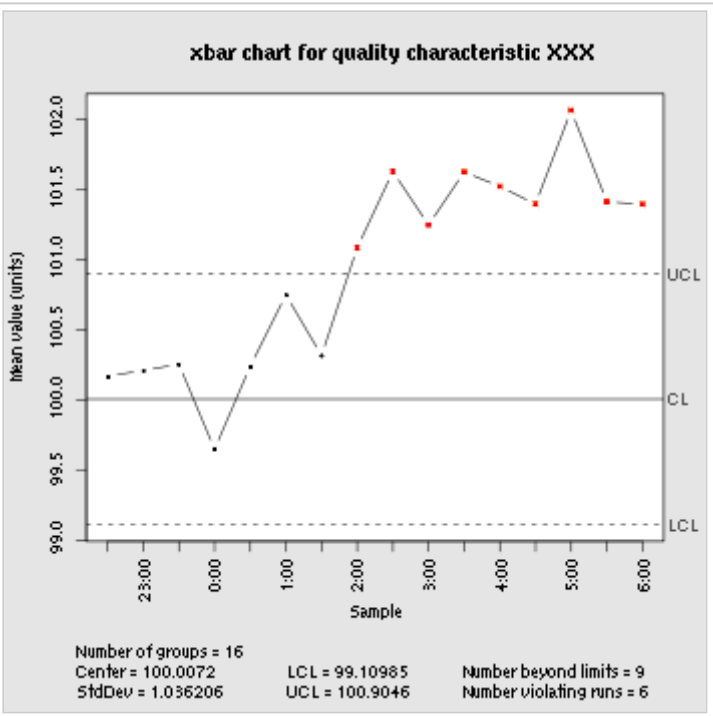
Hence the widely accepted definition of a six sigma process is a process that produces 3.4 defective parts per million opportunities (DPMO). This is based on the fact that a process that is normally distributed will have 3.4 parts per million outside the limits, when the limits are six sigma from the "original" mean of zero and the process mean is then shifted by 1.5 sigma (and therefore, the six sigma limits are no longer symmetrical about the mean).[5] The former six sigma distribution, when under the effect of the 1.5 sigma shift, is commonly referred to as a 4.5 sigma process. However, it should be noted that the failure rate of a six sigma distribution with the mean shifted 1.5 sigma is not equivalent to the failure rate of a 4.5 sigma process with the mean centered on zero.[5] This allows for the fact that special causes may result in a deterioration in process performance over time and is designed to prevent underestimation of the defect levels likely to be encountered in real-life operation.[5]

The role of the sigma shift is mainly academic. The purpose of six sigma is to generate organizational performance improvement. It is up to the organization to determine, based on customer expectations, what the appropriate sigma level of a process is. The purpose of the sigma value is as a comparative figure to determine whether a process is improving, deteriorating, stagnant or non-competitive with others in the same business. Six sigma (3.4 DPMO) is not the goal of all processes.

Sigma levels

The table below gives long-term DPMO values corresponding to various short-term sigma levels.[23][24]

These figures assume that the process mean will shift by 1.5 sigma toward the side with the critical specification limit. In other words, they assume that after the initial study determining the short-term sigma level, the long-term C_{pk} value will turn out to be 0.5 less than the short-term C_{pk} value. So, for example, the DPMO figure given for 1 sigma assumes that the long-term process mean will be 0.5 sigma beyond the specification limit ($C_{pk} = –0.17$), rather than 1 sigma within it, as it was in the short-term study ($C_{pk} = 0.33$). Note that the defect percentages indicate only defects exceeding the specification limit to which the process mean is nearest. Defects beyond the far specification limit are not included in the percentages.



A control chart depicting a process that experienced a 1.5 sigma drift in the process mean toward the upper specification limit starting at midnight. Control charts are used to maintain 6 sigma quality by signaling when quality professionals should investigate a process to find and eliminate special-cause variation.

Sigma level	Sigma (with 1.5σ shift)	DPMO	Percent defective	Percentage yield	Short-term C_{pk}	Long-term C_{pk}
1	−0.5	691,462	69%	31%	0.33	−0.17
2	0.5	308,538	31%	69%	0.67	0.17
3	1.5	66,807	6.7%	93.3%	1.00	0.5
4	2.5	6,210	0.62%	99.38%	1.33	0.83
5	3.5	233	0.023%	99.977%	1.67	1.17
6	**4.5**	**3.4**	**0.00034%**	**99.99966%**	**2.00**	**1.5**
7	5.5	0.019	0.0000019%	99.9999981%	2.33	1.83

Software

Application

Six Sigma mostly finds application in large organizations.[25] An important factor in the spread of Six Sigma was GE's 1998 announcement of $350 million in savings thanks to Six Sigma, a figure that later grew to more than $1 billion.[25] According to industry consultants like Thomas Pyzdek and John Kullmann, companies with fewer than 500 employees are less suited to Six Sigma implementation or need to adapt the standard approach to make it work for them.[25] Six Sigma however contains a large number of tools and techniques that work well in small to mid-size organizations. The fact that an organization is not big enough to be able to afford Black Belts does not

diminish its abilities to make improvements using this set of tools and techniques. The infrastructure described as necessary to support Six Sigma is a result of the size of the organization rather than a requirement of Six Sigma itself.[25]

Criticism

Lack of originality

Quality expert Joseph M. Juran described Six Sigma as "a basic version of quality improvement", stating that "there is nothing new there. It includes what we used to call facilitators. They've adopted more flamboyant terms, like belts with different colors. I think that concept has merit to set apart, to create specialists who can be very helpful. Again, that's not a new idea. The American Society for Quality long ago established certificates, such as for reliability engineers."[26]

Inadequate for complex manufacturing

Quality expert Philip B. Crosby pointed out that the Six Sigma standard doesn't go far enough[27]—customers deserve defect-free products every time. For example, under the Six Sigma standard, semiconductors which require the flawless etching of millions of tiny circuits onto a single chip are all 100% unusable.[28]

Role of consultants

The use of "Black Belts" as itinerant change agents has fostered an industry of training and certification. Critics have argued there is overselling of Six Sigma by too great a number of consulting firms, many of which claim expertise in Six Sigma when they have only a rudimentary understanding of the tools and techniques involved or the markets or industries in which they are acting.[29]

Potential negative effects

A *Fortune* article stated that "of 58 large companies that have announced Six Sigma programs, 91 percent have trailed the S&P 500 since". The statement was attributed to "an analysis by Charles Holland of consulting firm Qualpro (which espouses a competing quality-improvement process)".[30] The summary of the article is that Six Sigma is effective at what it is intended to do, but that it is "narrowly designed to fix an existing process" and does not help in "coming up with new products or disruptive technologies."[31][32]

Over-reliance on statistical tools

A more direct criticism is the "rigid" nature of Six Sigma with its over-reliance on methods and tools. In most cases, more attention is paid to reducing variation and searching for any significant factors and less attention is paid to developing robustness in the first place (which can altogether eliminate the need for reducing variation).[33] The extensive reliance on significance testing and use of multiple regression techniques increases the risk of making commonly unknown types of statistical errors or mistakes. A possible consequence of Six Sigma's array of P-value misconceptions is the false belief that the probability of a conclusion being in error can be calculated from the data in a single experiment without reference to external evidence or the plausibility of the underlying mechanism.[34] One of the most serious but all-too-common misuses of inferential statistics is to take a model that was developed through exploratory model building and subject it to the same sorts of statistical tests that are used to validate a model that was specified in advance.[35]

Another comment refers to the often mentioned Transfer Function, which seems to be a flawed theory if looked at in detail.[36] Since significance tests were first popularized many objections have been voiced by prominent and respected statisticians. The volume of criticism and rebuttal has filled books with language seldom used in the scholarly debate of a dry subject.[37][38][39][40] Much of the first criticism was already published more than 40 years ago. Refer to: Statistical hypothesis testing#Criticism for details.

Articles featuring critics have appeared in the November–December 2006 issue of *USA Army Logistician* regarding Six-Sigma: "The dangers of a single paradigmatic orientation (in this case, that of technical rationality) can blind us to values associated with double-loop learning and the learning organization, organization adaptability, workforce creativity and development, humanizing the workplace, cultural awareness, and strategy making."[41]

Nassim Nicholas Taleb consider risk managers little more than "blind users" of statistical tools and methods.[42] He states that statistics is fundamentally incomplete as a field as it cannot predict the risk of rare events — something Six Sigma is specially concerned with. Furthermore, errors in prediction are likely to occur as a result of ignorance for or distinction between epistemic and other uncertainties. These errors are the biggest in time variant (reliability) related failures.[43]

Stifling creativity in research environments

A *BusinessWeek* article says that James McNerney's introduction of Six Sigma at 3M had the effect of stifling creativity and reports its removal from the research function. It cites two Wharton School professors who say that Six Sigma leads to incremental innovation at the expense of blue skies research.[44] This phenomenon is further explored in the book *Going Lean*, which describes a related approach known as lean dynamics and provides data to show that Ford's "6 Sigma" program did little to change its fortunes.[45]

According to an article by John Dodge, editor in chief of *Design News*, use of Six Sigma is inappropriate in a research environment. Dodge states[46] "excessive metrics, steps, measurements and Six Sigma's intense focus on reducing variability water down the discovery process. Under Six Sigma, the free-wheeling nature of brainstorming and the serendipitous side of discovery is stifled." He concludes "there's general agreement that freedom in basic or pure research is preferable while Six Sigma works best in incremental innovation when there's an expressed commercial goal."

Lack of systematic documentation

One criticism voiced by Yasar Jarrar and Andy Neely from the Cranfield School of Management's Centre for Business Performance is that while Six Sigma is a powerful approach, it can also unduly dominate an organization's culture; and they add that much of the Six Sigma literature – in a remarkable way (six-sigma claims to be evidence, scientifically based) – lacks academic rigor:

> One final criticism, probably more to the Six Sigma literature than concepts, relates to the evidence for Six Sigma's success. So far, documented case studies using the Six Sigma methods are presented as the strongest evidence for its success. However, looking at these documented cases, and apart from a few that are detailed from the experience of leading organizations like GE and Motorola, most cases are not documented in a systemic or academic manner. In fact, the majority are case studies illustrated on websites, and are, at best, sketchy. They provide no mention of any specific Six Sigma methods that were used to resolve the problems. It has been argued that by relying on the Six Sigma criteria, management is lulled into the idea that something is being done about quality, whereas any resulting improvement is accidental (Latzko 1995). Thus, when looking at the evidence put forward for Six

> Sigma success, mostly by consultants and people with vested interests, the question that begs to be asked is: are we making a true improvement with Six Sigma methods or just getting skilled at telling stories? Everyone seems to believe that we are making true improvements, but there is some way to go to document these empirically and clarify the causal relations.
>
> __ [33]

1.5 sigma shift

The statistician Donald J. Wheeler has dismissed the 1.5 sigma shift as "goofy" because of its arbitrary nature.[47] Its universal applicability is seen as doubtful.

The 1.5 sigma shift has also become contentious because it results in stated "sigma levels" that reflect short-term rather than long-term performance: a process that has long-term defect levels corresponding to 4.5 sigma performance is, by Six Sigma convention, described as a "six sigma process."[5][48] The accepted Six Sigma scoring system thus cannot be equated to actual normal distribution probabilities for the stated number of standard deviations, and this has been a key bone of contention over how Six Sigma measures are defined.[48] The fact that it is rarely explained that a "6 sigma" process will have long-term defect rates corresponding to 4.5 sigma performance rather than actual 6 sigma performance has led several commentators to express the opinion that Six Sigma is a confidence trick.[5]

See also

- Design for Six Sigma
- DMAIC
- Kaizen – a philosophical focus on continuous improvement of processes
- Lean Six Sigma
- Lean Manufacturing
- Management fad
- Total productive maintenance
- Total quality management
- W. Edwards Deming

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Categories: Six Sigma | 1986 introductions | Business terms | Process management | Production and manufacturing | Quality management

EXHIBIT 19

Cummins Inc.

Sustainability Report 2009 – 2010

Meeting the Challenges of Global Sustainability

Cummins supports EARTH University's mission to promote sustainable agriculture

On the cover

Students get hands-on experience when they learn about sustainable agriculture at EARTH University in Costa Rica. These students are weighing beans to determine who had the biggest yield. Students come from all over the world to the university, which is supported by Cummins both financially and in employees' time and expertise.

Who we are

Vision

Making people's lives better by unleashing the Power of Cummins

Mission

We unleash the Power of Cummins by

- Motivating people to act like owners working together.
- Exceeding customer expectations by always being the first to market with the best products.
- Partnering with our customers to make sure they succeed.
- Demanding that everything we do leads to a cleaner, healthier, safer environment.
- Creating wealth for all stakeholders.

Values

What do we value?

Integrity: Strive to do what is right and do what we say we will do

Innovation: Apply the creative ingenuity necessary to make us better, faster, first

Deliver Superior Results:
Exceed expectations, consistently

Corporate Responsibility: Serve and improve the communities in which we live

Diversity: Embrace the diverse perspectives of all people and honor both with dignity and respect

Global Involvement: Seek a world view and act without boundaries

Strategic Principles

Leverage Complementary Businesses
Cummins is a family of complementary businesses that create value for our customers by leveraging relationships and applying innovative technology across business boundaries.

Increase Shareholder Value
Cummins' financial success is measured by growth in shareholder value. We will focus on ROE/ROANA and Earnings growth (not revenue growth) as the principal drivers of shareholder value.

Become the Low Cost Producer
Cummins will pursue an operational strategy of cost leadership.

Lead in Critical Technologies
Cummins will be the market leader in technologies most critical to our customers' success and our company's performance.

Seek Profitable Growth
Cummins will seek profitable growth by leveraging our assets and capabilities to grow in market segments with favorable industry dynamics and where Cummins can establish an advantage.

Create the Right Work Environment
Cummins will assure that the physical and cultural work environment is conducive to excellent performance and continuous improvement.

Personality

What is our personality?
Decisive • Driven to Win • Agile • Passionate • Caring

I am Cummins. You can depend on me.

About this report

The information in this report is presented in the spirit of the Global Reporting Initiative (GRI). The goal of the initiative is to develop a consistent way for companies around the world to voluntarily report on the economic, environmental and social components of their businesses. The GRI was started in 1997 by the Coalition for Environmentally Responsible Economies and then became independent in 2002 and today works in collaboration with the United Nations Environment Program and the UN Secretary-General's Global Compact.

Cummins takes pride in the positive impact our people and products have on society. As a global company, Cummins wants to make a difference today and for future generations as well. This report was published in July 2010 and is the Company's seventh annual edition.

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About the cover

The cover of this year's Sustainability Report feels and looks different because it is made out of a blend of banana stalk fibers and post-consumer paper at Cummins-supported EARTH University in Costa Rica.

Typically, after the fruit is harvested the banana stalk is disposed of in landfills or by other means. In Costa Rica alone, hundreds of thousands of tons of banana stalks are disposed of annually. Paper is only one of several ways the university is putting banana stalks to work. EARTH has also pioneered the use of a fertilizer made from banana stalks for fruit growers in Central America.

To learn more about EARTH University, go to page 14.

Table of contents

This year's Sustainability Report celebrates Cummins' significant Corporate Responsibility partnerships starting on page 14 with a story about the Company's involvement in EARTH University. Other partnerships are profiled throughout the report.

Letter from the chairman

Cummins Stakeholder:

Over the past year, Cummins has continued to focus its efforts on keeping the Company strong during the global recession, which began late in 2008.

Our work to reduce costs, align manufacturing capacity with demand and serve customers well when they need us the most has allowed us to meet our goals of earning a solid profit and generating the cash necessary to invest in critical technologies for the future.

In these challenging economic times, I also am pleased to say that Cummins has not lost sight of the importance of delivering on our commitments to customers, shareholders, employees, government and the communities in which we operate. In fact, the stakeholder model first introduced at Cummins 40 years ago by then-Chairman J. Irwin Miller, remains a critical component to our long-term success.

As we look to a future that offers significant growth prospects, our ability to create a sustainable global organization that is responsive to the needs of our stakeholders has never been more important. Our response to the complex challenges facing Cummins today is rooted in the values that define Cummins.

Acting with integrity. Doing our part to improve the communities where we live and work. Embracing diversity. Operating with a global vision. Striving to always exceed the expectations of our customers. Being first to market with innovative products and services.

These statements represent Cummins' core values, and our 36,000 employees worldwide continue to demonstrate their commitment to bringing these words to life every day. Cummins' seventh annual Sustainability Report highlights the progress we have made in the past year around these values.

As in past years, this year's report contains a significant emphasis on the Company's corporate responsibility work.

Broadly speaking, Cummins operates under the philosophy that corporate responsibility is not simply something that is "nice to do," but is a way of doing business that contributes directly to the financial health of our company over the long-term.

Building successful, vibrant communities leads to stronger markets for our products. Being seen as a company that cares about all its stakeholders is essential to our efforts to attract and retain the most talented workers from around the world, which is critical to the success of any global company.

In a similar fashion, part of Cummins' Mission demands that everything we do leads to a cleaner, healthier, safer environment.

That commitment drives our work as a worldwide leader in emissions technology, which provides Cummins with a significant competitive advantage. It also is behind ongoing efforts to reduce the environmental impact of our facilities, strengthen our voice in the public policy debate around issues such as climate change and to engage our employees on ways they can make a difference.

This year's Sustainability Report also focuses on the global nature of Cummins' operations, and the challenges and opportunities that come with doing business in 190 countries worldwide.

More than half of Cummins' employees work outside the United States, and approximately 60 percent of the Company's revenues are generated from international markets, which offer some of our strongest future growth prospects.

To address the global challenges we face, we must have processes in place to ensure that our values effectively translate across the range of cultures in which we operate. It also is more important than ever that we embrace and respect the diverse perspectives of our employees and use those differences to strengthen our business.

The global nature of our approach to sustainability is highlighted throughout this year's report. Here are just a few examples:

- **Our "signature" Corporate Responsibility partnership with EARTH University in Costa Rica, which is profiled starting on page 14.** In addition to being the recipient of funds from The Cummins Foundation, EARTH is receiving significant help from Cummins employees across several areas of expertise in support of its mission to provide world-class education in sustainable agricultural techniques. In addition, we have included stories about other significant Corporate Responsibility partnerships throughout the report.
- **Work by Cummins engineers to provide power to a rural village in India by converting a Cummins generator to run on vegetable oil extracted from the inedible seeds of a local tree.** The project was one of five "President's Award" winners in the Company's first-ever Environmental Challenge held in 2009. All five projects are profiled beginning on page 70.
- **The significant investment made in the Cummins Power Generation plant in Craiova, Romania, over the past year to create a more efficient and safer workplace.** More than $700,000 was spent to replace old equipment, create a new walkway for employees and improve lighting throughout the plant.
- **A Q&A with Cummins' newest Board member, Dr. Franklin Chang-Diaz, which starts on page 56.** Dr. Chang-Diaz, Cummins' first non U.S.-born Director, is a former NASA astronaut and renowned rocket scientist who is leading an ambitious long-term effort to transform Costa Rica's economy. His commitment to the environment, the community and technical leadership aligns well with Cummins' sustainability goals.

Just as we are constantly looking for ways to better serve our stakeholders around the world through our actions as a Company, we also have raised the bar this year on our sustainability reporting efforts.

For the first time, this year's report contains a section devoted specifically to employee relations, and we have expanded on our safety and diversity discussions from past years. Perhaps most exciting, though, is the launch of our new Sustainability Web site.

The site will contain links to both the full and summary printed reports, and visitors will be able to quickly access material of their choosing through links to individual sections of the report. The site also will offer additional stories, data, multimedia content and links to social media tools.

I hope you will read our current Sustainability Report and visit the Sustainability site at www.cummins.com to learn more about our work to remain a responsible global corporate citizen that is responsive to the needs of all our stakeholders.

Tim Solso
Chairman and Chief Executive Officer
Cummins Inc.

Cummins by the numbers

Corporate responsibility

70,000+

hours of paid employee time devoted annually to community projects as part of the Every Employee Every Community program

150+ Community Involvement Teams at Cummins engaged in corporate responsibility activities

Corporate governance

80+

Cummins locations that updated their Business Continuity plans in 2009 for emergencies such as natural disasters

10 ethical principles that guide Cummins on Governance and related initiatives

Employee safety

0 fatalities at Cummins locations during 2009

40% drop in the Company's Severity Lost Work Day Rate representing a reduction of more 2,400 lost work days

Employee diversity

19 languages spoken by Cummins employees at locations around the world

$1 BILLION

Diversity Procurement goal for Cummins spending with minority-owned suppliers by 2012

Workforce

36,000

Cummins employees across all Company locations

60 percent of Cummins employees who live and work outside the United States

Environment

9,000

tons of CO_2 emissions saved as a result of the Cummins Unplugged Challenge between 2008 and 2010

UNPLUGGED CHALLENGE

$54 MILLION

grants from the U.S. Department of Energy to Cummins to develop more efficient trucks as part of the SuperTruck and light-duty diesel projects

U.S. DEPARTMENT OF ENERGY

Financial

$10.8 BILLION

total sales in 2009, down 24 percent from $14.3 billion in 2008

$774 MILLION

or 7.2 percent of sales in 2009 — Cummins fourth best Earnings Before Interest and Taxes as a percentage of sales in the last 25 years as Company employees became more efficient in the midst of the global recession

13%

average annual sales growth per year expected by Cummins from 2010-2014, about twice the annual growth rate over the last 30 years

Our commitment

Cummins has recognized its commitment to a broad group of stakeholders for more than 35 years. Longtime Chairman and CEO J. Irwin Miller laid out his philosophy in the 1972 Annual Report:

"While some still argue that business has no social responsibility, we believe that our survival in the very long run is as dependent upon responsible citizenship in our communities and in the society as it is on responsible technological, financial and production performance.

Cummins strives to responsibly and effectively serve all stakeholders, including customers, employees, shareholders, business partners, suppliers and the communities in which we operate. The Company understands that its actions affect a broad range of constituents and works hard to engage them when making business decisions.

Cummins is committed to financial excellence, environmental stewardship, creating a great place to work, community engagement and fair competition.

Customers

Our goal is to care as much about our customers' success as they do, especially during difficult times such as those we have endured during the recent global recession. Cummins works with key customers during development and production to ensure our products are manufactured to meet their needs. The Company uses tools like Six Sigma to help both Cummins customers and suppliers improve quality, reduce costs and improve profitability for all involved.

Each business unit is responsible for developing projects to meet the needs of its customers and is expected to develop customer-focused Six Sigma projects to tackle problems facing individual customers.

Our Customer Support Excellence training includes a different approach to meeting customer needs by looking at a situation through the customer's perspective. Cummins' "Through the Lens of the Customer" training initiative has trained more than 25,000 employees.

Employees

Cummins has a long history of being an employer of choice, offering competitive salaries and benefits, training and career development opportunities and a positive work environment. Benefits were made available to non-spousal domestic partners in 2000.

The Company places a premium on its workers treating one another with respect and dignity. Treatment of Others at Work is a key component

The Cummins Operating System

The Cummins Operating System helps develop common practices and approaches to improve customer satisfaction and profitability. Here's a quick look at the 10 practices:

1. **Put the customer first and provide real value**
2. **Synchronize flows (material, physical and information)**
3. **Design quality in every step of the process**
4. **Involve people and promote team work**
5. **Ensure equipment and tools are available and capable**
6. **Create functional excellence**
7. **Establish the right environment**
8. **Treat preferred suppliers as partners**
9. **Follow common problem solving techniques**
10. **Use Six Sigma as the primary process improvement method**

of Cummins' Code of Business Conduct and is the subject of mandatory training for all new hires. The policy applies to everyone who enters a Cummins facility with the goal of creating an atmosphere where everyone is treated with dignity and respect.

Cummins offers its employees opportunities for growth within the Company as their skills and interests dictate. The Company has a history of "growing its own" leaders, and employees regularly move freely from one part of Cummins to another.

Business partners and suppliers

Cummins has been able to build strong bonds with its business partners whether the Company is acting as a supplier of components or working with one of its 56 joint venture partnerships in 18 countries.

A key principle at the Company is to treat all preferred suppliers as business partners. Cummins regularly shares key practices such as Six Sigma and Lean Manufacturing with those suppliers to help our partners reduce costs and improve quality.

Critical suppliers to Cummins must meet specific Six Sigma performance requirements because Cummins quality is heavily dependent on the quality of our suppliers' products. If our suppliers and business partners succeed, Cummins will succeed and so will our customers.

Shareholders

Beyond returning value in terms of profits, rising stock prices and dividends, Cummins believes it owes investors transparency in financial reporting.

Top executives hold quarterly teleconferences with industry analysts to discuss financial results. Company representatives also attend or host a number of investor events during the year.

To learn more about Cummins' governance practices, please see the Governance and Risk Management section that starts on page 50.

History

Firmly rooted as we reach higher

Cummins' pursuit of innovation and the Company's commitment to both principled leadership and a long-term vision is rooted in the men who played a critical role in the company's creation in 1919.

Clessie Cummins was a Columbus, Ind. man with a lifelong fascination for machines. W.G. Irwin, whose family fortune backed the Company's launch 91 years ago, pursued profits with a sense of community mission and a desire to help local entrepreneurs.

Cummins was Irwin's driver and a mechanic who opened an auto repair shop in a vacant forge building with his boss' blessing in 1913. The business evolved into a machine shop that performed a variety of Army and Navy ordnance jobs during World War I.

Clessie Cummins was increasingly fascinated by diesel technology, which had been introduced in the late 19th century in Europe but had not gained widespread commercial success. Fourteen weeks after the end of the war, the Cummins Engine Company was born, backed by Irwin.

Cummins corporate headquarters preserved part of the factory that was an early home for Clessie Cummins' diesel engine company.

Clessie Cummins

Thanks in large part to the incredible patience of Irwin and his wife, who championed the business as a way to provide jobs to the young men of Columbus, Cummins survived a rocky start in which it didn't turn a profit until 19 years after the Company was founded.

A third pivotal figure in the Cummins history would enter the picture around that time. J. Irwin Miller was the grand-nephew of W.G. Irwin. Miller had been involved in Cummins' operations for more than a decade before being elected president of the Company in 1947. He would play a key role at Cummins for the next three decades.

Educated at Yale and Oxford, Mr. Miller is largely responsible for Cummins taking on the qualities it is so closely associated with today: environmental consciousness, integrity, diversity, global involvement and community service. It was under Miller's leadership that Cummins first became a global company, entering India, China and other locations outside the United States.

Today, Cummins is a global power leader – the world's largest independent manufacturer of diesel engines and related components. What started as a business to manufacture diesel engines for farm irrigation pumps is today a family of four interrelated, yet diversified business segments. Diesel engines provide about 49 percent of our revenues; Power Generation, 19 percent; Components, 18 percent and Distribution, 14 percent.

Clessie Cummins was known for his barnstorming to promote the diesel engine, demonstrating its benefits by among other things fielding a diesel-powered race car at the Indianapolis 500 and conducting coast-to-coast tours, for example with this diesel-powered bus. He is shown (top right) with his two younger brothers later in his career.

The Company has 56 joint venture partnerships in 18 countries with some of the largest companies in our industry, including Komatsu in Japan, Scania in Sweden, Tata in India, Dong Feng and Foton in China and Brunswick-Mercury Marine in the United States. The Company has 87 manufacturing sites across the globe and 36,000 employees.

Cummins products can today be found in nearly every type of vehicle, from the heavy-duty diesel powered trucks that travel the world's highways, to tractors that till the soil, to large trucks that carry natural resources from mines and ships that travel the world's waterways.

Cummins generators supply both prime and auxiliary power around the globe and our worldwide distribution business of parts and service serves customers in more than 190 countries.

Recognition

Here's a look at some of the awards Cummins has won in the past year:

Environmental

Cummins' facilities in the United Kingdom were awarded the Carbon Trust Standard in 2010, which recognizes companies with effective energy management systems and multi-year energy efficiency improvements. Receiving the standard is a significant achievement, as fewer than 300 U.K. companies, with only a small percentage in the industrial sector, have met the criteria.

Cummins continued to be a member of the FTSE4Good index series in 2010. The FTSE Group selects companies for the FTSE4Good index based on their environmental records, whether they develop positive relationships with their stakeholders and whether they support universal human rights.

Cummins' efforts to minimize its environmental footprint and reduce greenhouse gas emissions helped the Company achieve a ranking in the top 20 percent of the 500 largest companies in United States in Newsweek's inaugural "green" survey in 2009. Cummins placed seventh among 47 industrial goods companies.

Cummins Generator Technologies India Limited received a Green Leader Award for 2009 from Frost and Sullivan, the global research, analysis and growth consulting company. The business was honored for its commitment to the environment including its "green facility" at Ranjangaon that practices lean manufacturing.

Cummins became a charter member of the Save Energy Now LEADER program in 2009. The program is an ambitious national public-private initiative to drive significant energy intensity and carbon emission reductions across the U.S. industrial sector. Through partnerships with states, local entities, utilities, associations and end-users, industry can leverage resources to increase energy efficiency and save energy and money.

Governance, ethics and sustainability

Cummins was named one of the "World's Most Ethical Companies" in 2010 by the Ethisphere Institute. The institute recognizes commitment to ethical leadership, compliance practices and corporate social responsibility. This is the fourth straight year that the Ethisphere Institute has selected Cummins as one of the world's most ethical companies.

Cummins was named by Corporate Responsibility magazine in 2010 as one of the world's 100 best corporate citizens. It was the 10th time in 11 years the Company has been named to the magazine's "best corporate citizens" list. Overall, the Company finished No. 11 on the magazine's list.

Cummins was named to the Dow Jones Sustainability Index for the fifth consecutive year in 2009. The index represents the top 10 percent of the world's largest companies rated by Dow Jones across a range of economic, environmental and social responsibility measures.

Social issues, diversity and people

Cummins in 2010 was named to DiversityInc's List of the Top 50 Companies for Diversity for the fourth consecutive year. The Company finished 26th on the 2010 list compared to 42nd in 2009.

Cummins was named one of the top 50 companies for Generation Y employees in 2010 by Brazen Careerist, which describes itself as the experts on what Generation Y wants from their workplace. Generation Y is often defined as those born from the mid-to-late 1970s to the early 2000s.

Cummins received a perfect rating for a fifth consecutive year from the largest U.S. advocacy group for gay, lesbian, bisexual and transgender employees. The Human Rights Campaign rated 590 businesses as part of its 2010 Corporate Equality Index, reviewing companies on their LGBT policies, practices and more.

Cummins was named as one of the top 25 companies for leaders in North America in 2009 by Fortune magazine. More than 500 companies of all sizes were considered for inclusion on the list ranking leadership development programs.

Cummins China was selected as one of 11 finalists for the U.S. State Department's Award for Corporate Excellence in 2009. The award recognizes U.S. businesses for advancing good corporate citizenship, innovation, and democratic principles abroad.

In the marketplace

The 2010 Dodge Ram Heavy Duty Truck featuring the Cummins 6.7 liter Turbo Diesel was selected Motor Trend magazine's Truck of the Year. Motor Trend judges cited the engine's design of a non-urea based system to meet 2010 emissions standards in a pickup truck, while also providing great performance and fuel efficiency.

Cummins finished 12th on Bloomberg BusinessWeek's list of the top performing stocks over the past five years. BusinessWeek calculated the value of a $10,000 investment made in each company on the S&P 500 in March 2005 compared to the same date this March. Cummins stock appreciated 278 percent over the five years compared to an average of 10 percent over that time period.

Cummins won the Modern Consumer Magazine award for Client Excellency in the auto parts category. The award is given out by Padrão Editorial and its partner GFK Indicator, a German company specializing in brand evaluation, one of the most renowned companies in this sector.

Cummins B3.3 engine powered the Mecalac 12MTX Hybrid wheeled excavator to dual-award success at the Intermat show in Paris in 2009, winning a prestigious Gold Award for Innovation as well as a Special Environmental Award. The B3.3 engine drives an electrical generator and lithium-ion battery system to achieve 25 percent lower fuel consumption with reduced CO_2 emissions and quieter operation.

Cover Story

Earth University
Guácimo, Limón
Costa Rica

EARTH University's mission rooted in sustainability

Editor's note: This year's Sustainability Report is celebrating Cummins' significant partnerships in Corporate Responsibility. The Company's Corporate Responsibility value calls for Cummins to "serve and improve the communities in which we live."

EARTH University professor Carlos Montoya walks down a neatly tended row of healthy lettuce, explaining how the vegetable typically doesn't grow well in the hot, moist climate of Costa Rica's humid tropics. And that's the point of everything growing in the peri-urban garden tucked away in a corner of EARTH's bucolic campus in Guácimo, Limón.

EARTH's vision is to produce ethical agricultural entrepreneurs who are committed to promoting economic, social and environmental well-being in their home communities.

"We are trying to develop techniques to help people grow their own vegetables in small spaces and in places where they don't naturally grow well," said Montoya. He went on to add that as many people across Central America have moved from rural areas to cities and towns over the past few decades, peri-urban gardening – the practice of growing and distributing food in or near an urban area – has become an increasingly important means of providing food independence and financial support.

Behind the lettuce plot, plants take root in "soil" that consists largely of carbon, rice and coconut husks with pieces of aluminum cans buried in to add volume while keeping the weight of the planting boxes as low as possible. Nearby, vertical rows of vegetables grow in hanging plastic bags, demonstrating how to make the best use of limited growing space.

The concepts behind the peri-urban garden are repeated across EARTH's 8,100-acre campus where 400 students from two dozen countries learn sustainable, low-cost, low-impact agricultural techniques. At EARTH, little is wasted.

Formed in 1986 with assistance from the Costa Rican government, the U.S. Agency for International Development and the Kellogg Foundation, EARTH University was created in response to political and economic turmoil in Central America that reached a crisis point in the mid-1980s. As a result, dramatic social inequities and a dangerous increase in unsustainable agricultural practices posed a significant environmental and economic threat to the entire region.

EARTH's vision is to produce ethical agricultural entrepreneurs who are committed to promoting economic, social and environmental well-being in their home communities. So far, that vision has translated into a growing group of graduates who have started businesses and are creating jobs.

The university's emphasis on education, the environment and social justice dovetails perfectly with Cummins' corporate responsibility focus areas – education, the environment and social justice/ improving the human condition. That's why EARTH became the Company's first "signature" corporate responsibility partnership in 2009.

"More so than any other effort in which we are involved, EARTH's mission cuts across all our corporate responsibility priorities at Cummins," said Tracy Souza, Executive Director of Corporate Engagement at Cummins and Executive on Loan to EARTH. "The work being done at EARTH has the potential to make profound positive environmental, social and economic changes and we are proud to partner with EARTH."

Small classes, rigorous classwork

EARTH welcomes approximately 100 new students each year, following an intensive application process that includes personal interviews with as many as 800 applicants. Students are selected without regard for their financial resources based on their potential, commitment to the concepts being taught at EARTH and with an eye toward developing a diverse student body that is likely to use what is learned to improve their home communities. Half of EARTH's students are on full scholarship and no student pays more than half of the full cost of his or her education.

Once at EARTH, students engage in a rigorous year-round, four-year course of study that provides a mix of technical education, entrepreneurial experience, community involvement and hands-on agricultural and community oriented work. Classes routinely start at 6:30 a.m. and all students spend parts of two days each week working in the fields, local communities or with livestock on campus.

Students are required work in teams to use loans from the university, which must be repaid with interest, to develop and run a business. Students also are required to spend several weeks assisting "a local farming family during their time at EARTH, which also allows the university to share its sustainable farming techniques more broadly. In addition, every student must secure an agriculture-related internship, preferably in their home country.

EARTH University

Location: Costa Rica (main campus - Guácimo, Limón; satellite campus – La Flor).

Mission: Prepare leaders with ethical values to contribute to the sustainable development of the humid tropics and to construct a prosperous and just society.

History: Founded in 1986 with the support of the Costa Rican government, the U.S. Agency for International Development and the Kellogg Foundation.

Special features: All students must create and run a university-funded agriculture-related business during their first year and spend one academic term as an intern during their third year.

Cummins involvement: Designated a "signature" Corporate Responsibility project in 2009; awarded $6 million challenge grant by Cummins Foundation; several senior leaders serve on EARTH boards or provide volunteer support to EARTH initiatives.

EARTH professor Carlos Montoya talks with staff member Junior Solano López about the lettuce being grown at the university. Plants take root in "soil" that consists largely of carbon, rice and coconut husks with pieces of aluminum cans buried in to add volume.

Cummins' commitment

As part of the Company's support for EARTH, The Cummins Foundation approved a $6 million challenge grant in June 2009 to be awarded over five years. The grant, is conditional on EARTH meeting established fund-raising goals and will be used to fund several endowed scholarships and an endowed professorship at the university.

Cummins' support of EARTH goes well beyond the Foundation grant. Consistent with the Company's philosophy of "unleashing the power" of its employees, Cummins is providing EARTH with significant human capital.

A senior Cummins executive serves as a member of the EARTH University Board of Directors and the EARTH University Foundation Board of Trustees, and the Company has established an executive on loan to coordinate Cummins' work with EARTH. The Company's government relations team in Washington, D.C., also is helping the university build relationships with government officials from around the world.

In addition, a number of Cummins leaders are assisting with projects designed to help EARTH create a long-term strategic financial plan, to improve the operating efficiency of its business ventures and to better assess the impact its graduates are having on their communities. Other examples of Cummins' commitment to EARTH include:

- Cummins is helping EARTH build on its already successful efforts to create a sustainable model for growing bananas. In addition to being served in the university's cafeteria every day, a portion of the banana harvest is sold to Whole Foods Market, the U.S.-based natural supermarket chain.
- Cummins Master Black Belts from Mexico have trained EARTH employees in Six Sigma project methodology to drive improvement and efficiencies throughout the campus.
- Cummins employees are working with EARTH to explore possible commercial markets for the "smart microbes" mixtures that are developed from recycled animal waste and which can be used to repel insects on livestock, fight fungus on plants and even be converted into a cleaning solution to reduce odor in livestock barns.

- Cummins is a major participant in the university's "EARTH Plants the Future" program in 2010 by planting 100,000 trees – including 33,000 on EARTH's main campus representing the hours Cummins employees have devoted to the Company's Environmental Challenge program.

"EARTH has been fortunate to work with a lot of very good organizations, and Cummins is certainly one of the very best," said EARTH University Provost Daniel Sherrard. "The support EARTH has received from Cummins is a real inspiration to all of us, and with no exceptions the people we have been fortunate to work with from the company have been wonderful collaborators."

One student's story

In a university known for its diversity – the school's 400 students come from 24 countries – John Lomurut's story still stands out.

One of four current students from Kenya attending EARTH University, John is the only one in his family of 12 children to attend college. He's the only family member, parents and children, who can read and write. John was the lucky one: the only child from the family that his uncle could afford to take in and educate.

Today, John is on the verge of doing the unimaginable for most from his home village in Kenya: Graduate from college. A fourth-year student at EARTH, John is symbolic of EARTH's mission. He plans to return to Kenya after graduation to spread the sustainable agricultural techniques he has learned in the humid tropics to his arid home region.

Soft-spoken, but poised and keenly intelligent with an easy smile, John also hopes to run for political office in Kenya some day. It's a far cry from the uncertain young man who arrived at EARTH four years ago never having been out of Kenya and without knowing a single word of Spanish.

"The first few months were very difficult," John admitted. "But it has definitely been worth it."

John has been home only once since arriving at EARTH – to complete an internship with the African Wildlife Foundation and Starbucks. Using skills learned at EARTH, he worked with struggling local coffee farmers to help them improve the yield of their crops so that they wouldn't need to poach animals or engage in illegal logging from a nearby wildlife reserve to support themselves.

John Lomurut grew up in this village in Kenya.

Now, he looks forward to returning to Kenya to help his family and his country, and becoming among the latest group of graduates to carry on the EARTH mission.

Raising the stakes on our environmental performance

Highlights

- **Cummins successfully meets 2010 EPA emission regulations for on-highway diesel engines in the United States.**
- **Company sees producing cleaner, more efficient products as a strategic advantage.**
- **Cummins partners with employees to address climate change, reduce environmental footprint.**

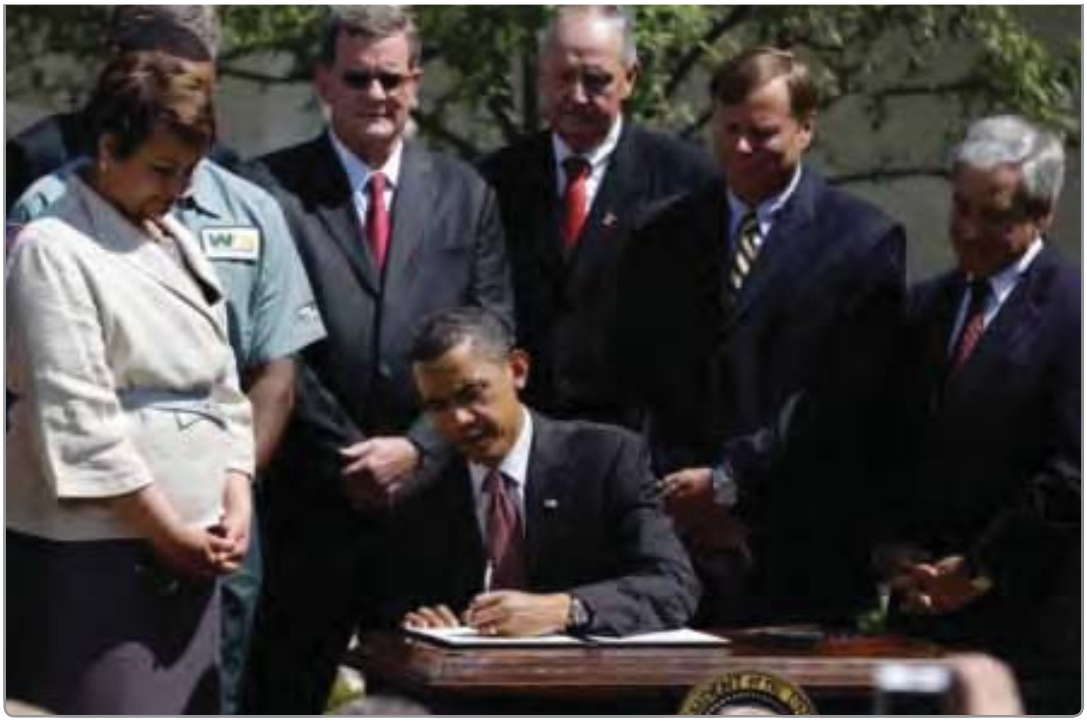
Demanding that everything we do leads to a cleaner, healthier environment has been part of Cummins' Mission Statement for many years. In practice, it means the Company is unwavering in our commitment to produce the cleanest products in the world and reduce the Company's environmental footprint.

Cummins has raised the stakes on many environmental fronts in the past year. Because we have invested significantly in new products and technologies to further lower exhaust emissions from our products, the Company was able to successfully launch our 2010 diesel engines, meeting even more stringent U.S. Environmental Protection Administration regulations.

Other accomplishments include:

- Greenhouse gas reduction at Cummins' facilities since 2005 has reached 167,000 tons, a reduction of 19 percent.
- Product remanufacturing recycled more than 50 million pounds of material in the past year. The energy savings from this reclamation is equivalent to the consumption of about 10,000 homes in the United States.
- Eight more sites were certified to Cummins Environmental Management System, which drives regulatory compliance and ongoing environmental improvement.

Dr. Steven Chu, U.S. Secretary of Energy, visits with John Wall, Cummins Chief Technical Officer, at Cummins' Columbus Technical Center earlier this year.



Chairman and CEO Tim Solso (fourth from right) stands behind President Barack Obama this spring as he signs an order to develop the first-ever fuel efficiency standards for medium and heavy-duty commercial vehicles.

Going forward, more of Cummins' annual investment in research and development will be focused on improving the efficiency of our engines and reducing greenhouse gases (GHGs), specifically carbon dioxide (CO_2), to the mutual benefit of our customers and the environment. We see our ability to produce cleaner, more fuel efficient products as a key strategic advantage in the future.

Greater fuel economy, reduced product emissions

In January 2010, U.S. Secretary of Energy Dr. Steven Chu chose Cummins' Columbus, Ind. Technical Center as the setting to announce the awarding of $187 million to nine projects across the country dedicated to improving fuel efficiency, reducing waste energy, and cutting emissions. Cummins was awarded $54 million, by far the highest award, for two projects aimed at improving fuel efficiency in heavy-duty and light-duty vehicles.

The Company's 20-year partnership with the Department of Energy has helped Cummins bring evolutionary and break-through clean diesel technology to the market faster and at a lower cost than we could have on our own.

We are also partnering with the government to establish the first-ever standards governing greenhouse gas emissions and fuel efficiency for medium- and heavy-duty commercial vehicles.

Cummins wrote a white paper at the request of the National Academy of Sciences (NAS) on the regulation of greenhouse gases in commercial vehicles following a site visit by academy leaders to Cummins in May 2009. The paper details Cummins' perspective on a regulatory framework that could also provide a useful structure for technology assessment, improved fuel efficiency and greenhouse gas reduction from medium- and heavy-duty commercial vehicles.

The regulatory framework has been part of the Company's ongoing dialogue with regulators and lawmakers about the need for a consistent and responsible set of standards to address GHGs.

Cummins Chairman and Chief Executive Officer Tim Solso stood with U.S. President Barack Obama in May 2010 as the president signed an order at the White House for the development of these standards.

Addressing climate change in our facilities

The Company's efforts to address climate change continue to expand. We have reduced Cummins' carbon footprint through initiatives like the Unplugged Challenge, the Energy Champions program and the Envolved employee engagement campaign (see story on page 44).

The Company's Environmental Management System is making the Unplugged Challenge, an effort to reduce power consumption at Cummins facilities during holiday shutdowns, sustainable year round. Through training and steps to control processes, the goal is to make reducing electricity consumption part of our everyday lives.

Meanwhile, Cummins' facilities in the United Kingdom have worked hard to comply with the Carbon Reduction Commitment Energy Efficiency program, legislation designed to reduce energy use in businesses.

From wastewater reduction to waterless bathroom fixtures, Cummins facilities met the challenge of water conservation over the past year. Annual water use reductions from specific water projects exceeded 47 million gallons – that's the equivalent of a glass of water for over 725 million people.

Better performance tools

A key part of Cummins' environmental initiatives is improving the Company's ability to measure its performance at the facility level on environmental issues.

In 2009, the Company implemented a new data collection/tracking system that made the gathering and public reporting of performance data for Cummins locations easier and more accurate.

The system has better tools for data and trend analysis for all of the environmental data tracked so Cummins has an even better understanding of its environmental performance at all levels of the Company.

'Print Smart' reduces paper use

Savings are up and the number of printed pages is down across Cummins thanks to a 2009 initiative the Company calls Print Smart.

The program, now in its second generation, globally refreshes the Company's printing devices. Cummins is well on its way to printing 36 million fewer pages than last year – a projected annual savings of $2 million.

Under Print Smart II, employees have to confirm their intent to print at the printer by entering a code. This step gives them one more chance to decide if they really need a printed copy.

Since color copies cost three times as much as black and white, Cummins has also achieved significant savings – an average of $1.5 million a year – by limiting both the number of color printers and which employees can print in color. Printing out a 30-page presentation that isn't used doesn't seem like a big deal until the cost is multiplied by thousands of users.

By printing 36 million fewer pages annually, Cummins is predicting a greenhouse gas avoidance of 605 metric tons, which could generate an additional $7,400 in energy savings. With the completion of Print Smart II, Cummins is saving both money and close to 4,000 trees per year.

Challenges ahead: The environment

Inherent in our commitment to the environment is our commitment to continuous improvement. Here are some of the key environmental challenges facing the Company:

1 **Regulations and global compliance:** Cummins is planning for greenhouse gas regulation, both in its products and facilities. The Company has developed extensive technology road maps to meet various possible reduction deadlines for its products. As nations address emissions and regulate air pollutants, fuel efficiency and greenhouse gas emissions from our products, we must understand and comply fully with these regulations. Our challenge is to improve our global emissions compliance processes – from the point when a regulation is considered to when we design and make a product and then the sales and service of that product in the market.

2 **Products and supply chain:** The Company's new products must be environmentally friendly. We are constantly reviewing "green" product ideas that take advantage of our technological leadership. Cummins also plans to expand our efforts to do more low-carbon manufacturing, an area of currently untapped potential. We are also stepping up our efforts to "green" our supply chain. One project under way in 2010 will recommend a method and tools to evaluate the carbon footprint of Cummins extended supply chain, while another will recommend an overall strategy to reduce that footprint.

3 **Energy:** The good news is there are many efforts going on around the globe, but we could do better at making sure they are leveraging, not duplicating, efforts and knowledge. An umbrella Six Sigma project will look at ways to coordinate global efforts in facilities, supply chain, products and processes. GHG reduction gets incrementally more difficult after meeting initial targets.

The Company has embedded energy efficiency as a focus area within its global Environmental Management System to ensure that these efforts become sustainable parts of how we work every day.

Cummins employee Mike Garrett looks for potential energy savings as part of the Company's Energy Champions program. The low and no-cost improvements uncovered by Energy Champions and Leaders are critical to energy efficiency efforts going forward.

Environmental Stewardship

At Cummins, our Company models good environmental stewardship through our products, our practices and our partnerships. Here's a summary of our activity in all three areas. A more in-depth presentation is available at www.cummins.com.

Products

Cummins' leadership in combustion research, fuel systems, air-handling systems, electronics, filtration and aftertreatment allows the Company to maximize customer value by providing the most appropriate emissions control for each market Cummins serves.

The Company's diverse product portfolio meets or exceeds all emissions requirements, and at the same time delivers on our customers' needs for fuel economy, performance, reliability and durability.

Engines

Since the 1970s, Cummins on-highway engines have been regulated by the U.S. EPA and similar regulatory agencies around the world for combustion emissions, including Nitrogen Oxide (NOx) Carbon Monoxide (CO), Hydrocarbons (HC) and Particulate Matter (PM), also known as soot.

When compared to emissions from unregulated engines in the early 1970s, today's on-highway diesel engines emit 99 percent less PM and NOx.

Off-highway engines produced by Cummins are also subject to stringent emission standards. The combustion process for off-highway engines is fundamentally the same as for on-highway engines.

Between 1995 and 2006, off-highway engine emissions for NOx and PM have been reduced by 80 percent and 85 percent, respectively. And from 2011 to 2014, off-highway engines will be held to essentially the same level of emissions as their on-highway engine counterparts.

2010 EPA emissions and fuel rules

In 2010, all heavy-duty diesel engines had to meet the NOx standard of 0.20 grams per brake-horsepower hour (g/bhp-hr) and the PM standard of 0.01g/bhp-hr.

Both NOx and PM were reduced by 90 percent from 2004 levels. The 2010 regulations required the phase-in of advanced on-board diagnostics with additional sensors to monitor the effectiveness of emission-control systems on the engine, which alert the driver if a failed emission-reduction device needs to be repaired.

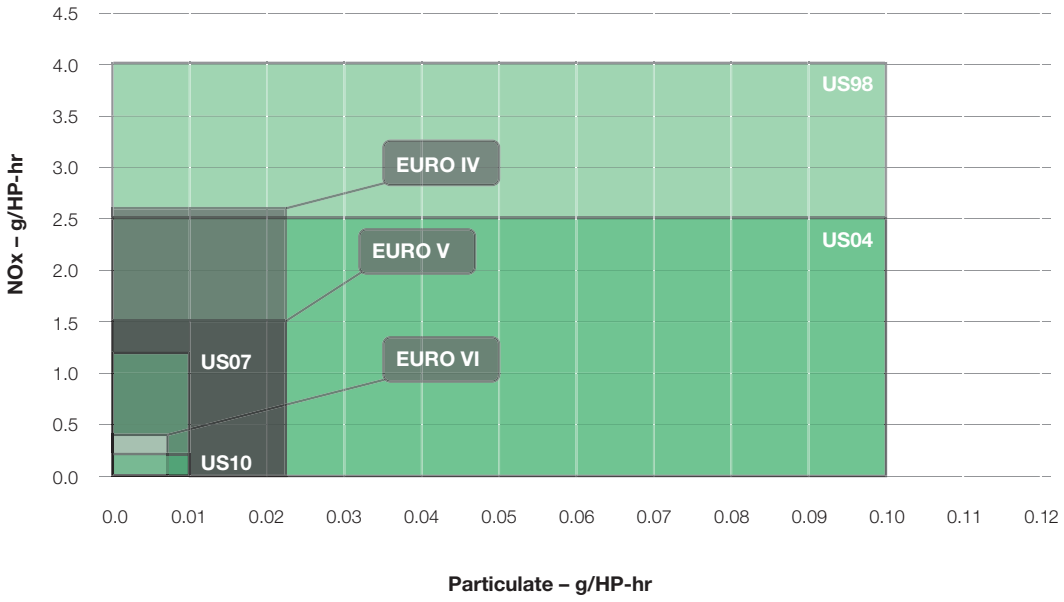
In addition to the new exhaust emission standards, the EPA lowered the limit for diesel sulfur fuel from 500 parts per million (ppm) to 15 ppm. The new fuel standard began to be phased in October 2006 and will be completed by September 1, 2010.

Cummins was among the first companies to meet these standards. For 2010, the Company introduced the ISX15, providing five percent greater fuel economy, stronger performance, faster throttle response and overall best-in-class drivability and reliability compared to our previous industry leading ISX engine.

The ISX15 features the Cummins XPI fuel system, next generation cooled Exhaust Gas Recirculation (EGR) system, an advanced turbocharger and a new Cummins Aftertreatment System that incorporates Selective Catalytic Reduction (SCR) catalyst technology.

Cummins also introduced the new ISX11.9 for commercial trucks, emergency vehicles and motor coach applications.

Global on-highway standards



This chart shows how countries' standards have significantly reduced the allowable amount of particulate and NOx emissions.

Today the ISX engine is the market leader in the North American heavy-duty on-highway truck market. Cummins' market share of the heavy-duty on-highway business has grown from 27 percent in 2006 to more than 50 percent in 2009.

Cummins' off-highway product range is ready to meet U.S. EPA Tier 4 Interim and EU Stage IIIB emissions standards which take effect Jan. 1, 2011, for the 174 hp to 751 hp power category covering construction, agricultural and industrial equipment.

Meeting the new regulations requires the use of advanced combustion and fuel injection systems, combined with exhaust aftertreatment to reduce PM emissions by over 90 percent compared to the current Tier 3 and Stage IIIA standards.

While this technology is new to off-highway, it is not new to Cummins. We are able to leverage our proven on-highway technologies to provide our off-highway customers with fully integrated systems which go beyond meeting the low emissions standards to achieve up to five percent improved fuel efficiency.

Alternative fuels

Cummins continues to support the development of engines capable of running on alternative fuels that will give an option to our customers while providing environmental benefits. Biodiesel is a clean-burning alternative fuel made from renewable resources including plant oils and animal fats.

In February 2009, Cummins announced that B20 biodiesel fuel could be used in our high-horsepower engines and later in September announced B20 compatibility for EPA 2010, Euro 4 and Euro 5 engines. Most of Cummins engines are now approved to operate with B20 biodiesel blends, as will all future engines.

Cummins also has a joint venture with Westport Innovations Inc. called Cummins Westport Inc. (CWI) that is headquartered in Vancouver, British Columbia. CWI manufactures and sells the world's widest range of low-emissions natural gas engines for commercial transportation applications such as trucks and buses, with more than 24,000 engines in service worldwide.

Technology for fuel efficiency

Technology innovations that deliver greater fuel economy for our customers also mean CO_2 reduction. Cummins first demonstrated a hybrid system in 1995 and continues to be the world's number one supplier of diesel engines to the commercial diesel hybrid market.

A hybrid vehicle, moved by two or more distinct power sources, uses less fuel than one with a traditional powertrain and therefore emits less CO_2. As commercial hybrids progress and advanced technologies from Cummins are introduced, the degree of system integration will become more important.

Further engine optimization for hybrid powertrains will result in new levels of fuel efficiency driven by design considerations and integrated engine features. Engine-optimized hybrid systems are estimated to achieve a 40 to 50 percent fuel consumption reduction over conventional powertrains.

Meanwhile, the engine component of Cummins SuperTruck program, a program to improve fuel efficiency, reduce waste energy and cut emissions, uses waste heat recovery to get more mileage out of the fuel. The concept is to direct waste heat back to the engine via a small steam turbine, 1-1/2 inches in diameter.

This technology, funded in part by the Department of Energy, will help Cummins customers achieve greater fuel economy in light of rising fuel prices.

Cummins Westport natural gas engines, available as a factory option from over 50 truck and bus manufacturers worldwide, can operate on compressed (CNG) or liquid (LNG) natural gas and on zero-carbon biomethane, a renewable fuel made from biogas or landfill gas.

Outside the United States

Cummins meets or exceeds emission regulations in every country where it operates. In Taiwan, for example, emissions regulations require EPA 2004 or Euro IV standards, and Cummins sells both types of certified engines. In Mexico, emission regulations recently enacted require EPA 2004 certified engines. Cummins has been very active in the latest rulemaking and has been selling EPA 2004 certified engines years prior to the latest requirements.

Cummins has worked closely with the Chinese government and Original Equipment Manufacturers (OEMs) to introduce "green engines" to China.

Cummins is committed to bringing in advanced, low-emission, fuel efficient and environmentally friendly products to Chinese customers concurrently with international markets, including the United States and Europe.

In late 2009, Cummins' joint ventures in China – Dongfeng Cummins and Xi'an Cummins – introduced Euro IV diesel engines in advance of the Chinese government's requirements for production in 2011. Also in 2009, Cummins' Wuhan Technical Center began projects with all of our joint ventures in China to develop clean diesel engines to meet the stringent Euro V emission standards worldwide in addition to local production of Euro IV engines.

In 2010, Cummins' latest joint venture with Beijing Foton began production of the all new ISF2.8 and ISF3.8 Euro IV engines in Beijing. Cummins is the first foreign diesel maker to invest in the local manufacturing of key sub-systems, including turbochargers, filtration products, fuel systems and after-treatment products.

Remanufacturing Cummins products

Remanufacturing Cummins components and engines provides our customers with high performing ReCon products at a value price. The business of providing genuine, factory remanufactured products has long been a mainstay of Cummins sustainable operations.

Remanufacturing provides benefits for the environment by using about 85 percent less energy compared to the mining, refining, melting and machining of new material. Cummins reuses or recycles more than 50 million pounds of material each year. The energy savings from this reclamation is equivalent to the consumption of about 10,000 homes in the U.S. Since most of that energy is fossil-fuel based, the savings also add up to greenhouse gas reductions of about 200 million pounds.

ReCon Parts and Engines is a global initiative. Two India locations are now in operation producing for the domestic market and export. Chinese remanufacturing operations are expected to start in July 2010, while fuel system remanufacturing operations have now begun in a new facility in Juarez, Mexico.

Filtration

More than 50 years ago, Cummins developed its first filtration product. Since then, the business unit has developed thousands of innovative technologies and industry-leading manufacturing processes that support a cleaner, healthier and safer environment.

For example, a current program underway at Cummins Filtration will reduce the amount of steel needed to make nut plate components used in liquid filtration by 11 percent. By reducing the amount of steel used to make filters, while still meeting or exceeding performance expectations, less material will be needed from steel service centers and mills.

This design change equates to a reduction in steel purchased by Cummins Filtration of 1 million pounds or 454 metric tons. From a transportation standpoint, the reduction means 25 fewer truckloads of steel transported for Cummins Filtration per year, though the same volume and quantity of filters are still produced. Studies suggest that for every ton of steel produced by a mill, approximately 1.8 tons of CO_2 are emitted into the atmosphere.

The business unit designs high performance products that remove contamination from engine systems, reduce engine emissions and minimize disposal issues. As the only filter manufacturer that is part of a company that produces engines, Cummins Filtration has developed new technologies in concert with 2010 engine platforms to reduce environmental impact, as in the following examples:

- Crankcase Ventilation systems that filter up to 99 percent of oil drip, up to 95 percent of aerosol vapors and 100 percent of engine compartment fumes.
- Direct Flow™ Air Filtration design utilizes a straight air flow path allowing filter media to be packaged in a smaller profile for longer service intervals, easier service and environmentally-friendly disposal with no metal components.
- Filter-in-Filter combines two filters in a single reusable cartridge that reduces the amount of waste material during regular fuel system maintenance.

From the state-of-the-art Media Center, Cummins Filtration engineers design advanced filter media to meet the goal of reducing our carbon footprint, such as the award-winning, multi-layered StrataPore™ synthetic media with superior sludge removal capability and StrataPore Coalescing media specifically tailored for optimal oil droplet removal from blow-by gases in Crankcase Ventilation systems.

About our charts

The charts on this page and the next illustrate Cummins' commitment to the environment by often exceeding U.S. emissions standards.

The on-road charts for North America compare the estimated maximum allowable emissions by U.S. EPA standards compared to Cummins' estimate of its engines' actual emissions for the past three years.

Estimates are based on the number of engines, both heavy-duty and midrange, manufactured in the United States for on-highway use per year.

Cummins engines have released far less Hydrocarbon and Carbon Monoxide into the environment than the maximum allowed by the EPA. And even by the tough Nitrogen Oxide and Particulate Matter measures, Cummins has been under the standards.

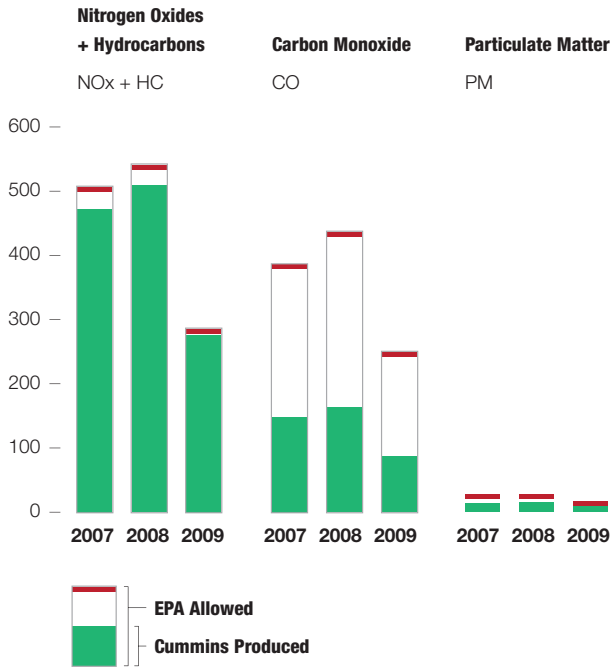
The figures in the non-road charts are based on the number of midrange, heavy-duty and high-horsepower engines produced to EPA standards. As with Cummins' on-road engines, these non-road engines release far less HC and CO into the environment than the maximum allowed by regulatory agencies. Likewise, NOx and PM actual emission levels are under the applicable standards.

Automotive useful life emissions total

in thousands of tons

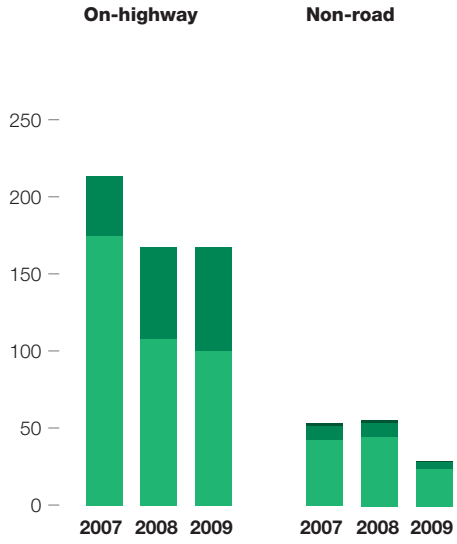
Non-road useful life emissions total

in thousands of tons



Diesel engine volumes

in thousands



	2007	2008	2009	2007	2008	2009
High Horsepower (19-78 liters)				2	2	1
Heavy Duty (10-15 liters)	39	60	68	9	9	4
MidRange (3-9 liters)	175	108	100	42	44	24

Cummins MerCruiser Diesel uses solar power

A new concept vessel is combining diesel-electric hybrid technology with renewable solar energy and a high-capacity battery, resulting in a clean, quiet, safe and more enjoyable boating experience.

The boat is a project of Mercury Marine, Cummins' joint venture partner for marine propulsion using Cummins diesel engines 15 liters and smaller.

The boat reduces energy consumption by using solar power to recharge the lithium ion batteries and advanced automatic control strategies for optimal efficiency. The environmental benefits include cleaner air and water and greenhouse gas reduction through better fuel efficiency and the use of renewable energy.

The hybrid propulsion combines reliable diesel engines and electrical systems so they can operate together or independently, providing built-in backups. Solar power is independent of shore power and provides electrical backup to bilge pumps, starting batteries and other critical components.

This new technology was shown at the Miami International Boat Show earlier this year to positive reviews.

India's green ambassador

Pradeep Bhargava says development doesn't have to come at the expense of the environment.

"We need doable, replicable and simple tasks by which each one of us can contribute towards a harmony between development and environment without compromising either," says the Managing Director of Cummins Generator Technologies India.

Under Bhargava's leadership, CGT India built the first truly "green" manufacturing plant at Cummins in 2007. The facility in Ranjangaon, India, is energy efficient, expected to save over 14 million kilowatt hours of electricity over the first 10 years of operation.

The facility has been widely recognized for its green design and earlier this year Bhargava was honored by Cummins Health, Safety and Environmental Council for his leadership on environmental issues.

"Our lean and green factory at Ranjangaon is testimony to our commitment towards our Mission Statement demanding that everything we do leads to a cleaner, healthier and safer environment," Bhargava said. "The facility also demonstrates the possibility of achieving a viable balance between commercial profitability of the business and the interests of the environment."

The plant at Ranjangaon uses high efficiency glass for windows and skylights, fly ash in the building's bricks and landscaping on the roof to name just a few of the plant's environmentally friendly features

While Bhargava has become something of a green ambassador in the business world, he doesn't consider himself a "shaker" – someone warning humanity about impending environmental disaster. He said there are already enough "shakers."

"I put two simple guidelines for my colleagues and I to follow," he says when asked about the development of the plant in Ranjangaon. "One, don't abuse nature. Two, use nature."

The Cummins Generator Technologies plant at Ranjangaon.

ReCon plant opens in India

Cummins New and ReCon Parts business, which re-manufactures components and engines, began operations at its new facility near Pune in September 2009.

Tim Solso cuts the ribbon on the new plant near Pune.

The ReCon plant, which shares a location with Cummins Generator Technologies in Ranjangaon, is one of three divisions of Cummins Technologies India Limited (CTIL). CTIL is a 100 percent Cummins owned legal entity in India.

Remanufacturing operations will introduce low cost, high quality ReCon parts and engines to domestic Indian markets. The remanufacturing process gives new life to parts that might otherwise be thrown away.

The plant "uses" nature in several ways. For example, the facility features a wind tower to provide natural ventilation, reducing both temperatures in the shop and the heat load for the office air conditioning. Treated "gray water" from the plant canteen and sinks is used for landscape irrigation. And an aggressive tree planting program with the goal of planting 3,000 trees will help offset the facility's carbon emissions.

After stints in both government and private industry in India, Bhargava joined Cummins Power Generation business in India in 2000. He became the leader of Cummins Generator Technologies in 2003, where he was asked to oversee the development of the new factory in Ranjangaon.

Initially, the goal was establishing a world-class factory using lean manufacturing concepts focused on the needs of the customer and eliminating waste. Bhargava and his colleagues decided to make it "lean and green – something that seemed wholesome and in line with Cummins stated values," he said.

Now, Bhargava is quoted frequently on balancing the needs of the environment with the needs of business. He leads a national task force on establishing codes for green factories in India.

"For us in corporate life, 'lean' is a business compulsion, but 'green' is societal obligation," Bhargava says. "If long-term sustainability is a question mark in the context of climate and environment changes, it has to be addressed wholeheartedly by industry as a key member of civic society. Hence we took this as part of our social responsibility – one of the key values of our organization."

Further reducing our footprint

A second green factory in India was opened in Pithampur in late 2008. This Turbo Technologies plant incorporates many environmentally friendly features in both its office environment (energy efficient lighting, occupancy sensors) and the shop floor (skylights, efficient air conditioning). The building was designed to the land contour of the site to minimize excavation, and materials that were excavated were used in the construction.

Practices

Cummins doesn't just talk about environmental stewardship. The Company puts its words into action. Here's a look at some of the ways we ensure that "everything we do leads to a cleaner, healthier and safer environment."

Climate change

Early in 2007, Cummins formed a climate change team to take both a strategic and tactical view of climate change and sustainability at Cummins. The team's members, from across business units and functions, represent facilities, product planning, corporate strategy, environmental policy, supply chain and government relations, among others.

The team has evolved into an active working group that takes a very structured and results-oriented approach to our 10 climate change principles developed to meet the challenges of climate change going forward.

Six of these principles direct company actions for our products, businesses, employees and communities, while four of them shape our partnerships with legislative and regulatory entities to develop sound public policy. The outreach of the corporate group is expanding to include forming business-specific and regional working groups to address climate change.

Many examples of the working group's efforts are included elsewhere in this report:

- The support of greenhouse gas regulation (GHG) in commercial vehicles and collaborative work with the EPA in developing future GHG regulation;
- Engaging employees to reduce their carbon footprints both at work and at home;
- Closing in on our 25 percent facility GHG reduction goal; and
- Pursuing new business opportunities like hybrids and combined heat and power systems.

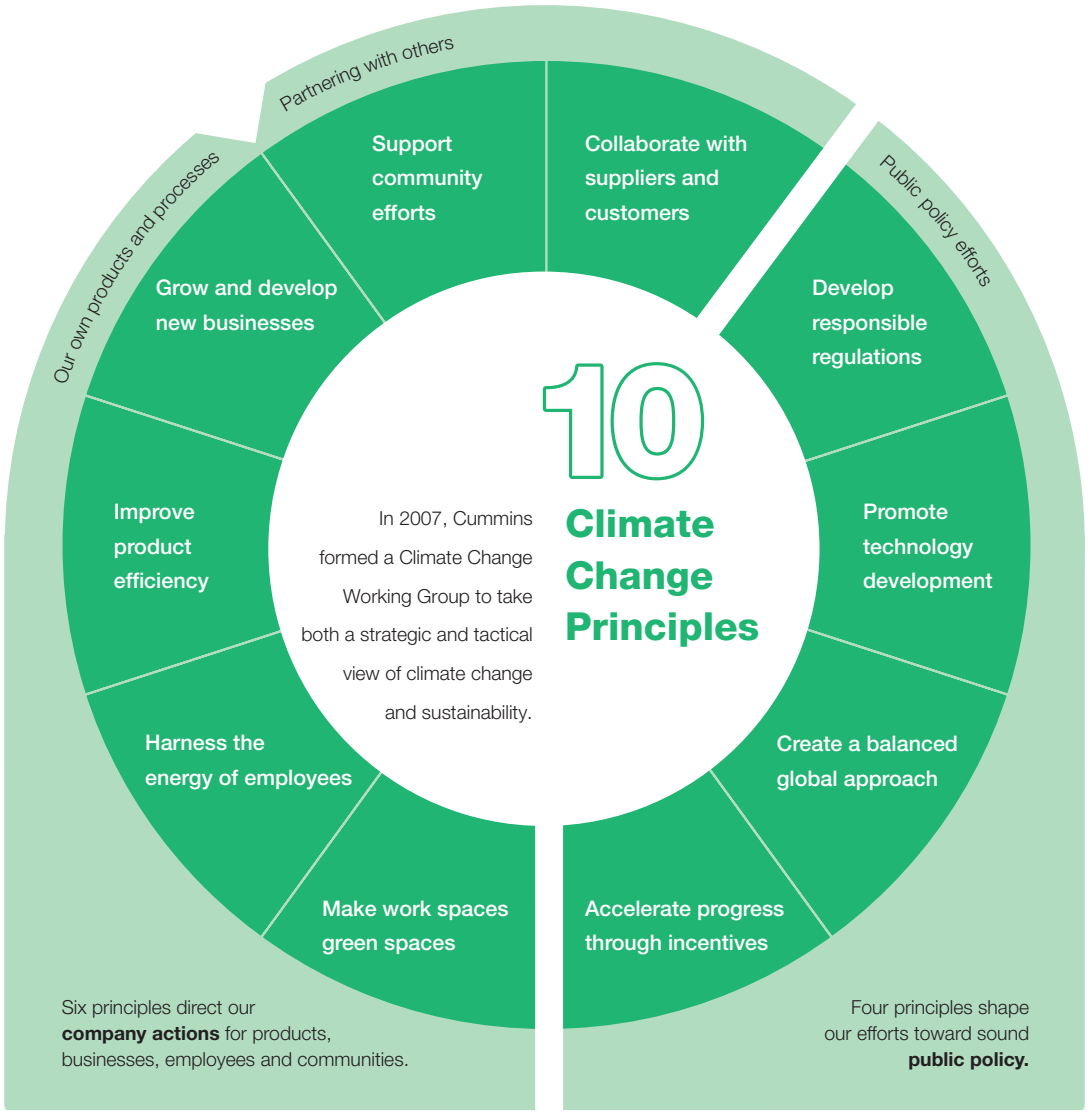
Energy efficiency

The EPA's Climate Leaders program offers a rigorous approach to greenhouse gas reduction that yields credible and consistently measurable results. When Cummins committed to a 25 percent GHG intensity reduction goal by 2010 from a 2005 baseline, we took the most comprehensive stance possible, choosing to include in our baseline audit all management-controlled entities worldwide.

A corporate Energy Efficiency Team with leaders from each business unit and related environmental functions drives the Company's efforts to meet its Climate Leaders goal.

The team manages the capital fund allocated specifically for energy efficiency, analyzes proposed capital projects for energy efficiency and greenhouse gas reduction and tracks our progress toward our Climate Leaders goals. Capital projects in our seven identified energy efficiency themes have resulted in annual energy savings of $11 million.

The team was also important in developing the Company's Energy Champions program and training materials. Energy Champions and Energy Leaders are energy experts at their sites and seek and carry out low or no cost energy improvements. It is estimated those improvements could save Cummins $10 million to $15 million per year.



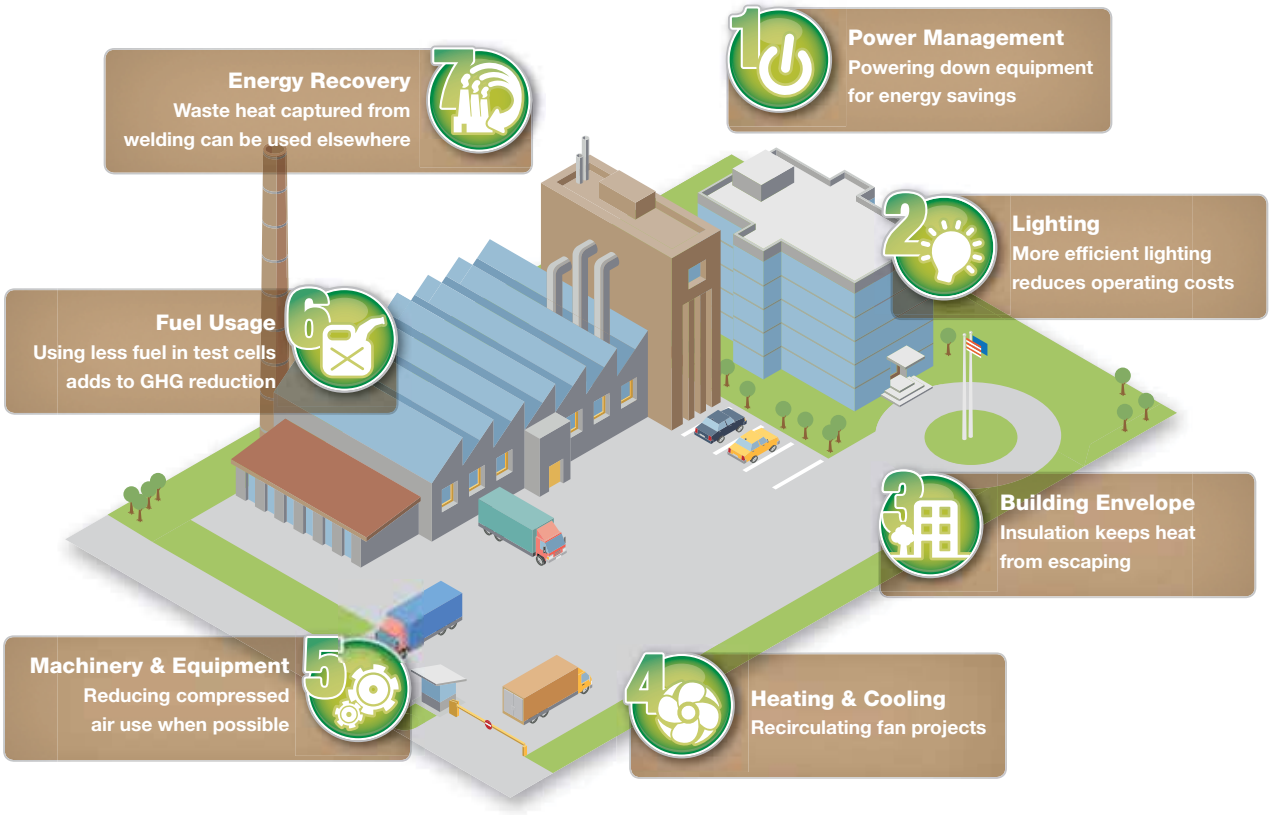
Business Unit Working Groups focus on business-specific climate change initiatives.

Regional Working Groups will tailor climate change strategies to their regions.

Policy advocacy in U.S. and globally to develop sound public policy to address climate change.

Seven ways our sites save energy

These themes provide structure for our energy reduction efforts.



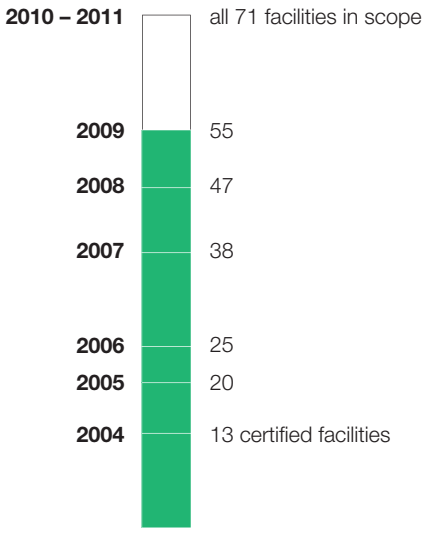
Cummins Environmental Management System

Cummins Environmental Management System (EMS) ensures a common approach to implementing Cummins' environmental standards at its sites worldwide.

The EMS drives regulatory compliance and ongoing environmental improvement projects reflecting site, business unit and corporate priorities. Cummins has incorporated the elements of the international industry environmental standard ISO 14001 into its EMS and submits the EMS registration to independent third party auditing and verification with our global registrar, Bureau Veritas Certification.

By the end of 2009, Cummins had 55 sites and the corporate entity registered to the ISO 14001 standard and expects to have the remainder of in-scope sites registered by the end of 2011.

Certified EMS enterprise sites



Environmental objectives and targets

Each year, the Health, Safety and Environmental Council agrees on objectives and targets for the organization to ensure the improvement of Cummins' environmental performance.

These corporate objectives are in addition to business unit initiatives that are of special importance and address a unique risk exposure or opportunity for that group. In 2009, each business was asked to use Six Sigma tools on a reduction project of their choice and to begin to develop a water balance by identifying key uses of water onsite.

The water balance analysis will help identify reduction opportunities that support Cummins' continuing focus on water conservation. In addition, objectives and targets have been set to generate organizational and other support for GHG reduction and energy efficiency initiatives across the organization.

At the end of 2009, the EMS was able to quantify $2 million in savings and the following environmental improvements as a result of the objectives and targets completed:

- 8 metric tons of waste reduced
- 47 million gallons of water conserved
- 1,000,000 BTUs (British Thermal Unit) of natural gas reduced
- 2.5 megawatts of electricity reduced
- 4,000 pounds of solvent usage reduced

Cummins Southern Plains implements integrated Environment Safety System

Many sites at Cummins are developing integrated health, safety and environmental systems to meet both environmental and safety standards.

Cummins has developed a number of tools to support these activities including integrated Corporate Health, Safety and Environmental procedures.

Cummins Southern Plains, headquartered in Texas with 10 branch locations, is our first distributor in the corporate enterprise to implement such an integrated system.

Having multiple locations across two states required good communications and common systems to achieve consistency and excellence for health, safety and the environment. Implementation teams set up at all branch locations helped make the process smoother.

"Since all of our branches perform the same basic functions, deploying the HSEMS (Health, Safety and Environmental System) to all branches added a lot of value for little additional effort at Southern Plains," said Charles Glynn – Southern Plains Health, Safety and Environmental Leader. "Implementing a formal HSEMS has allowed us to identify gaps in our approach and significantly improved our safety and environmental performance."

"The environmental and safety management system provides standardized processes to drive continual improvement, while retaining site level flexibility that is critical to address the diverse challenges in the Distribution Business Unit," said Adam Tucker, Cummins Distribution Business Unit HSE leader. "The achievement of Southern Plains is significant as more distributors will move to these systems."

Greenhouse gas emissions

Cummins has achieved dramatic reductions in greenhouse gas emissions due in large part to a structured approach to energy efficiency. From the end of 2005 to the end of 2009, Cummins has decreased its actual greenhouse gas emissions by 167,000 tons.

Our reduction goal, however, is an intensity goal, which expresses GHG reduction per unit of sales. Meeting an intensity reduction goal is typically harder during a period of declining sales, which occurred during the economic downturn starting at the end of 2008, as plants were not running at full capacity. Still, Cummins has achieved a 19.4 percent GHG reduction since base year 2005, and is on track to meeting its 25 percent goal.

In addition to energy reduction, site specific reduction initiatives through the Environmental Management System have yielded performance improvements relative to non-GHG emissions, as well as in wastes generated and resources used.

These metrics have generally held steady in spite of substantial increases in production and sales from 2006 through 2008 coupled with an increasing number of reporting sites each year.

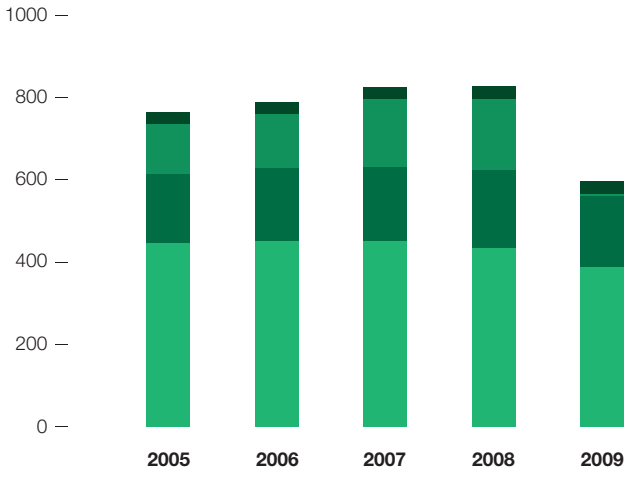
The year 2009 saw sharply declining sales from the prior year. Although 2009 sales totals were similar to sales in 2006, total water use and waste placed in landfills were substantially lower in 2009 — evidence that the Company improvement efforts are paying dividends beyond any reductions associated with decreases in production.

Water use in particular has been cut in half over the reporting time-frame. Although recycled materials are difficult to trend for improvements due to the various influences on materials used in product and packaging, Cummins has well-developed recycling programs in all 55 Environmental Management System (EMS) sites and most other non-manufacturing sites.

Efforts at better management of packaging are being implemented within Cummins' supply chain, which will contribute to efforts to minimize wastes generated associated with company operations.

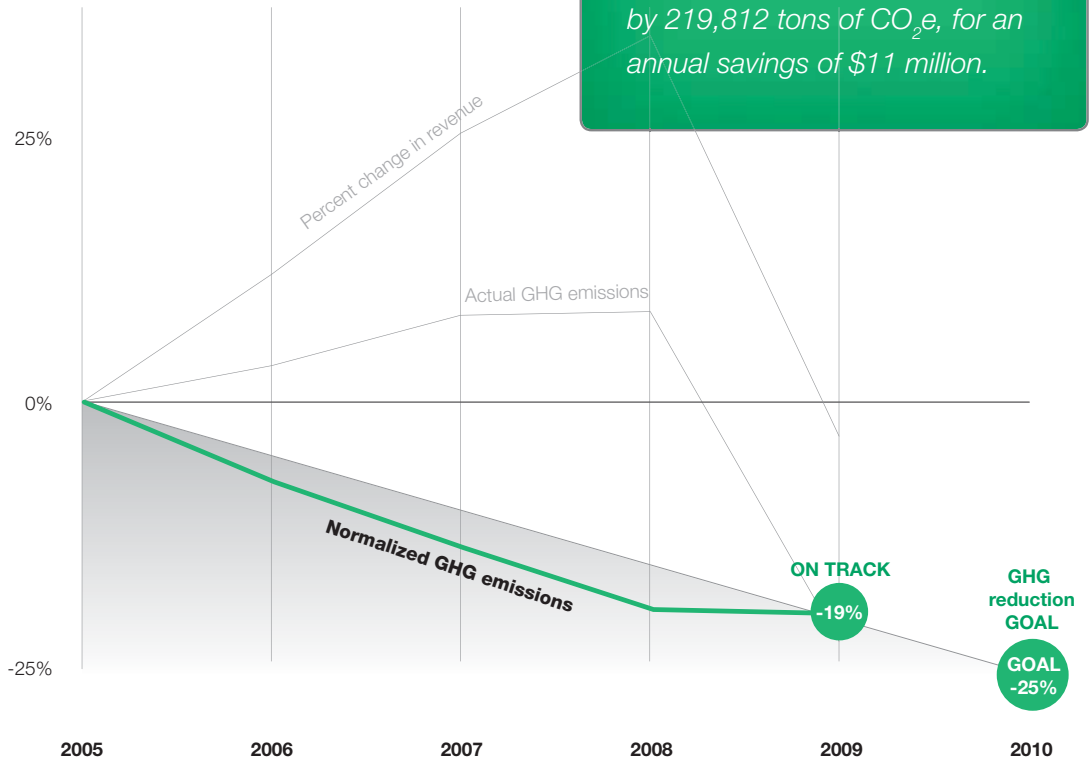
Total GHG emissions

in thousands of metric tons CO_2e

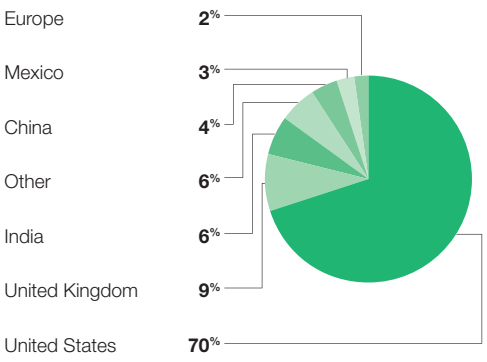


	2005	2006	2007	2008	2009
Electricity	444,905	450,784	451,597	433,211	388,415
Stationary combustion	169,264	177,671	177,961	190,938	171,412
Fugitive SF6, CO_2	120,506	130,786	165,417	170,140	6,316
Mobile sources, other	29,199	30,460	30,494	31,772	30,880

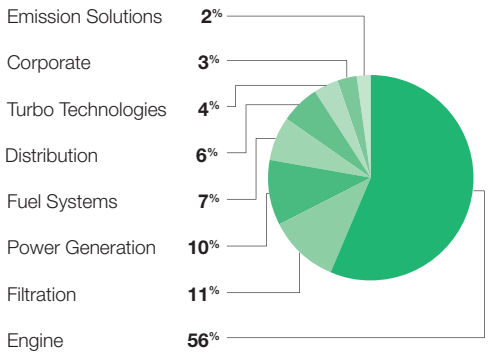
Since 2005, Cummins has implemented 202 capital projects, reducing annual GHG emissions by 219,812 tons of CO_2e, for an annual savings of $11 million.



GHG emissions by country

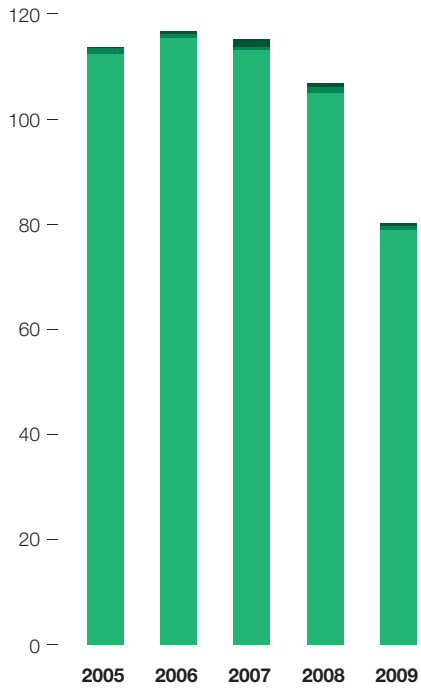


GHG emissions by business unit



Recycled metals

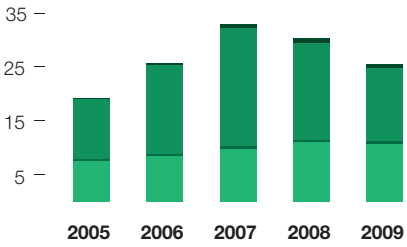
in thousands of metric tons



	2005	2006	2007	2008	2009
Copper and brass	331	552	1,394	674	582
Aluminum	1,015	877	665	1,127	748
Iron	112,344	115,293	113,045	104,974	78,839

Other recycled materials

in thousands of metric tons



	2005	2006	2007	2008	2009
Plastic	296	399	752	930	796
Wood	11,157	16,478	21,966	17,874	13,471
Paper	287	359	452	435	508
Cardboard	7,513	8,444	9,777	10,992	10,704

Landfill waste

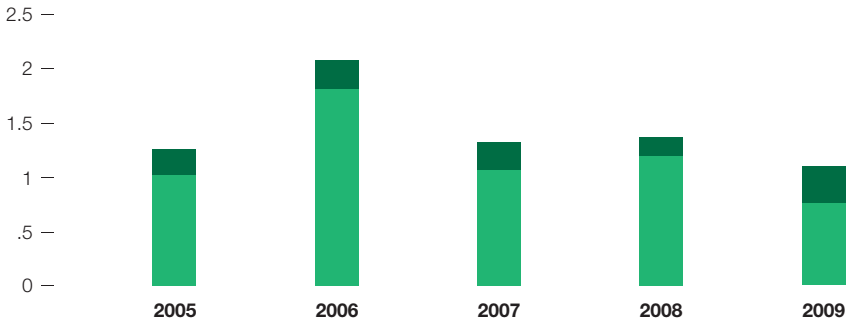
in thousands of metric tons

	2005	2006	2007	2008	2009
Total	13,432	16,010	16,645	18,588	15,012

Lower sales in 2009 affected the volume of material recycled at Cummins locations.

Total water use

in billions of gallons



	2005	2006	2007	2008	2009
Total water use	1,247,727,052	2,072,377,694	1,317,534,849	1,365,684,528	1,095,309,981
Significant discharges	1,013,908,131	1,806,549,812	1,059,347,098	1,193,712,064	749,978,113

Cummins and climate change Q&A

Here are excerpts from a conversation on Cummins and climate change with President and Chief Operating Officer Tom Linebarger:

Q. Why does Cummins care about climate change?

A: Climate change is an important issue to Cummins for several reasons. First, our mission statement says that everything we do needs to lead to a cleaner, healthier and safer environment. And we're concerned that climate change is a serious threat to the environment.

Second, we can make a difference. The great thing is our products can have a positive impact on the environment, as can lowering the impact of our facilities.

And third, our customers care about climate change. They may not even know it yet, but fuel economy is directly impacted by carbon emissions. And fuel economy is a major cost driver for most of our customers. They care about how much fuel they use.

Q. What else can Cummins do?

A: There are 10 climate change principles which really define how we want to address this issue. And six of those 10 are things that the Company can do to be more energy efficient on its own. We can also do things related to how we involve our employees, getting them involved in doing energy savings everywhere including their own homes. They feel good about it and so do we. But also government can play a role, and Cummins can help on that part.

Q. How can government play a role?

A: Four of our 10 climate change principles relate to how we can help government think through how to make responsible regulations in this area.

Responsible regulations help companies focus on what we need to do and how to have an even playing field and make sure we're all competing on the same basis. And we know a lot about that.

And by government ensuring that companies can continue to trade internationally by promoting technology at home and allowing companies the opportunity to make sure that we can sell those technologies abroad, we can also promote U.S. industry.

We've seen that in environmental regulations for air we have today. So Cummins has developed leading technologies to meet air emissions. And that's allowed us to sell those technologies not only in the U.S. but abroad and build jobs and create positive economic activity in the U.S.

The same opportunity exists on climate change. If we can be developing those technologies, we have the opportunity to sell those technologies and trade with other countries around the world using those technologies to drive American industry.

British TV naturalist Professor David Bellamy helps the Darlington Engine Plant celebrate Cummins' 90th Anniversary by visiting local schools, colleges and charitable organizations to plant trees and participate in other environmental activities.

Darlington plant, environmental engineer recognized

Cummins' Darlington Engine Plant has been honored by a prominent business group in North East England for its environmental work in the region.

The 2009 Tees Valley One North East Business Awards specifically recognized the plant's community work through its Environmental Management System, the Unplugged Challenge and the 90th Anniversary Environmental Challenge.

The Unplugged Challenge urged employees to save energy during holiday shutdowns while the Environmental Challenge encouraged employees to work on community efforts to improve local environments.

Children at Firthmoor Primary School (10-11 year olds) learned about electricity reduction from a Six Sigma project run by the Cummins Darlington staff.

The theme of the project: "Life without Electricity." Participants used "kill-a-watt" meters to measure the amount of electricity used by various pieces of equipment and then encouraged staff and pupils to turn equipment off when not in use.

Cummins employees seek to engage students in energy conservation in the Darlington area through programs like the Cummins Energy Leaders of the Future initiative at Firthmoor Primary School.

Cummins accepted into U.K. Carbon Trust
Energy efficiency efforts recognized

On April 1, 2010, the Carbon Reduction Commitment (CRC) Energy Efficiency program was enacted in the U.K., requiring approximately 5,000 companies to reduce their energy use and receive a reward, or do nothing and pay a penalty.

For the first year, the CRC will reward those companies that have been awarded the Carbon Trust Standard (CTS). The CTS certificate recognizes companies that can demonstrate an effective energy management system, show improving energy efficiency over the last several years and pass site audits that focus on evidence of energy management policies and programs.

Cummins' award of the Carbon Trust certificate will ensure the Company's position on the upper half of the CRC performance list and a monetary reward in the first couple of years of the program. Fewer than 300 U.K. organizations have achieved the Carbon Trust standard.

When the program is fully operational, a carbon emissions trading market in the U.K. will be established. In the first few years the price is fixed at £12 a metric ton of CO_2, which means about £600,000 for Cummins in the U.K., to be deposited and returned six months later with a monetary reward or penalty. The reward or penalty increases over time and is based on the company's position on the performance list reflecting their efforts in energy efficiency.

The Tees Valley awards panel also noted the number of Every Employee Every Community projects the engine plant had completed, including support for campaigns to encourage bicycle use, garden maintenance initiatives and a tree planting project.

The plant was also congratulated on its commitment to reduce greenhouse gases. Darlington has seen a 48 percent reduction in Carbon Dioxide (CO_2) through activities such as the Unplugged Challenge (47 percent reduction in weekend consumption), saving the facility £98k ($141,000) per year.

In a related award, Environmental Engineer Paul Hayes was honored individually for his work both inside and outside the plant by Cummins Health Safety and Environmental Council.

Hayes shared the award with Pradeep Bhargava, Managing Director of Cummins Generator Technologies India.

Sadiq Khan (left), Minister of State for Transport for the United Kingdom, meets with Paul Hayes (right), Environmental Engineer, during Khan's 2009 visit to learn more about the use of Cummins diesel engines in public transportation and a campaign at the facility to encourage bicycling as an alternative to driving.

Partnerships

Cummins has long believed in the power of partnerships and that has helped us meet our product and emissions goals and become more energy efficient. Here's a look at some of those partnerships.

Science and Technology Advisory Council

In developing products to meet various standards, as well as the demands of our customers, Cummins seeks advice and counsel from its Science and Technology Advisory Council.

The Council, formed in 1993, has given the Company access to some of the country's leading scientific thinkers and policymakers from the worlds of academia, industry and government. The Council was restructured in 2010 to facilitate access to a broader group of international specialists and align their expertise with the specific topics being addressed by the Council at a particular time.

Permanent members are Chairman Dr. Gerald Wilson, former Dean of Engineering at the Massachusetts Institute of Technology, and Dr. Harold Brown, former U.S. Secretary of Defense and former President of the California Institute of Technology. Other senior international scientists and engineers are invited to participate as advisors depending on the topic.

The Safety, Environment and Technology Committee of the Cummins Board of Directors advises senior leaders and the technical leadership of Cummins regarding:

- Environmental and technological strategies, compliance programs and major projects as they relate to the Company and its products.
- Public policy developments, strategies and positions taken by the Company with respect to safety, environmental and technological matters that significantly impact the Company or its products.
- Progress of strategic environmental programs and policies.

American Energy Innovation Council

Cummins Chairman and CEO Tim Solso has joined key U.S. business leaders, including General Electric Co. CEO Jeff Immelt and Microsoft Chairman Bill Gates to create the American Energy Innovation Council, a group advocating for development of clean energy to boost the nation's economic competitiveness.

American Energy Innovation Council

The Council has called for more research into nuclear, solar and wind power, fossil fuels and other energy technologies. The council has also asked Congress to create an energy strategy board charged with developing and monitoring a national energy plan as well as overseeing what the executives call a new "Energy Challenge Program" for large-scale demonstration projects.

The U.S. Department of Energy

In January 2010, Cummins received $54 million for two projects aimed at improving fuel efficiency in heavy-duty and light-duty vehicles. This award is the latest chapter in the Company's 20-year collaborative partnership with the U.S. Department of Energy (DOE).

Previous Cummins programs funded by the DOE have created both evolutionary and breakthrough technologies and analytical approaches, speeding up time for commercialization of vehicles powered by advanced combustion engines.

In 2007, Cummins introduced its 6.7 liter Turbo Diesel, which met 2010 emissions standards three years early. The 6.7 liter Turbo Diesel uses a Nitrogen Oxide (NOx) Adsorber Catalyst, which was first developed and demonstrated in collaboration with the DOE.

In December 2009, Cummins became a charter member of the DOE's Save Energy Now LEADERS program. Cummins pledges to improve energy efficiency at least 25 percent by 2015.

U.S. EPA

The EPA is charged with developing and enforcing environmental regulations. By working with a trusted business resource such as Cummins, the agency can better match its technology mandates with realistic timelines to meet those regulations.

Cummins has shared its perspective on a regulatory framework that could also provide a useful structure for technology assessment, improved fuel efficiency and greenhouse gas reduction from medium and heavy-duty commercial vehicles.

Duke Energy

Cummins has partnered with Duke Energy to find energy efficiencies at Company facilities, receiving the U.S. power company's "2009 Power Partner" Award.

Duke provides power to several Cummins facilities in the United States and also has a deregulated energy services group that has partnered with the Company on energy efficiency assessments, technical standards, educational materials and dozens of major capital projects.

Duke lauded Cummins for launching a corporate-wide energy efficiency campaign. Duke conducted detailed energy efficiency assessments at Cummins' largest U.S. sites and helped identify nearly 1,000 potential capital projects.

Jim Stanley, President of Duke Indiana (left), presents the Power Partner Award to Ignacio Garcia, Chief Manufacturing and Procurement Officer at Cummins.

Duke also helped Cummins develop new efficiency standards for production equipment and facility design, along with developing an Energy Champions training program to improve energy use.

Sustainability reporting

For the past five years, Cummins has participated in the Carbon Disclosure Project (CDP), an institutional investor consortium that seeks to encourage greater environmental reporting among companies. CDP asks companies to provide details on their carbon emissions, their positioning in response to the impact of climate change on their markets and regulatory environment, their use of energy and planning for the future.

In addition, Cummins is a member of the Business Roundtable Climate RESOLVE (Responsible Environmental Steps, Opportunities to Lead by Voluntary Efforts), whose members have voluntarily committed to reduce or offset greenhouse gas (GHG) emissions.

Cummins also is a member of the Business Environmental Leadership Council of the Pew Center on Climate Change and sits on the President's Council of Resources for the Future.

Collaborating with customers for better performance

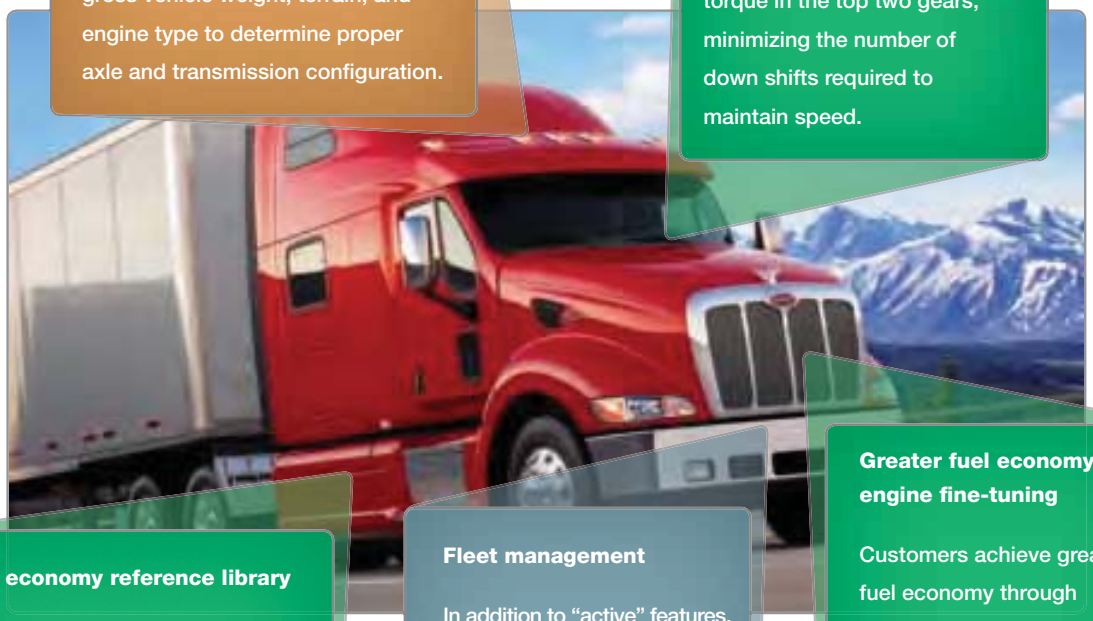
Since 2004, Cummins has collaborated with its end user truck fleet customers on 57 customer-focused Six Sigma projects, which saved 49 million gallons of fuel and avoided 495,000 tons of CO_2 emissions. That's equivalent to taking 95,000 cars off the road.

PowerSpec

This tool helps customers specify the correct vehicle and electronic parameters using inputs such as gross vehicle weight, terrain, and engine type to determine proper axle and transmission configuration.

Greater fuel economy: driver assist

Reduced vehicle speed saves fuel. Road Speed and Cruise Control Governors limit the maximum vehicle speed while Smart Torque allows high torque in the top two gears, minimizing the number of down shifts required to maintain speed.



Fuel economy reference library

Customers have access to information resources describing the best fuel economy configuration for electronic parameters, transmission, tires, axle ratio and other settings.

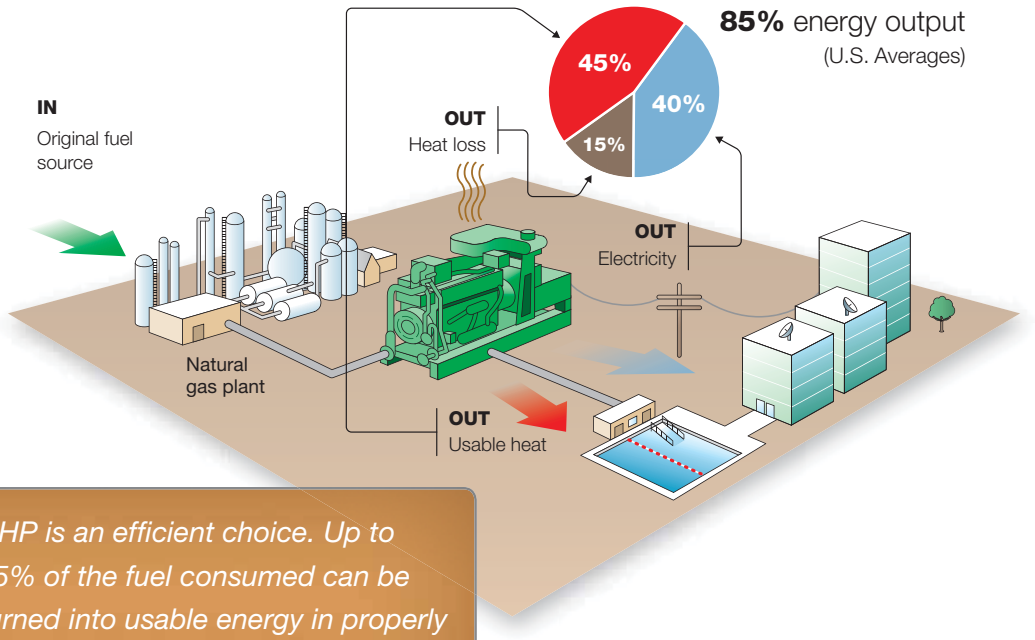
Fleet management

In addition to "active" features, Cummins engines also have a number of "information features" where "trip" or "duty cycle" information is stored. Fleet managers can analyze data for variations between drivers or trucks, look for trends and use the data for driver coaching.

Greater fuel economy: engine fine-tuning

Customers achieve greater fuel economy through optimization of duty cycles, calibration and hardware as well as Cummins' help with transmission integration, accessory management and down speeding.

Combined heat and power



CHP is an efficient choice. Up to 85% of the fuel consumed can be turned into usable energy in properly sized and operated systems.

Customers and cogeneration

Another way Cummins partners with its customers is on cogeneration.

Also known as Combined Heat and Power (CHP), cogeneration is the production of two kinds of energy — usually electricity and heat — from a single source of fuel. Cogeneration can replace the traditional method of supplying energy from multiple sources – for example, purchasing electricity from the power grid and burning natural gas or oil separately in a furnace to produce heat or steam.

These methods can waste up to two-thirds of the energy in the original fuel. With cogeneration, 70 to 90 percent of the energy in the original fuel is put to productive use, and total energy savings can be 30 percent or more.

A cogeneration system normally consists of some kind of machine turning an alternator to produce electricity and a waste heat recovery system to capture the heat from the exhaust and cooling water jacket.

Cummins Power Generation designs and builds cogeneration systems used around the globe in various applications. CHP applications include hospitals, schools, sports complexes and commercial facilities.

Cummins has 430 MW of cogeneration installations globally with an average project size of 2 MW. These installations represent a greenhouse gas reduction of about 500,000 metric tons of CO_2 per year for our customers.

Cummins employees embrace "envolvement"

Cummins employees are working to reduce their carbon footprint both at work and at home.

What started as a voluntary commitment to the EPA to reduce greenhouse gases in 2006 has led to a series of initiatives to improve energy efficiency that depend on the skill and passion of Cummins employees.

Two successful Unplugged Challenge campaigns to keep energy use to a minimum over site holiday shutdowns at the end of 2008 and 2009 saved a combined 1,900 tons of greenhouse gases from being emitted and $1.2 million.

Smart capital expenditures on energy efficiency projects have yielded excellent returns, but in a tough economic climate, Cummins has excelled in creating a culture of energy champions to do low or no cost energy improvements.

The Company now has 85 trained Energy Champions and their deputies who provide leadership, coaching and mentoring on energy efficiency to site Energy Leaders. The Energy Leaders are the energy experts at their particular locations.

In addition, Cummins leaders have been on the road, talking personally to employees about the Company's many opportunities to improve energy efficiency both at its facilities and in its products.

Tower conserves millions of gallons of water

Cummins is no longer discharging millions of gallons of water used to cool the Company's corporate headquarters into a Columbus, Ind. waterway.

The Corporate Office Building (COB) occupies three city blocks and can hold about 1,000 workers. When the building was completed in 1982, three ground water wells were installed around the perimeter of the building.

The extracted groundwater was circulated through the building's heating and cooling system to support the three chillers for air conditioning.

The original plan to re-inject the ground water back into the aquifer failed, but since there was no cooling tower to conserve and re-circulate the water, the water was redirected to a storm sewer that empties into a nearby river.

This solution was far from ideal. Not only did it use a lot of water, it took a lot of time and effort to monitor the discharges to meet the requirements of the site's discharge permit. In addition, the well water caused the air conditioning system's mechanical equipment to deteriorate more quickly.

Cummins officials considered building a tower several times, but cost and design challenges proved too much to overcome until a more aesthetically pleasing tower design was suggested. The tower was completed in May of 2009 – 27 years after the COB opened. The wells have been closed and no more ground water – an estimated 22 million gallons per month – is being discharged to the river.

Cummins is now purchasing water from the city of Columbus to cool the COB, and that water is re-circulated, reducing volumes significantly. With the new cooling tower, water use is on pace to being reduced to an average of 500,000 gallons per month.

India campus wins Chairman's Award for energy efficiency

The Cummins India Limited (CIL) campus in Pune, which is primarily engine business manufacturing, won the 2010 Cummins Energy Efficiency Award for its body of energy savings projects over the past two years.

Those projects delivered a greenhouse gas reduction of 1,507 tons and energy savings of $118,000. The team also completed an energy audit using Six Sigma tools that could save an additional $122,000.

The CIL team was recognized for its work in particular on two innovative projects – turning waste heat into air conditioning for the shop floor and the use of canteen waste by the biogas plant.

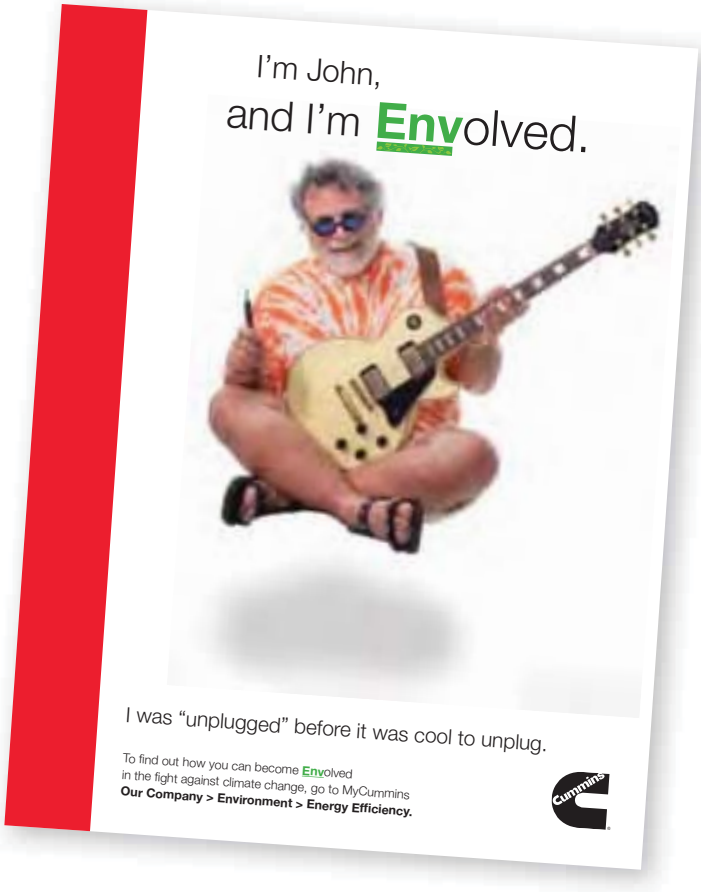
CIL installed a waste heat recovery system that runs on exhaust heat coming from generators. The system reduces water temperature to 7°C. This water is circulated through fan coil units installed in the machine shop areas to produce an air conditioning effect.

The team also used the biogas generated from thrown away, cooked food to fuel the cooking of more food.

As part of the Envolved campaign, John Wall, Cummins Chief Technical Officer, met with more than 4,000 employees at 24 town hall meetings in the first half of 2010 to share Cummins' views on climate change, reducing energy consumption and opportunities for employees to become more engaged. In addition, his presentation was videotaped and distributed to Cummins locations around the world this spring.

The campaign is also helping employees become aware of energy use in their own homes and transportation. A tool on the Company's Energy Efficiency Web site allows employees to measure their personal carbon footprint.

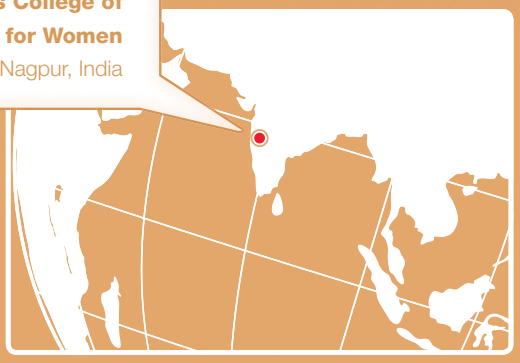
Speaking to employees at the Cummins facility in Fridley, Minn. this spring, Wall said, "Climate change is a global problem that will affect everyone and we won't solve it unless everyone gets involved."



The "Envolved" campaign poster featuring John Forte, Business Manager of Cummins Television Network.

Significant partnerships

Cummins College of Engineering for Women
Pune and Nagpur, India



Engineering college opens doors for women

Editor's note: Cummins is engaged in a number of significant partnerships on the key topics of education, the environment and social justice/ improving the human condition.
Here's a look at one:

Since it opened its doors in 1991 thanks to a grant from the Cummins India Foundation, Cummins College of Engineering for Women (CCEW), based in Pune, India, has given more than 4,000 women the opportunity to pursue careers in the male-dominated world of engineering.

> *"CCEW has contributed to my professionalism, communication and the 'never-say-die' attitude that makes us CCEW students stand apart!"*
>
> **Sayali Marathe**
> CCEW Graduate

With the opening of a new campus earlier this year in Nagpur, school officials are striving to provide the same opportunities for women hundreds of miles away, across the Indian subcontinent.

"Higher education continues to be a focus area for our foundation," said Anant J. Talaulicar, President, Components Group, Cummins Inc. and Managing Director of Cummins India ABO.

"In line with this, we are humbled with the opportunity of being able to support Maharshi Karve Stree-Shikshan Samstha (MKSSS), helping female students fulfill their educational aspirations and become independent individuals capable of making significant contributions to their families and society."

MKSSS is a 114-year-old Indian institution dedicated to the cause of women's education and social progress. It runs more than 64 educational establishments for women, including the CCEW. Preference for enrollment at the college is given to young women from disadvantaged sections of society.

CCEW graduate Sayali Marathe began her career with IBM in 2005, and then moved on to become a senior consultant with Computer Sciences Corporation. "CCEW," she says, "has contributed to my professionalism, communication and the 'never-say-die' attitude that makes us CCEW students stand apart!" School officials hope the expansion in Nagpur will lead to more stories like Sayali's.

Inside a classroom at Cummins College of Engineering for Women in Pune, which will celebrate its 20th anniversary in 2011.

"The respect and recognition garnered by the College in Pune encouraged us to look at expanding our endeavors in Nagpur," said Vishwas Deval, Chairman of MKSSS. "We are grateful for the support and funding that has been provided by the Cummins India Foundation in helping us realize our efforts."

Anant J. Talaulicar, President, Components Group and Managing Director of Cummins India ABO, participates in the dedication of the Nagpur campus earlier this year.

The Cummins India Foundation, which contributed 50 million rupees ($1.1 million) toward the new Nagpur campus, has pledged an additional 30 million rupees ($667,000) over three years, through 2012.

Cummins India's support for the CCEW doesn't stop with financial contributions. It also offers significant technical assistance to the college's Department of Mechanical Engineering, whose degree program it helps promote. Cummins also sponsors student projects, provides experts for lectures, and fosters recruitment of students through campus placement activities.

Companies recruiting at the CCEW have included Cisco, Emerson, Honeywell, John Deere, Tata Motors, Oracle, Microsoft, and Coca Cola — in addition to Cummins.

The new Cummins College of Engineering for Women campus in Nagpur.

The Pune campus, which opened in 1991, has more than 400 students. In addition to offering undergraduate courses in Mechanical Engineering, which started in 2007, the college's curriculum includes courses in Electronics and Telecommunications, Computer Engineering, Instrumentation and Control, and Information Technology. Last year, Cummins welcomed 35 interns from the college.

The Nagpur campus accepted 240 students initially, 60 in each of the four degree programs it offers—Information Technology, Mechanical Engineering, Computer Engineering & Electronics and Telecommunications.

College officials hope to expand in the coming years. For example, the current hostel connected to the college is home to about 180 women. There are plans to increase that to 700 over the next three years.

More than 4,000 women have attended the Cummins College of Engineering for Women. Women from disadvantaged sections of Indian society are given preference for enrollment.

Partnering with Purdue, Rose Hulman

The Cummins Collage of Engineering for Women partners with Rose Hulman and Purdue Universities in Cummins' home state of Indiana. Outstanding young women engineers from CCEW are invited to attend these universities on scholarships to pursue their master's and doctoral studies.

To date, 31 students have taken advantage of the program, supported through the Cummins India Foundation. Cummins actively recruits Purdue and Rose Hulman students to add to its engineering staff.

PURDUE UNIVERSITY

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Cummins College of Engineering for Women

Location: Pune and Nagpur, India

Mission: To develop women professionals who are academically and technically sound with a strong work ethic.

"शीलं परं भूषणम्"

ज्ञान

बल सेवा

History: Founded in 1991 with a grant from the Cummins India Foundation. The college is run by Maharshi Karve Stree-Shikshan Samstha (MKSSS), a 114-year-old Indian institution dedicated to the cause of women's education.

ज्ञानेन उध्देरेत् आत्मनात्मानम्

MKSSS's Cummins College of Engineering For Women

Special features: The school recently opened a second campus in Nagpur.

Cummins involvement: In addition to financial support, Cummins contributes technical expertise, experts for lectures, and programs to aid placement.

Governance lays foundation for business success

Highlights

- **Ten ethical principles guide Cummins.**
- **Ethics investigators ensure principles are upheld.**
- **International technical talent added to Cummins Board of Directors.**

Cummins believes strongly that business success starts with good governance.

Good governance, in turn, is built on polices and procedures that promote ethical behavior by Company leaders and employees and responsiveness to all stakeholders – shareholders, employees, suppliers, customers, communities, regulators and broader society.

Cummins is guided by the Company's Code of Conduct and 10 Statements of Ethical Principles. These principles guide a host of initiatives designed to help Cummins navigate the complexities of the global marketplace. Cummins' 10 Ethical Principles are:

1 We will follow the law everywhere.

2 We will embrace diverse perspectives and backgrounds and treat all people with dignity and respect.

3 We will compete fairly and honestly.

4 We will avoid conflicts of interest.

5 We will demand that everything we do leads to a cleaner, healthier and safer environment.

6 We will protect our technology, our information and our intellectual property.

7 We will demand that our financial records and processes are accurate and that our reporting processes are clear and understandable.

8 We will strive to improve our communities.

9 We will communicate with honesty and integrity.

10 We will create a culture where all employees take responsibility for ethical behavior.

Indiana Gov. Mitch Daniels (left) and Cummins' top official in China, Steve Chapman (right), examine a hybrid transit bus powered by a Cummins Euro IV ISB engine in Hangzhou, China, the provincial capital of Indiana's sister province Zhejiang. The governor led a delegation from Indiana on a six-day visit to China in the fall of 2009.

On-line training

A key way Cummins puts these principles into action is through 10 on-line compliance training programs targeting appropriate employee groups. The training includes:

- Cummins Code of Business Conduct
- The Treatment of Each Other at Work policy
- Export Controls
- Anti-bribery/Foreign Corrupt Practices Act
- Antitrust
- European Union Competition
- Careful Communication
- Intellectual Property
- Managing within the Law
- Lobbying and Political Action

Compliance training (2009)

Course	Enrolled	Completion rate
Code of Conduct	16,219	97%
Treatment of Each Other	16,188	98%
Anti-bribery	11,394	92%
Export Controls	10,930	85%
Antitrust	3,608	99%
EU Competition	1,139	99%
Careful Communication	12,395	98%
Intellectual Property	3,176	98%
Lobbying and Political Action	331	100%
Managing with the Law	223	91%

The Company's policies and processes in these areas are periodically updated. The Treatment Policy, for example, was revised in 2009 to provide more guidance on manager-subordinate relationships. Both the Export Controls and Anti-Bribery/Foreign Corrupt Practices Act courses were updated in 2009 and offered to targeted employees to make sure they had up-to-date information.

In 2010, Cummins started an 11th Internet-based compliance course that provides Information Protection training. The course covers sending classified or confidential data by email, protection of electronic identity, acceptable use of the Internet, telecommuting and reporting procedures.

Ethics violations, reporting and investigations

In addition to training, Cummins has a global team of Master Investigators who investigate ethics complaints and make sure that appropriate action is taken in a timely fashion.

In 2009, the Company investigated 699 ethics-related complaints compared to 541 in 2007 and 682 in 2008. Of those cases investigated in 2009, 53 percent resulted in a finding that the complaint had some merit and 36 percent of those resulted in employee termination.

Complaints of unprofessional behavior and those grouped into the category of Human Relations accounted for more than half of the total ethics cases investigated in 2009.

The Company believes employees are becoming more comfortable with Cummins' reporting and investigation process. The EthicsPoint system used at Cummins allows employees around the world to report concerns either through toll-free telephone numbers or on-line. Both services are available in multiple languages.

Employees can report concerns anonymously where allowed by law, but only 30 percent of the reports in 2009 were made that way. Most employees feel confident enough in the process to report by name. Those reporting about any topic are protected under the Company's anti-retaliation policy.

Cummins' average closure of ethics cases in 2009 was under the Company's goal of 24 days. A Six Sigma project is being implemented in 2010 that seeks to lower the goal to 15 days.

The Company closely monitors complaints. Each quarter, Business Unit leaders receive an update on complaints in their regions. Chairman and CEO Tim Solso also receives an update, and an annual update is reviewed by the Audit Committee of the Cummins Board of Directors.

Ethics certification process

During the fourth quarter of 2009, 12,655 employees completed their annual Ethics Certification. Employees certified their compliance with the Company's Code of Business Conduct and underlying policies and reported any exceptions to Company policy. Internal Audit and Cummins Law Department reviewed all exceptions to ensure they were documented and investigated according to Company policy.

Challenges ahead: Governance and Risk Management

Here are three areas in Governance and Risk Management that Cummins will be working to improve in 2010:

1 **Ethics investigations:** The average closure of ethics cases at Cummins was under the Company's goal of 24 days in 2009 but a Six Sigma project being implemented in 2010 seeks to lower the goal to 15 days.

2 **Economic forecasts:** Cummins wants to develop a better way to predict when economic downturns will end so the Company can be more precise in planning for production increases. Some manufacturing plants saw significant swings in demand from quarter to quarter in 2009 and early 2010.

3 **Business Continuity Plans:** Cummins wants to continue implementing Business Continuity Plans at our most critical sites, working with site leadership, which will assume responsibility for updating them.

Supplier Code of Conduct

Cummins wants to do business with companies that share its values. The Company's Supplier Code of Conduct includes provisions banning child or forced labor, respecting employee rights and providing a safe workplace for employees.

The Supplier Code was updated in 2009 to align with Cummins' own internal Code of Conduct, making it clear that the Company holds suppliers to a higher standard than just compliance with local laws.

Cummins' purchasing department solicits a response from suppliers on their conduct codes and addresses any areas of concern. If the Company has a contract with a supplier, the Supplier Code of Conduct is included in the legal agreement.

The code has been translated into more than a dozen languages. By the end of 2009, Cummins had sent it to more than 6,000 suppliers with 98 percent reporting that they were in compliance.

Joint venture relationships

In a number of instances around the world, Cummins does business through alliances with business partners and joint venture agreements to increase market penetration, streamline supply chain management, expand product lines and/or develop new technologies.

Regardless of whether Cummins directly manages these alliances and joint ventures, the Company takes appropriate steps to ensure they share Cummins' values. Cummins screens potential partners carefully and only initiates a joint venture with partners whom Company leaders know and trust. The Company makes sure Cummins' values are included in a joint venture by making them a part of the negotiations and by ensuring Cummins employees are included on the joint venture's board of directors.

In 2009, all North American joint-venture partners and distributors adopted Cummins' Code of Business Conduct or substantially similar codes embodying the same principles.

Cummins Board of Directors

Cummins is governed by a nine-member Board of Directors. Seven of the nine directors are independent of the Company. Cummins Chairman and CEO Tim Solso and President and Chief Operating Officer Tom Linebarger are the only Cummins employees on the Board. Each Board Director must stand for election annually.

In 2010, Robert Darnall, retired Chairman and CEO of Inland Steel Industries, retired from the Cummins Board after serving for 21 years. The Board welcomed a new member, Dr. Franklin Chang-Diaz, Founder, Chairman and CEO of Ad Astra Rocket Company and former NASA astronaut. (To learn more about Dr. Chang-Diaz, go to page 56)

About the Board

The Board of Directors represents and protects the interests of the Company's stakeholders. The Board has the legal responsibility for overseeing the affairs of the Company, including:

- Adopting corporate governance principles consistent with the Company's Vision, Mission and Values.
- Exercising sound and independent business judgment with respect to significant strategic and operational issues.
- Advising senior management.

The board monitors:

- The performance of the Company.
- The performance of senior management.
- The effectiveness of internal controls and risk management practices.
- Compliance with all applicable laws and regulations.
- Communications and relationships with stakeholders.

Cummins Board of Directors has six standing committees:

- Executive Committee
- Audit Committee
- Compensation Committee
- Governance and Nominating Committee
- Finance Committee
- Safety, Environment and Technology Committee

The Company complies with all New York Stock Exchange and regulatory requirements concerning the membership of certain committees.

Internal Audit

Cummins' Internal Audit department provides the Board of Directors and management with independent, objective information on the performance of the Company's control environment. The Executive Director – Internal Audit reports to the Audit Committee of the Board of Directors. In 2009, Internal Audit published 94 audit reports and memos.

Internal Audit has a formal follow-up process to ensure management has addressed identified risks and implemented corrective action. A business unit leader must present a corrective action plan directly to the Audit Committee of the Board of Directors when a function or business receives an "Unacceptable" audit grade.

Robert J. Bernhard
Vice President for Research and an engineering professor at the University of Notre Dame. He joined the Board in 2008.

Franklin R. Chang-Diaz
Founder, Chairman and CEO of Ad Astra Rocket Company, a U.S. spaceflight engineering company based in Houston, Texas. He joined the Board in 2009.

Robert K. Herdman
Managing Director of Kalorama Partners, LLC, a Washington, D.C. – based consulting firm. He joined the Board in 2008.

Alexis M. Herman
Chairman and CEO of New Ventures, LLC, a corporate consulting company. She joined the Board in 2001 and currently serves as Lead Director.

N. Thomas Linebarger
President and Chief Operating Officer of Cummins Inc. He joined the Board in 2009.

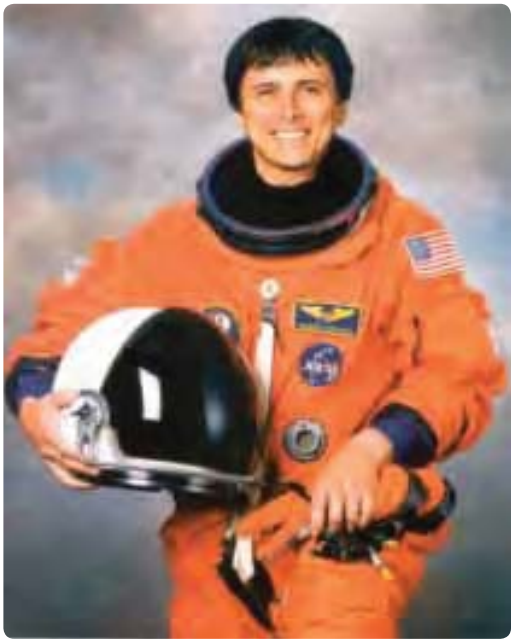
William I. Miller
Chairman and CEO of Irwin Management Co., a Columbus, Ind. private investment firm. He joined the Board in 1989.

Georgia R. Nelson
President and CEO of PTI Resources, LLC, an independent consulting firm. She joined the Board in 2004.

Theodore (Tim) M. Solso
Chairman and CEO of Cummins Inc. since 2000, after serving as Company President since 1995.

Carl Ware
Retired Executive Vice President, Public Affairs and Administration, the Coca-Cola Co. He joined the Board in 2004.

For Chang-Diaz, it *is* rocket science



Dr. Franklin Chang-Diaz, Chairman and CEO of Ad Astra Rocket Company, joined the Cummins Board of Directors in December 2009. The native of Costa Rica is the Company's first foreign-born board member and brings a wealth of technical expertise to Cummins. Prior to forming his own company in 2005 to commercialize a plasma rocket technology he helped to develop, Dr. Chang-Diaz worked at NASA for 25 years, during which time he flew seven missions on the Space Shuttle. In May 2010, Dr. Chang-Diaz sat down and shared his early impressions of Cummins and the role he hopes to play as a Director.

Q: How were you introduced to Cummins?

A: I actually met (Cummins Chairman and CEO) Tim Solso at EARTH University last year when he came to visit the west campus (in La Flor, Costa Rica). He also visited my rocket facility there. It was pretty much instant chemistry.

I have been aware of Cummins engines for most of my life. My father worked in construction, so I knew the Cummins name since I was a young boy. I even took some of the engines apart and put them together when I was young.

About two months after we first met, Tim brought a group of about two dozen top Cummins leaders to visit our facility in Houston, and there was a lot of interest in what we were doing. When I was asked to consider joining the board, I was humbled and excited.

Q: What attracted you to the idea of being a Director at Cummins?

A: I have always been interested in energy and power. In fact, there are a lot of synergies between rocket technology and power. Cummins has a tremendous amount of technology that is poised to make a difference in a changing world. I am really excited to be joining at this important time.

Q: So, you see parallels between your work with rocket technology and space travel with what Cummins does?

A: Yes, especially when it comes to power generation and materials. In my company, we deal with fluids and materials that get very hot. It's the same thing that happens inside an internal combustion engine.

That requires very advanced materials and very advanced thermal management strategies. So there's a tremendous amount of synergy between the kind of things I have been doing and what the company does. Who knows, we could see Cummins materials on the moon or Mars in the future (chuckling).

Dr. Franklin Chang-Diaz

Title: Chairman and CEO of Ad Astra Rocket Company. Member, Cummins Board of Directors (December 2009).

Education: Bachelor of Science degree in mechanical engineering from the University of Connecticut in 1973. Doctorate in applied plasma physics from the Massachusetts Institute of Technology in 1977.

Career: Dr. Chang-Diaz began working on rocket propulsion shortly after getting his doctorate at MIT. He worked as a visiting scientist with the MIT Plasma Fusion Center from 1983 to 1993, and then served as Director of the Advanced Space Propulsion Laboratory at Johnson Space Center until 2005 when he founded Ad Astra.

In space: Chang-Diaz became an astronaut in 1981. He was in space seven times (1986, 1989, 1992, 1994, 1996, 1998, and 2002), logging more than 1,600 hours in space, including 19 hours and 31 minutes in three spacewalks.

Q: You are very active in an ambitious economic and social development effort in Costa Rica, called the 21st Century Strategy. Can you talk about that a bit?

A: For the last four years, I have been involved with a very large group of scientists, politicians and thinkers, and we have developed something of a master plan. The whole concept is to make Costa Rica a first-world country by the middle of this century.

Costa Rica is a very small country, but it is a country that has a lot of future and ambition. It is a country that has all the ingredients to achieve success. Politically, it is very stable and economically it is very diversified. It is also a country that has invested a great deal in education.

But, there are still a lot of needs. There is still a great deal of poverty and a widening gap between the rich and poor.

Our role is like that of a flight controller. All these projects are funded by some other group, but we act like a very large radar screen and monitor them. Our role is to make sure they all fly in the right direction and nobody crashes.

Q: Have you found your work with the strategy group to be good fit for Cummins' interests in corporate responsibility?

A: Yes. Tim is interested in diversity, in new ideas and reaching out to the developing world and he is very interested in education. All these things are in concert with the work the 21st Century Strategy group is doing. There aren't many companies that see the big picture and care as much about improving the world around them as Cummins does.

Q: What does being an effective board member mean to you?

A: I have a certain background that gives me a set of skills that aren't better or worse than other board members, but are different. I hope that difference will allow me to identify or see certain things that might improve the company or might contribute to making the company more effective, more prosperous … make it a better company.

Managing risks key to sustainability

Cummins believes risk management is a key component of sustainability. By managing risk effectively, the Company can enjoy the kind of financial success that enables it to engage in initiatives such as strengthening communities.

In 2009, the Company expanded its risk management efforts to include supplier financial health, customer financial health and health pandemics. The Risk Management staff developed a risk dashboard for the Board of Directors to help them monitor the Company's efforts in these important areas.

"Companies with policies and procedures in place to manage risk effectively are much more likely to survive a significant event than those that don't or whose plans are incomplete," said Brian McBroom, Cummins Director of Risk Management.

Business Continuity Plans

In the past year, there have been earthquakes in China, Haiti and Chile and a flood in Nashville, Tenn. Those disasters impacted some of Cummins distributors and served as a reminder of the importance of risk management and emergency planning.

In 2009, the Risk Management staff, working with site leadership, completed Business Continuity Plans for more than 80 Cummins locations. These plans include detailed information on crisis communications, operational recovery and emergency preparedness.

Highlights

- **Business Continuity Plans updated for more than 80 Cummins locations.**
- **Information Risk Management strives to protect Cummins' digital resources.**
- **New Web site supports Cummins' international travelers.**

Ownership of the plans has been transferred to local site contacts who will update them on an annual maintenance schedule.

To protect Cummins' supply chain against similar risks, suppliers have also been asked to create and maintain their own Business Continuity Plans.

Information risk management

As computers and digital information become more important, so does global information risk management. The mission of Cummins' Information Risk Management (IRM) program is to reduce and mitigate information risks and secure Cummins information with practical and appropriate business solutions based on risk assessment.

IRM identifies, analyzes, prioritizes and develops mitigation strategies to address the top information risks for Cummins. It also supports regulatory compliance activities through updates to information security policies and procedures and manages the IT security infrastructure that protects Cummins information assets.

The team also responds to attacks against the Company's information assets and works to limit any impact to the business.

Cummins started an Internet-based compliance course in 2010 that provides information protection training. The course covers such topics as sending classified or confidential data by email, protection of electronic identity and acceptable use of the Internet.

International travel

As a global company, Cummins works with customers in countries and territories around the world. Global travel is a key part of many employees' jobs. Travel management is crucial to reducing risk to the Company.

Working closely with global travel management companies and security intelligence suppliers, Cummins is able track and monitor the Company's global travelers. Cummins is updated on the latest developments worldwide, whether they involve the risk of an insurrection in an unstable region or the status of a viral outbreak.

Cummins has established a new Web site on the Company's intranet to help employees traveling internationally. The site links employees to iJET Intelligent Risk Systems, which provides around-the-clock medical, security and travel support to help employees as part of the Company's Travel Smart Travel Safe initiative.

Pandemic planning

Concerns about H1N1 influenza in 2009 and 2010 served as a reminder of the importance of pandemic planning, especially for a global company like Cummins.

Cummins has taken extensive steps to ensure the health and safety of employees as well as the continued functioning of the Company. Cummins formed a Pandemic Planning Team to help create a strategic response plan to the pandemic.

To learn more about Cummins' response, please see the story on page 61.

A Company shuttle provides air service for interplant travel between Columbus, Ind. and seven other U.S. cities including Jamestown, N.Y.; Charleston, S.C. and Nashville, Tenn.

Government relations and political activity

Cummins maintains an office in Washington, D.C., to coordinate government relations activities and monitor changes that might have a significant impact on the Company, such as energy policy, environmental legislation, taxes, trade and transportation policy to name just a few.

The Company belongs to a number of trade organizations to further its business interests. These organizations help Cummins by leveraging the Company's resources with other companies on issues where we share similar interests. While Cummins might not agree with the positions these associations take on every issue, the Company believes participating in these groups helps ensure the Company's voice is heard.

In 2010, Cummins strengthened its current policy banning political contributions using corporate funds to candidates, political parties or independent expenditure campaigns.

Political contributions are still made by the Cummins Inc. Political Action Committee (CIPAC), but the committee is funded solely by voluntary employee contributions. CIPAC makes contributions to candidates on a bi-partisan basis after review and approval by CIPAC's Executive Committee and according to federal law.

For a complete list of the political action committee's contributions to candidates, go to www.fec.gov.

Lobbying

Here is a list of the trade organizations that Cummins paid dues to in excess of $50,000 during calendar year 2009 and the U.S. Chamber of Commerce, which fell below that $50,000 threshold. Listed with each entity is Cummins' estimation of the portion of these dues used by the organization for lobbying or other political expenditures.

Group	Amount for lobbying
The American Trucking Associations	$11,930
The Business Roundtable	$35,718
The Diesel Technology Forum	$1,250
The Engine Manufacturers Association	$12,800
The National Association of Manufacturers	$21,012
U.S. Chamber of Commerce	$10,000

Cummins PAC

The Cummins Inc. Political Action Committee (CIPAC) is governed by corporate policies and by-laws that state:

- All CIPAC contributions are strictly voluntary.
- The Company will not reimburse employees directly or indirectly for political contributions.
- Employees will not be pressured to contribute to CIPAC or make any other personal political contribution.
- A decision not to contribute to CIPAC shall not disadvantage anyone in any way.

Contributions to political candidates and political organizations are based on the following criteria:

- Public integrity of the candidate.
- Representation of a Cummins facility or employees.
- Support for issues of importance to Cummins.
- Timely and effective constituent service.
- Political leadership or organization.
- Support for our core values.

All of our political activities are disclosed to the Cummins Board of Directors in an annual political contribution report.

Flu outbreak puts pandemic plan into action

While the 2009 outbreak of H1N1 influenza didn't hit as hard as many feared, it provided a good opportunity for global companies like Cummins to test their response plans.

The Company already had a pandemic plan in place based on an earlier threat of avian flu. A new H1N1 team just had to adapt it to the new conditions.

A year ago this spring, H1N1 was very much on people's minds. The virus, first widely reported in Mexico, seemed to be striking the young and healthy. Anxiety grew in workplaces across the world whenever anyone sneezed. In June 2009, the World Health Organization classified the outbreak as a global pandemic.

Cummins moved quickly to produce and distribute posters describing symptoms of H1N1 influenza along with tips on preventive hygiene. These posters were translated and placed at the entry points of Cummins facilities everywhere. Employees and visitors were urged to screen themselves and to stay home if they displayed symptoms.

At Cummins and elsewhere, people changed their behaviors at work, sneezing into their elbows and making liberal use of hand sanitizer, which is still available at the entrance to many Company facilities.

To determine the appropriate local response to H1N1, Cummins cued off of the World Health Organization's pandemic levels, translating these levels into specific actions for Cummins managers.

The team created response stages corresponding to the intensity of local conditions and arranged for all major facilities to receive up-to-date medical and travel information.

It was also important to adhere to local rules and regulations. For example, at Cummins facilities in Mexico the government asked businesses to close in the early stages of the pandemic.

A Six Sigma team was launched to refine and improve the Company's approach to pandemics. A diagram now details several specific activities and responsibilities for each department in the event of a pandemic. These steps will prepare Cummins for new H1N1 issues should the flu return in the winters of 2010 and 2011 as some predict, as well as any future pandemics.

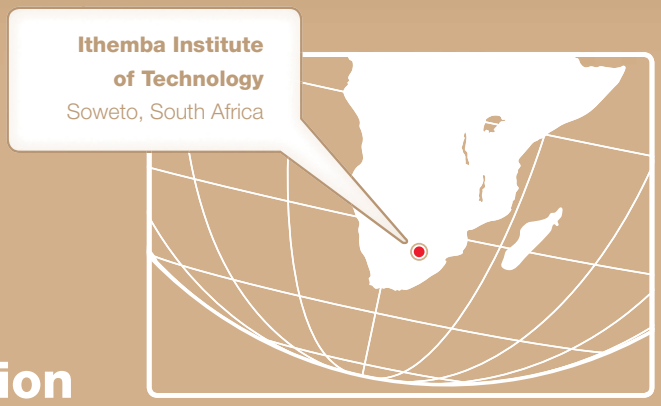
The pandemic team

The pandemic team was led by Brenda Ball, Executive Director - Global Compensation & Benefits, and also included:

- Theodosia Rush, Director - HR Strategy
- Rob Norris, Corporate Communications Manager
- Kelli Smith, Corporate Safety Manager
- Jill Olds, Director - Health Care Strategy
- Pat D. Breeden, Global Travel Director
- Shelley Stewart, Executive Director – Global Security
- Dr. Marianne Lindroth

Significant partnerships

Ithemba's win-win proposition



Editor's note: Cummins is engaged in a number of significant partnerships on the key topics of education, the environment and social justice/ improving the human condition.
Here's a look at one:

With more than 800,000 residents and double-digit unemployment, Soweto in South Africa can be a pretty daunting place to grow up.

But the Ithemba Institute of Technology offers a little bit of hope in the impoverished township along with the job skills necessary to lift youth out of poverty.

> *"Our committed involvement in Ithemba is a clear win-win for all. Not only do the students get hands-on, relevant training, education and apprenticeships, we get the diesel mechanics with the knowledge and experience we need."*
>
> **John Shuttleworth**
> Cummins Aftermarket Director
> South Africa

Ithemba founder Uzendt Peters, a public school teacher, saw the gap growing between students who finished school and a job market that was skills-dependent.

He converted a run-down school into the institute and brought in companies like Cummins to help with the curriculum. Ithemba is now filling that skills gap and at the same time, helping to make dreams of a better life come true for a growing number of Soweto residents.

"Our committed involvement in Ithemba is a clear win-win for all," says John Shuttleworth, Cummins Aftermarket Director in South Africa who has worked closely with Ithemba. "Not only do the students get hands-on, relevant training, education and apprenticeships, we get the diesel mechanics with the knowledge and experience we need."

Ithemba is divided into three parts – a FET (Further Education and Training) school for grades 10-12, a FET college that teaches technical skills, and an adult college with evening classes. The school teaches skills in welding, diesel mechanics, electrical engineering, fitting and turning, and hydraulics.

"South Africa has seen a severe drop in apprenticed artisans – in 1975 the numbers were around 33,000," Shuttleworth said. "In 2007, the numbers had dropped to 1,500. The engineering industry faces a critical shortage of skilled diesel mechanics, particularly in the mining sector. It's up to big industry players like Cummins to invest in addressing this now, or face major HR difficulties in the near future."

Cummins has been working with Ithemba since Peters approached the Company at the outset of the project in 1991. In 2009, The Cummins Foundation pledged financial support of $325,000 to match other fundraising to help the school become sustainable.

The Company also works with Ithemba through its Every Employee, Every Community program and on learning opportunities like apprenticeships, "Take a Girl Child to Work Day," motivational speeches and job shadows.

Eighteen-year old Mmabatho Kekana spent three years as an Ithemba student before she chose to become a diesel mechanic (DM) learnership student and get the practical knowledge required for an apprenticeship. In just six months, she learned how to strip and rebuild three diesel engines.

Pamela Carter, Vice President – President of the Distribution Business, helps officially open a new mechanical workshop for Ithemba students in the fall of 2009.

Kekana sees a world of career possibilities in her future.

"There's a huge shortage of DMs in South Africa, and South Africa is definitely where I want to be. I know I'm lucky to know what I want so young. A lot of people in my neighborhood are really confused, and it shows," Kekana said.

"Passion for your work is really important if you want to be successful but you need to know what it is you're passionate about first – that's the hard bit," Kekana added.

Pamela Carter, Vice President – President of the Distribution Business, visited Soweto last year, where she officially opened a mechanical workshop for students. The workshop includes state-of-the-art tools and equipment.

"I am both humbled and excited," Carter said during the opening.

"From a Company taking 20 years to make a profit to a multi-national leader in power generation and related fields, Cummins hopes to be in partnership with Ithemba for a long, long time," she said.

Ithemba Institute of Technology

Location: Soweto, South Africa

Mission: Educate students in impoverished Soweto so they can get jobs in modern manufacturing.

History: Started by a former teacher, Uzendt Peters. The school is now supported by several industries in the area like Cummins.

Special features: By working closely with manufacturers, Ithemba aligns its curriculum to include classes on the skills most needed by the industry so its graduates are ready.

Cummins involvement: Cummins contributes money, expertise and employee volunteer time. Beyond financial support, examples include apprenticeships, job shadows, motivational speeches and more.

Corporate responsibility: building stronger communities

Highlights

- **Cummins supports hundreds of community involvement projects around the world.**
- **The Company is extending its Environmental Challenge to get more employees engaged in "green" projects in 2010.**
- **Cummins focuses its corporate responsibility efforts on three priority areas: the environment, education and social justice/improving the human condition.**

The ways that Cummins employees help strengthen their communities are as varied as the employees themselves.

Often working in concert with The Cummins Foundation, one of the oldest corporate charities in the United States, they initiated projects over the past year to:

- Extend electricity to a remote village in India.
- Raise environmental awareness in China.
- Support a technical school for impoverished students in South Africa.
- Improve the financial stability of a historically black college in Memphis, Tenn.

Community involvement is nothing new at Cummins. Next year, for example, the Clessie Cummins Health Clinic outside São Paulo, Brazil will celebrate 20 years serving the residents who live in the community of Guarulhos near a Cummins plant.

Cummins employees worked on hundreds of projects in 2009 to fulfill the Company's Corporate Responsibility Value to "serve and improve the communities in which we live."

Longtime Chairman and CEO J. Irwin Miller, who led Cummins for nearly 40 years, believed passionately that a company is only as strong as the communities where it does business. Our Corporate Responsibility value has evolved since then to become more global but Cummins' core beliefs have not changed.

The Company helps build stronger communities today through Cummins' network of more than 150 employee-led Community Involvement Teams around the world and the Every Employee Every Community (EEEC) program, which allows employees to be paid for up to four hours of community work. Fifty-three percent of the Company's employees participate in EEEC, donating over 70,000 hours annually. Despite difficult economic conditions, United Way participation by Cummins employees in the United States increased to an all-time high in 2009, reaching 55 percent.

Employees from the Dongfeng Cummins Engine Company pass out 3,500 re-useable bags to the local community in Xiangfan, China, to reduce the use of plastic bags, a major pollutant in the area.

Cummins is also active philanthropically, both as a company and through The Cummins Foundation, as well as its philanthropic affiliates, the Cummins India Foundation and the Philanthropic Association of Cummins in Mexico.

Cummins encourages Company leaders to get involved in their communities and to practice responsible decision making by weighing the potential impact of their actions on all stakeholders including those in their home communities.

“At Cummins, we believe our Company has an obligation to improve the communities where it does business, working together with other stakeholders to solve problems,” said Jean Blackwell, Executive Vice President of Corporate Responsibility.

“We want a long-term relationship with these communities and any long term relationship is built on trust. We see corporate responsibility first and foremost as building the trust necessary so we can be an effective partner in problem solving.”

Meeting our goals

Last year’s Sustainability Report outlined several key goals for corporate responsibility, including:

- Improving global engagement to reflect the growing importance of Cummins’ business operations outside the United States.
- Providing greater focus to philanthropy worldwide by establishing three key areas where Cummins believes it can have a significant impact: the environment, education and social justice/improving the human condition.
- Increasing leadership responsibility for community involvement and incorporating corporate responsibility in the Company’s strategies.

Progress was made on all three goals in the past year through initiatives such as Cummins’ 90th Anniversary Environmental Challenge.

To celebrate the Company’s 90th anniversary in 2009, The Cummins Foundation challenged Cummins entities around the globe to develop and implement projects

to improve the environment within their communities. The Foundation pledged to award the best initiatives $10,000 grants that Community Involvement Teams could donate to the community partner of their choice.

Thirteen initiatives received $10,000 grants from The Cummins Foundation, and five were also honored as President's Award winners. Here's a brief description of the President's Award winning projects:

- A Cummins team developed a way to bring electricity to the rural village of Kolha in India by using Cummins generators running on a locally available, renewable and clean energy source – vegetable oil produced from the seeds of Pongamia trees.
- A team of Cummins employees developed a sustainable solution to providing drinking water at a school and orphanage in Wagholi, India.
- Cummins employees in Kent in the United Kingdom helped turn a 300-year-old former orchard into a teaching garden for 120 disabled students.
- Employees at Stamford, United Kingdom, worked on a small stream suffering from high loads of sediment, creating a more diverse flow for the waterway to help remove fine silts.
- Cummins employees working in Fridley, Minn. removed barriers to recycling at a public housing site and significantly increased the amount of material collected there.

"If our efforts are going to have the maximum impact possible, we need to focus them," said Carole Casto, Cummins Director of Community Engagement. "The Environmental Challenge helped us do that while leveraging our employees' skills in the critically important area of our environment."

The project was so successful, the Foundation committed to a five-year environmental challenge initiative and this year will again award $10,000 each to up to 15 environmental projects from Cummins' Community Involvement Teams.

Cummins employees in Korea participate in a Habitat for Humanity building project as part of an Every Employee Every Community opportunity.

Challenges ahead: Corporate responsibility

Cummins is committed to continuous improvement in Corporate Responsibility. Three areas of focus in the coming year will be:

1 **Strategy:** Cummins is developing engagement strategies focused on ensuring vibrant and healthy communities that support Cummins as a great place to work.

2 **Impact:** The Company is developing metrics to ensure the maximum impact of our corporate responsibility efforts.

3 **Leadership:** Strong leadership is an important component of corporate responsibility at all levels, from the Company's employee-led Community Involvement Teams to site leadership. Developing expectations and providing leaders with benchmarks and metrics so they can measure success are key steps.

Significant partnerships

Cummins also continued work on many partnerships around the world in 2009 to address issues such as sustainable agriculture, help those with developmental disabilities and educate disadvantaged young people. These partnerships include:

Cummins College of Engineering for Women: The mission of this college based in Pune, India is to educate women who have been under-represented in the field of engineering. The college recently opened a second campus in Nagpur (page 46).

The Courage Center: Cummins employees in Fridley, Minn. work with the Minneapolis-based center whose mission is to help those with brain and spinal cord injuries and developmental disabilities. Company employees modify a wide-range of equipment and toys so the center's clients can experience more productive and fulfilling lives (page 82).

Ithemba Institute of Technology: The institute in Soweto, South Africa, provides a technical education to students who otherwise would have no access to higher education. The training provides students with critical job skills while also preparing Cummins' workforce of tomorrow (page 62).

LeMoyne-Owen College: Cummins has helped this historically black college in Memphis, Tenn. restore its financial viability and create a strategic plan for a sustainable future (page 102).

EARTH University: This institution based in Costa Rica teaches sustainable agriculture and entrepreneurship to students who might never have afforded college in the hope that they will return to their home countries and share what they learned.

"When we can partner with an organization and leverage the full array of Cummins resources, we can engage employees and achieve a sustainable impact on a problem, and ultimately a healthier community," Blackwell said (page 14).

Philanthropy: A track record of commitment

Cummins donates millions of dollars annually to initiatives and organizations around the globe through its affiliated foundations and the Company's operating funds. The Company invested $12.9 million in its corporate responsibility efforts in 2009, including $6.5 million in donations to The Cummins Foundation.

The Cummins Foundation has played a critical role in hundreds of initiatives since its inception. They range from programs to encourage the internationally-acclaimed architecture in the Company's headquarters city of Columbus, Ind. to financial support for EARTH University in Costa Rica and its mission to teach sustainable agriculture to young people from around the world (see page 14).

While the Foundation has been working to increase its involvement in international efforts, the Company has separate foundations in India and Mexico that operate with very similar priorities in those countries.

A Cummins employee works on toys at one of the Children's Houses charity orphanages, a charity Cummins supports in Russia.

Grants from the Cummins India Foundation target higher education, energy and the environment, and local infrastructure improvements.

The Philanthropic Association of Cummins in Mexico supports employment programs for marginalized individuals and other charitable projects.

To see a complete list of The Cummins Foundation's grants and a statement of its financial position, go to the Sustainability/Corporate Responsibility section on Cummins.com.

The Cummins Foundation

Board of Directors

- Chairman Tim Solso, Chairman and CEO, Cummins Inc.
- Director Jean Blackwell, Executive Vice President of Corporate Responsibility, Cummins
- Director Mark Gerstle, Vice President & Chief Administrative Officer, Cummins
- Director Tom Linebarger, President and COO, Cummins
- Director Will Miller, Chairman and CEO of Irwin Management Co. and Cummins Board of Directors
- Director Marya Rose, Vice President – General Counsel, Cummins
- Director Pat Ward, Vice President – Chief Financial Officer, Cummins

Foundation Officers

- Chief Executive Officer Jean Blackwell
- President and Secretary Tracy Souza, Executive Director of Corporate Engagement, Cummins
- Treasurer Marsha Allamanno, Corporate Responsibility Finance Director, Cummins

Audit Committee

- Chairman Marsha Hunt, Vice President – Controller, Cummins
- Luther Peters, Executive Director of Internal Audit, Cummins
- James Guilfoyle, Executive Director – Corporate Accounting, Cummins

Investment Committee

- Chairman Richard Harris, Vice President – Chief Investment Officer, Cummins
- Gloria Griesinger, Director – Global Treasury and Pensions, Cummins
- Marsha Hunt

A Cummins employee donates time at the Clessie Cummins Health Clinic outside São Paulo, Brazil.

Responding to disasters

While disaster relief is not a primary focus of Cummins' philanthropic effort, the Company and the Foundation respond when communities are impacted where we have facilities or distributors. Here's a look at what we've done in the past year:

Haiti: After the earthquake in Haiti in January, Cummins Foundation committed $250,000 to relief efforts with an additional $100,000 from U.S. and Canadian distributors. In addition, five 600-kilowatt Cummins generators provided power to the U.S. Embassy shortly after the quake struck. A group of employees is working now to determine how to donate the committed funds in a way that will be sustainable and benefit an underserved population.

Chile: The Cummins Foundation committed to a $100,000 donation for earthquake relief in Chile, which was supplemented with $50,000 from the distribution network. Working through our Distribution joint venture in Chile, we determined how the funds could be effectively used. Ten fishing boats and engines will be purchased for families whose homes and livelihoods were destroyed by the February quake

Dave Smitson, President of Cummins Crosspoint LLC, presents a donation of $100,000 from all 16 U.S. and Canadian distributors who donated equally to contribute to the rebuilding effort in Haiti. Cummins employees Alex Duge and Jacquelyn Jean-Claude, who have ties to Haiti, are serving on a group to help identify projects for The Cummins Foundation to fund.

in the coastal town of Pelluhue. Cummins partnered on the project with Komatsu, which contributed equipment to help with the cleanup as well as a truck to provide safe drinking water to residents.

Nashville, Tenn: The Foundation has donated $100,000 to the Community Foundation of Middle Tennessee for flood relief and has set up a Disaster Recovery Assistance Fund where employees can contribute directly to other employees who were impacted by the May flood.

Rising to our environmental challenges

At Cummins, our employees love a good challenge.

So perhaps it's no surprise that when challenged to harness their knowledge, skills and muscle for the environmental benefit of the communities where they live and work, the response was overwhelming.

More than 3,200 employees from 11 countries worked an estimated 33,450 hours on projects. Greenhouse gases were reduced by 538 tons, the equivalent of 54,000 gallons of gasoline.

The Foundation awarded 13 grants of $10,000 each in 2009. Five of the 13 projects were judged to be President's Award winners. Here are their stories:

Positively illuminating

Lighting up Kolha, India

Like many remote villages in India, activity pretty much stopped in the village of Kolha not long after sunset.

That is until August 2009 when a Cummins team developed a way to power the rural village of 65 households by using Cummins generators running on a locally available renewable energy source – non-edible vegetable oil produced from the seeds of Pongamia trees.

"Ever since Cummins forayed in India half a century ago, we have been committed to deploying our technology and human expertise towards the development of both the nation's economy and its people," said Anant J. Talaulicar, President, Components Group, Cummins Inc., and Managing Director – Cummins India.

"We believe that this rural electrification initiative using locally available, low cost, renewable energy sources is an important first step taken in the direction of electrifying remote villages and making people's lives better in the rural sections of our nation," he added at a ceremony earlier this year celebrating the

A family in the village of Kolha in India enjoys the benefits of electricity thanks to a Cummins project using generators fueled by an inedible vegetable oil.

first phase of the initiative, one of the Environmental Challenge's President's Award winners.

The Kolha project started two years ago when Cummins India Limited collaborated with the Cummins Engine Research Facility at IIT (Indian Institute of Technology) Bombay and the READ Foundation to develop a sustainable electrification model for remote villages across India. The collaboration wanted to use locally renewable energy sources that would minimize overall carbon emissions.

A generator set operating on vegetable oil was designed and tested at the Cummins Engine Research Facility. In August 2009, the generator was successfully installed and shortly thereafter villagers had electricity.

The project meant light for the village residents so they can more comfortably enjoy activities at night, said Subramaniam Ravichandran, Senior General Manager of the Growth Office at the Power Generation Business Unit of Cummins India Ltd. In addition, there is reserve power to run a water pump for irrigation and drinking water in the future.

"We developed this project and concept under three simple principles: green, sustainable, and scalable," said Beau Lintereur, Vice President of the Power Generation Business Unit at Cummins India. "For me, the most interesting and satisfying aspect of the project is the focus on economic sustainability. In addition to benefiting the lives of the people of Kolha, the installation serves as our living laboratory to evaluate the performance of the technology in a real social setting."

The system at Kolha holds the potential to create demand for greater quantities of vegetable oil for sale, creating an additional income source for villagers. The next phase of the project will be developing a system so in addition to vegetable oil, the generator can also run on biogas.

"Cummins is humbled to play a small, yet significant role in improving the lives of the 65 families living in Kolha," said Jean Blackwell, Executive Vice President

Village residents help with the installation of the poles and wires necessary to bring power from the Cummins' generator to individual homes.

– Corporate Responsibility and Chief Executive Officer of The Cummins Foundation, who also attended the celebration in Kolha.

The Foundation grant money will go towards efforts to provide power to two more remote villages in a cooperative effort with the Indian government.

Going with the flow

The River Chater project, Stamford, UK

If the River Chater wasn't dead, it was fading fast.

Located near Stamford in the United Kingdom, the river for years has been plagued by high loads of sediment due to intensive agricultural practices in the area. In addition, it suffered from the impact of a fine grit and mud from quarrying operations within the river's watershed.

The sediment made the area inhospitable for fish, aquatic plants and the invertebrates upon which all life in a river ultimately depends.

Part of the river runs near the Cummins Generator Technologies Plant in Stamford. The waterway's fortunes started to change when a team from the plant as well as some Cummins retirees joined forces with several groups, including the Grantham Angling Association, the Wild Trout Trust and the Natural England environmental group.

They worked together to encourage the river to meander a little more and create deeper pools to speed up the flow of the water. That, in turn, helped to remove fine silts from the gravel along the river bottom and began to create the kind of environment where fish can thrive.

"It was a superb project to be involved with, and we really enjoyed working on it," said volunteer coordinator Heulwen Summerfield. "I think it was the simplicity of using recycled materials from our site to benefit the environment that really made the project special."

Using recycled timbers from CGT Stamford, the river keepers from Grantham Angling created a mid-stream timber island. The recycled wood held hazel bundles in place to trap the silt and over time create an island of reeds and marsh. The river flows around the island

The mid-stream island begins to take shape.

now at an increased velocity, which cleans the gravel and scours pools downstream of the structure.

In addition, the team used live willow stakes along the river's edge to stop erosion. The team hopes the live pieces of willow will take root and become trees that will provide additional bank support.

The Environmental Challenge President's Award winning project will take several years to achieve its full potential. However, during a recent site inspection, team members observed more aquatic plant diversity, and trout were seen to have moved into the work area.

"We felt it was a special project and we're all really pleased with how it turned out," Summerfield said.

The team has given its $10,000 grant from the Cummins Foundation to the Grantham Angling Association to pay for additional projects. It also plans to make environmental work a regular part of its Every Employee Every Community program.

Harvesting water

The Wagholi School project near Pune, India

The Wagholi School and Orphanage near Pune, India provides food, shelter and education to the children in its care. But from November to April during the dry season, the school has trouble providing one very basic necessity: water.

The school has regularly had to go to the expense of using water tankers to get through the dry season. Money spent on the tankers can't go to other needs at the school.

So volunteers from Cummins Research & Technology India (CRTI) Pune initiated the Rain Water Harvesting Project to improve the water table in the area and keep the school and orphanage from having to go to the expense of trucking in water. Other Cummins entities across India also contributed to the effort.

"It was an excellent opportunity to identify and contribute to a grass roots project," said Team Leader

Lokesh Agrawal, Customer Interface Leader at CRTI in Pune. “As an engineer, this provided me with a huge sense of contentment.”

Cummins’ operations have an ongoing relationship with the school and orphanage, working together on a variety of initiatives. On the water harvesting project, Cummins employees and school personnel took several steps, including:

- Planting trees to help hold water on the school grounds.
- Developing a roof-top system to redirect rainwater to better recharge the water table in the area.
- Replacing an electrical pump with a hand pump to reduce the school’s carbon footprint. The pump also reminds students that pumping water is hard work and that water should not be wasted.
- Using an existing well on the grounds as a storage tank to improve the efficiency of storage efforts and tap any water source nearby the well.
- Creating trenches on the property to encourage rain water storage and percolation.

Getting anything to grow on the school grounds is a challenge but the team reports that about 30 of the 70 trees it planted survived.

The team on the Wagholi project installs a hand pump to help teach students that pumping water is hard work and that water should not be wasted.

Since the improvements were made at the Wagholi school, the local school authority has started implementing the same concepts at several other buildings.

“When we heard that, it was a feeling of ‘Wow, we made a difference!’” Agrawal said. “It was a tremendous learning for me and I think the team as well. We felt like we were contributing back to nature.”

The project team is using its $10,000 grant to support a non-profit charitable trust that is creating awareness about global warming and helping with renovation efforts to keep three biogas plants operating.

Bearing fruit

Inspire Orchard offers opportunities to special needs students

Where others could perhaps only see an overgrown former orchard, the team at Cummins Power Generation in Kent in the United Kingdom saw a way to inspire disabled students.

Working with the Royal School for Deaf Children Margate, they helped transform a 300-year-old orchard on the school property into a teaching garden for the more than 120 students at the school.

“For some students, this may be the only opportunity they have to experience the environment up close due to physical limitations or health issues,” said Tracy Day, the Community Involvement Leader at Cummins Power Generation in Kent.

The project, called Inspire Orchard, isn’t the first initiative that Cummins Power Generation in Kent and the school have joined forces on. They have

By restoring the overgrown orchard (above and below), Cummins employees in Kent, United Kingdom, may be providing some disabled students their best opportunity to experience nature.

collaborated on projects to paint student dormitory rooms, provide classroom painting supplies, create accessible paths at Monkshill Farm nearby and provide a holiday outing for students.

Cummins offered volunteer muscle as well as funding for the refurbished orchard area, which is now accessible by wheelchair from student housing areas and the school through a series of sidewalks. There is also a fenced-in pond area and an observation building for safe viewing.

Careful consideration was taken in planning the location of the composting site, planting boxes and even outdoor seating at the orchard to create an inviting open space.

Students and staff will now be able to make observations about the bio-diverse pond, experience bird watching, hunt for insects, enjoy nature walks, participate in and learn about composting and take part in other outdoor learning opportunities.

The project also included the renovation of an old shed to bring it up to acceptable safety and code standards. With the shed, students and staff will have an indoor area to meet and a place to store supplies for student-maintained vegetable patches nearby.

“It is vital that these young people develop knowledge and skills that will make them more employable, and also that they understand the links between food and healthy lifestyles,” Day said.

The Community Involvement Team at Kent is donating its $10,000 Foundation grant to a trust fund for the school.

Cummins employees regularly visit Parkview Villa to work on beautification projects and to interact with residents in addition to the recycling initiative. Here,. Antonio Almeida (left), Director of Materials, and Mehdi Kalantarzadeh (right), Director of Power Electronics, visit with two residents.

A green machine

Parkview Villa project in Fridley, Minn. demonstrates the power of collaboration.

It started rather simply with an observation about the recycling program at the Cummins Power Generation plant in Fridley, Minn.

But it wasn't long before the plant's Parkview Villa project was building stronger communities, protecting animals, giving disabled individuals the job skills they need to one day find a job and, oh yes, increasing recycling.

This Environmental Challenge President's Award winner is testament to the power of collaboration when it comes to addressing community concerns.

"The ease of working with our community partners has been the highlight of the project," says David McGinty, a Six Sigma black belt and a Community Involvement Team leader in Fridley. "We made an incredible team and achieved outstanding results."

The roots of the project go back to the plant's arrangement with Rise Inc. to pick up recyclable material. Rise's mission is to support people who have disabilities and other barriers to employment. Several Cummins employees admired Rise's work and wondered if they could help find other opportunities for its employees.

Coincidentally, McGinty had been active with a separate group called CommonBond, whose mission is to build affordable housing as a stepping stone to success. The team at Fridley started to look for ways the two groups could work together.

Noting that recycling participation is low at many low-income housing facilities, particularly among older residents, the team in Fridley wondered if employees from Rise could help residents boost recycling rates at Parkview Villa, an affordable housing development near Fridley.

The Cummins team completed a survey in multiple languages to reach out to Parkview's diverse residents and discovered they were willing to recycle if the process was simple. Many had difficulty walking down to the area where the recyclable material was picked up.

Participation would increase even higher, the survey showed, if the activity was tied to another cause like animal welfare and the local Humane Society. So the team set out containers for residents to drop off not only recyclables but also items requested by the Humane Society.

The number of Villa residents recycling increased from 38 to more than 80. Rise is getting more work. And the animals at the Humane Society are benefitting, too. Residents at Parkview today proudly display stickers on their doors that they are participating in the program, creating a stronger sense of community.

And Cummins employees now visit monthly to help with beautification efforts and to interact with Parkview's residents.

McGinty said the Environmental Challenge grant will go toward replicating the success of the Parkview project at other housing centers.

"We can turn the $10,000 into $20,000 and expand the program at other sites throughout the Twin Cities," he said.

The Cummins project has built a sense of community at Parkview Villa through the recycling initiative and improvement projects.

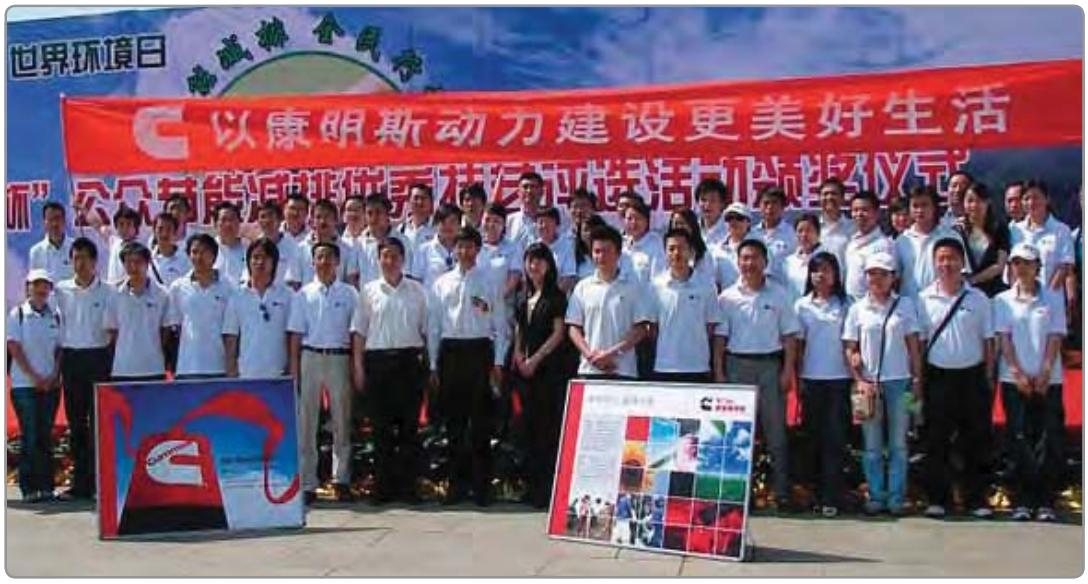
Other Environmental Challenge grant winners

As part of the 90th Anniversary Environmental Challenge, projects were reviewed evaluating the environmental benefit of each initiative, the level of employee engagement and the sustainability of each project.

In addition to the President's Award winners, the following Community Involvement Team projects also won $10,000 grants from The Cummins Foundation for use by the non-profit, non-governmental community partner of their choice:

- A project urging people to replace their cars with bicycles and increase recycling in Xiangfan, China.
- An initiative to increase public energy savings and reduce emissions in Xi'an, China.
- A tree planting and beautification effort in a wooded area of Wuxi, China.
- The cleanup of a community site in preparation for the World Expo in 2010 in Shanghai, China.
- A water harvesting project at the Village of Chaufula, India.
- A tree planting campaign in Juarez, Mexico.
- A project to clean up garbage and construction waste from a site in Craiova, Romania.
- Raising funds for an elderly home in Singapore by recycling.

Cummins employees in Juarez, Mexico, plant trees as part of their Environmental Challenge project.



Community Involvement Team members celebrate their Environmental Challenge project to increase public energy savings and reduce emissions in Xi'an, China.

Corporate responsibility funding

In 2009, Cummins invested $12.9 million in its corporate responsibility efforts, including $6.5 million in funding to The Cummins Foundation as well as employee volunteer hours on Company time, donations and sponsorships from operating funds and staff involved in growing our efforts around the world.

The Cummins Foundation made grants of $4.5 million primarily focused on communities where Cummins facilities are located and in support of the Company's global priorities of education, the environment and social justice.

In addition, there were grants totaling $700,000 from Cummins supported foundations in India and Mexico. The Cummins India Foundation supports higher education, energy, the environment and local infrastructure projects. The Philanthropic Association of Cummins in Mexico (AFIC) supports employment programs for marginalized individuals and other charitable projects.

A sample of Cummins larger philanthropic contributions is included below. For a complete list of grants from The Cummins Foundation go to www.cummins.com.

GRANTEE ORGANIZATION	COMMUNITY	GRANT OR DONATION	CUMMINS FOUNDATIONS*	CUMMINS INC.
Community Development - Education				
CAF-Ashliegh Erin Foundation a.k.a. Ithemba Institute of Technology	Johannesburg, South Africa	$125,000		
Memphis Youth Leadership Program	Memphis, TN	$63,000		
Chautauqua Children's Safety Education Village	Jamestown, NY	$50,000		
China Charity Foundation - for desks and chairs at rural schools	Xiangfan, China	$25,000		
Community Education Coalition	Columbus, IN	$25,000		
Cornerstone Middle School	Cookeville, TN	$25,000		
Youth About Business	Nashville, TN	$25,000		
Putnam County Schools	Cookeville, TN	$25,000		
Shree Ramkrishna Charities - support of school	Pune, India	$31,000		
Fridley High School	Fridley, MN	$21,200		
Bilton Junior School	Daventry, U.K.	$13,500		
Connected Community Partnership	Columbus, IN	$10,000		
LCNFC - Youth Employment Program	Columbus, IN	$10,000		

GRANTEE ORGANIZATION	COMMUNITY	GRANT OR DONATION	CUMMINS FOUNDATIONS*	CUMMINS INC.
Community Development - Environment				
Xi'an Environmental Protection Bureau	Xi'an Shaanxi, China	$25,000		■
Yongsheng Country Rural Community Development Assoc.	Changliang Village, China	$25,000		■
Chengdu Environmental Protection Propaganda & Education Center	Chengdu, China	$20,000		■
Community Development - Social Justice				
Right to Play	Phuket, Thailand	$106,166		■
Clessie Cummins Health Clinic	São Paulo, Brazil	$100,000		■
New Song Mission	Columbus, IN	$82,490	■	
Minnesota Indian Women's Resource Center	Fridley, MN	$71,000	■	■
Courage Center	Fridley, MN	$66,026	■	■
Community Access Network Project	Columbus, IN	$50,000	■	
The ARC of Bartholomew County	Columbus, IN	$40,000	■	
AFIC Community Based Service Awards	San Luis Potosi, Mexico	$39,000	■	
CAF - Russia Charity Foundation Children's Houses/Rybnoye Orphanage	Moscow, Russia	$32,840	■	■
World Vision Hongkong - sport in a box program	Xiangfan, China	$25,000		■
Brazil Sewing Shop	São Paulo, Brazil	$25,000		■
Habitat for Humanity	Singapore	$25,000		■
Amherst H. Wilder Foundation	Fridley, MN	$25,000	■	
Lincoln Central Neighborhood Family Center	Columbus, IN	$25,000	■	
Friends of the Stoughton Area Youth Center	Stoughton, WI	$25,000	■	
The BOMA Fund	Kenya, Africa	$25,000	■	
Street Source	Pune, India	$25,000	■	

GRANTEE ORGANIZATION	COMMUNITY	GRANT OR DONATION	CUMMINS FOUNDATIONS*	CUMMINS INC.
Community Development - Social Justice (continued)				
Love Chapel	Columbus, IN	$20,000		
Wuxi Child Welfare House	Wuxi, China	$18,700		
MP Welfare Association for the Blind	Pune, India	$18,300		
Columbus Regional Hospital Foundation - Volunteers in Medicine Clinic	Columbus, IN	$15,000		
Rybnoye Orphanage	Russia	$12,500		
CommonBond Communities	Fridley, MN	$12,000		
Poona School and Home for the Blind	Pune, India	$10,750		
Memphis Cultural Arts Center - Watoto de Afrika	Memphis, TN	$10,000		

GRANTEE ORGANIZATION	COMMUNITY	GRANT OR DONATION	CUMMINS FOUNDATIONS*	CUMMINS INC.
Community Development - Education, Social Justice				
Cummins India Engineering School for Women	Pune, India	$430,000		
LeMoyne-Owen College	Memphis, TN	$100,000		
CAF - Willoughby School	Borne, UK	$43,764		
Metanoia	Charleston, SC	$25,000		
Community Development - Education, Environment				
Indianapolis Zoo - The Indianapolis Prize	Indianapolis, IN	$225,000		
Employee Engagement - Social Justice				
United Way Agencies	United States	$2,023,671		
Signature Projects - Education, Environment, Social Justice				
EARTH University	Guacimo, Limon, Costa Rica	$1,200,000		

***** Cummins Foundations includes payments made from The Cummins Foundation, Cummins India Foundation and Asociacion Filantropica de Cummins AC.

Significant partnerships

Courage Center dispenses hope

Editor's note: Cummins is engaged in a number of significant partnerships on the key topics of education, the environment and social responsibility/improving the human condition.

As an engineer at Cummins Power Generation in Fridley, Minn., Mark Weber works on quality and warranty issues.

But when he's at the Courage Center, he's an engineering magician, transforming toys and appliances so that disabled children and adults can use them with a slight move of the hand or a blink of an eye.

Weber is among five current and retired Cummins engineers who volunteer their time and engineering skills at the Courage Center, a rehabilitation facility based in Minneapolis for people with disabilities. They are part of a larger Cummins group that has devoted time and energy into building a strong partnership with the center.

The partnership was launched in 2005 with several Every Employee, Every Community (EEEC) projects. In 2006, engineers like Weber got involved at the center's Assistive Technology Lab where they use their engineering skills to redesign common tools or toys so they can be used by the disabled.

Today, that partnership is stronger than ever. "What we've really been able to do at the Courage Center is to build on the work of our volunteer engineers," said Sue Piva, the Power Gen Global Community Service Leader.

The relationship between the Courage Center and Fridley's Community Involvement Team (CIT) is two-way collaboration that serves as a model for how Cummins CITs interact with their community partners. It has evolved from the re-engineering work to involvement in other projects including a fall prevention program for the frail and elderly, a playground accessibility review, and a robotics day camp.

The Fridley CIT has provided funding for projects such as a program for vocational services and work readiness, a shop services marketability study, equipment for the Assistive Technology Lab, and a "Closing the Gap" conference for therapists.

But there is nothing quite like the work done week after week at the center by Weber and his colleagues – Mike Miller, Mike Scheuerell, Peter Vancalligan and John Heinz, now retired. They take seemingly simple devices that able-bodied people take for granted and adapt them for Courage Center clients, in many cases transforming the quality of their lives. Some examples of their work include:

- They have adapted Bluetooth headsets so people who do not have the use of their hands and arms can control the devices with a slight head movement.
- They have modified doorbells and reworked bed controls for patients with ALS, or amyotrophic lateral sclerosis, so they can operate them with minimal effort.
- They organize group events every Christmas to modify toys so that children with disabilities can use them just like able-bodied children.

Mary Kate (left), can only move her right index finger. Thanks to Cummins engineers like Mark Weber and Mike Miller, she can use a specially designed joystick to operate a computer. They also re-engineer electronic toys and devices so disabled children can use them.

The story of one little girl, Mary Kate, shows the power of their work. Mary Kate, born with spinal muscle atrophy, can only move her right index finger. The engineers needed to find a way to allow Mary Kate to use a computer even though she can push less than half a pound, less than the pressure needed to move the average mouse or joystick.

Weber and his team found one joystick that might have worked, but it required more strength than Mary Kate had. So the team kept working and experimenting until they came upon the solution – modify the computer's joystick with a pressure-sensitive switch, enabling the youngster to use the computer just like any other child.

"Doing this work for the Courage Center allows us to use our skills that not a lot of people have," Weber said. More than that, it gives Weber and his co-workers a chance to be creative as they figure out how to rewire something as simple as a squirt gun so that a disabled child can use it by pressing a button rather than squeezing a trigger.

"It might sound like a simple thing," said Jan Malcolm, Chief Executive Officer of the Courage Center, "but a squirt gun that works for a child with a significant disability is pretty important."

Courage Center

Location: Minneapolis, Minn.

Mission: To empower people with disabilities to realize their full potential in every aspect of life.

History: The nonprofit organization was founded in 1928 to provide tools, technologies and resources to improve the lives of disabled children and adults.

Special features: Specializes in treating brain injury, spinal cord injury, stroke, chronic pain, autism and disabilities experienced since birth.

COURAGE CENTER

Cummins involvement: In addition to financial support from The Cummins Foundation and Cummins Power Generation, the Community Involvement Team at Fridley provides volunteer support, including the work of five engineers who adapt technology to be used by people who are disabled.

Employee relations: Creating a safe working environment

Highlights

- **2009 one of the safest years ever at Cummins.**
- **Several new initiatives keep safety top of mind across the Company.**
- **Cummins targets cell phone use while driving to keep employees safe.**

By aggressively identifying gaps and developing strategies to close them, Cummins was able to make 2009 one of the Company's safest years ever.

With an eye toward prevention, Cummins safety teams across the globe worked together to standardize safety processes, enhance employee involvement in safety and eliminate hazards from the workplace.

Best practice safety projects were implemented in Cummins facilities from Denver, Colorado to Wuxi, China that contributed to overall safety gains in 2009, which included:

- A 40 percent drop in the Company's Severity Lost Work Day Rate representing a reduction of more 2,400 lost work days.
- A 37 percent reduction in Major Incidents or Dangerous Occurrences, from 84 such incidents in 2008 to 53 in 2009.
- Sixty-one Cummins sites ended 2009 with 12-month rolling Severity Lost Work Day rates of zero. There were no fatalities at any Cummins facility in 2009.

"Cummins has developed a system for managing health and safety concerns globally," said Michelle Garner-Janna, Director of Corporate Safety and Health at Cummins. "This system involves standard health and safety goals, programs and metrics. Cummins recognizes the uniqueness of each entity while applying the same criterion for success across the Company."

'Red Flag' program working

Cummins is able to identify and assess potential safety hazards, set key objectives and monitor health and safety performance in a uniform way across all facilities thanks to Cummins Health and Safety Management System.

The system sets minimum expectations at Cummins facilities for the lockout and tagout of equipment, chemical safety, ergonomics, driver safety, emergency preparedness and much more. The Company incorporated Occupational Health and Safety Assessment Series specifications into the management system in late 2007.

One important part of the system is the "Red Flag" program. Under this initiative, Cummins sites having the worst safety performance metrics and highest risk levels are identified as "Red Flag Sites."

The Cummins Power Generation Plant in Craiova, Romania underwent a major facelift starting in 2009.

These sites participate in safety strategy review sessions with business unit and corporate safety leaders and undergo in-depth safety audits. Progress toward closing identified gaps is then closely monitored.

A location is not removed from the list until it has passed a five-day audit of safety processes at the site and a follow up visit by a member of the Corporate Safety staff.

Raising awareness, preparation

In 2009, Cummins launched several additional efforts to improve safety. A safety newsletter was created and distributed to all Cummins sites globally to allow the sharing of best practices and to complement plant-based efforts to keep safety top of mind.

"While the Company realizes the cultural differences within the regions in which we operate, we hold all of our sites to the same safety standards so communication is critical," said Kelli R. Smith, Cummins Corporate Safety Manager.

Cummins also introduced in 2009 a requirement that all Safety Functional Excellence Leaders become Certified Safety Professionals by the end of 2010. That designation is a premier credential for safety professionals, indicating competency through education, experience and examination.

"The professional development plan will be expanded each year to ensure that we have qualified safety leaders throughout the organization who are technically capable of managing sustainable safety systems now and in the years to come," Garner-Janna said.

Driver safety focus in 2010

The Company will also continue to aggressively pursue gains in safety in 2010, launching the Cummins Driver Safety Program. Auto-related incidents have become a leading cause of on-the-job injury and death for companies worldwide.

It has been estimated that up to 45 percent of auto-related incidents occur during the course of work. "Making driver safety a principal initiative will help protect Cummins employees and those they share the road with," said Jim Dorris, Corporate Senior Safety Specialist.

One major aspect of the program governs cell phone use. Cummins is joining a small but growing number of companies prohibiting the use while driving of two-way communication devices such as cell phones and two-way radios – even those with hands-free technology.

"Cummins is committed to providing a safe workplace for all of our employees across the world – whether it is a manufacturing plant, office building or vehicle being driven for work purposes," Garner-Janna said. "Nothing is more important to us than the safety of our employees, suppliers, visitors and the communities in which we live and work."

Before and after pictures from part of the Cummins Power Generation Plant in Craiova, Romania. Improved lighting, clearer walkways and fresh paint have pleased Cummins employees.

A dramatic change for the better

Employees at the Cummins Power Generation Plant in Craiova, Romania, know firsthand that a safe plant makes for a much more productive workplace.

Perhaps no Cummins facility in the past two years has undergone a more significant facelift than the roughly 50-year-old plant in the southern part of the country.

The more than $700,000 worth of work starting in December 2009 included:

- Replacing four cranes
- Creating a safe pedestrian walkway
- Installing a new roof in the machining area
- Improving lighting throughout the plant

The work transformed the formerly dark, cluttered facility into a brightly lit, freshly painted, much more modern plant that is today a much safer place to work.

"Satisfaction has increased within the plant," said Ana Maria Mitoi, Cummins Health, Safety and Environment Leader in Romania. "We are all very proud of the improvements that were made, but we recognize that each person's actions, on a minute-by-minute basis, are critical to a truly safe environment."

Employees and their managers worked together on most of the changes, which weren't just cosmetic. The team in the assembly area, for example, looked at whether they could change the way they worked to build alternators more efficiently.

Analyzing their existing processes, they calculated that assembly operators walked collectively 15 kilometers to build just one alternator. By providing complete kits of alternator parts at the point of use, the team reduced operator movement by almost 90 percent.

"Safety often goes hand-in-hand with efficiency," said Kelli R. Smith, Cummins Corporate Safety Manager. "We're already seeing that since the changes were implemented in Craiova."

Cell phone use banned to improve driver safety

Nearly 80 percent of all crashes in the United States involve some form of driver distraction within three seconds of impact, according to the National Highway Traffic Safety Administration.

With that in mind, Cummins has prohibited the use while driving of two-way communications devices such as cell phones and two-way radios.

The 2010 Cummins Driver Safety Program also prohibits the use of computers, Personal Digital Assistants and iPhones while operating a motor vehicle.

"Cummins has made the decision to give our road safety strategy a more structured, consistent approach going forward," said Jim Dorris, Corporate Senior Safety Specialist.

Due to the growing use of cell phones for business purposes, industry experts say employers are facing liability threats for automobile accidents caused by the distracted driving of their employees.

Cummins is joining a small but growing number of companies that have decided to implement bans.

"One part of our Mission is to ensure that everything we do leads to a cleaner and safer environment," said Michelle Garner-Janna, Director of Corporate Safety and Health. "That extends to the roads we share with others."

Safe travels

To minimize the risk of a car crash, Cummins employees are:

- **Prohibited from using a cell phone or two-way communication device while driving.**
- **Prohibited from using a computer or PDA while driving.**
- **Required to use seat belts.**
- **Required to use helmets for open motorized vehicles (such as motorcycles, motorized bicycles).**
- **Required to drive in a responsible manner and avoid distracted and aggressive driving.**

Challenges ahead: Safety

Safety officials at Cummins will be working to make improvements in these areas in 2010:

1 **Cummins Severity Lost Work Day Rate:** While Cummins Incidence and Severity Case Rates are better than the industry average, improvement is needed in the Severity Lost Work Day Rate. Cummins ended 2009 with a rate of 6.29, against a goal of 6.0. Several Six Sigma projects have been launched to address this issue and corporate safety is working directly with the sites that are currently experiencing the highest rates.

2 **Major Incidents or Dangerous Occurrences:** While the Company did have fewer incidents and occurrences in 2009 than in 2008, our goal is to drive that number to zero. Corporate Safety implemented improved reporting mechanisms in 2009 that involve senior leadership in the process. The department has also improved the communication channels for investigations and corrective actions.

3 **Red Flag sites:** Cummins tracks each site's performance on a monthly basis. While the process was successful in driving improvement so that many sites dropped off the list in 2009, other sites are above corporate targets for key performance indicators and were added to the list for 2010. They will continue to be closely monitored and supported by both their business unit as well as corporate safety. Quarterly strategy reviews, Enterprise Safety Risk Management Audits, and frequent communications are just some of the requirements of the process.

Connecting diversity to the bottom line

Highlights

- Updated Diversity Business Case rolled out to Cummins employees.
- Cummins produces new 22-minute video on the key role diversity plays at the Company.
- Cummins launches new initiative with Affinity Group members and their managers to improve effectiveness.

Valuing diversity is a business imperative as Cummins looks to enter new markets in an increasingly diverse and global marketplace.

With most of the world's economic growth projected to take place in developing countries between now and 2050, workplace diversity is more important than ever.

Cummins' updated Business Case for Diversity, adopted in December 2008, establishes four goals for the Company to leverage the greatest benefit from a diverse workforce. These goals are the primary focus of the Global Diversity strategy at Cummins:

- Create a workplace population with representation that is similar to the markets in which the Company operates.
- Demand that the workplace at Cummins is safe and inclusive for all individuals and organizations.
- Develop a collective behavior at Cummins that encourages all individuals and employees to best use their talents.
- Capitalize on a diverse workforce to enhance the Company's competitive position in the marketplace.

"Sixty percent of our revenues come from international markets," says Chairman and CEO Tim Solso. "We manufacture more outside of the United States than inside the United States. So recognizing different cultures, different languages, hiring people from those backgrounds, making sure that they're included, (that) they have an opportunity to develop to their full potential, is really important."

Cummins measures success not only in terms of the diversity of the Company's workforce, and compliance with all applicable rules and regulations, but also in the way employees treat each other at work and ultimately by Cummins' bottom line.

By partnering with Company employees – from the production line to senior leadership, the Global Diversity staff at Cummins serves as a resource for developing safe and inclusive work environments that foster innovation.

"At Cummins, we've been on a proactive diversity journey, connecting who people are, how they think and how we can utilize their talents to achieve business success," says Global Diversity Executive Director Lisa Gutierrez.

Reaching out to employees

Much of the Company's diversity initiatives over the past year have focused on the new Business Case for Diversity and communicating the importance of diversity to Cummins' financial future. The Company launched a multi-faceted implementation plan to connect employees with the goals and findings in the Business Case.

Glenn Guieb Peñaranda, a special trade representative from the Phillipine Consultate General in Chicago talks about business prospects in that region of the world at a program sponsored by the South East Asian Affinity Group.

The Business Case was translated into multiple languages and posted on a new internal Web site that includes case studies on how diversity is fueling innovation at Cummins, short videos from Company leaders on the importance of diversity and an audio recording of Cummins' longtime Chairman and CEO J. Irwin Miller, who advocated diversity long before the formation of diversity organizations.

The Global Diversity staff also produced a new 22-minute video on the Business Case and the importance of diversity to the Company's future, combining leader interviews with examples at Cummins where diversity is contributing to innovation.

The video, for example, tells the story of two engineers at Cummins' El Paso, Texas/Juarez, Mexico operations who developed a way to repair Electronic Control Modules designed to be disposable. They said growing up in Mexico and the southwestern United States in a culture that values fixing things helped convince them a way could be found to recondition the modules.

Employees were encouraged to discuss their own experiences working with diverse teams after watching the video. Cummins operations from China to the United Kingdom and from the United States to Brazil reported watching the video and holding discussions on diversity.

Affinity Groups and Local Diversity Councils

The Global Diversity staff works with a network of more than 30 Affinity Groups and more than 50 Local Diversity Councils to help create safe and inclusive workplaces around the world.

Affinity Groups, typically organized around demographic traits, represent the viewpoint of a particular group of employees to senior leaders. The groups also work on the key issues of recruiting, retention, career development and business enhancement.

Chairman and CEO Tim Solso speaks at a town hall forum sponsored by the Corporate & CBS Local Diversity Council in Columbus, Ind.

Cummins' definition of diversity

Cummins updated Business Case for Diversity also refreshed the Company's definition of diversity:

On a personal level: The diversity of an individual is defined by his or her cultural and personal differences, as well as life and professional experiences.

At the organizational level: Diversity is created through the distinct personalities and capabilities of each individual within the group.

Taken together: The Diversity of individuals and organizations creates an environment where innovation and ideas flourish.

Diversity Councils are groups of employees who work with local leadership to develop an inclusive work environment where all employees feel free to share their best work and ideas.

Over the past year, members of both groups also served as ambassadors for the Business Case, promoting its goals and helping to make the link between diversity and innovation.

The Company added two new Affinity Groups in 2009 and 2010 expected to help in the development of safe and inclusive workplaces.

The Worldwide Veterans and Supporters Affinity Group focuses on the needs of veterans in all parts of the world. The Special Needs and Abilities Affinity Group, meanwhile, is focused on creating a welcoming environment for people with special needs.

Equal opportunity

The Global Diversity staff also plays a key role in Cummins' goal to have representation comparable to the markets where we do business. The staff constantly reviews representation at the Company as part of Cummins' compliance with the Department of Labor's Federal Office of Contract Compliance Program.

While the Labor Department is concerned with U.S. employment, Cummins' Corporate Compliance Manager Martha Heady Messman is also keeping tabs on the Company's global numbers. She is working on several initiatives to help develop increasingly diverse pools of qualified job candidates. Cummins also continues to meet and deliver on local country commitments to improve workplace representation of under-represented groups.

Cummins successfully closed several federal audits in 2009 with a notice of compliance – the best possible outcome. The audits included an extensive federal "glass ceiling" audit that found no evidence of systemic barriers at the Company when it comes to the advancement of women.

Putting diversity into action

As a purchasing manager focused on Europe, the Middle East and Africa, Sara Vasey knows the importance of diversity in the global marketplace.

As the leader of the Women's Affinity Group at Cummins' facility in Darlington in the United Kingdom, Sara demonstrates her commitment to helping Cummins create a workplace where diversity fuels innovation.

Cummins Darlington (U.K.) employee Sara Vasey.

"Having the opportunity to work with so many people from different backgrounds and cultures has been one of the most interesting and rewarding aspects of working for a global company like Cummins," Sara says. "Being part of a Local Diversity Council or Affinity Group enables you to feel like you are really making a difference."

Like many employees, Sara integrates her diversity work with her business responsibilities. Cummins depends on its employees to create a safe and inclusive work environment through a network of site-based Diversity Councils and Affinity Groups typically organized around a specific demographic.

Under Sara's leadership, the Women's Affinity Group at Darlington, created in 2006, has worked successfully to improve the workplace for part-time employees, sponsored health awareness events, raised awareness about domestic abuse and implemented several career development initiatives such as mentoring circles and training on assertive communication that have been attended by a diverse audience of men and women.

The Affinity Group, along with plant management, was recognized in 2007 by the prestigious Institute of Mechanical Engineers in the U.K. for its involvement in recruiting and developing women in engineering.

"Without a doubt being part of the diversity initiative at Cummins has enriched my career," Sara says. "It has offered so much growth potential in terms of personal development and provided me with a unique set of skills relative to communication and people development."

The benefits of diversity

Cummins Business Case for Diversity was updated in December 2008, strengthening the link between diversity and innovation. It includes a definition of diversity, goals to get the most out of diversity and it lays out the benefits of developing a diverse workforce. Those benefits include:

- **Attracting and retaining the best talent.**
- **Creating a safe and inclusive work environment that fosters innovation.**
- **Promoting differing viewpoints to enhance problem solving and decision making.**
- **Developing a positive reputation in the communities where Cummins does business.**

Taking diversity to the next level

The Global Diversity Department launched the Affirmative Development Project in 2009 to help Affinity Group members and their managers align with Cummins new Business Case for Diversity. The project was successfully launched in southern Indiana with the African & African American Affinity Group and Grupo Organizado de Affinidad de Latino (GOAL) – the Latino Affinity Group of Southern Indiana. The Global Diversity staff is taking the project to India and China in 2010 to work with employees and managers there.

Affinity Groups at Cummins are typically organized around a specific demographic such as African and African-American employees, Latino employees, or women. These groups are open to any employee whether they share the group's demographic trait or not.

In the past, the groups focused on educating the rest of the Company on their particular organizing trait, and enhancing cultural understanding. The Global Diversity Department in recent years has been encouraging these groups to evolve, focusing increasingly on bottom-line issues like recruiting, retention and career development and business enhancement and the connection between these areas and manufacturing.

President and COO Tom Linebarger participates in the project workshop with the African & African American Affinity Group.

Members of GOAL – the Latino Affinity Group of Southern Indiana, participate in an Affirmative Development Project workshop.

By working with nationally known diversity consultant Roland West, the first two groups looked at their mission and vision and how they could best serve their members and the Company. They have designed their annual workplans with that focus in mind.

Both Chairman and CEO Tim Solso and President and COO Tom Linebarger participated in West's workshops with the Affinity Groups, along with other senior leaders at Cummins.

The project also worked with the managers of Affinity Group members. West led workshops designed to give them tools to manage people different from themselves. The response from participating managers was overwhelming. One described it as the best training he had attended on the topic in more than 15 years with Cummins.

"I'm convinced being a great leader in the more complex future, will mean being great at managing people different from ourselves," said Lisa Gutierrez, Cummins Executive Director of Global Diversity. "Whether that involves race, gender, and ethnicity, or age, special needs, or education and technical expertise, managers have to provide employees with the coaching they need to succeed."

Company recommits to $1 billion goal

Highlights

- **Cummins recommits to $1 billion goal for diverse spending in 2012.**
- **Diversity Procurement launches major effort to encourage Tier 1 suppliers to use diverse suppliers on sub contracts.**
- **Diverse Procurement staff publishes catalog of diverse suppliers.**

Cummins' commitment to supplier diversity is strong in good times and bad. Despite the global economic slowdown, the Company in 2010 reaffirmed its goal of reaching $1 billion in business with diverse suppliers by 2012 – a goal set before the recession started.

The Company reached $432 million in spending with diverse suppliers in 2009. Chairman and Chief Executive Officer Tim Solso, who has supplier diversity goals in his own workplan, says Cummins' Diversity Procurement initiative is too important to retreat on now.

"To get to $1 billion in 2012 is going to require a different mindset," Solso told Company leaders and purchasing staff earlier this year. He called for a collaborative effort to begin thinking about diverse supplier opportunities at the outset of planning for new initiatives.

While the $1 billion goal is daunting given the economy (the goal represents about 12 percent of Cummins' projected spending in 2012), Gordon Fykes, Cummins Director of Diversity Procurement, notes that the Company increased its diverse spend from $150 million in 2004 to the $432 million recorded in 2009.

"We have made tremendous progress in a short period of time," Fykes said. "Working together, we just have to climb up the mountain a little higher."

Cummins strategy

At Cummins, supplier diversity, also known as diversity procurement, is viewed as a logical extension of the Company's workforce diversity initiatives and part of Cummins' commitment to "serve and improve the communities in which we live."

By working with diverse suppliers, the Company is able to increase economic opportunity in all of the communities where our employees live and where the Company does business.

But it's also a fundamental business strategy. Just as workforce diversity has bottom line benefits, Diversity Procurement helps increase the number of companies competing for Cummins' business, which will ultimately result in lower prices and better service for the Company.

Cummins Diversity Procurement staff serves as a resource for Company leaders and purchasing officials who want to solicit bids from diverse suppliers for Cummins purchases.

In addition, the staff works with diverse suppliers to help them develop into the kind of suppliers who can not only help Cummins with its purchasing needs, but partner with the Company to find new and innovative ways to please Cummins' customers.

There are no handouts or set asides in Cummins' Diversity Procurement Program. Diverse suppliers must compete on price and quality. The Diversity Procurement staff's top goal is to ensure diverse suppliers — minority-owned, women-owned, veteran-owned etc. — get an opportunity to compete for the Company's business.

Council plays key role

The Diversity Procurement staff works closely with the Diversity Procurement Council, a 12-member board with representatives from the Company's Business Units – the Engine Business, Filtration, Emission Solutions, Power Generation, Turbo Technologies, Parts and Services and Distribution – as well as representatives from the Indirect Purchasing and Corporate Diversity Departments.

Council members serve as ambassadors for the Company's supplier diversity initiative within their business units. In addition, the Council and Diversity Procurement staff co-sponsor a yearly summit that brings together suppliers, purchasing officials and senior leaders to share best practices and discuss issues pertaining to supplier diversity.

To reach $1 billion, the Company is counting on council members to work with their purchasing associates to ensure diverse suppliers are getting an opportunity to bid on Company work.

In fact, Fykes regularly tells purchasing personnel that if diverse suppliers aren't competitive on price and quality, they should not get Company business.

The road map to $1 billion

Fykes and his staff have developed several tools to help the Company reach the $1 billion goal:

Diverse Supplier Booklet: The "2009 Diverse Supplier Profile Booklet" includes detailed descriptions of 35 women- and minority-owned businesses recommended because they have offered top quality goods and services at competitive prices in their work for Cummins. The booklet is designed to be periodically updated and expanded.

The catalog is provided not only to Company purchasing leaders but also to Cummins non-diverse"Tier I" suppliers in the hope they will use it to find diverse suppliers to help them fulfill Cummins' contracts.

"We hope everyone receiving the booklet will utilize it to provide these top diverse suppliers with more inclusion in discussions and more exposure, resulting in future bid opportunities," Fykes said.

Diversity Procurement Website:
The Company recently updated its Diversity Procurement Website, providing one place where potential diverse suppliers can register their interest in doing business with Cummins and learn about new business opportunities with the Company, and where non-diverse Tier 1 Suppliers can input how much of their contract with Cummins is going to diverse suppliers and access a copy of Cummins Diverse Supplier Profile Booklet.

DP Times newsletter: The Diversity Procurement staff recently established a quarterly newsletter distributed to Cummins leaders with up-to-date information on the Company's supplier diversity initiatives, including charts showing each business unit's progress toward meeting the Company's $1 billion goal. The guide also includes a commentary by Fykes on how Cummins is doing, as well as tips for both diverse suppliers and purchasing officials trying to find them.

"To reach $1 billion, we have to find ways to keep people's attention on our Diversity Procurement goal," Fykes said. "In difficult times, it's easy to just go with a supplier you know. But by going the extra mile to seek out a bid from a diverse supplier, you are setting in motion something that will help our Company and our communities for years and years to come."

Challenges ahead: Diversity

Here are three areas related to the Company's diversity initiative that Cummins will be working to improve in 2010:

1 **Taking Diversity Global:** A major focus will continue to be taking the Company's diversity value beyond the United States. That includes building the kind of employee networks necessary to work with leaders and managers on creating safe and inclusive workplaces.

2 **Supporting Local Diversity Councils:** Cummins Local Diversity Councils help shape the diversity environment at their particular locations but many have not experienced the level of support they need to flourish. The key is providing that support without undermining the local leadership which is fundamental to a successful LDC . A global Six Sigma project focused on improving LDC effectiveness and efficiency kicked off in June 2010.

3 **Chairman's Diversity Council:** Cummins in 2010 is re-establishing the Chairman's Diversity Council to be chaired by CEO Tim Solso and COO Tom Linebarger. The council will work in conjunction with the Operating Leadership Team to lead and champion diversity through the Diversity Business Case, the Leadership Culture Series and through the members' current roles as sponsors of Affinity Groups and Local Diversity Councils.

Smaller diverse suppliers can play critical role

A key component of Diversity Procurement's road map to $1 billion is a requirement that Cummins' largest non-diverse suppliers work with smaller diverse suppliers to fulfill their contracts with the Company.

Cummins hopes to increase what is called Tier II diverse spend from about $50.7 million in 2009 to $291 million by 2012.

At this year's supplier Diversity Procurement Summit, Ignacio Garcia, Vice President and Chief Manufacturing and Procurement Officer, and Gordon Fykes, the Company's Director of Diversity Procurement, established a goal of 10 percent diverse spend for non-diverse Tier I suppliers, the Company's largest suppliers.

"Many minority-owned and women-owned businesses are not large enough to take the lead on our largest contracts," said Fykes. "But they can play an important secondary role and at the same time learn a lot from our primary suppliers."

"In time, our hope is that some of our minority-owned and women-owned businesses will grow into Tier I suppliers for Cummins," he said.

Dozens of Cummins suppliers are currently not reporting any spending with diverse suppliers to the Company — even though some have their own Diversity Procurement programs.

Cummins has streamlined its Web site and reporting procedures in the hope that more suppliers will report. Better reporting would have resulted in another $50 million in 2009 if those Companies were reaching the 10 percent goal, Fykes believes.

Fykes said non-diverse Tier I suppliers can enjoy the same benefits Cummins does in pursing supplier diversity: stronger communities, which ultimately translates into better markets for their products and services.

In addition, helping smaller diverse suppliers grow and develop can create competition for the purchasing needs of large suppliers – resulting in lower prices and better service for them, as well.

"Diversity procurement isn't something that only works for Cummins," Fykes said. "It works for any company that makes a sustained effort at developing diverse suppliers."

Cummins employees celebrate the Indiana Minority Supplier Development Council's highest honor for a fifth consecutive year. The Company was named the IMSDC's 2009 Circle of Excellence Award winner at the council's Supplier Diversity Conference & Business Opportunity Fair in Indianapolis.

Creating a sustainable workforce

Highlights

- **Right environment critical as Cummins prepares to grow.**
- **Company offers programs to help employees at all levels of their development.**
- **Cummins preparing for a new generation of employees as more experienced workers reach retirement age.**

Cummins' ability to attract and retain capable employees around the world is critical to the Company's long-term success.

Cummins currently has more than 35,000 employees working in 51 countries and expects to increase its workforce by as much as 30 percent over the next three years to meet strong forecasted growth across all its businesses.

Much of that growth will occur outside the United States, where more than half the Company's current employees are located. One of the Company's strategic goals is to create a workforce – and a leadership team – that is a reflection of Cummins' global scope.

Creating the right work environment for employees to succeed is one of the Company's six strategic principles. The effort to create a sustainable workforce begins as soon as an employee joins Cummins and continues throughout his or her career.

Cummins invests significantly in employee development at all levels and across all parts of the organization, and the Company has a number of initiatives aimed at improving the skills and increasing satisfaction among its workforce.

Here is a look at some of the larger employee development efforts at Cummins today.

Starting on the right foot

Cummins has learned that the largest percentage of employee turnover occurs among workers who have been on the job for less than five years. Over the past three years the Company has begun to develop a consistent approach to educating new workers on Cummins' business and values.

Called "OnBoarding," the effort strengthens the ties our newest employees feel toward Cummins. The program will eventually include a structured program that stretches over the first year of an individual's career. Today, that effort focuses on the employee experience over the first 90 days at Cummins, and begins as soon as an employee accepts a position with the Company.

Cummins has a high-technology workforce with nearly 6,000 engineers, about a sixth of its total employees, and another 1,000 staff members in technical or scientific roles.

Cummins workforce

Here's a quick look at Cummins' workforce.

High-tech: Cummins depends on an increasingly high-tech workforce. Of its nearly 36,000 employees:

- Almost 6,000 are engineers.
- Approximately 1,000 additional employees are working in technical/scientific roles.
- About another 800 employees work in Information Technology (IT) jobs.

Location: About 60 percent of our employees are located outside the United States.

Unions: About 38 percent of our employees are represented by various unions under collective bargaining agreements that expire between 2010 and 2014.

Future: As economies recover from the global recession, Cummins expects its workforce to increase by as much as 30 percent over the next three years.

Newly hired salaried employees in the United States and China receive a standard weeklong orientation into the Company, followed by common work site activities throughout their first 90 days on the job. The program includes an introduction to Cummins' history, Vision, Mission and Values, training on the Company's Code of Conduct and other employee policies, and a welcome from Cummins leaders, all designed to allow new employees to hit the ground running.

Cummins plans to expand the OnBoarding program to its operations in India, Middle East and Mexico in 2010 and eventually implement the program globally.

Building a culture of leadership

A company is not truly sustainable without an effective process to identify and develop leaders.

Ask Tim Solso to name his most important responsibility in his role as Cummins Chairman and CEO and the answer you will get is "developing leaders across the Company."

Cummins believes it's especially important for a global company because of the complexities inherent in leading a corporation with employees in different countries, living in different time zones, with different customs, often speaking different languages.

The Leadership Culture Series was created in 2009 to strengthen the Company's commitment to providing the skills necessary to build successful leaders across Cummins. The program, designed for the Company's top 300 leaders, focuses on five specific leadership skills considered to be critical to Cummins' future success. They are:

- Coaching and development
- Fostering open communications
- Managing Diversity
- Talent management
- Thinking strategically

A top executive at Cummins takes ownership of each individual skill area, leading discussions and serving as both a role model and a champion for that particular skill. Participants are expected to incorporate lessons from the sessions into their work plans and day-to-day interactions with staff members, colleagues, customers and other stakeholders.

Challenges ahead: Workforce

As Cummins prepares for a period of growth after the global recession, there are several workforce related challenges facing the Company:

1 Culture: Cummins expects its workforce of more than 35,000 to grow by as much as 30 percent over the next few years to meet strong forecasted growth across all its businesses. One key factor will be having processes in place to preserve the aspects of Cummins culture that make the Company great.

2 Leadership: Chairman and CEO Tim Solso has said he wants the Company's top leadership to "look like the United Nations," consistent with a Company where more than 60 percent of its sales occur outside the United States. Finding ways to develop leaders globally will be critical.

3 Retirements: A significant portion of both the hourly and professional workforce are expected to retire in the coming years. Recruiting and retaining the next generation of workers, in what is expected to be a highly competitive environment once the economy improves, will play a pivotal role in the Company's long-term performance.

Coaching and development: A lifelong journey

At Cummins, coaching and development doesn't stop when an individual reaches a senior leadership position in the Company. As part of our commitment to creating a sustainable organization, Cummins has, over the past four years, developed an executive leadership development program aimed at educating today's top leaders – and those of tomorrow – about the breadth and depth of the Company's business.

Now beginning its third cycle, the executive development program brings together small groups of high potential senior leaders and mid-career professionals for 24 months of extensive education about the Company's operations. All those selected are viewed as having the potential to become a member of the senior leadership team at some point.

Cummins top leaders, including the CEO and President, are heavily involved in the program, and program participants gain significant insights to the issues and opportunities facing the Company through their interactions with these leaders and with one another. Members of the group have a hand in developing the program, and executive development groups have traveled globally to learn about various aspects of the Company's business.

Creating a career vision for all employees

More than 60 percent of the Company's workforce consists of employees working on the manufacturing plant floors, in our technical operations, at our service centers or in Cummins offices around the world. These employees (referred to as "hourly" or "non-exempt" in the U.S.) help design, machine, assemble, service and sell the Company's products and are vital to Cummins' long-term success.

President and COO Tom Linebarger speaks at a career development forum sponsored by GOAL — the Latino Affinity Group of Southern Indiana.

And, as Cummins prepares for a period of growth over the next several years, the ranks of these employees is expected to grow significantly around the world. At the same time, the demographics of this part of our work force suggest that a large number of our most experienced workers are likely to be retiring over that same period.

Finding and retaining skilled workers capable of handling the increasingly technical work being done at many Cummins facilities has become a challenge and, in some cases, a significant obstacle to growth. In order to maintain a world-class workforce at all levels, Cummins is in the midst of its most ambitious effort yet to increase the long-term capabilities of our these workers around the world and improve the opportunities afforded these employees.

Historically, the Company has lacked a unified approach to attracting, developing and retaining its shop, engineering technician, service technician and office workforce. A cross-functional global team led by Human Resources is out to change that.

The Company's Workforce Strategy Group has been collaborating with Cummins leaders from around the world for the past 18 months to define and articulate the Company's "work force philosophy" and align the core strategies and processes needed to provide improved career opportunities to our employees and assure the success of the organization over the next 20 years.

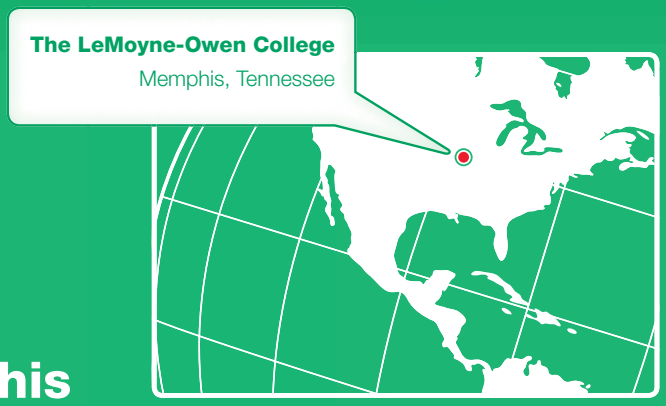
As the Company's products become more complex, the skills necessary to manufacture, sell and support those products must become more sophisticated. A primary focus of the Workforce Strategy Group is to define the road map that will assure we can effectively develop and manage increasingly skilled workers who can meet the Company's changing needs around the world.

By establishing effective processes to select, manage, develop and advance workers who are capable of meeting the Company's increased needs, Cummins can create a lasting competitive advantage.

To do that, our work environments must be inclusive and the Company must be committed to providing challenging work and the appropriate rewards to its hourly workforce so that it can create a culture where career-long learning and development is the expectation, not the exception.

Significant partnerships

Neighborly behavior helps college in Memphis



Editor's note: Cummins is engaged in a number of significant partnerships on the key topics of education, the environment and social responsibility/improving the human condition. Here's a look at one:

Fourteen years ago, Cummins stepped in to help a neighbor in Memphis, Tenn. That neighbor happened to be a university in need of a computer lab.

In 1996, The Cummins Foundation donated $100,000 to build the lab at LeMoyne-Owen College – but the donations didn't stop with money. Employees stepped in to set up the computers and train students and faculty on how to use the software.

Cummins, which has a distribution center and a manufacturing plant in Memphis, and the college have been partners ever since.

LeMoyne-Owen is one of the United States' Historically Black Colleges and Universities. It was founded in 1862 as LeMoyne College and became a four-year college in 1934. It merged with Owen Junior College in 1968, becoming LeMoyne-Owen College.

Located less than three miles from downtown Memphis, the college currently has 854 students, a number the school hopes to see increase with the help of Cummins.

When LeMoyne-Owen was threatened with losing its accreditation in 2006 because of a lack of funds, The Cummins Foundation donated $600,000 over three years and worked with LeMoyne-Owen employees on a Six Sigma project on recruitment.

Enrollment went up 23 percent, according to LeMoyne President Johnnie B. Watson, who says the school will close the upcoming fiscal year $1 million in the black. Now, LeMoyne-Owen is looking at how it can improve in the future, with Cummins' help on a new strategic plan.

"We have representatives from Cummins to help us develop the plan, specifically [in] the Office of Institutional Advancement," Watson said.

"That office does marketing for the college and raises money for the college. All indications are this year will surpass last year, and things are getting better."

A Six Sigma project has also been launched with Cummins employees and LeMoyne-Owen staff. This project will focus on student retention.

Cummins' Community Involvement Team in Memphis also hosts the Hank Aaron Celebrity Sports Weekend, a fundraiser that brought in $75,000 for LeMoyne-Owen last year – including a $25,000 contribution from Cummins' Memphis operations.

The investment is paying off. Because of its improved financial condition, LeMoyne was able to offer a supply chain management program to its curriculum. Cummins employees have taken advantage of that opportunity and enrolled in the program.

Cummins, which has three employees who have graduated cum laude from LeMoyne, provided the college with another resource in 2006 – Allen Pierce.

Pierce, General Manager for New and Recon Parts Manufacturing in Memphis, is today a member of the Board of Trustees at LeMoyne. He said he feels a very personal connection to the college.

"I am also a graduate of an HBCU (a Historically Black College or University)," Pierce said, "and I understand the important role that LeMoyne-Owen College plays in the Memphis community."

LeMoyne-Owen College hopes to offer more students the opportunity for a college education now that it's on firmer financial ground thanks in part to help from Cummins.

LeMoyne-Owen College

Location: Memphis, Tenn.

Mission: Providing higher education as one of the U.S.'s Historically Black Colleges and Universities.

History: Founded in 1862; merged with Owen Junior College in 1968.

Special features: Cummins became involved in 1996 by donating a computer lab, software and training.

THE LeMoyne-Owen COLLEGE

Cummins involvement: Over 14 years, The Cummins Foundation has donated more than $700,000 and employees have volunteered hundreds of hours in fundraising and general expertise.

Financial performance: Cummins remains strong in 2009 despite global recession

Highlights

- **Cummins turns profit in 2009 despite global recession.**
- **Aggressive actions result in significant savings and efficiencies.**
- **Better times predicted for 2010 and beyond as key trends favor Cummins.**

Like many other companies, Cummins' sales and profitability in 2009 were affected by the global downturn that began in late 2008. But thanks to aggressive action to reduce costs, the Company earned a solid profit and is poised for growth in 2010.

Cummins' sales were $10.8 billion in 2009, down 24 percent from $14.3 billion in 2008. Net income was $428 million, down 45 percent from $755 million in 2008.

Despite the decline in sales, Cummins managed to make a solid profit, which allowed the Company to continue investing in technologies and projects critical to the Company's sustainability.

Earnings Before Interest and Taxes (EBIT), excluding restructuring and other charges, was $774 million, or 7.2 percent of sales – the fourth best EBIT as a percentage of sales in the last 25 years.

Cummins financial performance improved every quarter during 2009. EBIT, before restructuring and other charges, grew from a recent low of 2.8 percent of sales in the fourth quarter of 2008 to 11.4 percent of sales in the final three months of 2009.

All four of the Company's operating segments were profitable in 2009, and Cummins increased its share in most markets around the world last year. The Company focused on four key priorities in 2009 with a goal of emerging from the recession an even stronger company, well positioned to take advantage of the economic recovery. Those priorities, which remain in effect in 2010, are:

- Continuing to invest strategically in new products and technologies that will create long-term growth opportunities.
- Generating positive cash flow.
- Maintaining a realistic estimate of demand and then aligning our cost structure and manufacturing capacity to that demand.
- Delivering the best possible customer support, especially when our customers may need it the most.

Pat Ward, Vice President – Chief Financial Officer at Cummins, meets with Richard Harris, Vice President – Chief Investment Officer and Dean Cantrell, Director – Investor Relations.

Decisive action

The severity of the global recession and the speed at which it spread caused Cummins to take decisive action in 2009 to meet its financial commitments. The Company reduced its global workforce by 15 percent from late 2008 through the middle of last year, froze merit pay, instituted salary cuts for officers and directors and reduced expenses in every category across every part of the Company.

These actions, while painful in many respects, reduced the Company's costs in line with demand and contributed significantly to profitability in 2009. Cummins also lowered our inventory level by more than $400 million last year, which improved our cash position by more than $500 million over the course of 2009. The Company ended the year with just over $1 billion in cash and marketable securities.

Despite the recession, Cummins continued to invest significantly in the business with capital expenditures of $310 million in 2009. Most of the investments were for critical technologies and programs designed to help the Company meet new emissions standards and to enter new product markets in emerging regions.

The Company continued to return significant value to its shareholders in 2009: Cummins' stock appreciated 75 percent in 2009 and the Company ranked in the top 25 among the Fortune 500 companies for total return to shareholders for the five-year period of 2005–2009.

Cummins manufacturing operations faced extreme volatility in demand over the past year. In the first half of 2009, demand was very weak. It then surged to near-record levels in the United States during the fourth quarter as customers ordered engines in advance of federal emissions regulation changes, which took effect Jan. 1, 2010.

Four key trends for future growth

Cummins' work to remain strong during the global recession, along with a number of long-term industry and market trends working in its favor, has positioned the Company for a period of sustained profitable growth in the future. Here are those key trends:

Tougher emissions standards: Tougher emission standards are being implemented around the world, which plays to the Company's strength as the global leader in emissions technology research and design.

The globalization of business: Cummins has a leadership position in large international markets such as China, India and Brazil and a strong global distribution network that gives the Company access to growing markets around the world.

The price and availability of energy: Fuel prices are expected to continue to increase, which should boost demand for Cummins' fuel-efficient diesel engines. In addition, the demand for electricity is expected to outpace supply worldwide over the next several years, creating opportunities for the Company's power generation business.

Infrastructure growth around the world: A significant increase in infrastructure spending worldwide over the next two decades, especially in large emerging markets, should increase demand for Cummins' products that serve industrial and power generation markets.

That increase in demand led to an expected corresponding drop in volumes in the first quarter of 2010. Medium- and heavy-duty North American engine shipments in the first quarter of this year were 90 percent lower than the fourth quarter of last year.

That volatility was very disruptive to the Company's operations, but employee efforts to manage capacity and improve productivity allowed Cummins to profitably navigate this challenging period.

Looking ahead

The Company reported strong financial results for the first quarter of 2010 thanks in large part to our leadership position in China, India and Brazil.

International sales accounted for 64 percent of the Company's consolidated revenues in the first quarter and our consolidated international sales rose 27 percent from the first quarter of 2009.

As the U.S. and European markets recover, 2010 is expected to be a much better year for Cummins. Sales are expected to reach $12 billion by the end of 2010, an 11 percent increase from 2009, with EBIT, excluding restructuring and other charges, of 10 percent of sales.

The Company also expects to invest $400 million in capital projects in 2010, mostly to support initiatives related to new products and capacity expansion.

In March 2010, Cummins publicly shared its five-year outlook. The Company expects average annual sales growth of 13 percent a year from 2010-2014, about twice the annual growth rate over the last 30 years. Over that period, the Company expects to earn an average EBIT of 10 percent of sales.

Six Sigma delivers for Cummins

Ten years of Six Sigma at Cummins have delivered $3 billion in savings by helping the Company reduce waste and variation.

But what is even more important is how Six Sigma has helped change Cummins culture:

- Got a tough problem to solve? Try Six Sigma.
- Developing a new technology? Apply Six Sigma.
- Trying to figure out what solution might work best for a customer? Use Six Sigma tools and in the process, build a closer relationship with the customer.

Six Sigma is a business improvement tool that uses data to identify defects and variation. It is used in every part of Cummins everywhere in the world, creating a common language to solve problems and develop new products and processes.

Cummins also uses Six Sigma on its sustainability work – developing the technology to make engines cleaner and more fuel efficient while creating a greener work environment everywhere it does business.

That effort is part of Cummins' Six Sigma Star Point program, which focuses the talents and energies of its most skilled and experienced Six Sigma professionals on issues that cross all business units in all parts of the global company.

Leading the Star Point program on sustainability are two Cummins master black belts: Eddie Beal and Karen Cecil. They are pooling the resources of Six Sigma belts across Cummins to identify new projects or best practices from existing projects and programs to help Cummins meet its sustainability goals.

"This grew out of our ongoing effort to make the environmental issues visible up front in the product design process," Beal said. "And a large part of this is strategy. What will enable us to be successful in reducing our carbon footprint and be profitable as a company."

Students at the capstone training exercise must use Six Sigma techniques to hit targets with a balsa wood airplane.

After identifying completed or new projects that focus on sustainability, the belts will work to identify what principles or process can be applied to other areas of Cummins, Beal explained.

One example: Jason Jones, a master black belt with Cummins Power Generation in Kent, United Kingdom, did a logistics project in his region to identify how often trucks were only partially loaded as they made their deliveries. By coordinating with other plants Jones and his team were able to combine freight pickups resulting in fewer trucks on the road, saving fuel and reducing emissions. It is the kind of project that could serve as a template for similar projects in other parts of Cummins' business, Beal said.

The sustainability work is just one example of how Six Sigma continues to transform the Cummins culture. Other Star Point programs are focusing on customers, manufacturing improvements and the supply chain.

George Strodtbeck, Executive Director of Quality and the Cummins Operating System, says that before Six Sigma, profits did not always directly track with increases in sales and when a recession hit, the Company usually lost money.

The discipline and the data-driven approach to decision making that Six Sigma brought has prepared the Company to respond quickly when the market

Challenges ahead: Financial performance

Despite the Company's relatively strong performance during the recession, Cummins faces some significant challenges in 2010. Among them:

1 Continued economic weakness in the United States and Western Europe: These large, mature markets have not rebounded from the downturn as quickly as developing economies such as India, China and Brazil. Cummins expects our business in the U.S. and Western Europe to grow more modestly than in other areas in 2010, although the second half of the year is expected to be better than the first half.

2 Continued investment in critical technologies: Cummins needs to continue to manage its business conservatively in order to earn a solid profit and generate the cash necessary to fund increased investment in key technologies and products. The Company plans to increase its capital spending by 30 percent from 2009, with much of the investment going to fund new products and capacity expansion.

3 Planning for the recovery: Even as Cummins continues to work through the global economic downturn, the Company needs to increase its focus on taking advantage of the significant long-term opportunities we see for the business beginning in 2011.

changes. So in 2009, after the downturn hit, Cummins could adjust, making a profit while investing in key projects and technologies.

Ten years of improving quality and processes paid off. "Waste and variation just cost you money," Strodtbeck said.

The benefits of Six Sigma can be seen in the 39 projects recognized this year with the Chairman's Six Sigma Quality Award. These projects represent the best of the nearly 4,000 projects completed in 2009. The winning projects, considered the best of the best, are responsible for savings of $67 million to Cummins and $8.6 million to customers last year.

Strodtbeck notes that while other companies can sell their customers an engine or other products, Cummins can deliver a full range of services and support that includes working with them to lower their costs.

As Cummins enters its second decade of Six Sigma, the tools remain a vital part of how the Company does business. In fact, employees in upper management must be Green Belt certified in order to advance or make a lateral move within the Company.

More about Six Sigma

The use of the term Six Sigma refers to a measurement in which 99.99966 percent of manufactured products are free of defects.

By the numbers

18,000
Green and black belt projects completed since 2000

4,000
Projects completed in 2009

$3 billion
Total savings to Cummins since 2000

$750 million
Total savings to Cummins customers since 2000

11,000
People trained in using Six Sigma tools at Cummins

Our new strategic principle

Cummins has added a new strategic principle – Lead in Critical Technologies – to the five long-standing principles used to guide the Company's growth.

While Cummins has been a high technology company for many years, the new principle, adopted earlier this year, will re-enforce the importance of being first to market with the best technology.

"Cummins is absolutely committed to technological innovation," said John Wall, the Company's Chief Technology Officer. "We have been a leader throughout time and intend to continue to be a leader in technology."

Cummins has developed key technologies and subsystems critical to emissions performance and fuel efficiency, two key factors in the design and manufacture of the Company's products.

With a global footprint extending into 190 countries, Cummins has a broad understanding of the upcoming technology demanded by industry. That knowledge provides the Company with a competitive advantage.

In the next three to five years, nearly every major economy in the world will have to comply with regulations governing emissions and fuel economy. Cummins' customers will be looking to the Company for help meeting those regulations through products such as our engines and components.

By leading the way in critical technologies, Cummins can be an effective partner with our customers while maintaining an advantage with our competitors.

Cummins Strategic Principles

- **Leverage Complementary Businesses:** Cummins is a family of complementary businesses that create value for our customers.
- **Increase Shareholder Value:** Cummins' success is measured by growth in shareholder value.
- **Be the Low Cost Producer:** Cummins will pursue an operational strategy of cost leadership.
- **Lead in Critical Technologies:** Cummins will be the market leaders in technologies critical to our customers' success.
- **Seek Profitable Growth:** Cummins will seek profitable growth by leveraging our assets and capabilities to grow where Cummins can establish an advantage.
- **Create the Right Work Environment:** Cummins will assure that the physical and cultural work environment is conducive to excellent performance.

Operating segments

Engines

Sales: $6.6 billion

EBIT margin: 3.9 percent

Mid-Range Engines: Diesel engines for on-highway applications from 120-145 horsepower. Natural gas- and LPG-fueled version from our Cummins Westport joint venture. Mid-range engines for off-highway of 31-365 horsepower.

Heavy-Duty Engines: Diesel engines for on-highway applications from 280-600 horsepower and off-highway applications from 290-630 horsepower.

High-Horsepower Engines: Diesel and natural gas engines from 380-3,500 horsepower.

Aftermarket support: New and reconditioned parts distribution and service support for customer, distributors and dealers worldwide.

Customers and markets

- Light-duty automotive, RV, medium-duty truck, specialty vehicle, bus, heavy-duty truck, agriculture, construction, mining, marine, rail, defense, logging, power generation, oil and gas markets
- Original Equipment Manufacturers (OEMs) who install Cummins engines in their vehicles and equipment
- Global dealer and distributor network

Power Generation

Sales: $2.4 billion

EBIT margin: 6.9 percent

Commercial Power Systems: Generator sets, control systems and power electronics for a wide range of power requirements primarily powered by diesel and natural gas engines. Turn-key systems, combined heat and power installations, rental power, and plant operation and maintenance services.

Consumer systems: High performance diesel, LPG, natural gas and gasoline fueled generator sets with associated control systems from 2 to 99 KW for use as auxiliary power in a range of consumer, mobile, and specialty equipment.

Alternators: Newage Stamford, AVK, and Markon synchronous AC alternators from 0.6 to 30,000 KVA. Variable speed alternators, converters and control systems.

Engines: Cummins diesel engines engineered for use in generator sets.

Customers and markets

- Customers needing standby power, distributed power or auxiliary power
- Public and investor-owned utilities, telecommunication providers, manufacturing and industrial facilities, mining and petrochemical sites, healthcare, retail and financial and petrochemical sites, healthcare, retail and financial facilities, water treatment plants and residential homes
- RV specialty vehicle and marine pleasure craft OEMs
- Generator set assemblers

Components

Sales: $2.4 billion

EBIT margin: 4 percent

Filtration: Air, fuel, hydraulic, coolant and lube filtration, crankcase ventilation, chemical and exhaust system technology products for all engine powered systems.

Aftertreatment: Catalytic exhaust systems and related products, including packaging of catalytic exhaust systems, engineered after treatment components and system integration services for engine manufacturers.

Turbochargers: Holset turbochargers and related products, including variable geometry and wastegate turbochargers, high pressure ratio and multi-stage solutions, for engines ranging from 3 to 25 liters.

Fuel Systems: Diesel fuel pumps, injectors and components, high pressure common rail fuel systems for diesel engines, controls for diesel fuel systems. Reconditioned diesel pumps, injectors and electronic control modules.

Customers and markets

- OEMs who manufacture vehicles and equipment for all fuel powered systems
- OEMs and Aftermarket distributors, dealers and end users who serve all engine powered systems
- Light-duty automotive, RV, medium-duty truck, bus, heavy-duty truck, agriculture, construction, mining, marine, small engines, rail, oil and gas and stationary industrial markets

Distribution

Sales: $1.8 billion

EBIT margin: 13.2 percent

Engines and Power Generation: Wholesale and retail distribution of Cummins engines, generator sets and related components. Application Engineering and assembly of Cummins products into packages per customer needs for marine and RV applications, small original equipment manufacturers and standby and prime Power Generation Systems.

Geographic breadth: The segment consists of 18 Company-owned and 18 joint venture distributors operating in more than 70 countries and territories.

Service and parts: Sales and distribution of parts, components and related consumables. Repairs, overhaul, maintenance of all Cummins products. Develop and support a servicing dealer network to meet customers' needs in their local market place.

Solutions: Comprehensive business solutions using Cummins powered equipment, including rental, operation and maintenance, cost per-hour contracts.

Customers and markets

- Customers who use Cummins-powered equipment in their business endeavors
- Dealers
- Local and regional OEMs producing lower volumes

Cummins' sustainability reporting doesn't end with this document.

Go to our Web site – www.cummins.com – for regular updates to see how we're working to meet the needs of all of our stakeholders and practice good corporate citizenship.

Production Notes

Design and writing: Cummins Corporate Communications

Printing: The Merrick Printing Company

Resource Usage

The savings below are achieved when post-consumer recycled fiber is used in place of virgin fiber to create 312 pounds of paper.
3 trees preserved for the future
8 pounds of water-borne waste not created
1,145 gallons of wastewater flow saved
127 pounds of solid waste not generated
249 pounds of net greenhouse gases prevented
1,909,440 BTUs of energy not consumed

Cover: Printed on an acid-free blend of 10% banana stalk fibers (a by-product of the banana industry) and 90% post-consumer paper at EARTH University, Costa Rica.

EARTH UNIVERSITY

Cover printed on 90% post-consumer recycled paper

The savings below are achieved when post-consumer recycled fiber is used in place of virgin fiber to create 2,940 pounds of paper.
28 trees preserved for the future
81 pounds of water-borne waste not created
11,989 gallons of wastewater flow saved
1,327 pounds of solid waste not generated
2,612 pounds of net greenhouse gases prevented
19,992,000 BTUs of energy not consumed
Additional savings since paper is manufactured with wind power and carbon offsets.
1,326 pounds of GHG emissions not generated
1.4 barrels of fuel oil unused
Equivalent of not driving **1,312** miles
Equivalent of planting **90** trees

Interior: Printed on 100% recycled post-consumer paper manufactured with electricity that is made with 100% Certified Renewable Energy, from non-polluting wind power projects. The 100% post-consumer waste fiber used to make this paper is process-chlorine free and is Green-seal certified.

MOHAWK
manufactured with windpower

PROUDLY PRINTED ON GREEN SEAL CERTIFIED PAPER

Interior printed on 100% post-consumer recycled paper

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EXHIBIT 20

EMPLOYEES HONORED FOR MAKING CUMMINS STRONGER THROUGH INNOVATION

Cummins recently recognized 13 employees at the Technical Leaders Conference with its highest technical award – The Julius Perr Innovation Award – for their work in meeting stringent U.S. emissions standards to reduce nitrogen oxide (NOx).

Cummins created the award – named after Dr. Julius Perr, the inventor or co-inventor on an astounding 80 U.S. patents – to honor the inventors of Cummins' technologies that provide the greatest value to employees, customers and other stakeholders.

2014 Julius Perr Innovation Award winners during Cummins' Technical Leaders Conference

The 13 engineers and scientists that were recognized in 2014 were honored for their patented inventions that enabled NOx adsorber catalyst technology to be implemented on the Cummins ISB engine for Chrysler pickup trucks.

Cummins engineers determined that certifying the Dodge Ram pickup truck to the 0.2 g/mi 2010 NO_x emission standard early would provide Cummins with significant commercial and technical advantages. Achieving these stringent emission standards required engineers to reduce particulate and NOx emissions by more than 90 percent.

The NOx adsorber catalyst and engine controls development enabled Cummins to reduce emissions used on the 2007 Chrysler ISB 6.7L engine. NOx adsorber catalysts temporarily store NOx when the exhaust is lean. Periodically the exhaust gas is switched to rich, releasing the NOx and converting it to harmless nitrogen and water.

Cummins engineers also developed state-of-the-art catalyst test rigs, advanced engine controls systems and test protocols. The fundamental Cummins know-how developed during this project has since been used in all Cummins products for emissions critical engine applications.

Participants and winners pose for a photo at the 2014 Technical Leaders Banquet

This catalyst system was used in more than 450,000 Chrysler ISB engines from 2007 to 2013. The Environmental Protection Agency (EPA) credits generated by this technology allowed Cummins teams to focus on hitting the next round of emissions standards for other engine platforms, and allowed the company to avoid interim emissions phase-ins. As a result, Cummins increased its heavy duty market share and gained the market share lead in 2007. Today, the company maintains that lead with 41.5 percent of Class 8 vehicles, and 62.5 percent of Class 6 and 7 vehicles.

“These 13 individuals have carried on Dr. Julius Perr’s legacy by making Cummins stronger through innovation,” said John Wall, Vice President and Chief Technical Officer. “Because of their hard work and ingenuity, Cummins was able to meet and exceed EPA expectations, gain market leadership and create significant value for our customers. Congratulations to all of this year’s Perr Award winners.”

During the ceremony, Mike Cunningham had seven of his patents honored; Sriram Popuri was named on five patents; Mike Ruth and Sam Geckler each had four patents recognized; Brad Stroia, Joan Wills and Neal Currier each had three patents honored; Alex Yezerets and Lyle Kocher with had two patents each recognized; and Paul Miller, Wei Lu, Stewart Sullivan and Jim Fier each had one patent honored.

Three of the winning inventors have received previous Julius Perr Innovation Awards.

JON MILLS

Jon Mills is the Director of External Communications at Cummins Inc. Jon brings more than 16 years of communications focusing primarily on public and media relations. Jon has served as the primary external communications contact and spokesperson for a variety of companies including Wellpoint, IU Health, Planned Parenthood. His career has also included stints on Capitol Hill, state level lobbying, talk radio and political campaigns. During his tenure, Jon has also played a leadership role in communicating and messaging around several crises, including one that attracted national attention when lives were lost at a large downtown Indianapolis hospital. Jon is a native Hoosier and resides with his family in Indianapolis.

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EXHIBIT 21

NEWS

TWO-MILLIONTH CUMMINS PICKUP ENGINE ROLLS OFF LINE FOR CHRYSLER

Jeff Caldwell, Executive Director – Viking Program and General Manager-Global Pickup/Van Business at Cummins talks about Cummins relationship with Chrysler.

Cummins built its 2-millionth pickup truck engine for the Chrysler Group LLC in December, the latest development in a more than 25-year partnership between the two companies.

“This milestone build is a significant achievement for Cummins and our employees, and is an accomplishment of which we are immensely proud,” said Wayne Ripberger, General Manager – Pickup and Light Commercial Vehicle Operations. “At Cummins, we take great pride in each and every engine we build – whether it’s the first or the 2-millionth.”

A small ceremony was held at the Columbus MidRange Engine Plant to mark the occasion. The actual engine will go on display, touring the United States.

In its own news release Dec. 10 marking the occasion, Chrysler noted the partnership has benefited both companies.

“The Ram Truck-Cummins diesel partnership is one of the industry’s most enduring and certainly fitting of such a tribute,” said Fred Diaz, President and CEO – Ram Truck Brand and Chrysler de Mexico in the news release. “Both companies have benefited greatly, but Ram diesel customers are the real beneficiaries. Every day they experience the toughness and capability a Cummins-powered Ram can deliver.”

The first Cummins Turbo Diesel engine was produced for Chrysler at the Rocky Mount Engine Plant in Rocky Mount, N.C. in 1988. The Cummins-powered Ram has been known for its power as well as its durability ever since and has developed an extremely loyal following of pickup truck owners.

The 2013 Cummins-powered Ram will feature the kind of innovation that customers have come to expect, including:

- A 10 percent fuel economy improvement and best-in-class torque.
- Smoother handling thanks to a “Smart” exhaust break.
- A 15,000 mile – best in class – fuel change interval.
- The capability to use a B20 fuel blend.

The high output Cummins Turbo Diesel that powers the 2013 Ram Heavy Duty pickup will produce 385 horsepower and a best-in-class 850 foot-pounds of torque.

BLAIR CLAFLIN

Blair Claflin is the Director of Sustainability Communications for Cummins Inc. Blair joined the Company in 2008 as the Diversity Communications Director. Blair comes from a newspaper background. He worked previously for the Indianapolis Star (2002-2008) and for the Des Moines Register (1997-2002) prior to that.

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EXHIBIT 22

News Release

Cummins Named Automotive News 2008 PACE Award Winner for Innovation of the 6.7l Turbo Diesel Engine

COLUMBUS, Ind.--(BUSINESS WIRE)--April 15, 2008--Cummins Inc. (NYSE:CMI) announced today that it has earned a prestigious 2008 Automotive News PACE Award for innovation demonstrated by the 6.7L turbo diesel engine. The PACE Award ceremony, held on April 14 in Detroit, Mich., honors superior innovation, technological advancement and business performance among automotive suppliers.

Cummins has been recognized for the 6.7L Dodge Ram Turbo Diesel engine which debuted in January 2007 and is available in the Dodge Ram 2500 and 3500 models. The 6.7L diesel engine is the strongest, cleanest, quietest heavy-duty diesel pickup truck engine available on the market and is the first to meet the 2010 EPA emissions regulations in all 50 states. Cummins achieves this by using a NOx Adsorber Catalyst - a breakthrough technology designed and integrated by Cummins.

As noted by Joe Loughrey, President and Chief Operating Officer of Cummins, in accepting the award, "This is a significant product innovation and a terrific honor for Cummins to be recognized. We share this recognition with our customer, Chrysler, who collaborated with us in developing a common vision for a product that would deliver on our commitment to exceptional customer satisfaction while ensuring our contribution to a cleaner environment." Loughrey also acknowledged several partners who significantly contributed to Cummins success in the product including the Department of Energy, the Environmental Protection Agency and several supplier partners.

The PACE (Premier Automotive Suppliers' Contribution to Excellence) Award is viewed around the world as the industry symbol of innovation. Cummins earned Automotive News PACE Award winner status after an extensive review by an independent panel of judges, a comprehensive written application and a site visit. The 14th annual award was presented in a ceremony in Detroit, Mich., by Automotive News and co-sponsors Microsoft, SAP, and Transportation Research Center Inc. (TRC Inc.).

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Headquartered in Columbus, Indiana (USA), Cummins serves customers in more than 160 countries through its network of 550 company-owned and independent distributor facilities and more than 5,000 dealer locations. Cummins reported net income of $739 million on sales of $13.05 billion in 2007. Press releases can be found on the Web at cummins.com or everytime.cummins.com.

CONTACT: Cummins Inc.
Christy Nycz, 812-377-5141
christy.m.nycz@cummins.com

SOURCE: Cummins Inc.

EXHIBIT 23

News Release

Cummins Announces Multiyear Agreement with Chrysler Group LLC

COLUMBUS, Ind., Feb 03, 2010 (BUSINESS WIRE) -- Cummins Inc. today announced a multiyear extension of its current agreement with Chrysler Group LLC. Cummins will supply 6.7-liter Turbo Diesel engines for Ram Heavy Duty pickups and Chassis Cab trucks while continuing to grow its partnership with Chrysler, which began 21 years ago.
Cummins has produced over 1.7 million Cummins Turbo Diesel engines for Dodge Ram Heavy Duty trucks since 1989. Today, over 80 percent of Ram Heavy Duty truck customers purchase their truck with the legendary Cummins Turbo Diesel.

The first Cummins Turbo Diesel was used in the 1989 Dodge Ram, with projected sales of less than 5,000 engines. Actual sales exceeded 20,000 engines in the first year, signaling to the market that a powerful new combination had been created.

The first Cummins Turbo Diesel was a 5.9 liter at 160 hp (119 kW) and 400 lb-ft (542 N-m) of torque. Today's 6.7-liter Turbo Diesel delivers 350 hp (261 kW) and 650 lb-ft (881 N-m) of torque. This 118 percent increase in horsepower and 86 percent increase in torque have been achieved while also reducing exhaust emissions by 90 percent. In 2007, Dodge and Cummins produced the cleanest heavy-duty diesel pickup in the market by meeting U.S. Environmental Protection Agency (EPA) 2010 emissions levels a full three years in advance.

"Cummins and Chrysler have a long and important history together," said Dave Crompton, VP and General Manager, Midrange Engine Business. "The Chrysler business continues to be a key part of our MidRange engine business. Cummins is proud to supply engines for the award-winning Ram Heavy Duty and to continue working with Chrysler to develop best-in-class products that customers can trust and depend on now and in the future."

About Cummins

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Headquartered in Columbus, Indiana, (USA) Cummins serves customers in approximately 190 countries and territories through a network of more than 500 company-owned and independent distributor locations and approximately 5,200 dealer locations. Cummins reported net income of $428 million on sales of $10.8 billion in 2009. Press releases can be found on the Web at www.cummins.com or everytime.cummins.com.

Photos/Multimedia Gallery Available: http://www.businesswire.com/cgi-bin/mmg.cgi?eid=6166254&lang=en

SOURCE: Cummins Inc.

Cummins Inc.
Sena Adekpuitor, 812-377-5042
sena.adekpuitor@cummins.com

EXHIBIT 24


08 DODGE RAM
POWER WAGON
GRAB LIFE
DODGE

LOOK AT DODGE RAM, AND IT HITS YOU LIKE THE SEVERAL TONS OF BRICKS YOU'RE CARRYING: QUALITY IN RAM IS MEASURED BY ITS OWN QUALITIES. LIKE DEPENDABILITY THAT STARTS WITH A PUNISHING REGIMEN OF PREPRODUCTION TESTING. LIKE LONGEVITY YOU SENSE DURING YOUR FIRST TEST-DRIVE — AND WHICH YOU MIGHT MEASURE OVER THE NEXT FEW DECADES. TODAY, DODGE RAM QUALITY RANGES FROM THE ALL-NEW 4500 AND 5500 CHASSIS CABS TO THE FAVORITE: RAM 1500 QUAD CAB.® THESE ARE THE LONGEST-LASTING,* MOST DURABLE† LINE OF FULL-SIZE PICKUPS. THIS IS QUALITY IN MOTION — ON THE JOB, STREET, OR TRAIL. THIS IS '08 DODGE RAM.

*Based on R.L. Polk & Co. Vehicles in Operation registration statistics CY 1987-2006.
† Durability based on longevity.

YOU'RE LOOKING FOR A PICKUP WITH EVERYTHING. YOU'RE LOOKING IN THE RIGHT PLACE. RAM.

The more you look into '08 Dodge Ram, the more you realize: there's much more here than meets the eye. After all, this family of pickups is known for legendary power, reliability and durability. Other truck manufacturers simply don't subject their vehicles to this degree of rigorous testing — and they wouldn't dare produce a pickup as commanding as Power Wagon.® Keep looking, and you'll see that the quality of Dodge Ram is what makes it the leader.

1) Ram 2500 Regular Cab SLT in Bright Silver Metallic 2) 3500 Chassis Cab SLT Dually in Flame Red with Dump Body Upfit 3) 1500 Quad Cab® Big Horn in Brilliant Black Crystal Pearl 4) 3500 Quad Cab Laramie Dually with the available 6.7-liter Cummins® Turbo Diesel in Bright Silver Metallic suited up with Diamond Plate Toolbox and Premium Side Steps — Authentic Dodge Accessories by Mopar 5) 2500 Mega Cab® Laramie with the available 6.7-liter Cummins Turbo Diesel in Inferno Red Crystal Pearl 6) Power Wagon in Flame Red with available Rock Rails, Accessory by Mopar. Look to the back pages for the most popular accessories for Ram.

Ram 1500 Quad Cab Big Horn 4x4 in Sunburst Orange.

08 DODGE RAM
1500 QUAD CAB®

DODGE RAM 1500 QUAD CAB. GO BEYOND ITS STUNNING PRESENCE. IN FACT, GO *WAY* BEYOND.

The stand-apart styling of Dodge Ram 1500 Quad Cab models — that bold, pushed-out front end, signature crosshair grille, and muscular stance — works like a magnet on the eye. Power? The available HEMI® V8 features the brilliantly innovative Multi-Displacement System* (MDS) — and all but attacks the competition as they struggle to improve their trucks' mileage. Comfort? From leather-trimmed Laramie interiors to YES Essentials®† stain-resistant, odor-resistant, antistatic seat fabrics to top-notch navigation systems, we've got it covered. Want more? Head over to **dodge.com/ram/1500**

*Available on 1500 Regular and Quad Cab models. 13 city to 18 highway, EPA est. mpg with MDS. Results depend on driving habits and conditions. †Not compatible with aftermarket fabric-protecting coatings.


1


2


3


4


5


6

1 GRAB THE SPORTING LIFE

Score big. Ram 1500 models with the Sport Group — Regular Cab and Quad Cab® — put every point in your favor. Like the available 5.7-liter HEMI® V8 with MDS.* On 4x4 models, electric-shift transfer case. Front bucket seats. Authoritative, 20-inch wheels and tires. Options include UConnect® Hands-Free Communication System, antispin differential, full-screen NAV radio, AM/FM/MP3/stereo, power sunroof, and more. Authentic Dodge Accessories by Mopar, like the Fiberglass Tonneau Cover shown to the left, are also available. See the accessories pages in back for more information.

2 INSIDER INFORMATION

Interior of 1500 Quad Cab with Sport Group is a Ram exclusive: cloth-trimmed low-back bucket seats with adjustable head restraints, or available two-tone leather-trimmed front bucket seats.

3 THE ULTIMATE HEAD ROOM

Open the available power sunroof (with a one-touch button), and you've got unlimited air space.

4 THE RADIO YOU WATCH

Convenience at your service. The available navigation system radio in Dodge Ram encompasses a wide range of benefits, including SIRIUS® Satellite Radio.† SIRIUS Satellite Radio delivers over 130 channels, including 100% commercial-free music, sports, news, talk, entertainment, traffic and weather. Factory-installed SIRIUS Satellite Radio includes a one-year subscription. For more information, go to sirius.com.

5 YES ESSENTIALS®‡ IS A MUST

It's a clean look. Cloth seats for all Dodge Ram models feature YES® Essentials stain-resistant, odor-resistant, antistatic seat fabric. Technology this good seldom spills over.

6 PLAY THESE NUMBERS. YOU'LL WIN

The versatility of Ram Quad Cab includes front seats that split in 40/20/40 configurations for flexibility in hauling, a folding center seat that becomes an armrest or writing surface — and the best number of all: 121.6 cubic feet. That's best-in-class§ when it comes to interior volume.

*Available on 1500 Regular and Quad Cab models. 13 city/18 highway, EPA est. mpg with MDS. Results depend on driving habits and conditions. †"SIRIUS" and the SIRIUS dog logo are registered trademarks of SIRIUS Satellite Radio Inc. All other trademarks, service marks and logos are the property of their respective owners. For full terms and conditions, visit sirius.com. Prices and programming are subject to change. Not available in AK and HI. ‡Not compatible with aftermarket fabric-protecting coatings. §Based on full-size extended cab pickups.

LENGTHY, TORTUROUS TRIALS. UNJUST PUNISHMENT. ALL BECAUSE WE DO THINGS RIGHT.

Our engineers call them “events.” They represent everything you’d never do to your Dodge Ram. And we do them, over and over, on a schedule that runs nonstop, 24/7. The testing that eventually ensures Ram quality means going to the extremest of extremes. With apologies to the fine people of Baja, we’ve recreated the worst road we found there; our drivers run Rams in compressed time frames to equal 150,000 customer-equivalent miles — our minimum benchmark. *That’s one event. We have many more.* Others? Load up a Ram at maximum GCWR — up to 24,000 lb — and tow it for a few thousand hours. Drive a few dozen Rams into walls, ditches, water-filled pits. Such brutality is sickening — literally: it’s so jarring that test drivers are regulated to a limited time behind the wheel.

THE BATHS: CORROSION AND ELECTRICAL PROTECTION

Think of it as a treatment to improve the long-term health of your Ram. The baths — both fresh and saltwater — take corrosion and water intrusion testing to the extreme. Because we test on a near-daily basis, we’re able to offer some of the best corrosion protection in the business. Simultaneously, we’re able to test the wiring, connections, boxes and terminals, ensuring tight, protective fits and wires and cables that stand the test of time.

WHEN IT COMES TO QUALITY, WE'RE DRIVEN.

Our events cover all components and systems. The reasoning behind such comprehensive testing is as unexpected as the brutality of the events themselves. Instead of starting with a method to test Ram at the limits of performance, we start by considering all the various drivers and uses of a Ram pickup in everyday life — and then we design events to test that usage to the extreme. So when you're on gravel, cobblestones, or serpentine mountainous roads, know that we've been there. When you're towing a trailer uphill, know that we've done that. Time after time. For more, visit us at **dodge.com/ram/durability**

---

1 THE STEPPED HILL CLIMB: SUSPENSION, STEERING, DRIVETRAIN

You'll probably never take on a road this tough, but if you do — we've already been there. Engine, transmission, steering components and all suspension elements are subject to treatment sympathetically described as "brutal." This is a Power Wagon exclusive event.

2 CROSSING THE RUBICON: THE MOST SEVERE OFF-ROAD CAPABILITIES

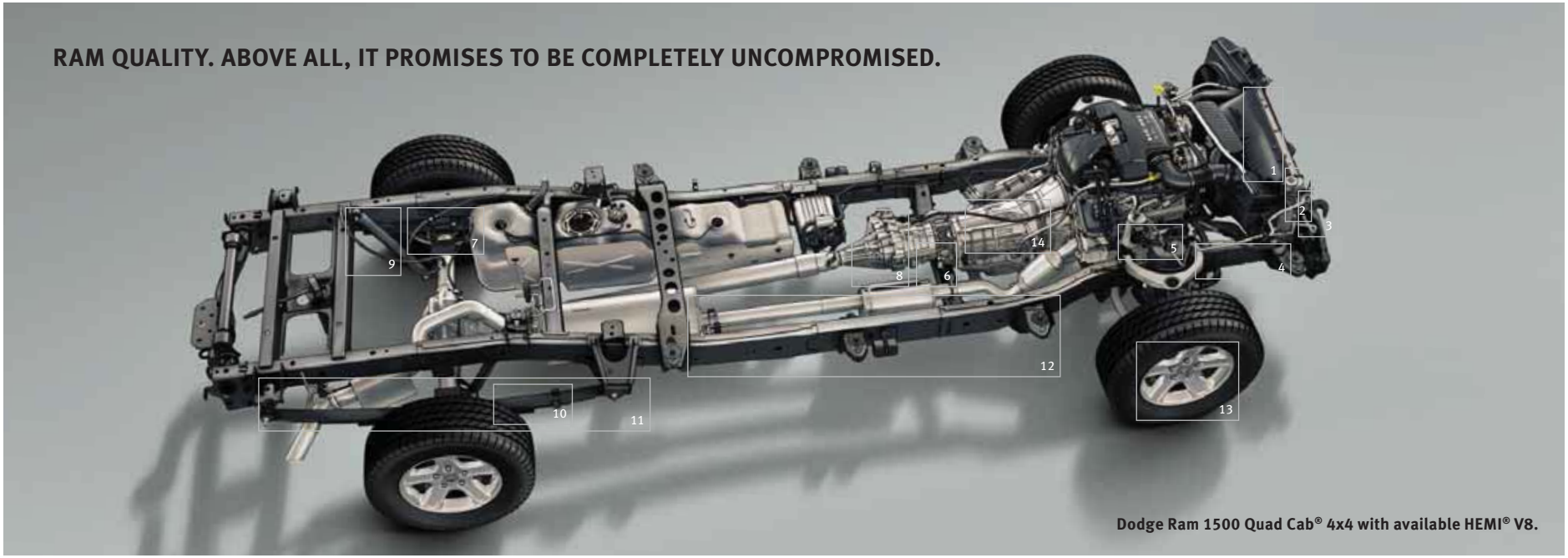
Yes, the boulders are a replica of the Rubicon Trail in central California. And yes, we'll put a Ram Power Wagon® on it day after day, to test it all: brakes, transmission, transfer cases and axles, along with all ancillary components, including shocks and skid plates.

3 COBBLESTONE PATH: SUSPENSION AND DURABILITY

One of the many events used to continuously improve the quality and longevity of Ram: a series of random and uneven surfaces. By compressing the testing, we can achieve the customer equivalent of 150,000 miles on these surfaces; it's ideal for tuning a suspension to critical tolerances.

4 MAKING THE GRADE: TRANSMISSION AND TOWING, UNDER A CRITICAL LOAD

We expect you to be pulling a fully loaded trailer uphill in your Dodge Ram — which makes our mountain testing crucial to performance to refine the towing and hauling capabilities of all Ram pickups.



1 SPECIALIZED ENGINE RADIATOR
The design for Dodge Ram separates the engine radiator from the transmission cooler — which translates into lower operating temperatures and maximum cooling during heavy towing.

2 SEPARATE TRANSMISSION COOLER
Along with operating efficiencies, engineering a distinct transmission cooler offers another major advantage: complete elimination of any possibility of cross-fluid contamination.

3 AVAILABLE FRONT TOW HOOKS
Dodge's tow hooks are mounted securely for a completely solid hookup point and are mounted higher than on competitive models — a design convenience immediately obvious and practical if you're in mud or deep snow. As well, the front hooks are tested to hold up to double the maximum Gross Vehicle Weight Rating (GVWR).

4 STEEL CRUMPLE ZONES
Designed-in proactive safety and security measures are essential to Ram design — and to your well-being. By helping absorb energy in the event of a front collision, they help protect you — and reduce the chance of damage to the frame itself. Standard on all Ram models.

5 LARGE ENGINE MOUNTS
On Ram 1500 models, massive engine mounts help reduce noise and vibration — while also helping to maintain that legendary durability and reliability over the long haul.

6 WIDE TRANSMISSION MOUNTS
Beefy transmission mounts provide another Ram advantage: they help reduce noise, vibration, and harshness (NVH). They also function to securely harness the massive amount of torque generated by the available HEMI® V8 power plant.

7 TUNED SUSPENSION
To further reduce noise, vibration, and harshness — and to contribute to a more comfortable ride — the suspension components and frame are "tuned" for the best overall performance without sacrificing ride quality.

8 THE AVAILABLE ELECTRIC-SHIFT TRANSFER CASE
It delivers capability at the touch of a finger. The transfer case in Ram 4x4 1500 models offers operation in five separate modes — including 4WD HI and LO positions — that lock both driveshafts together for when the going is really rough.

9 STAGGERED MONOTUBE REAR SHOCKS
Offset shock absorbers are standard equipment for capability and are found on all 1500 and Mega Cab® models. Mounted inside the frame for increased protection, with a "staggered" design, they help reduce the axle wrap and wheel hop that can occur under certain acceleration and towing conditions.

10 HIGH-STRENGTH SPRING-STEEL REAR LEAF SPRINGS
Our rear springs are mounted directly over the rear axle — an engineering design that increases ground clearance and thus offers greater off-road capability.

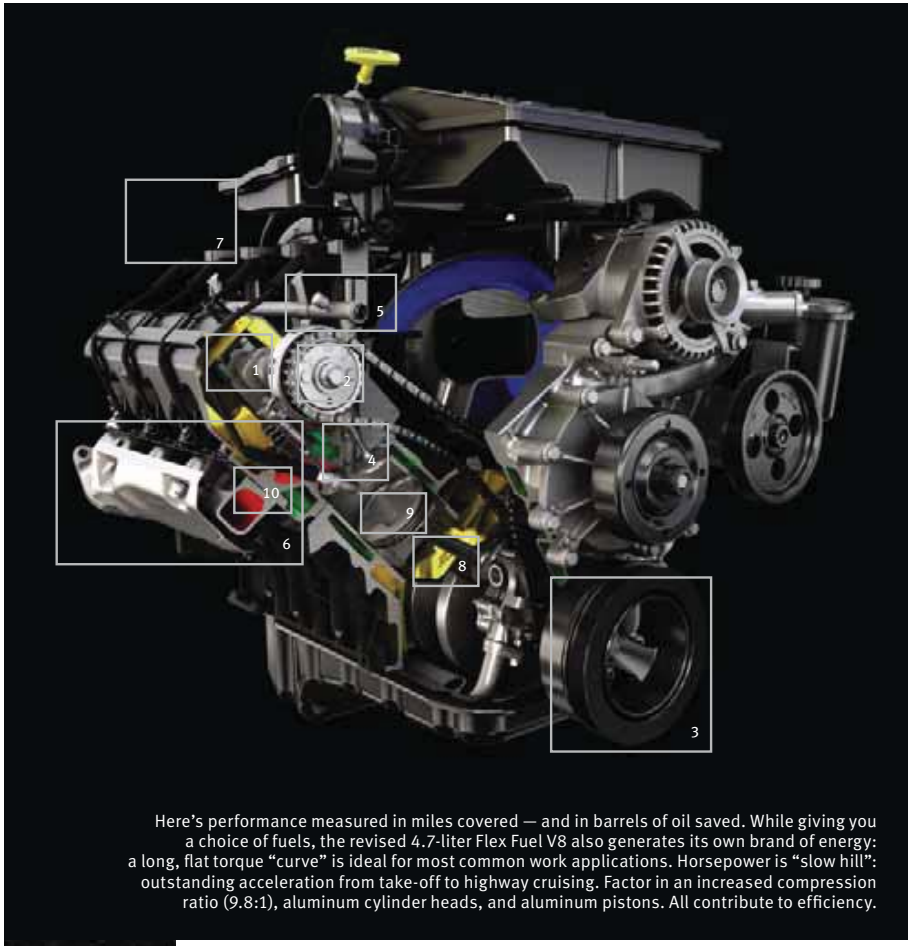
11 THE FAMOUSLY RELIABLE HOTCHKISS REAR SUSPENSION
This solid rear axle (with longitudinally mounted leaf springs) is the ultra-tough rear support for all Ram models, including Chassis Cabs. Hotchkiss quality is part of the Ram legacy, proving itself over time — and terrain.

12 FULLY BOXED PARTIALLY HYDROFORMED LADDER FRAME
The stiffest frame in Ram history is an essential factor when analyzing Ram's outstanding handling and road manners.

13 THE AVAILABLE ELECTRONIC STABILITY PROGRAM (ESP)*
ESP is one of the best reasons to look at Dodge Ram. This system intelligently uses steering wheel angle, yaw (turning) rate, lateral acceleration sensors and four individual wheel-speed sensors to determine a variety of appropriate brake and throttle actions — including braking and closing the throttle when necessary. The ESP on Ram actually includes a variety of systems. Hill Start Assist applies the brakes momentarily to prevent roll-back on hills; it's particularly valuable with manual transmissions or during trailer towing. Trailer Sway Control is another ESP system, which uses sensors to discern lateral (or yaw) forces at the rear of the vehicle caused by a swaying trailer. It automatically applies specific brake corners to help eliminate sway.

14 AVAILABLE 5-SPEED AUTOMATIC TRANSMISSION
It endured brutal abuse before acceptance by Dodge — over 2 million miles of cumulative testing before achieving the quality required for a Ram. (For more on testing and quality, see following pages. Complete specifications are always online at **dodge.com/ram/durability**)

* No system, no matter how sophisticated, can repeal the laws of physics or overcome careless driving actions. Performance is limited by available traction, which snow, ice and other conditions can affect. When the ESP warning lamp in the speedometer flashes, the driver needs to use less throttle and adapt speed and driving behavior to prevailing road conditions. Always drive carefully, consistent with conditions. Always wear your seat belt.

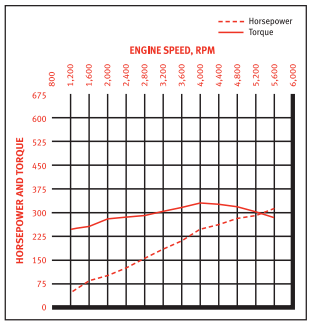


Here's performance measured in miles covered — and in barrels of oil saved. While giving you a choice of fuels, the revised 4.7-liter Flex Fuel V8 also generates its own brand of energy: a long, flat torque "curve" is ideal for most common work applications. Horsepower is "slow hill": outstanding acceleration from take-off to highway cruising. Factor in an increased compression ratio (9.8:1), aluminum cylinder heads, and aluminum pistons. All contribute to efficiency.

1 NEW CAMSHAFT DESIGN
The revised 4.7-liter utilizes a modified camshaft with newly designed lobes; the result is a cleaner burn sequence in the firing process that increases power utility while reducing emissions.

2 MORE CAMSHAFT STRENGTH
It's not only modified in shape, but increased in strength. With higher stiffness requirements, we've determined that SADI — Selectively Austempered Ductile Iron — works best.

3 NEW DUAL MASS VIBRATION DAMPER
Another modification with direct benefits to the drive — and driver: the new vibration damper contributes to further lessening of NVH — noise, vibration, and harshness.



310 horsepower @ 5,650 rpm
330 lb-ft of torque @ 3,950 rpm

4 DUAL SPARK-PLUG DESIGN
Applying two spark plugs per cylinder started with the 5.7-liter HEMI® V8 — but the efficiencies were too persuasive to ignore: more efficient burning of fuel, with reduced emissions and better idle.

5 FUEL CALIBRATION
We learned from the best — so the fuel calibration on the revised 4.7-liter Flex Fuel V8 employs the same strategy as the legendary 5.7-liter HEMI® V8.

6 MODIFIED EXHAUST MANIFOLD
It's all about fuel efficiency, which is why we modified the actual geometry to the exhaust manifold, resulting in improved, less-restricted exhaust flow.

7 FORGED STEEL CONNECTING RODS
It's a performance issue, which is why the steel connecting rods in the 4.7-liter Flex Fuel V8 are forged, resulting in an optimized strength-to-weigh ratio.

8 FLOATING PISTON PINS
Our design utilizes "floating" technology — engineering that translates into durability by improving the wear resistance of both the piston pin and the piston itself.

9 EXHAUST MANIFOLD GASKETS
We look for durability everywhere we can. Even the exhaust manifold gaskets command attention, which is why the 4.7-liter gaskets are composed of multilayered steel with integrated heat shields.

- **IMPROVED EXHAUST GAS RECIRCULATION**
The revised 4.7-liter Flex Fuel V8 utilized every opportunity to retain energy. Part of the exhaust gas goes into the EGR — Exhaust Gas Recirculation; we've addressed that, too, with a modified valve and all-new EGR tube for better flow and improved emissions.

08 DODGE RAM POWERTRAIN

THERE'S A NEW KID ON THE BLOCK. THE REVISED — AND VERY REFINED — 4.7-LITER FLEX FUEL V8 POWER PLANT.
As fuel prices fluctuate, the more important it becomes to turn to other fuel sources than conventional gasoline. To create the technology that enables the choice, Dodge turned to one of our most popular engines — the 4.7-liter V8 — to harvest both efficiency and grain-based E85 ethanol.

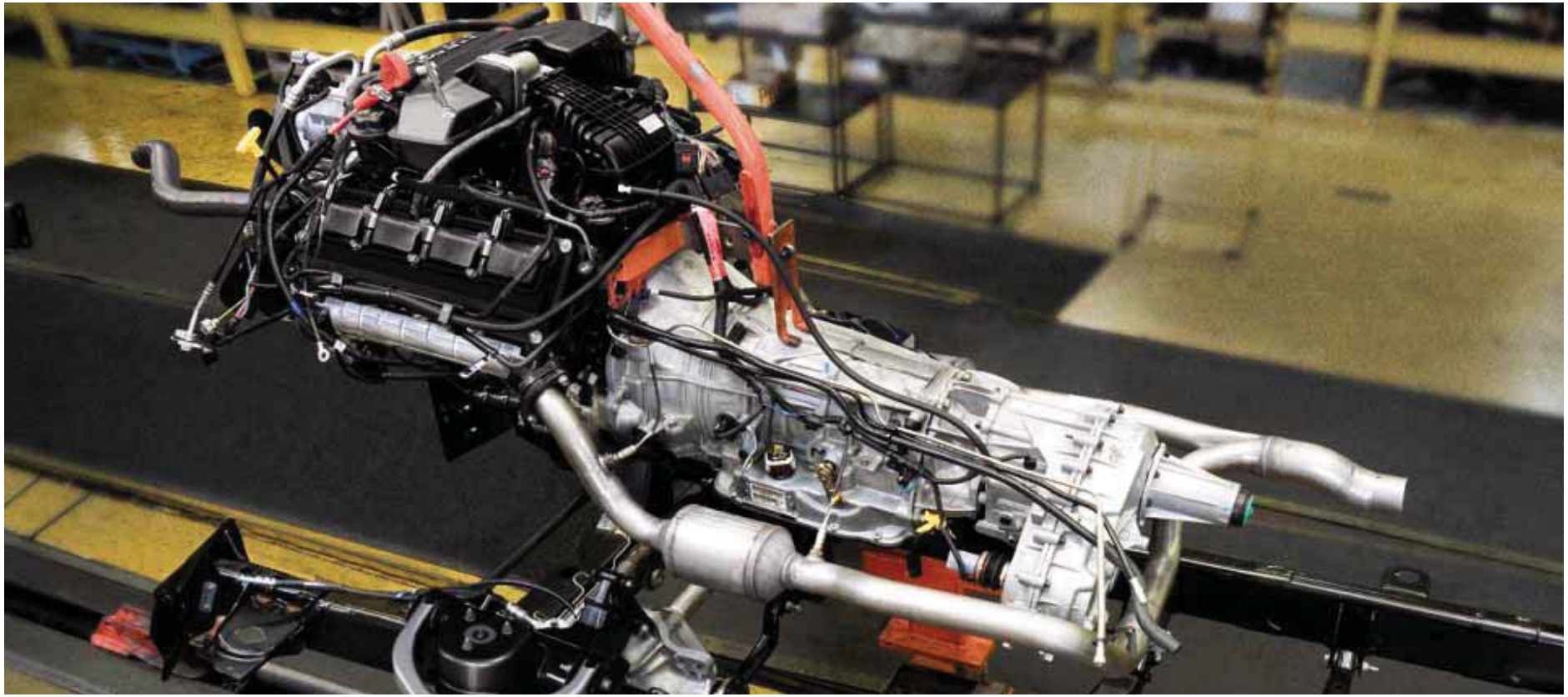
It's built on the same engine block as the previous iteration — and from there, it just gets better. With the same displacement — yet with greater performance through increased horsepower and torque — the revised 4.7-liter V8 offers Flex Fuel capability, allowing you the choice between unleaded gasoline, E85 (an ethanol blend made from grain, with far fewer harmful emissions), or any combination of the two. It is the engine of tomorrow — and it's available on Dodge Ram 1500 Regular Cab and Quad Cab® models today.

Outlined here are the major technical advantages and features of the 4.7-liter Flex Fuel V8. Learn more — when you visit **dodge.com/ram/engine**

THE 2008 RAM INCLUDES
A LIFETIME POWERTRAIN LIMITED WARRANTY.

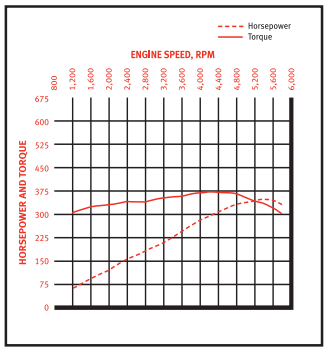
LIFETIME
POWERTRAIN WARRANTY

No deductible. Non-Transferable. Not available on SRT, diesel vehicles, and certain fleet vehicles. See dealer for a copy of limited warranty and details.



TRANSFORMING 5.7 LITERS INTO 100 PERCENT DEPENDABILITY: PUTTING THE INCREDIBLE HEMI® V8 TO THE TEST. When it comes to the HEMI V8, we'll concede: we're bold to the point of audacity. For Dodge, there can be no compromise. Second place in the public eye is really not an option. When you've got an engine that carries everything demanded of the HEMI V8 — payload, passengers, and above all, a world-famous reputation for power and quality — you do what it takes. Including, from time to time, destroying the very engines we are so proud to build.

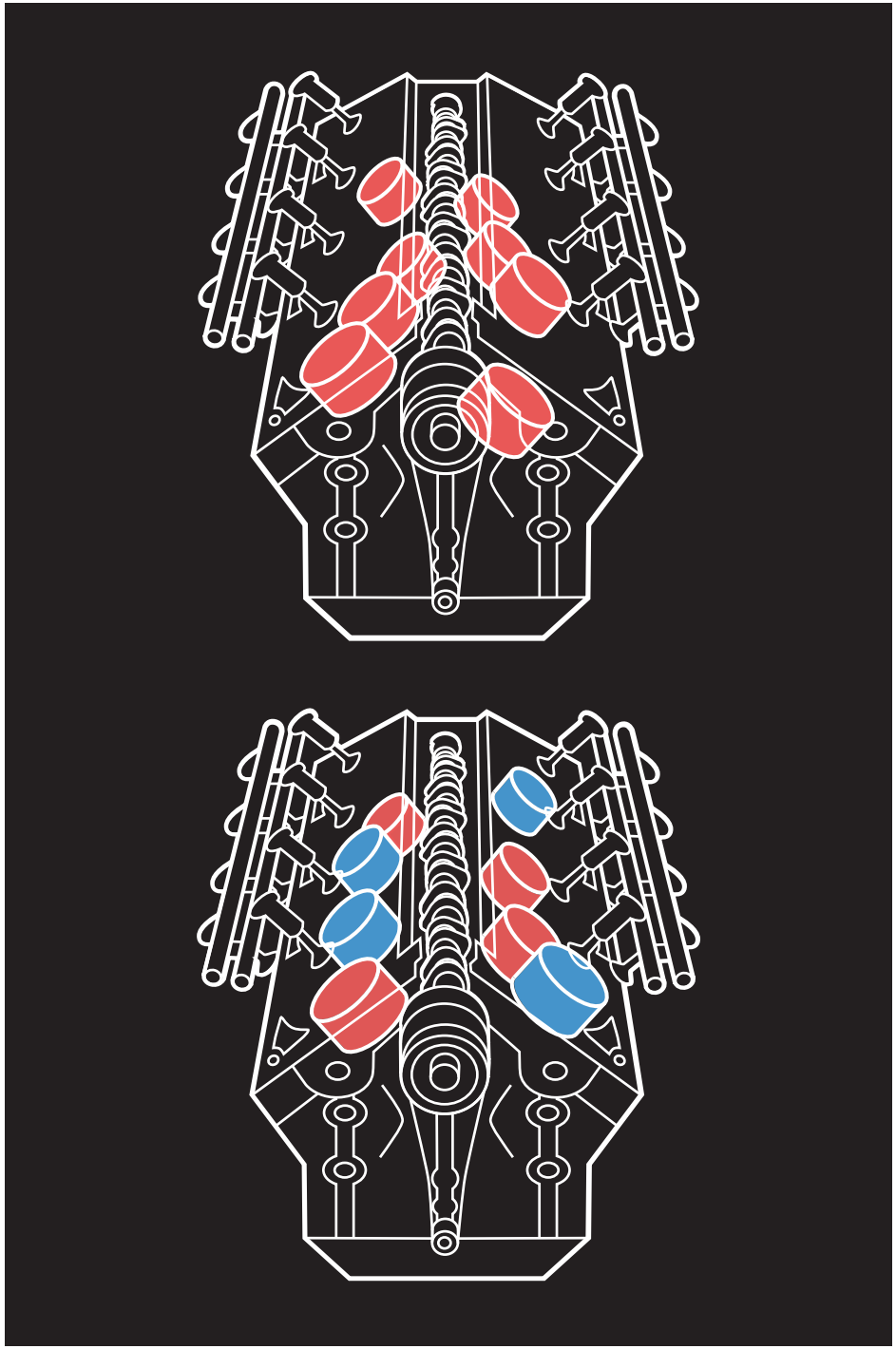
The development of the world-respected HEMI V8 encompassed testing that took it beyond expectations of conventional usage. Try day-long time trials at 98% output, or utilizing the HEMI V8 at maximum torque in real-world situations, or testing every system — computer interface, electrical, electro-mechanical — in an ongoing series of tear-downs and rebuilds until it's as perfect as an engine can get. It's all connected: HEMI V8 power ➔ Dodge quality ➔ Ram durability ➔ your satisfaction. If only everything worked so well. Get more connected at **dodge.com/ram/hemi**



345* horsepower @ 5,650 rpm
375 lb-ft of torque @ 4,200 rpm
*330 horsepower @ 4,800 rpm on 3500 models.

THE HEMI V8 HORSEPOWER AND TORQUE CHART: CONSIDER IT A MAP TO THE WORLD OF PERFORMANCE. Put HEMI V8 power out there, and you've got to take every scenario into consideration: from big farm equipment on a triple-axle trailer to retirees in the Rockies with their new travel trailer. The common bond? They rely on their HEMI V8.

Combine hemispherical combustion chambers, a dual-spark plug ignition system, aluminum cylinder heads, and one of the most sophisticated computer interfaces available and you've got outstanding power with credibility that defines reliability. Just follow the curves: the long, broad torque curve (it starts at engines speeds just above idle; it's there from a dead stop) telegraphs exceptional towing and take off. Contrast that with the impressive horsepower line; it's steadily ascending, reflecting superb acceleration.



IT'S INNOVATIVE, INTUITIVE, REFINED AND RIGHT ON TIME: COMBINING 5.7 LITERS OF HEMI® V8 POWER WITH MDS — THE INTELLIGENT MULTI-DISPLACEMENT SYSTEM.

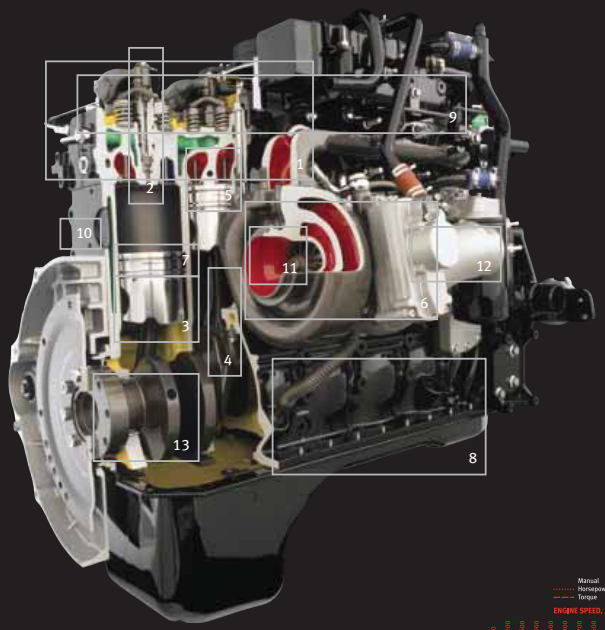
As a global manufacturer of some of the finest trucks and cars on the planet, we carry a certain responsibility along with those impressive Ram payloads. Which is why our engineers started working on ways to combat increasingly unpredictable fuel prices years ago.

One strategy was to re-engineer the long-trusted and heavily utilized 4.7-liter V8 into an efficient, Flex Fuel-compatible power plant. But to address the legendary power of the 5.7-liter HEMI V8, our engineers took a different turn, reaching a radical if not brilliant solution: MDS, the fuel-saving Multi-Displacement System.* It's tomorrow's engineering today. And it's in Dodge Ram.

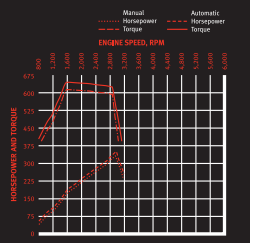
Operating silently and seamlessly above 18 mph (and in all gears except reverse), MDS transforms the powerful and durable HEMI V8 into a gas-sipping 4-cylinder* during many daily driving situations — including while cruising at highway speeds, during low-throttle coasting, and even while climbing low hills. Although the system deactivates four of the eight cylinders — indeed, fuel injection to the inactive cylinders is shut off completely, and all the appropriate intake and exhaust valves are completely closed — the engine's equal firing intervals are still maintained.

The benefits of MDS are extensive. To learn more about MDS, visit **dodge.com/ram/mds**

*Available on 1500 Regular and Quad Cab® models. 13 city to 18 highway, EPA est. mpg with MDS. Results depend on driving habits and conditions.



Throw these curves around: a rapidly rising torque "curve" is composed of straight lines, achieving a long, steady output up to 650 lb-ft at only 1,500 rpm. Power here is amplified by increasingly refined performance: up to 16,900-lb towing capacity; the largest bore and stroke in its class; and even design simplicity, with 30 percent fewer moving parts than competitive V8 diesels.



350 horsepower @ 3,000 rpm (6-speed automatic)
650 lb-ft of torque @ 1,500 rpm (6-speed automatic)

350 horsepower @ 3,013 rpm (6-speed manual)
610 lb-ft of torque @ 1,400 rpm (6-speed manual)

1 **BUILT-IN LONGEVITY.** The engineering calls for a cast-iron head with hardened nickel-cobalt steel exhaust valve seats; it's a combination that adds to durability.

2 **OUTSTANDING FUEL INJECTION.** The electronic solenoid injectors are capable of multiple injections per cycle at pressures up to 23,000 psi. Result? Precise noise and emissions control while delivering maximum performance.

3 **ULTRA-COOL PERFORMANCE.** The gallery-cooled pistons receive a constant stream of oil for cooler operation — while the oil itself is simultaneously cooled by a system of constantly circulating water.

4 **SUPER-STRONG CONNECTING RODS.** Heavy-duty commercial-grade connecting rods are forged from a single mold — a process that adds to strength — and fracture-split for exacting tolerances.

5 **BUILT-IN ECONOMIES.** Many parts of the Cummins 6.7-liter focus on longevity — and thus, reduced costs. Exhaust valves are made of hardened nickel-chromium, which contributes to long life to overhaul range.

6 **VARIABLE GEOMETRY TURBOCHARGER. (VGT)** Highly sophisticated, the VGT here differs radically from Ford and GM engineering — which both place the turbo on *top* of the engine. Side-mounting of the turbocharger on this inline six-cylinder both simplifies the design and helps alleviate under-the-hood heat buildup that can occur with V8 engines.

7 **LARGE PISTON BOWL HELPS KEEP THINGS CLEAN.** The large piston bowl is another engineering technique used to ensure good power and clean emissions. In fact, based on full-size diesel pickup trucks, the Cummins offers the cleanest diesel emissions of any.

8 **SUPERB BLOCK STIFFNESS.** An increase in block stiffness from the previous design produced multiple benefits: reduced noise, decreased vibration and less harshness.

9 **COMMON-RAIL ARCHITECTURE. *PLUS*.** The common-rail architecture plus sophisticated electronics equals significant advantages: multiple injection pulses and independent control of injection pressures. The result is noticeably quieter operation and outstanding cold starting capability — down to -20° F, unaided.

- **THE FUEL FILTER: EFFICIENCY BY DESIGN.** With fuel properties and emissions standards rapidly changing, the fuel filter offers higher efficiency — along with the capability to handle Ultralow Sulfur Fuel (USLF).
- **ADVANCED REQUIREMENTS MET TODAY.** The particulate filter is profoundly effective, and is a major factor in Cummins diesel emissions reduction Ram 2500 and 3500 pickup models. Reduced emissions are so important, the 6.7-liter is already able to meet the stringent truck emissions standards based on future requirements — for the 2010 model year. And it meets them in all 50 states.
- **FACTORY-INSTALLED EXHAUST BRAKE.** Another advantage to the current Cummins design in Dodge Ram: it's the first time an exhaust brake is installed at the factory. Utilizing the exhaust to aid in braking power results in a number of significant advantages, including longer brake life, faster cab warm-up, and greater vehicle control.
- **STRONG ENGINE, STRONG WARRANTY.** The limited warranty coverage is for 5 years or 100,000 miles. See your Dodge dealer for a copy.

THE CUMMINS® 6.7-LITER TURBO DIESEL. SO GOOD, SO POWERFUL, AND SO CLEAN IT WARRANTS A CLASS OF ITS OWN — AND IT'S ONLY IN A DODGE RAM HEAVY DUTY.

The most recent example of the world-famous Cummins powerplant continues the Cummins history with Dodge Ram — a legacy of pure, driven truck power taking advantage of an increasingly popular — and today, surprisingly clean — fuel source. By utilizing a high pressure direct-injection fuel system in a Ram Heavy Duty — trucks that now cover weight classes from the trusted Ram 2500 up to the all-new Ram 5500 Chassis Cab models — Cummins and Ram deliver everything it takes for world-class performance. Torque is the most critical component for many heavy-duty applications. With the Cummins 6.7-liter, it maxes out at an incredible 650 lb-ft* — as well as offering the best-in-class low-end torque.† Horsepower peaks at 350, providing ample acceleration. (In fact, power from the Cummins Turbo Diesel in the Dodge Ram lineup is under Cummins peak performance: the engine is so extraordinary, it's actually designed to power much larger Class 6 and Class 7 trucks.) Consider all that Cummins has to offer, and you become part of history in the making in real time: today, over 1.5 million Cummins equipped Dodge Rams are powering the roads, farms, and industrial sites of the world. What can you expect from Cummins in your Ram? Count on diesel-specific efficiency. Outstanding performance that defines reliability. Longevity that reaches hundreds of thousands of miles. And durability so impressive, it approaches the inexhaustible. For more, visit **dodge.com/ram/cummins** — or see for yourself, during your test-drive.

*Requires automatic transmission. †Below 1,500 rpm.

DRIVING THE OTHER HALF OF THE DRIVETRAIN: THE RAM TRANSMISSIONS.

1 THE DODGE 6-SPEED 68RFE AUTOMATIC TRANSMISSION

For the growing family of Dodge Ram Heavy Duty work trucks, the 68RFE 6-speed automatic transmission is available. Optional for Ram Heavy Duty 2500 and 3500 pickups (in both single- and dual-rear-wheel configurations) equipped with the available Cummins® 6.7-liter Turbo Diesel, is the Dodge 68RFE 6-speed automatic. The combination of Cummins and the Dodge 6-speed automatic provides benefits measured by the best criteria for business today: strength, stamina, and reliability. Another advantage that Dodge offers with Cummins and this transmission? The 6-speed with Electronic Range Select works in concert with the factory-installed engine exhaust brake, further optimizing control of the vehicle, enabling the driver to control rpm and speed — especially valuable when decelerating downhill.

2 THE 6-SPEED MANUAL TRANSMISSION

This transmission is built for heavy-duty work, and is the standard transmission for all Ram Heavy Duty models. A principle feature is the ultralow first gear ratio — as low as 6.29:1 — which is ideal for heavier hauling requirements.

3 THE 5-SPEED 545RFE AUTOMATIC TRANSMISSION

One of the most popular choices in combination with the 5.7-liter HEMI® V8 is the 545RFE — the available and long-proven 5-speed automatic transmission. Consistent with the Dodge objective of taking technology a step beyond the expected, the 545RFE features a specialized fifth gear — available as an additional overdrive ratio to help provide increased fuel economy and reduced engine noise at highway speeds. (The fifth gear ratio is 0.67:1 — a 16 percent reduction in engine rpm relative to the fourth gear 0.75:1 ratio.)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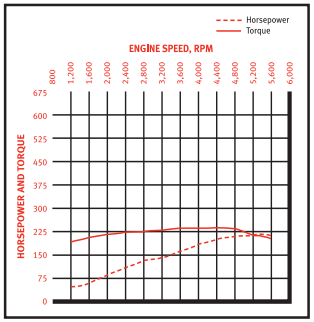
THE DODGE 3.7-LITER MAGNUM® V6.

The standard engine for the 1500 4x2 configurations of the longest-lasting,* most durable† line of full-size pickups comes with impeccable credentials. With its proven history of reliability and longevity, the 3.7-liter Magnum V6 lets you step up to the jobs that simply don't require the superlative torque of the 6.7-liter Cummins, or the massive power of the 5.7-liter HEMI V8. Obviously, when compared to its stablemates, there are valuable trade-offs: while you're saving on power output, you're also enjoying efficiencies‡ in fuel costs from the lower displacement numbers. Output is still impressive and up for the job: 215 horsepower and 235 lb-ft of torque at your disposal, with payload maxing out at 1,830 lb;§ maximum towing is 3,800 lb.§

*Based on R.L. Polk & Co. Vehicles in Operation registration statistics. CY 1987-2006.
†Durability based on longevity. ‡14 mpg city to 20 mpg highway based on EPA estimates.
§When properly equipped.



It's everything a horsepower and torque chart should be: a long, virtually flat torque line that signifies reliable and competent towing capability, with a steady horsepower line indicating comfortable cruising and responsive acceleration at takeoff.

215 horsepower @ 5,200 rpm
235 lb-ft of torque @ 4,000 rpm

Ram Power Wagon Quad Cab® in Flame Red with available Rock Rails, an Authentic Dodge Accessory by Mopar. For more on accessories for Ram, check out the pages in back.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DODGE RAM POWER WAGON.® THIS IS HOW YOU TAKE LIFE TO THE EXTREMES.

When it comes to dealing with the roughest terrain around, here's the ace up your sleeve. Ram Power Wagon features such an extensive list of off-road equipment, it's not just above the competition — it could practically ride over them. This is the most capable pickup for severe off-road work conditions, with power everywhere: 5.7-liter HEMI® V8; electronic locking front and rear axles; electric disconnecting front sway bar; 4.56 axle ratio; and a 160-amp alternator. There's so much more on Ram Power Wagon, you owe it to yourself to log on to **dodge.com/ram/powerwagon** for a full report.

1 **WARN® WINCH** This is factory-installed and standard on Ram Power Wagon; a 12,000-lb capacity allows out-of-the-ordinary capability.

2 **BILSTEIN® SHOCK ABSORBERS** The gas-charged monotube design gives your Ram Power Wagon the authority to easily handle the most severe off-road challenges.

3 **DODGE RAM ON THE OFF-ROAD** Much about Ram Power Wagon is the exception to the rule. The electronically disconnecting front stabilizer bar (also known as a sway bar) is a truck market-exclusive asset, and gives Ram Power Wagon an additional *nine inches* of articulation.

Ram 1500 TRX4® Off-Road Quad Cab® in Electric Blue.

DODGE RAM TRX4 OFF-ROAD. ROUGH — AND READY.

Here's the truck as rugged as the individual driving it. Dodge Ram with the TRX4 Off-Road group, available in Regular and Quad Cab models. Ram TRX4 Off-Road is pure exhilaration, with its standard 4.7-liter Flex Fuel V8 (on 1500 models; HEMI® V8 power is available). Further assets include antispin differential, 17-inch off-road tires, tow hooks, fog lamps — and much more.

1 HERE'S TO LIFE ON THE SKIDS

Built for the off-road, both Ram Power Wagon® and Ram TRX4 Off-Road offer indispensable undercarriage assets — like this tough skid plate. In addition to similar skid plates underneath, Ram Power Wagon assets include additional tough tubular steel underbody protection.

Ram 3500 Mega Cab® Laramie Dually in Brilliant Black Crystal Pearl shown with Chrome Tubular Side Steps, Goose Neck Hitch and Trailering Accessories, all Authentic Dodge Accessories by Mopar. For more on Accessories for your Ram, flip to the detailed pages in back.

DODGE RAM MEGA CAB. THE WORLD'S BIGGEST CAB* — AND THE STORY JUST GETS BIGGER.

Only Dodge would have the guts to create the pickup with the biggest, roomiest, and most comfortable cab ever* — and then add on the features. Its engine options are stunningly powerful, starting with the standard 5.7-liter HEMI® V8 for 1500 models, and 6.7-liter Cummins® Turbo Diesel for Mega Cab Heavy Duty models, Ram Mega Cab peaks out its towing capability at an unsurprising 16,500 pounds† (3500 4x4, with Cummins Turbo Diesel and available 6-speed automatic transmission). Payload capacity under the same powertrain is more than one-and-a-half tons. For the truly big picture on the world's biggest cab,* go to **dodge.com/ram/megacab**

*Based on full-size crew cab pickups. †When properly equipped.

Ram Mega Cab Laramie interior in Medium Slate Gray Leather Trim.


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RAM MEGA CAB.® NOTHING SHORT OF THE WORLD'S BIGGEST CAB.* When it's room you want, grab the one that offers room for everything — except compromise. Ram Mega Cab has so much space, it's not even competing anymore. Really. *What's the competition?* Because it's a Ram, you've got best-in-class* interior volume. Because it's a Ram Mega Cab, you've added more space over the conventional crew cab. By the way, Mega Cab is so spacious, you can top it off with the available rear DVD Video Entertainment System (VES®) — and still grab the available power sunroof. So think *big* in a Dodge Ram Mega Cab.

*Based on full-size crew cab pickups.

RAM MEGA CAB. WHEN IT COMES TO VERSATILITY, THIS IS LIVIN' LARGE.

1 **REAR SEATS ACTUALLY RECLINE** The seatback allows passengers to sit back — it reclines a full 37 degrees from the vertical. Note the convenient fold-down armrest with cup holder within the center seatback.

2 **ONE LOOK, YOU'RE HOOKED** With Ram Mega Cab, you get versatility that combines comfort with practicality. The 60/40 split-seat design is perfect when people share the vast interior with cargo. Built-in hooks are just right when you need them.

3 **PRACTICALITY THAT GOES BEYOND THE COMPETITION** Dodge Ram Mega Cab offers the largest load floor in its class.* Look behind the rear seats for outstanding on-demand capacity: there's an extra 9.5 cubic feet you simply won't find on competitive pickups.

Ram 3500 Quad Cab® Big Horn 4x4 SRW with available 6.7L Cummins® Turbo Diesel, shown in new two-tone finish of Inferno Red Crystal Pearl and Light Khaki Metallic. Ram 1500 Quad Cab® Laramie 4x4 with HEMI® V8 with MDS in Patriot Blue, shown with 20-inch 5-Spoke Polished Forged-Aluminum Wheels, an Authentic Dodge Accessory by Mopar. And keep reading — there's much more on Ram Accessories to come.

08 DODGE RAM HEAVY DUTY

ALL WORK AND NO PLAY? THAT IS SO *NOT* DODGE RAM HEAVY DUTY.

Call this one a sure bet: point for point, the attributes of Dodge Ram Heavy Duty 2500 and 3500 pickups put you in charge. Ram Quad Cab and Mega Cab® boast best-in-class* interior volume. Need the most capability for the severe off-road? Ram Power Wagon® rakes it in. But you're looking for all-around heavy-duty capability, right? Well, you've got tough choices in front of you. Like opting for the available Cummins 6.7-liter Turbo Diesel, with 350 horsepower, up to 650 lb-ft of torque and an available 6-speed 68RFE automatic transmission. It'll certainly handle *your* job — after all, it can power much larger Class-6 and -7 trucks. And the legendary 5.7-liter HEMI® V8 (up to 345 hp/375 lb-ft) has a history that runs rings around the competition. In sum: if you're measuring work performance by employing comfort, longevity, and quality as the rule of thumb, hand it to Dodge Ram — the family of longest-lasting,† most durable‡ pickups. Hit **dodge.com/ram/hd** for more.

*Based on full-size extended and crew cab pickups. †Based on R.L. Polk & Co. Vehicles in Operation statistics CY 1987-2006. ‡Durability based on longevity.

All-new Dodge Ram 4500 Chassis Cab in Bright Silver Metallic shown with Dump Body upfit.

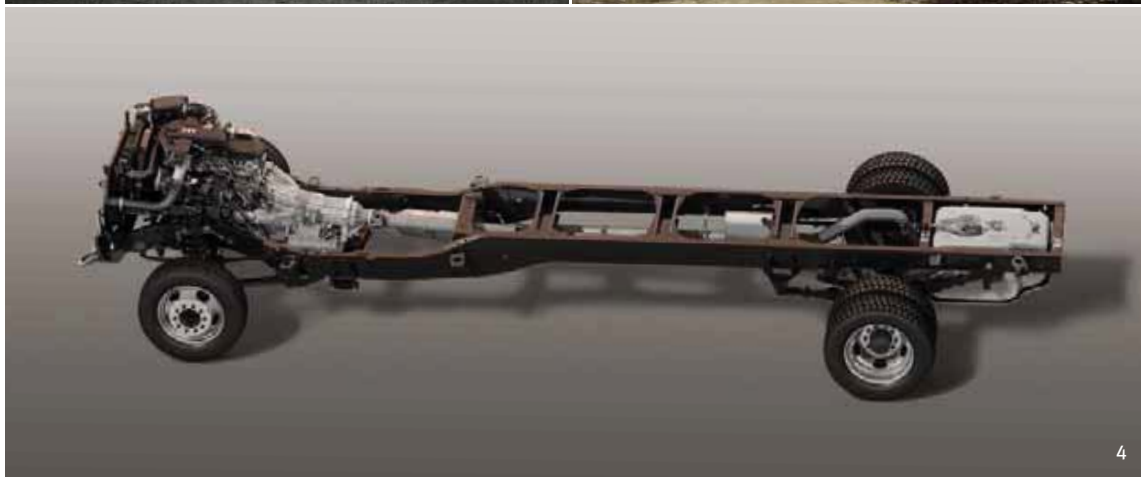
Properly secure all cargo.

08 DODGE RAM 3500/4500/5500 CHASSIS CAB

ONCE MORE, RAM RAISES THE STANDARD. MEET THE ALL-NEW 4500 AND 5500 CHASSIS CABS.

If there's one area we don't take lightly, it's the need for exceptional work trucks that carry the best goods: cargo, payload — and a reputation for outstanding quality and capability. Only Dodge would qualify that statement with the all-new Ram 4500 and 5500 Chassis Cabs — but when performance and capability are this good, audacity becomes simple fact. Power? The Cummins® 6.7-liter Turbo Diesel — with its larger displacement, and larger bore and stroke than Ford and GM diesel-equipped Class-4 and -5 conventional chassis cabs — is standard, and offers impressive PTO capability. Strength? That frame gives you 50,000-psi steel strength in the back. Examine it all: larger front brake rotors* than comparable Ford or GM chassis cabs. Massive, larger and wider* front-end tow hooks (they're even removable). A transmission with an ultralow first gear with "granny/creeper" capability (ideal under maximum GCWRs). Fact is, there are a raft of features in the all-new Ram 4500 and 5500 Chassis Cab models to boost your business, and the best facts are the ones that work. Fact: Ram 4500 Chassis Cab boasts standard GVWR of 16,000 lb (60 CA) and 16,500 lb (84 CA, 108 CA, 120 CA) and 5500 has 18,750 lb (60 CA) GVWR and 19,500 lb (84 CA, 108 CA, 120 CA). Fact: both Ram 4500 and 5500 Chassis Cabs offer standard front GAWR of 7,000 lb. Get into the newest additions to the commercial standard — **at dodge.com/chassis_cab**

*Based on GM and Ford Class-4 and -5 conventional chassis cab models.



1 RAM 3500 CHASSIS CAB SHOWN WITH STAKE BED UPFIT

With the available Cummins® 6.7-liter Turbo Diesel under its belt, you've got the tools to let you think outside the box: an available AISIN 6-speed automatic transmission with outstanding PTO capability; a lower first gear ratio than diesel-equipped Ford or GM Class 3 conventional chassis cabs; and a suspension designed not to "bottom out" under full GVWRs.

2 ALL-NEW RAM 5500 CHASSIS CAB SHOWN WITH ROLLBACK UPFIT

Top-of-the-line performance positively impacts your bottom line. Ram 5500 Chassis Cab. Like the 3500 and 4500 models, it's available in ST, SLT, and Laramie* trims, and in both 4x2 and 4x4 configurations.

3 RAM 3500 CHASSIS CAB SHOWN WITH FLATBED UPFIT

Ram 3500 Chassis Cab models features a standard 52-gallon fuel tank (22-gallon mid-ship tank available). 17-inch wheels and tires. 60- and 84-inch CA lengths for Regular Cab and 60-inch CA lengths for Quad Cab.®

4 TOUGH-AS-NAILS FRAME

It's all right here: 50,000-psi rear frame steel strength. C-channel frame construction with 34" spacing. Comprehensive electronics underneath the frame rail surface. New rear suspension with new rear axle, springs, shocks, sway bar and jounce bumper. New antilock brake system (ABS) and calibrations.

*Laramie available on Quad Cab models only.

Ram 3500 Quad Cab® Big Horn Dually in Bright White, shown with Authentic Dodge Accessories by Mopar (see back pages), including Telescoping Trailer Tow Mirrors and Chrome Front Air Deflector — perfect accessories for pulling a Dodge themed trailer by Monaco Coach Corporation. There's more at trail-lite.com.

RAM. MAKE IT PART OF YOUR WORK ETHIC.

Whether you're using a Dodge Ram to tow your vacation trailer uphill — or your business trailer cross-country — you know that durability, quality, and reliability are part of the design from Day One. But what's also part of the design is value — the stuff that lets you rely on your Dodge Ram from business start-up to sundown on the plains. Take the next step: ask your dealer about outfitting your new Ram with Authentic Dodge Accessories by Mopar. Choose from Entertainment and Navigation Systems, Chrome Tubular Side Steps, Tonneau Covers — and much more. If you're incorporated as a business, Ram ownership translates into valuable Dodge **ON THE JOB** incentives. Available through every Dodge dealer, **ON THE JOB** offers money-saving discounts on a variety of upfits and accessories — including a very handy (and immediate) cash discount on most Dodge vehicles. See your Dodge dealer for details, call us at **800-4ADODGE**, or click on **dodge.com** and follow the commercial links.

MAXIMUM PAYLOAD CAPACITIES

AUTOMATIC TRANSMISSION

			1500										2500								3500							
			REGULAR CAB				QUAD CAB®				MEGA CAB®		REGULAR CAB		QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB	
			SB 4x2	LB 4x2	SB 4x4	LB 4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
Engine	GVWR																											
3.7L V6	6,025	1,500																										
	6,600		1,840																									
	6,700					1,810																						
4.7L V8	6,025	1,370																										
	6,350			1,420																								
	6,600		1,710		1,470																							
	6,700					1,670	1,450	1,430																				
	6,800								1,280																			
5.7L HEMI® V8	6,200	1,460																										
	6,350			1,400																								
	6,600		1,610		1,400																							
	6,700					1,620	1,390	1,380																				
	6,800								1,250																			
	8,510									2,550	2,090		2,430				2,260											
	8,650											3,320	2,840															
	8,800													3,270	3,130	2,820	2,680	2,770	2,330									
	11,000[1]																			5,210			4,910					
	11,500[1]																				5,130				5,030			
6.7L Cummins® Turbo Diesel I-6	9,000											2,680	6,745	2,520	2,410	2,070	1,930	2,020	1,590									
	10,100[2]																					3,620	3,470	3,170	3,040	3,150	2,730	
	10,500[1]																									3,200	2,770	
	11,500[1]																			4,790			4,480					
	12,200[1]																								4,780			

MANUAL TRANSMISSION

			1500										2500								3500							
			REGULAR CAB				QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB	
			SB 4x2	LB 4x2	SB 4x4	LB 4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
Engine	GVWR																											
3.7L V6	6,025	1,510																										
	6,600		1,830																									
	6,700					1,810																						
4.7L V8	6,025	1,420																										
	6,350			1,480																								
	6,600		1,740		1,530																							
	6,700					1,720		1,490																				
5.7L HEMI V8	8,510												2,390			2,220												
	8,650											3,260	2,800															
	8,800													3,210	3,090	2,770	2,620											
	11,000[1]																			5,150			4,870					
	11,500[1]																				5,080				4,960			
6.7L Cummins® Turbo Diesel I-6	9,000											2,620	2,220	2,450	2,330	2,020	1,860	1,940	1,530									
	10,100[2]																					3,560	3,390	3,110	2,970	3,070	2,660	
	10,500[1]																									3,110	2,700	
	11,500[1]																			4,720			4,410					
	12,200[1]																								4,710			

Weights given in lb. SB = Short Box LB = Long Box [1] Dual Rear Wheel only. [2] Single Rear Wheel only.

MAXIMUM LOADED TRAILER WEIGHT (LB)

AUTOMATIC TRANSMISSION

			1500										2500								3500							
			REGULAR CAB				QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB	
			SB 4x2	LB 4x2	SB 4x4	LB 4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
Engine	Axle Ratio	GCWR (lb)																										
3.7L V6	3.55	8,500	3,800	3,550			3,450																					
	3.92	8,500	3,800	3,550			3,450																					
4.7L V8	3.21	10,500	5,650	5,450			5,300																					
	3.55	11,500	6,650	6,450	6,400	6,200	6,300	6,100	6,050																			
	3.92	12,500	7,650	7,450	7,400	7,200	7,300	7,100	7,050	6,800																		
5.7L HEMI V8	3.55	13,000	8,100	7,850	7,900	7,650	7,750	7,500	7,500																			
	3.73	14,000									7,900	7,450																
	3.73	15,000											9,500	9,000	9,300	9,200	8,850	8,750	8,800	8,400								
	3.92	14,000	9,100	8,850	8,900	8,650	8,750	8,500	8,500	8,300																		
	4.10	15,000									8,900	8,450																
	4.10	17,000											11,500	11,000	11,300	11,200	10,850	10,750	10,800	10,400	11,050	10,500		10,750[1]		10,400[1]		
	4.56	17,000												10,750			10,600											
6.7L Cummins Turbo Diesel I-6	3.73	20,000											13,550	13,100	13,350	13,250	12,900	12,800	12,850	12,450								
	3.73	21,000																			14,150	13,750	14,350	14,200/ 13,850[2]	13,900	13,800/ 13,450[2]	13,900	13,500
	4.10	20,000											13,550	13,100	13,350	13,250	12,900	12,800	12,850	12,450		15,750						
	4.10	23,000																			16,150		16,350	16,250/ 15,850[2]			15,900	
	4.10	24,000																				16,750			16,900	16,800/ 16,450[2]		16,500

[1] Dual Rear Wheel only. [2] Single Rear Wheel/Dual Rear Wheel.

MANUAL TRANSMISSION

			1500										2500								3500							
			REGULAR CAB				QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB	
			SB 4x2	LB 4x2	SB 4x4	LB 4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
Engine	Axle Ratio	GCWR (lb)																										
3.7L V6	3.21	8,000	3,300	3,050			2,950																					
	3.55	8,000	3,300	3,050			2,950																					
4.7L V8	3.21	9,000	4,250	3,950			3,850																					
	3.55	9,500			4,450	4,250			4,100																			
	3.55	10,000	5,250	4,950			4,850																					
	3.92	10,500	5,750	5,450	5,450	5,250	5,350		5,100																			
5.7L HEMI V8	3.73	15,000											9,450	8,950	9,250	9,150	8,800	8,650										
	4.10	17,000											11,450	10,950	11,250	11,150	10,800	10,650			11,000	10,450		10,700[1]		10,300[1]		
	4.56	17,000												10,750			10,550											
6.7L Cummins Turbo Diesel I-6	3.73	20,000											13,450	13,050	13,300	13,200	12,850	12,700	12,800	12,400								
	3.73	21,000											13,450	13,050	13,300	13,200	12,850	12,700	12,800	12,400	14,050	13,700	14,300	14,150/ 13,750[2]	13,850	13,700/ 13,350[2]	13,800	13,400
	4.10	23,000																										

Maximum towing capacities shown with properly equipped vehicle and a 150-lb driver. Options, equipment, cargo and passengers must be deducted. For more information, see your Dodge dealer.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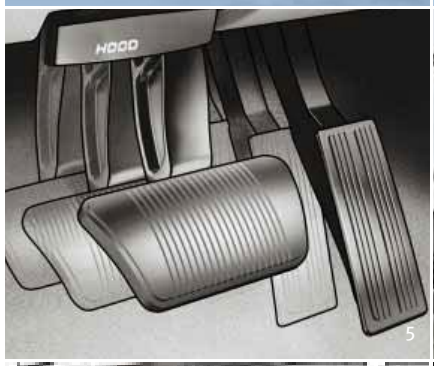

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PERSONAL TECHNOLOGY

For Dodge, applying the highest degree of technology in '08 Ram translates into higher degrees of both comfort — and safety and security. The power rear sliding window and available UConnect® aren't merely convenient — they help keep your focus on the road.

1 POWER SLIDING REAR WINDOW
Push-button convenience allows the available sliding rear window to be opened from the front seat.

2 DUAL ZONE TEMPERATURE CONTROL
Dual zone temperature control ranks as one of the most popular features to ensure comfort for two occupants. Available only on Laramie.

3 DVD VIDEO ENTERTAINMENT SYSTEM (VES®)
DVD Video Entertainment System is an option for select 2008 Ram Quad Cab® and Mega Cab® models.

4 UCONNECT
Make or take a call — with your hands on the wheel. The available UConnect Hands-Free Communication System adds to the safety factor and ranks high in convenience.

SAFETY AND SECURITY

Your safety and security rank with the same importance as outstanding torque and all-around versatility. Keep in mind these engineered-in assets:

5 POWER ADJUSTABLE PEDALS
Available adjustable pedals allow brake and accelerator pedals to move fore and aft to accommodate drivers of all sizes.

6 SUPPLEMENTAL SIDE-CURTAIN AIR BAGS*
The safety and security from standard front air bags* is augmented by supplemental side-curtain air bags;* available for all Ram models.

7 CRUMPLE ZONES
These proactive safety measures absorb energy in the event of a frontal collision. Standard on all Ram models.

8 OUTSTANDING BRAKES
Huge calipers and rotors (up to 13.9 inches) contribute to stopping power and your peace of mind.

*Dodge Ram 1500 Regular and Quad Cab are equipped with advanced multistage front air bags. Always sit properly in the seat with the seat belt fastened. Children 12 and under should be in a backseat correctly using an infant or child restraint system or the seat belt positioned correctly for the child's age and weight. All Mega Cabs and 2500/3500 Heavy Duty vehicles are equipped with Next Generation multistage front air bags. Certified to the Federal Regulations that allow less forceful front air bags. Always use seat belts. Children 12 and under should always be in a backseat correctly using an infant or child restraint system, or the seat belt positioned correctly for the child's age and size.

RAM ST › ALL RAM MODELS INCLUDE THESE FEATURES: 6-speed manual transmission › Vinyl 40/20/40 split-bench seat › Heavy-duty vinyl floor covering › Air conditioning › AM/FM stereo with CD player and 4 speakers › Variable intermittent windshield wipers › Steel wheels › Fixed rear window › Sentry Key® Theft Deterrent System › Dark Gray upper fascia, grille and bumpers

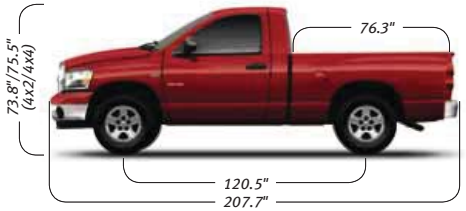
RAM SXT › INCLUDES THE STANDARD ST EQUIPMENT EXCEPT WHERE ADDITIONS ARE NOTED: Cloth 40/20/40 split-bench seat › Carpet floor covering › Power windows › Power door locks › Power heated mirrors › Speed control › Chrome-clad steel wheels › Unique SXT badging › Chrome front and rear bumpers › Chrome grille surround

HIGHLIGHTS OF THE RAM TRX4® OFF-ROAD GROUP INCLUDE: On-/Off-road OWL tires › TRX4 Off-Road decals › Tow hooks › Skid plates › Antispin rear differential › Fog lamps › SIRIUS® Satellite Radio

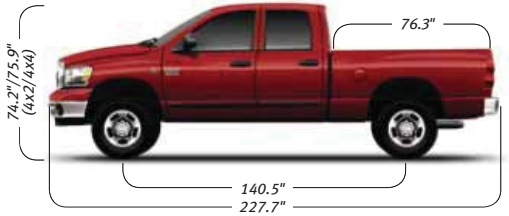
RAM SLT › INCLUDES THE STANDARD EQUIPMENT OF THE PREVIOUS TRIM LEVEL EXCEPT WHERE ADDITIONS ARE NOTED: Body-color upper front fascia › Cloth-trimmed 40/20/40 split-bench seat › Carpet floor covering › Power windows › Power door locks › Tilt steering wheel › Speed control › Power heated folding exterior mirrors › Remote keyless entry › 17-inch cast aluminum wheels › Shown here in two-tone paint in Brilliant Black Crystal Pearl and Light Khaki Metallic

RAM SPECIFICATIONS

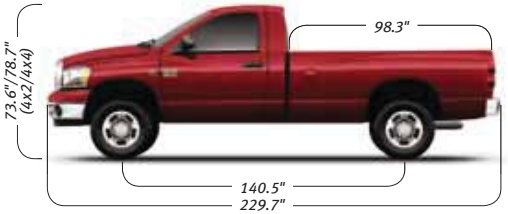
REGULAR CAB — SHORT BOX



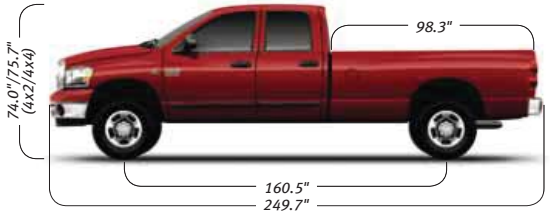
QUAD CAB® — SHORT BOX



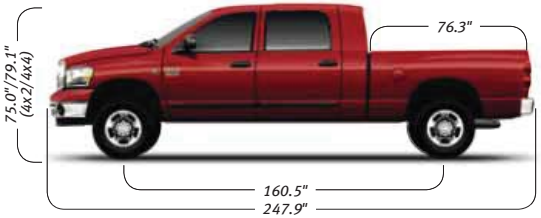
REGULAR CAB — LONG BOX



QUAD CAB — LONG BOX



MEGA CAB®



RAM SRW

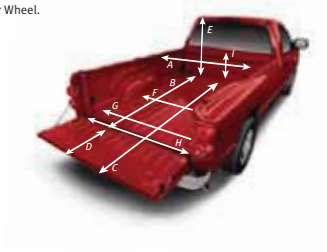
RAM DUALLY

RAM CARGO BOX DIMENSIONS

		6'4" BOX	8' BOX
A	MAXIMUM WIDTH AT OUTSIDE FENDER	79.6	79.6/96.0*
B	MAXIMUM LENGTH AT FLOOR	76.3	98.3
C	FRONT OF BOX TO END OF OPEN TAILGATE	99.8	121.8
D	OPEN TAILGATE	20.2	
E	BOX FLOOR TO TOP OF CAB	43.9	
F	WIDTH BETWEEN WHEELHOUSES	51.0	
G	MAXIMUM WIDTH AT FLOOR	66.4	
H	WIDTH OF TAILGATE OPENING	60.6	
I	DEPTH OF BOX	20.2	
	CARGO VOLUME (CU FT)	57.5	74.9

All dimensions in inches.

*Single Rear Wheel/Dual Rear Wheel.



RAM INTERIOR DIMENSIONS

		FRONT REGULAR CAB	FRONT QUAD CAB	REAR QUAD CAB	FRONT MEGA CAB	REAR MEGA CAB
A	HEAD ROOM	40.8	41.0	40.0	40.8	40.5
B	HIP ROOM	65.0	65.0	65.3	64.9	64.4
C	SHOULDER ROOM	67.0	67.0	66.5	67.0	66.5
D	LEG ROOM	41.0	41.0	36.7	41.0	44.2
	TOTAL PASSENGER VOLUME (CU FT)	64.8	65.1	56.6	64.9	68.9

HIGHLIGHTS OF BIG HORN › INCLUDES THE STANDARD EQUIPMENT OF SLT TRIM LEVEL EXCEPT WHERE ADDITIONS ARE NOTED: Chrome billet grille › Fog lamps › 20-inch cast aluminum wheels on 1500 models › 17-inch cast aluminum wheels on Heavy Duty models

HIGHLIGHTS OF RAM SPORT GROUP INCLUDE: Body-color grille surround with chrome billet inserts › Body-color front fascia › Body-color rear bumper with step pad › Fog lamps › 20-inch chrome-clad aluminum wheels (1500) › 17-inch chrome-clad cast aluminum wheels (Heavy Duty) › Cloth bucket seats › Full floor center console

RAM POWER WAGON® INCLUDES: Electronic locking front and rear differentials › Electronic locking front stabilizer bar › 12,000-lb capacity Warn® winch › 4.56 axle ratio › BFGoodrich® LT285/70R17D BSW All-Terrain T/A®KO tires › Bilstein® gas-charged monotube shocks › 17x8-inch forged aluminum wheels › Increased ride height (1.8 inches front, 1.4 inches rear) › Skid plates and tubular underbody protection › Dark Gray upper fascia, bodyside molding and fender flares

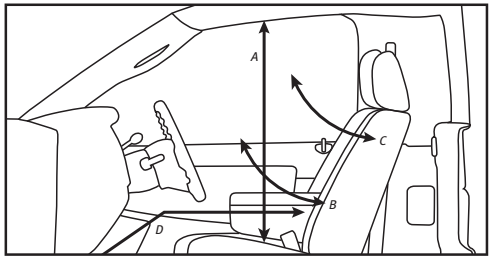
RAM LARAMIE › INCLUDES THE STANDARD EQUIPMENT OF PREVIOUS TRIM LEVELS EXCEPT WHERE ADDITIONS ARE NOTED: Leather-trimmed 40/20/40 split-bench seat › 40/60 split-folding rear bench seat › Dual zone temperature control › Rear fold-flat load floor (Quad Cab® only) › Light Group › Power adjustable pedals › Security alarm › Auto-dimming interior rearview mirror › 20-inch chrome-clad aluminum wheels for 1500 models › 17-inch chrome-clad wheels on Heavy Duty models

RAM INTERIORS

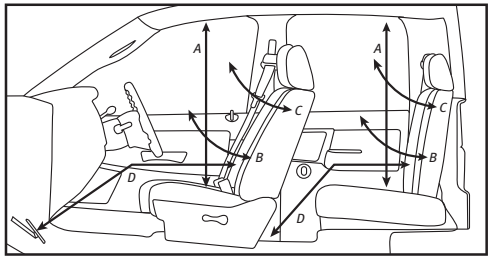
REGULAR CAB SLT — Shown in Medium Slate Gray Cloth

QUAD CAB® LARAMIE — Shown in Medium Slate Gray Leather Trim

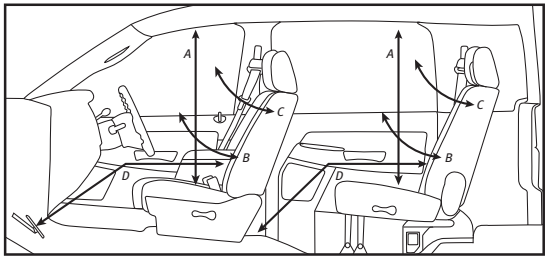
MEGA CAB® SLT — Shown in Medium Slate Gray Cloth



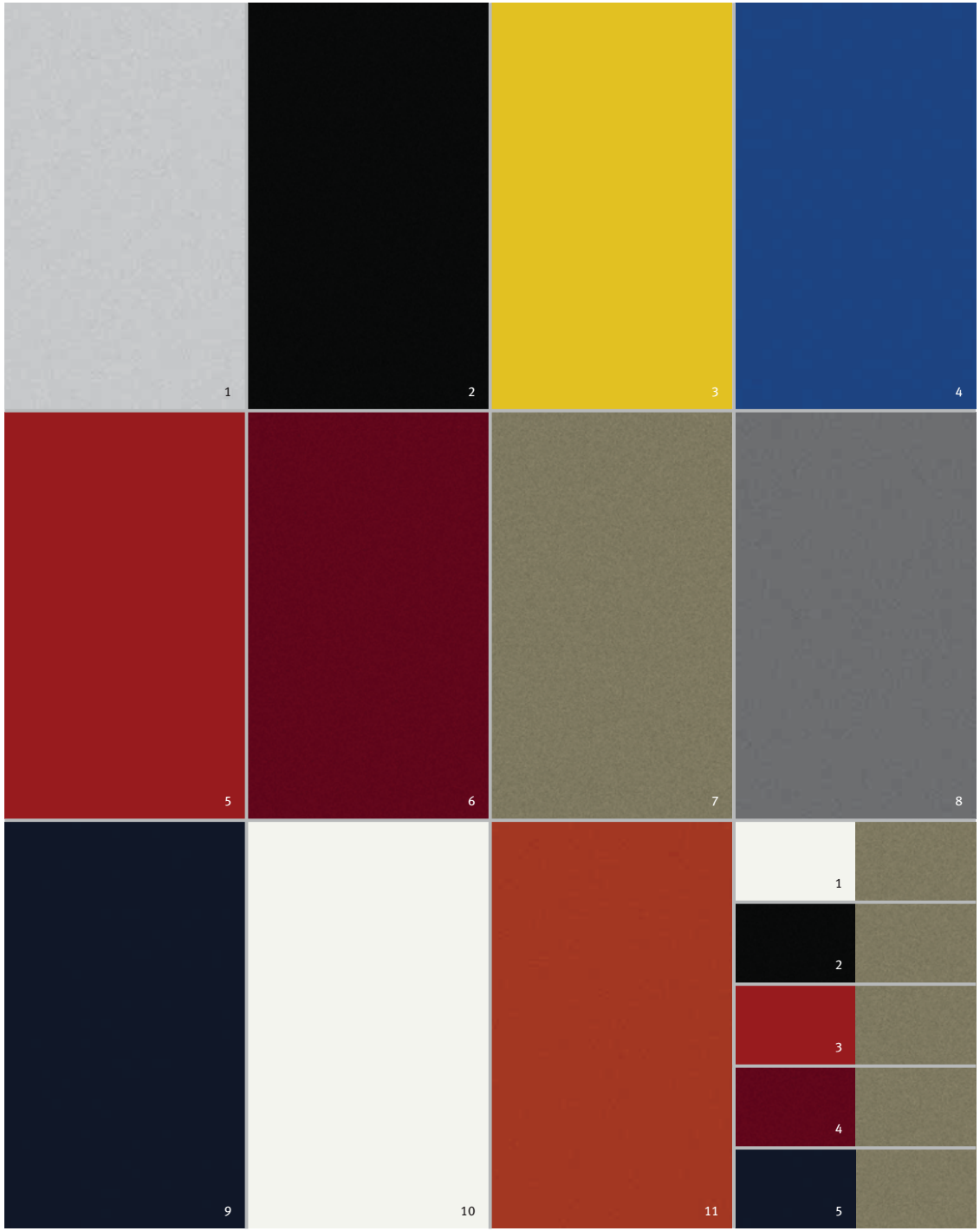
REGULAR CAB



QUAD CAB



MEGA CAB



RAM EXTERIOR COLORS

1 **BRIGHT SILVER METALLIC**

2 **BRILLIANT BLACK CRYSTAL PEARL**

3 **DETONATOR YELLOW**
1500 Quad Cab® only

4 **ELECTRIC BLUE PEARL**

5 **FLAME RED**

6 **INFERNO RED CRYSTAL PEARL**

7 **LIGHT KHAKI METALLIC**

8 **MINERAL GRAY METALLIC**

9 **PATRIOT BLUE PEARL**

10 **BRIGHT WHITE**

11 **SUNBURST ORANGE PEARL**
1500 Quad Cab only

RAM EXTERIOR COLORS (TWO-TONES)

1 **BRIGHT WHITE/LIGHT KHAKI METALLIC**

2 **BRILLIANT BLACK CRYSTAL PEARL/LIGHT KHAKI METALLIC**

3 **FLAME RED/LIGHT KHAKI METALLIC**

4 **INFERNO RED CRYSTAL PEARL/LIGHT KHAKI METALLIC**

5 **PATRIOT BLUE PEARL/LIGHT KHAKI METALLIC**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RAM WHEELS

1 **17-INCH DROP CENTER STEEL WHEEL WITH BLACK CENTER CAP***
Standard on 1500 ST models (WEA)

2 **17-INCH CHROME-CLAD STEEL WHEEL***
Available on 1500 ST and standard on SXT models (WF2)

3 **17-INCH CAST-ALUMINUM MACHINED WHEEL***
Standard on 1500 SLT Long Wheelbase and available on Regular Cab Short Wheelbase models (WF6)

4 **20-INCH ALUMINUM WHEEL***
Standard on Quad Cab® Big Horn/Lonestar (SWB) models (WPA)

5 **20-INCH CHROME-CLAD ALUMINUM WHEEL***
Standard on Laramie and available on 1500 SLT and Big Horn/Lonestar (SWB) models (WP2)

6 **17-INCH ARGENT STEEL WHEEL†**
Standard on 2500/3500 ST SRW models (WD2)

7 **17-INCH CHROME-CLAD STEEL WHEEL†**
Standard on 2500/3500 SXT SRW models (WGS)

8 **17-INCH POLISHED FORGED ALUMINUM WHEEL†**
Standard on Power Wagon® models (WFF)

9 **17-INCH CHROME-CLAD FORGED ALUMINUM WHEEL†**
Standard on 2500/3500 Laramie and available on SLT and Big Horn/Lonestar SRW models (WGX)

10 **17-INCH POLISHED FORGED ALUMINUM WHEEL†**
Standard on 2500/3500 SLT and Big Horn/Lonestar SRW models (WGD)

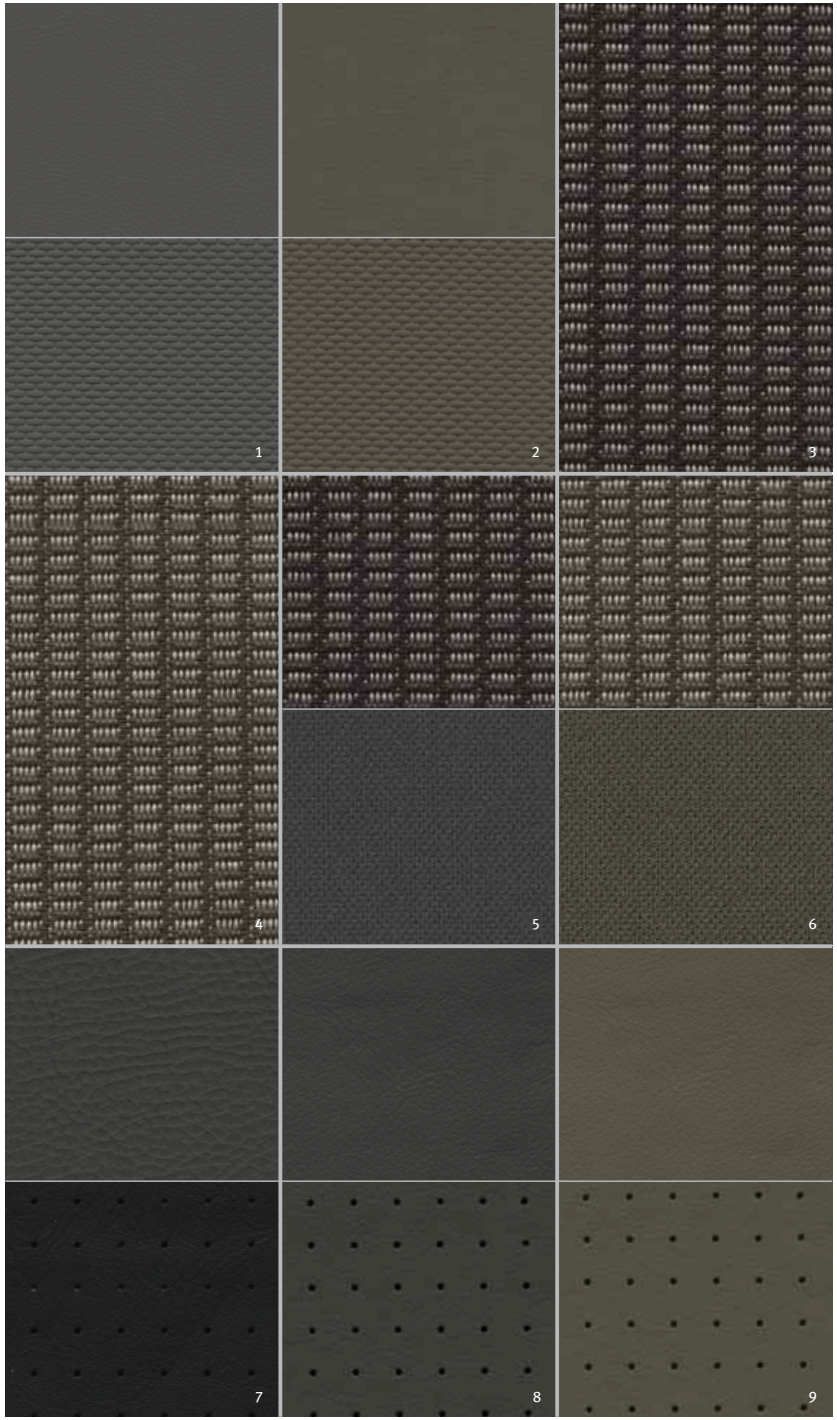
11 **17-INCH ARGENT STEEL WHEEL‡**
Standard on 3500 ST DRW models (front axle only) (WFU)

12 **17-INCH ARGENT STEEL WHEEL‡**
Standard on 3500 ST DRW models (rear axle only) (WFU)

13 **17-INCH CHROME WHEEL SKINS‡**
Standard on 3500 SXT, SLT, Big Horn/Lonestar, Laramie DRW models (front axle only) (WD4)

14 **17-INCH CHROME WHEEL SKINS‡**
Standard on 3500 SXT, SLT, Big Horn/Lonestar, Laramie DRW models (rear axle only) (WD4)

*Ram 1500 Regular and Quad Cab. †Mega Cab and 2500/3500 SRW models. ‡3500 DRW.



RAM FABRICS

1 **CAPRICE GRAIN VINYL/TALLADEGA GRAIN VINYL MED. SLATE GRAY**
Ram ST

2 **CAPRICE GRAIN VINYL/TALLADEGA GRAIN VINYL MED. KHAKI**
Ram ST

3 **BILLINGS CLOTH WITH YES ESSENTIALS®* MED. SLATE GRAY**
Ram ST, SXT, SLT, Big Horn, Power Wagon®

4 **BILLINGS CLOTH WITH YES ESSENTIALS®* MED. KHAKI**
Ram ST, SXT, SLT, Big Horn, Power Wagon

5 **BILLINGS CLOTH/RACINE CLOTH WITH YES ESSENTIALS®* MED. SLATE GRAY**
Ram SLT, Big Horn, Power Wagon

6 **BILLINGS CLOTH/RACINE CLOTH WITH YES ESSENTIALS® MED. KHAKI**
Ram SLT, Big Horn, Power Wagon

7 **SUTTON GRAIN VINYL/ROYALE GRAIN PERFORATED LEATHER TRIM INSERT MED. SLATE GRAY/DARK SLATE GRAY**
Ram with Sport Group

8 **WINDSOR GRAIN LEATHER TRIM/WINDSOR GRAIN PERFORATED LEATHER TRIM INSERT MED. SLATE GRAY**
Ram Power Wagon, Laramie

9 **WINDSOR GRAIN LEATHER TRIM/WINDSOR GRAIN PERFORATED LEATHER TRIM INSERT MED. KHAKI**
Ram Power Wagon, Laramie

*Not compatible with aftermarket fabric-protecting coatings.

AUTHENTIC DODGE ACCESSORIES.

When you enhance your Ram with Authentic Dodge Accessories by Mopar, you gain far more than substantial style, premium protection, or extreme entertainment. You also benefit from the authentic difference found only in an original equipment accessory. It's a difference that demands tighter tolerances and envelope-pushing testing methods. And one backed by a superior warranty* serviced by Dodge dealerships nationwide. Choose the full line of accessories that feature a fit, finish, and functionality designed specifically for your Ram. Check us out at **mopar.com**.

*See your dealer for full details and a copy of the limited warranty.

AUTHENTIC DODGE ACCESSORIES

MOPAR

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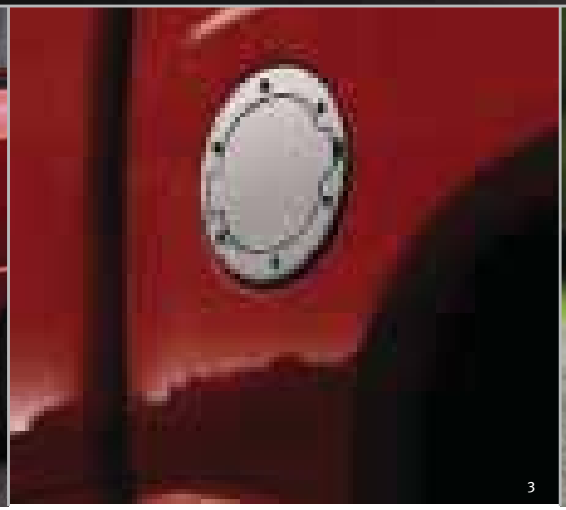

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TAKE NOTICE. BECAUSE OTHERS SURE WILL.

Accessorizing your Ram with Authentic Dodge Accessories adds tone to what is clearly muscle.

1 HOOD SCOOP
For added show on the go, this stamped steel scoop features a molded grille insert and gasket. **MOLDED RUNNING BOARDS**. These durable body-colored running boards can take all the punishment you can dish out. **FRONT VALANCE**. Contoured valance is available for Sport models in all body colors. **ACCENT KIT**. Give your Ram a sleek and powerful look. Kit includes four body-colored **SIDE SILL** accent pieces that round out your low profile.

2 REAR VALANCE
For stylish substance, our Rear Valance accents your Ram's aggressive posture with a bold stance.

3 FUEL FILLER DOOR
Add a bright complement to your Ram with this two-piece design available in brushed aluminum (shown) or chrome.

4 20-INCH X 9-INCH 5-SPOKE CAST-ALUMINUM CHROMED WHEEL/ 20-INCH X 9-INCH 5-SPOKE POLISHED FORGED-ALUMINUM WHEEL
All our wheels are treated with a durable Clear Coat finish and undergo stringent testing to resist corrosion and maintain their bright finish. They're also machined to match your Ram's exact specifications for a smooth and balanced ride. Available for 1500 models.

DECKED STRAIGHT OUT OF THE GATE.

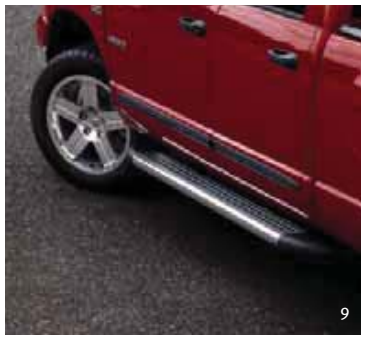
Like the gleam of sweat that highlights a thoroughbred as it thunders around the track, these bold chrome accessories give your Ram a similarly powerful shine.

5 CHROME GRILLE
Make a statement right up front. Grille will not adversely affect engine airflow or impede the opening and closing of your Ram's hood. **CHROME TUBULAR SIDE STEPS** Get tubular with these 4-inch oval chromed aluminum side steps. Black molded end caps and step pads are also included for extra durability. No drilling required. **CHROME FUEL FILLER DOOR** Uniquely sculpted one-piece design brightly complements every body-color and replaces your existing fuel door with a seamless fit. **CHROME BODYSIDE MOLDINGS** Your Ram's sheet metal will be protected from damage if struck by an object and pick up some good looks at the same time. Also shown with **CHROME FRONT AIR DEFLECTOR** and **CLEARANCE RUNNING LIGHTS**.

6 DOOR SILL GUARDS
Add a nice touch of brushed stainless steel style to your Ram while protecting its interior sills from scratches. Dodge logo featured on front sills. Set of two for Regular Cab. Set of four for Quad Cab® or Mega Cab.®

7 CHROME EXHAUST TIP
Show off your truck's pipes with a bold chrome exhaust tip, rigorously tested for corrosion resistance to ensure a long-lasting shine.

ADDITIONAL AUTHENTIC DODGE ACCESSORIES BY MOPAR.
Bed Extender, Bed Tie-Downs, Bed Web Net, Chrome Bed Side Rails, Chrome Taillamp Guards, Decal Kits, Diamond Plate: Bed Extensions, Bed Rail Protectors, Tool Box, Splash Guards, Diesel Cold Weather Package, Door Edge Guards, Engine Block Heater, EVS I and EVS II Security Systems, Flat Load Floor Liner, Flat Tailgate Cover, Fold-Out Trailer Tow Mirrors, Fuel Operated Cabin Heater, Heavy-Duty Splash Guards, Heavy-Duty Winch Kit, Hitch-Mount Bike Carrier, Locking Gas Cap, Molded Splash Guards, Navigation Radio, Power Retractable Running Boards, Premium Radios, Premium Vehicle-Care Products, Ram Rack, Remote Start, Roadside Safety Kit, Rock Rails, Seat Covers, Side Window Air Deflectors, SIRIUS Satellite Radio, Skid Plate, Spare Tire Lock Kit, Tailgate Spoiler, Trailering Accessories, Telescoping Trailer Tow Mirrors, Tow Hooks, UConnect, Vehicle Cover, Warn Winch, Wheel Flares, Wheel Locks, Wheel Well Liners, and Windshield Sunshade.



BIG ON STYLE. BIG ON PERFORMANCE.

1 **DVD REAR SEAT VIDEO.™** The integrated, single-disc CD/DVD player features a flip-down 7-inch LCD screen, wireless headphones, and remote. This Authentic Dodge Accessory is available for Quad Cab® and Mega Cab® models without sunroofs.

2 **INTERFACE MODULE FOR iPod.®†** This FM-bounded system allows you to listen to your favorite music through your vehicle's audio system. iPod music file navigation is maintained by the iPod clickwheel.

3 **CHROME FRONT AIR DEFLECTOR.‡** Good looks are up front with this stylish air deflector, designed to help deflect road spray, dirt, and bugs up and away from your windshield.

4 **WHEEL-TO-WHEEL TUBULAR SIDE STEPS.** You'll never be short on style with these 4-inch oval chromed aluminum side steps that run from wheel well to wheel well. Available for Quad Cab only.

5 **CHROME TUBULAR SIDE STEPS.** Steps feature Black molded end caps, slip-resistant step pads, and heavy-duty, drill-free mounting brackets. Available in 4-inch oval Black or chrome for Regular and Quad Cab models and chrome for Mega Cab® models.

6 **STAINLESS STEEL 3-INCH ROUND TUBULAR SIDE STEPS.** Deck out your truck with these side steps that feature Black textured stepping surfaces and Dodge Ram's Head logo. Available for Quad Cab only.

7 **ALUMINUM RUNNING BOARDS.** Designed for minimal slippage and maximum looks that won't rust, these running boards feature integrated front splash guards and rear molded end caps to keep them cleaner and safer to use. Fits cab section only for Regular and Quad Cab models.

8 **PREMIUM TUBULAR SIDE STEPS.** These premium steps feature extra-wide, textured stepping surfaces for easy entry and exit and mount securely with corrosion-resistant, ElectroCoated steel mounting brackets. Available for Quad Cab models only.

9 **PREMIUM SIDE STEPS.** These stylishly substantial steps feature molded end caps and drill-free installation. Integrated Black buttons run the length of the stepping surface to help provide an easier entry and exit with minimal slippage. Available for Quad Cab only.

10 **DIAMOND PLATE SIDE STEPS.** Dirt and scratches can step aside with these durable, anodized aluminum side steps. Complete the package with **DIAMOND PLATE BED EXTENSIONS, TOOLBOX, SPLASH GUARDS AND BED RAIL PROTECTORS** (not shown).

11 **GOOSENECK TRAILER HITCH.** Designed to handle your toughest towing needs, the Gooseneck Trailer Hitch is powder coated for a durable and long-lasting finish and mounts securely in the pickup bed. The hitch attaches directly to the frame rails and installs easily without the need for welding and requires only minimum drilling. The **HITCH BALL** (sold separately) incorporates a quick release handle that converts the hitch mount to a level bed floor in seconds when needed. **HITCH MOUNT INSTALLATION KIT** also available, sold separately.

12 **HITCH RECEIVER.‡** Your Ram will really haul when it's equipped with our 2-inch Hitch Receiver that features an ElectroCoat primer with a Black polyester-baked top-coat finish. Hitch Receiver Plug included. Hitch Ball Mounted Wiring Harness sold separately.

13 UNDER-THE-RAIL BEDLINER. Skid Resistor bedliner's ribbed construction helps keep cargo from shifting and includes built-in supports to split cargo. Tailgate cover also included.

14 OVER-THE-RAIL BEDLINER. Help protect your truck's bed and bed rails with this high-density polyethylene Skid Resistor bedliner. **TAILGATE COVER** has built-in cup holders perfect for tailgate parties, and provides added protection for your tailgate.

15 BED MAT. Kiss dents and scratches to your truck's bed floor and tailgate good-bye. Nylon-reinforced rubber mat removes easily for cleaning and features Dodge logo. **MOLDED BED RAIL PROTECTORS**. Enhance the look of your truck while protecting the bed rails with these UV fade-resistant, TPO plastic protectors.

16 BED RUG. Closed-cell polyethylene helps protect your truck bed from scratches. Bed Rug cleans easily and is designed not to absorb or be damaged by oils, solvents, grease, or acids.

17 HARD FOLDING TONNEAU COVER.* Get the benefits of a lightweight cover with the durability of an aluminum frame. Patented four-panel design lets you open the front or rear panel for easy cargo access.

18 SNAPLESS PREMIUM SOFT TONNEAU COVER.† Soft cover features premium fabric and an aluminum frame custom fit to your truck's bed. The cover also features bows to help reduce water pooling and is easy to install and remove.

19 FIBERGLASS TONNEAU COVER. This hard body features a resin-reinforced honeycomb design for durability and a corrosion-resistant aluminum frame for added strength. Available in all body colors for Ram 6.3-foot beds.

20 TRIFOLD TONNEAU COVER. This soft folding cover can be installed quickly and totally removed in seconds. The quick-release latches allow for fast operation. Available for 6.3- and 8-foot beds.

21 HARD TONNEAU COVER WITH INTEGRATED SPOILER. Not only does this unique cover deliver plenty of protection for your cargo against the elements, it also provides a unique look with its vibration-free, race-inspired design.

22 SIDE WINDOW AIR DEFLECTORS.† These tinted, acrylic visors let you partially open your window and still remain dry during inclement weather.

23 SLUSH MATS.§ These mats feature deep grooves to help prevent water, snow, and mud from doing a number on your carpet. Rear mats are available, for Quad Cab and Mega Cab.

24 PREMIUM FLOOR MATS.§ Plush enough to go barefoot, yet durable enough to stand up to the elements. Rear mat is available for Quad Cab and Mega Cab models.

*Available for 6.3- and 8-foot beds. †Available for 1500, 2500 and 3500 models. ‡Check Owner's Manual for hitch type, load capacity and heavy-duty equipment required. Do not exceed the rated tow capacity of vehicle as equipped. §Front mats available for all 1500, 2500, and 3500 models. ¶Properly secure all cargo.

2008 DODGE RAM BUYER'S GUIDE

FEATURES COMMON ACROSS ALL TRIM LEVELS

AIR BAGS[1]
— Advanced multistage front (1500 Regular and Quad Cab®)
— Next Generation multistage front;[2] all Mega Cab® and 2500/3500
ASSIST HANDLE — Passenger-side (CSP)
BADGING
— 4x4 (only on 4x4 models)
— Ram's Head — Not available with pickup box delete
CIGAR LIGHTER
CLUSTER — Instrument, with tachometer and 120-mph speedometer
HEADLAMPS — Halogen
INSULATION
— Dash liner
— Floor tunnel
MONOTONE PAINT
POWER ACCESSORY DELAY
RADIO — AM/FM stereo radio with CD player and 4 speakers
SEAT BELTS — Front, height-adjustable shoulder
SENTRY KEY® ANTITHEFT ENGINE IMMOBILIZER
SHOCK ABSORBERS
— Front, heavy-duty
— Rear, heavy-duty
STORAGE
— Front, behind seat (Regular Cab only)
— Rear, underseat compartment (Quad Cab® models only)
TAILGATE — Removable
THREE BLINK — Turn signal lane change feature
TIP START — Included with all automatic gas engines
TIRE PRESSURE MONITOR (1500 and 2500 only)
TIRES — Spare, full-size
WHEELS — 17"x7.0" steel spare (N/A with 20" Wheels)
WINCH — Spare tire carrier
WINDSHIELD WIPERS — Variable-intermittent

• = Included. P = Available within package noted in parentheses. O = Optional. L = Fleet only option.

[1] Always sit properly in the seat with the seat belt fastened. Children 12 and under should always be in a backseat correctly using an infant or child restraint system or the seat belt positioned correctly for the child's age and weight.
[2] Certified to the Federal Regulations that allow less forceful front air bags. Always use seat belts. Children 12 and under should always be in a backseat correctly using an infant or child restraint system, or the seat belt positioned correctly for the child's age and size.
[3] Not compatible with all garage door openers. See your retailer for details.
[4] Not compatible with aftermarket fabric-protecting coatings.
[5] "SIRIUS" and the SIRIUS dog logo are registered trademarks of SIRIUS Satellite Radio Inc. All other trademarks, service marks and logos are the property of their respective owners. For full terms and conditions visit sirius.com. Prices and programming are subject to change. Not available in AK and HI.
[6] Always use seat belts. Children 12 and under should always be in a backseat using an infant or child restraint system, or the seat belt positioned correctly for the child's age and size.
[7] No system, no matter how sophisticated, can repeal the laws of physics or overcome careless driving actions. Performance is limited by available traction, which snow, ice and other conditions can affect. When the ESP warning lamp in the speedometer flashes, the driver needs to use less throttle and adapt speed and driving behavior to prevailing road conditions. Always drive carefully, consistent with conditions. Always wear your seat belt.

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON® REG/QUAD P	LARAMIE QUAD/ MEGA H
ENGINE/TRANSMISSION						
REGULAR & QUAD CAB 1500						
3.7L MAGNUM® V6/6-SPEED MANUAL	*21A*	*21B*				
3.7L MAGNUM V6/4-SPEED AUTOMATIC VLP	*22A*	*22B*				
4.7L V8/6-SPEED MANUAL	*23A*	*23B*		*23G*		
4.7L V8/5-SPEED AUTOMATIC	*24A*	*24B*		*24G*		
5.7L HEMI® MDS V8 (N/A on Mega Cab® and 2500/3500 models)/5-speed automatic	*26A*	*26B*		*26G*		*26H*
MEGA CAB AND 2500/3500						
5.7L HEMI V8 (N/A on SWB 3500 Quad Cab and 3500 Mega Cab)/6-speed manual	*25A*	*25B*		*25G*	*25P*	
5.7L HEMI V8 (1500 Mega Cab comes with standard HEMI without MDS)/5-speed automatic	*26A*	*26B*	*26F*	*26G*	*26P*	*26H*
6.7L CUMMINS® TURBO DIESEL I-6 (2500/3500 only)/6-speed manual	*2EA*	*2EB*	*2EF*	*2EG*		*2EH*
6.7L CUMMINS TURBO DIESEL I-6 (2500/3500 only)/6-speed automatic	*2FA*	*2FB*	*2FF*	*2FG*		*2FH*
MECHANICAL FEATURES						
ALTERNATOR — 136-amp	•	•	•	•		•
— 160-amp (included in Heavy-Duty Snowplow Prep Group)	*P*	*P*	*P*	*P*	•	*P*
AXLES — Antispin rear differential (included with TRX4® Off-Road Group)	*O*	*O/P*	*O*	*O*	•	*O*
1500 Regular and Quad Cab Models						
— 3.21 ratio (2WD, 1500, 6-speed manual transmission only)	•	•		•		
— 3.55 ratio (included with automatic transmission on 2WD 1500 models, standard on 4WD 1500 models)	*O/•*	*O/•*		*O/•*		
— 3.92 ratio (1500 models only, N/A on Mega Cab)	*O*	*O*		*O/•*		•
Mega Cab and 2500/3500 Models						
— Electrically locking front and rear differentials (Power Wagon only)					•	
— 3.73 ratio (Mega Cab and 2500/3500 models)	•	•	•	•		•
— 4.10 ratio (Mega Cab and 2500/3500 models only, included with HEMI V8 and 6-speed manual on 3500 must have antispin differential)	*O/•*	*O/•*	*O/•*	*O/•*		*O/•*
— 4.56 ratio (2500 Power Wagon only)					•	
BATTERY — 750-amp (included in Trailer Tow, Snow Chief and Heavy-Duty Snowplow Prep Groups; two (2) std. with diesel engine)	*P*	*P*	*P*	*P*	•	*P*
DIESEL EXHAUST BRAKE — Standard with 2500/3500 6.7L Cummins only	•	•	•	•		•
ENGINE BLOCK HEATER	*O*	*O*	*O*	*O*	*O*	*O*
ENGINE COOLING — Heavy-Duty (on 1500 models only; included with Trailer Tow Group; must have 5.7L HEMI V8 and 5-speed automatic transmission)	*P*	*P*	*P*	*P*	•	*P*

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON REG/QUAD P	LARAMIE QUAD/ MEGA H
MECHANICAL FEATURES (CONTINUED)						
FUEL TANK — 26-gallon (1500 Regular and Quad Cab short box only)	•	•		•		•
— 34-gallon (std. on 2500/3500 Quad Cab short box only and all Mega Cab) (optional 1500 Quad Cab SB)	*O/•*	*O/•*	•	*O/•*	•	*O/•*
— 35-gallon (long box only)	•	•		•	•	•
STABILIZER BAR — Front	•	•	•	•		•
— Front, electrically disconnecting					•	
STEERING — Power, rack-and-pinion (N/A on Mega Cab 4x4 or 2500/3500 4x4 models)	•	•	•	•		•
— Power, recirculating ball (standard on Mega Cab 4x4 and 2500/3500 4x4 models only)			•	•	•	•
TRANSFER CASE — Electric shift, part-time T-case (1500 Regular and Quad Cab 4x4 only)	•	•		•		•
— On demand (1500 Regular and Quad Cab 4x4 models only)				*O*		*O*
— Manual, part-time (2500/3500 4x4 models)	•	•				
— Electric shift (2500/3500 4x4 models)			•	•	•	•
WINCH — Front electric (12,000-lb capacity)					•	
EXTERIOR FEATURES						
BEDLINER — Box, under rail	*O*	*O*	*O*	*O*		*O*
BUMPERS — Front, dark gray	•					
— Rear, dark gray	•					
— Front, chrome		•	•	•	•	
— Rear, chrome		•	•	•	•	•
— Body-color, rear (included with Sport Appearance Group)				*P*		
CHROME TUBULAR SIDE STEPS (1500 Regular short/long box, 1500/2500 Quad Cab short box only)	*O*	*O*		*O*		*O*
CHROME TUBULAR SIDE STEPS AND BED SIDE RAILS (1500 Regular and Quad Cab short box and 2500 short box only)	*O*	*O*		*O*		*O*
FASCIA — Front, body-color with chrome insert						•
— Front, upper dark gray	•	•	•		•	
— Front, body-color (included with Sport Appearance Group)				*P*		
— Front, upper body-color				•		
FOG LAMPS — (Included with Sport Appearance and TRX4 Off-Road Groups)		*P*		*O/P /•*	•	•
GRILLE — Chrome surround, black billet grille		•	•	•	•	
— Chrome surround, chrome billet grille (Quad Cab only)				•		•
— Dark gray surround, black billet grille	•					

• = Included. O = Optional. P = Available within package noted in parenthesis. L = Fleet Option.

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON® REG/QUAD P	LARAMIE QUAD/ MEGA H
EXTERIOR FEATURES (CONTINUED)						
GRILLE (continued) — Body-color surround, chrome billet grille (included with Sport Appearance Group)				P		
LAMPS — Clearance (optional on 3500 SRW, standard on 3500 DRW)						
MIRRORS, EXTERIOR — Manual, 6"x9," black	•					
— Power, heated, folding 6"x9," black (included with Power Accessory and Power and Remote Entry Groups)	P	•	•	•	•	•
— Manual, 7"x10" trailer-tow, black	O					
— Power, heated, 7"x10" trailer-tow, black		O	O	O	O	O
MOLDINGS — Lower bodyside, black	O	O	O	O	•	
— Lower bodyside, chrome				O		•
PAINT — Two-tone lower break, lower color is Light Khaki Metallic			O	O		O
PICKUP BOX DELETE	O	O		O		O
POWER RETRACTABLE RUNNING BOARDS (1500 Quad Cab® short box, 2500 Quad Cab short/long box only)	O	O		O		O
SHIELD — Front hood protection	O	O	O	O		O
SKID PLATE — Front suspension (1500 Regular and Quad Cab 4x4 only) (included in Protection and TRX4 Off-Road Groups)	P	P		P		P
— Transfer case (4x4 only) (included in Protection and TRX4 Off-Road Groups, Heavy-Duty Snowplow Prep and Snow Chief Groups)	P	P	P	P	•	P
— Fuel tank 2500/3500 only (included with TRX4® Off-Road Group)	P				•	
TIRES						
1500 Regular and Quad Cab Models						
— P245/70R17 BSW all-season	•					
— P265/70R17 BSW all-season (4x4 only) included with Popular Equipment Group on 4X4 models	O/P	•		•		•
— P265/70R17 OWL all-season				O		
— P265/70R17 OWL on/off-road included with TRX, TRX4 and TRX4 Off-Road Groups (available on SLT 4x4)		P		O		
— P275/60R20 BSW all-season (standard on SLT Quad Cab SB models)				•		
— P275/60R20 OWL on/off-road all-season (included with Sport Appearance Group)				P		•
All Mega Cab and 2500/ 3500 Models						
— LT245/70R17E BSW all-season (2500 only)	•					
— LT245/70R17E BSW on/off-road included with Popular Equipment and Snow Chief Groups (2500 only)	P	•/P		P		P
— LT265/70R17E OWL all-terrain (4x4 Mega Cab only)			•	•		•
— LT285/70R17D BSW on/off-road (Power Wagon only)					•	

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON REG/QUAD P	LARAMIE QUAD/ MEGA H
EXTERIOR FEATURES (CONTINUED)						
— LT265/70R17E BSW all-season (Mega Cab 4x2 and 2500/3500 models) (included with Single Rear Wheel Group on 3500)	•/P	•/P	P	•/P		•/P
— LT265/70R17E OWL on/off-road (included with Sport Appearance, TRX, TRX4 and TRX4 Off-Road Groups) (2500/3500 models)	O	O/P	O	O/P		O
— LT235/80R17E BSW all-season (3500 DRW only) (N/A on Quad Cab SB)	•	•	•	•		•
— LT235/80R17E BSW on-/off-road (3500 DRW 4x4 only)	O					
— LT235/80R17E OWL on-/off-road (3500 DRW only) (N/A on Quad Cab SB)	O	O		O		O
TOW HOOKS — (N/A with 3.7L engine) (included in Protection and Off-Road Groups. Standard on all models with diesel engine)	O/P	O/P	O/P	O/P	•	O/P
WHEEL WELL FLARES					•	
WHEELS						
1500 Regular and Quad Cab Models						
— 17"x7.0" styled steel, painted argent	•					
— 17"x8.0" steel chrome-clad	O	•		O		
— 17"x8.0" cast-aluminum				•		
— 20"x9.0" aluminum (standard with Quad Cab SB only)				•		
— 20"x9.0" chrome-clad aluminum (included with Sport Appearance Group) (short box only)				O/P		•
Mega Cab and 2500/3500 Models						
— 17"x7.5" styled steel (included with Single Rear Wheel Group on 3500 ST)	•					
— 17"x8.0" forged aluminum					•	
— 17"x8.0" steel chrome-clad (included with Single Rear Wheel Group on 3500)		•	•	•		
— 17"x8.0" chrome-clad aluminum (included with Sport Appearance Group)				P		•
— 17"x8.0" polished forged aluminum (included with single rear wheel group on 3500)				•/P		
— 17"x6.0" steel with argent wheel skin (3500 DRW only)	•					
— 17"x6.0" steel with chrome wheel skin (3500 DRW only)		•	•	•		•
INTERIOR FEATURES						
AIR CONDITIONING — Dual zone temperature control (included with *VL on Power Wagon)					P	•
CONSOLE — Overhead, with trip computer			•	•	•	•
— Overhead, with trip computer and HomeLink®(4) (included in Light and Popular Equipment Groups)			P	P	P	•
DEFROSTER — Rear window (m/h fixed rear window glass)			O	O	O	O
DOOR LOCKS — Power (included in Power Accessory and Power and Remote Entry Group)	P	•	•	•	•	•

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA F	SLT/REG/MEGA/ BIG HORN/ G	POWER WAGON REG/QUAD P	LARAMIE QUAD/ MEGA H
INTERIOR FEATURES (CONTINUED)						
ELECTRONIC VEHICLE INFORMATION CENTER (EVIC) — Packaged with 6.7L diesel on 2500 and 3500 models only)	P	P	P	P		
FLOOR COVERING — Carpet	O	•	•	•	•	•
— Heavy-duty vinyl (optional on SLT Regular and Quad Cab)	•			O		
FLOOR MATS — Front and rear, carpeted (Quad and Mega Cab; included with carpet on ST models)	O	•	•	•	•	•
— Front, carpeted (Regular Cab; included with carpet on ST models)	O	•		•	•	
HOMELINK® UNIVERSAL TRANSCEIVER(3) — Programmable 3-function remote control for garage door openers, home lighting or security devices (included in CV2 overhead console)						•
LOAD FLOOR — Rear fold-flat (Quad only) — must have *M9 trim (included with *AJ and all leather-trimmed seats)				O/P	P	P
MIRRORS, INTERIOR — Auto-dimming rearview day/night (included in Light Group, Popular Equipment Group and UConnect®)			O/P	O/P	O	•
PEDALS — Power adjustable			O	O	O	•
SEATS — 6-way power driver (included with *M9, *AJ, and *CJ seats)			P	P	P	•
— Power, driver and front passenger (2500/ 3500 Quad Cab and Mega Cab; included with *VL on Power Wagon Quad Cab)					P	•
— Heated, driver and front-passenger (included with *CJ and *VL on Power Wagon)				P	P	•
— Vinyl 40/20/40 split-bench front seat folding center armrest (Quad Cab models include folding rear bench seat trimmed in vinyl)	•					
— Cloth-trimmed 40/20/40 split-bench front seat featuring YES Essentials®(4) with folding center armrest/business console			•	•		
— Leather-trimmed 40/20/40 split-bench front seat featuring fold-flat load floor and folding center armrest/business console (Quad Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)					O	•
— Cloth-trimmed low-back bucket seats featuring YES Essentials®(4) fixed center console and rear fold-flat load floor. Included with Sport Appearance Group. (Quad Cab models include 60/40 split-folding rear bench seat trimmed in cloth; must have automatic transmission)				O/P		
— Leather-trimmed low-back bucket seats fixed center console, and rear fold-flat load floor (Quad Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)				O		
— Leather-trimmed low-back bucket seats with adjustable head restraints, driver and front-passenger recliners, fixed center console and rear fold-flat load floor (Quad Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)						O

• = Included. O = Optional. P = Available within package noted in parenthesis. L = Fleet Option.

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON REG/QUAD P	LARAMIE QUAD/ MEGA H
INTERIOR FEATURES (CONTINUED)						
SPEED CONTROL — (Included with HEMI® V8 engine; included with Popular Equipment Group)	P	•	•	•	•	•
STEERING WHEEL — Leather-wrapped (included with leather seats *VL, Popular Equipment Group and Sport Appearance Group)				P	P	•
SUNROOF — Power (Quad Cab® and Mega Cab® models only)				O	O	O
WINDOWS — Power, front (and rear on Quad Cab) with driver's one-touch down (included with Power Accessories and Power Remote Entry Groups)	P	•	•	•	•	•
— Rear back light, sliding (not available with rear defroster)	O	O		•	•	
— Rear back light, power-sliding (Quad Cab and Mega Cab only) (not available with rear defroster)				•/P		•
ENTERTAINMENT SYSTEMS						
DVD VIDEO ENTERTAINMENT SYSTEM (VES®) — (N/A with sunroof on Quad Cab; N/A on Regular Cab)				O	O	O
RADIO — AM/FM/MP3 stereo radio with 6-disc in-dash CD changer and 7 Premium speakers			O	O	O	O
— AM/FM/MP3 stereo radio with in-dash 6-disc CD changer, integrated DVD-based GPS Navigation System with 5.8" display screen includes Premium speakers (included with Navigation Convenience Group)			O	O/P	O	O
— SIRIUS® Satellite Radio included with TRX4® Off-Road Group	O	O/P	O	•	•	•
— UConnect® Hands-Free Communication System, included with Navigation Convenience Group, includes auto-dimming rearview mirror			O	O/P	O	•/O
RADIO CONTROLS — Steering wheel-mounted (must have radio RAQ, REC, or RAK with leather-wrapped steering wheel) (included with Popular Equipment Group, packaged with 7 Premium speakers)			P	P	P	P
SAFETY AND SECURITY						
AIR BAGS — Supplemental side-curtain	O	O	O	O	O	O
BRAKES — Power-assisted 4-wheel disc (with RWAL: 1500 Regular and Quad only)	•	•		•		
— Power-assisted 4-wheel antilock disc std. on all Mega Cab and 2500/3500 models (included with ESP system on 1500 Regular and Quad Cab)	•/P	•/P	•	•/P	•	•
ELECTRONIC STABILITY PROGRAM — ESP (includes ABS, traction control, Brake Assist, Hill Start Assist, Electronic Roll Mitigation and Trailer Sway Control) N/A on Mega Cab or 2500/3500 models	O	O		O		•
REMOTE KEYLESS ENTRY — Controls for power door locks, illuminated entry system, panic alarm, includes 2 transmitters (included with Power and Remote Entry Group [fleet only package])	P	•	•	•	•	•

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON REG/QUAD P	LARAMIE QUAD/ MEGA H
SAFETY AND SECURITY (CONTINUED)						
REMOTE START — Must have gas engine with automatic (included with 5.7L/auto transmission on 2500/3500)				O	O	•/P
SECURITY ALARM — (Included with Popular Equipment and Nav. Convenience Groups)				O/P	O/P	•
PACKAGE GROUPS						
CHROME EDITION GROUP — Includes chrome exhaust tip, chrome fuel filler door, chrome tubular side steps and rear wheel well liners	O	O		O		O
HEAVY-DUTY SNOWPLOW PREP GROUP — 2500/3500 Regular and Quad Cab models only. Includes transfer case skid plate, 160-amp alternator and 750-amp battery (with HEMI V8 only) (requires Trailer Tow Group)	O	O		O		O
LIGHT GROUP — Includes switchable dome lamp, glove box lamp, cup holder lamp, ashtray lamp, underhood lamp, illuminated vanity mirrors, auto day/night mirror (included with Navigation Convenience Group) (optional with Sport Group only)			O/P	O/P		
NAVIGATION CONVENIENCE GROUP — Includes Light Group, security alarm, UConnect and 6-disc navigation radio				O		
POPULAR EQUIPMENT GROUP — Includes *P9 seats and speed control (on A package), (for G and P packages) includes *M9 seats, overhead console with trip computer and HomeLink,® security alarm, sun visors with illuminated mirrors, rearview auto-dimming mirror, glove box/ashtray and underhood lamps, front dome lamps with on/off switch, 7 Premium speakers, leather-wrapped steering wheel with remote mounted audio controls	O			O	O	
PROTECTION GROUP — 4x4 models only (includes tow hooks and skid plates)	O	O	O	O		O
SINGLE REAR WHEEL GROUP — 3500 HD only. (Includes 11.5" axle, 9900-lb GVWR, clearance light delete.) Standard on Quad Cab Short Box models; optional on Mega Cab and Quad Cab Long Box Models. N/A on Regular Cab Long Box models	•/O	•/O	O	•/O		•/O
SNOW CHIEF PLOW PACKAGE — 2500 4x4 Regular and Quad Cab models only. Includes unique box side reflective decal, 160-amp alternator, transfer case skid plate, 750-amp battery, antispin rear axle, cab clearance lamps, LT245/70R17E tires, SXT and SLT receive vinyl flooring. Must have gas engine	O	O		O		O
TRAILER TOW GROUP — Class IV hitch receiver, 7-pin wiring harness and 750-amp battery (standard on 2500/3500 Mega Cab)	O	O	O/•	O/•	•	O/•
TRX GROUP — 265/70R17 OWL on/off-road tires, and unique TRX decal (only on 4x2 models; N/A on Quad Cab long box models)		O				
TRX4 OFF-ROAD GROUP — Includes antispin differential, tow hooks, skid plates for t-case and front suspension, TRX4 Off-Road decal, fog lamps, SIRIUS Satellite Radio, 265/70R17 OWL on/off-road tires, (fuel tank skid plate for 2500 models) (only on 4x4 models; N/A on Quad Cab long box models)		O				

• = Included. O = Optional. P = Available within package noted in parenthesis. L = Fleet Option.

Chrysler Financial

With Chrysler Financial, you can get great finance options, competitive rates and flexible payment plans. Learn more about your financing benefits and even submit a credit application at chryslerfinancial.com.

REWARDS VISA

With the Dodge Rewards Visa credit card, you earn points for every purchase you make which can be redeemed for anything at your Chrysler, Jeep or Dodge dealership — all with no annual fee! Visit dodgecreditcard.com for more information on how to apply!

AUTO INSURANCE

The only insurance guaranteed to repair your vehicle using Authentic Dodge Collision Repair Parts by Mopar for as long as you own your Dodge vehicle, and up to $100 off your deductible when those repairs are done at a Dodge dealership — all at rates that are tough to beat. For a free quote, visit www.dodgeautoinsurance.com or call 800-836-1598 and mention keycode QL9XXX.

BUSINESSLINK

If your business relies on vehicles, Dodge **BusinessLink** can save you time, money and hassles. For more, log on to dodge.com/businesslink or call us toll-free at 877-2THE LINK (877-284-3546).

MOPAR

Enhance your Dodge Ram with Authentic Dodge Accessories by Mopar. They're designed specifically for your vehicle, for exceptional fit, finish and performance. Visit your dealership or mopar.com.

the goods DODGE

The Dodge Goods catalog is a handpicked collection of items bearing the powerful Dodge name — from Motorsports apparel and collectible die-cast models to the latest in work and ranch wear. It's all found at dodge.com/goods. Call 877-789-DODGE (3634) for a free catalog.

Service Contracts

Your Dodge Truck is one of the most capable vehicles on the road. Why not protect your investment with a Chrysler LLC Service Contract or Maintenance Plan? For more information, see your Dodge dealer, call 1-800-442-2666 or visit servicecontracts.chrysler.com.

SIRIUS SATELLITE RADIO THE BEST RADIO ON RADIO

SIRIUS Satellite Radio delivers over 130 channels including 100% commercial-free music, sports, news, talk, entertainment, traffic and weather. Factory-installed SIRIUS Satellite Radio includes a one-year subscription. For more information, go to sirius.com.

Infinity SOUND SYSTEMS

∞Infinity Sound Systems is a high-quality global audio brand, providing musical accuracy and legendary speaker innovation. An industry leader in Audio Technology, Performance, and Design.

LIFETIME POWERTRAIN WARRANTY

The 2008 Ram includes a Lifetime Powertrain Limited Warranty. No deductible. Non-Transferable. Not available on SRT, diesel vehicles, and certain fleet vehicles. See dealer for a copy of limited warranty and details.

3/36 BASIC LIMITED WARRANTY

All Dodge vehicles are covered by the Chrysler 3-year/36,000-mile Basic Limited Warranty. See dealer for a copy of this limited warranty. Excludes normal maintenance and wear items.

5/100 DIESEL ENGINE WARRANTY

The Turbo Diesel engine for Dodge Ram is protected by a separate Diesel Engine Limited Warranty, covering the engine for 5 years or 100,000 miles, whichever comes first. See your Dodge dealer for complete details.

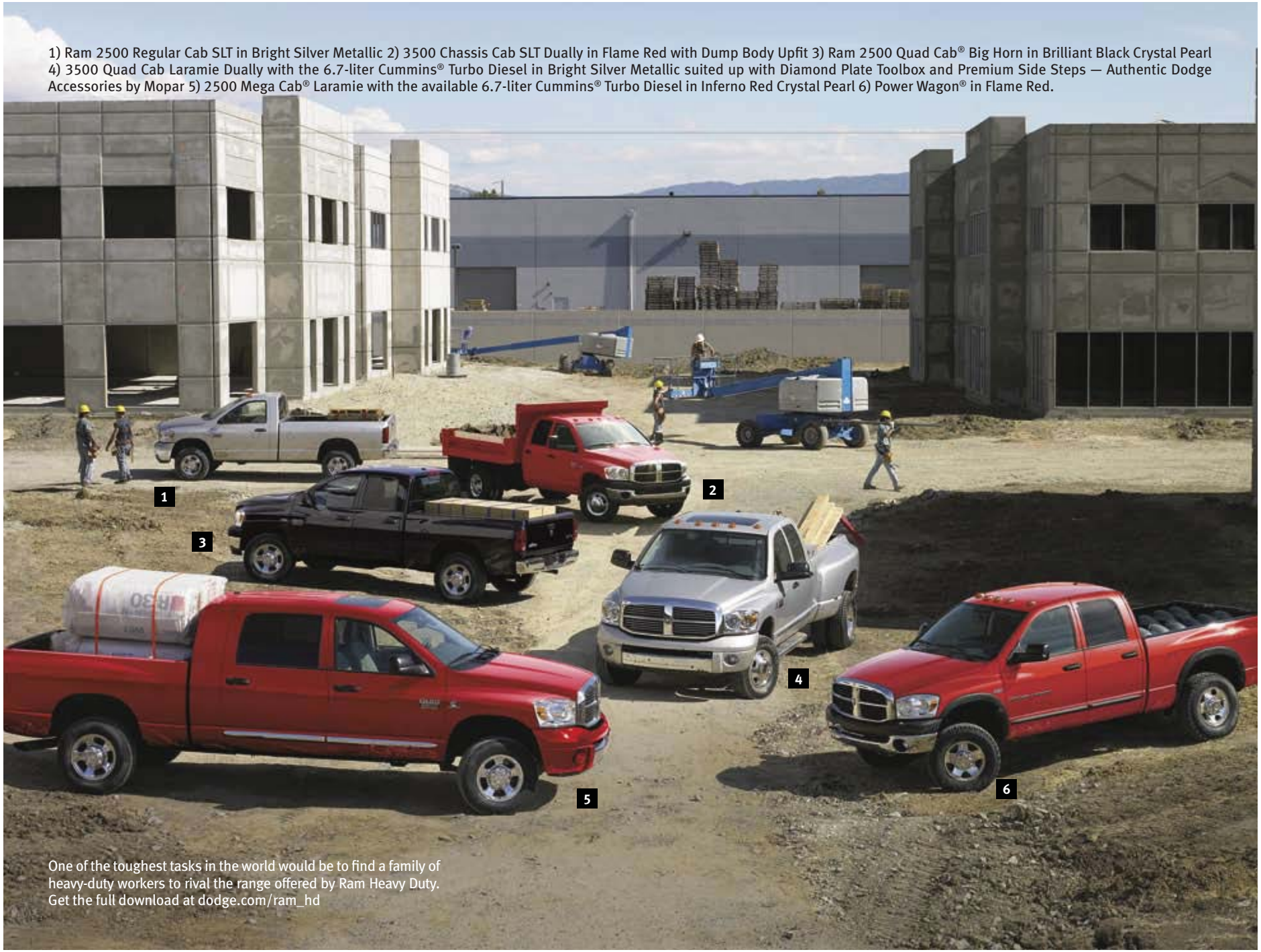
dodge.com ›› 800-4ADODGE

BUCKLE UP

EXHIBIT 25


09
DODGE RAM 2500/3500 HEAVY DUTY

WHEN IT COMES TO HEAVY-DUTY WORK TRUCKS KNOWN FOR LEGENDARY DURABILITY AND UNCOMPROMISING RELIABILITY, ONLY THE RAM 2500/3500 HEAVY DUTY MODELS ARE BUILT TO CARRY IT ALL: TOOLS, CARGO, UPFITS, AND PEOPLE. ABOVE ALL, THEY CARRY THAT REPUTATION FOR QUALITY FEW CAN MATCH. DODGE RAM 2500/3500 HEAVY DUTY. THIS IS HOW THE JOB GETS DONE.


1) Ram 2500 Regular Cab SLT in Bright Silver Metallic 2) 3500 Chassis Cab SLT Dually in Flame Red with Dump Body Upfit 3) Ram 2500 Quad Cab® Big Horn in Brilliant Black Crystal Pearl 4) 3500 Quad Cab Laramie Dually with the 6.7-liter Cummins® Turbo Diesel in Bright Silver Metallic suited up with Diamond Plate Toolbox and Premium Side Steps — Authentic Dodge Accessories by Mopar 5) 2500 Mega Cab® Laramie with the available 6.7-liter Cummins® Turbo Diesel in Inferno Red Crystal Pearl 6) Power Wagon® in Flame Red.
1
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6
One of the toughest tasks in the world would be to find a family of heavy-duty workers to rival the range offered by Ram Heavy Duty. Get the full download at dodge.com/ram_hd

MEET THE POWERTRAINS THAT POWER THE INDUSTRY. START WITH THE LEGENDARY 5.7-LITER HEMI® V8, WHERE ONGOING IMPROVEMENTS JUST KEEP COMING. BULLETPROOF TRANSMISSIONS COMPLETE THE PICTURE.

HISTORY AND LEGEND TEAM UP FOR TOMORROW'S ENGINEERING. The most recent iteration of the legendary 5.7-liter HEMI® V8 for Ram Heavy Duty pickups now features Variable Valve Timing (VVT), for outstanding fuel management and performance across the board. Additional features that make the HEMI V8 the ideal choice when only a gas engine will do the job:

MORE POWER. New cylinder heads on the redesigned HEMI V8 now feature high-flow ports, larger valves and increased compression ratio; results are measured directly in performance — with no compromise in fuel use. It's all about the engineering: The characteristic hemispherical cylinder heads are what give the legendary 5.7-liter HEMI V8 such clout in the world of trucks — and now this world-famous engine is better than ever.

MORE TORQUE. New for the 5.7-liter HEMI V8 is Variable Valve Timing (VVT), a technology so sophisticated in the field, it's utilized on Formula One race cars. VVT offers increased engine breathing throughout the rpm range by varying the degree that valves open and close in conjunction with piston position. The advantages are seen across the board: better performance, more efficient operation, and measurable increased torque for towing and hauling demands.

MORE EFFICIENCY. The new short runner valve (SRV) active intake manifold: Here, air intake flow is more efficiently controlled by changing port length based on engine rpm. At low speeds, the manifold uses a longer port path for abundant low-end torque; at higher speeds, the manifold uses a short port; air moves faster to the combustion chamber. The SRV manifold contributes to more power and torque — again, without sacrificing fuel economy.

LIFETIME POWERTRAIN WARRANTY

No deductible. See dealer for a copy of Limited Warranty details. Non-Transferable. Not available on SRT,® diesel vehicles, Sprinter, Ram Chassis Cab, Hybrid System components (including transmission), and certain fleet vehicles.

DRIVING THE OTHER HALF OF THE DRIVETRAIN: THE RAM TRANSMISSIONS.

1 6-SPEED AUTOMATIC. For Ram 2500 and 3500 Heavy Duty pickups with available Cummins® 6.7-liter Turbo Diesel. Here's quality measured in durability. The 6-speed with Electronic Range Select works in concert with the factory-installed engine exhaust brake, giving outstanding driver control of rpm and speed — a valuable advantage when decelerating downhill.

2 6-SPEED MANUAL. This heavy-duty transmission is standard on all Ram Heavy Duty pickups equipped with the 6.7-liter Cummins Turbo Diesel. The ultralow first gear ratio — as low as 6.29:1 — is ideal for heavier hauling.

3 5-SPEED 545RFE AUTOMATIC. Standard on 2500 pickups with the 5.7-liter HEMI V8. A specialized fifth gear — available as an additional overdrive ratio — helps provide increased fuel economy and reduced engine noise at highway speeds. (The fifth gear ratio is 0.67:1 — a 16 percent reduction in engine rpm relative to the fourth gear 0.75:1 ratio.)

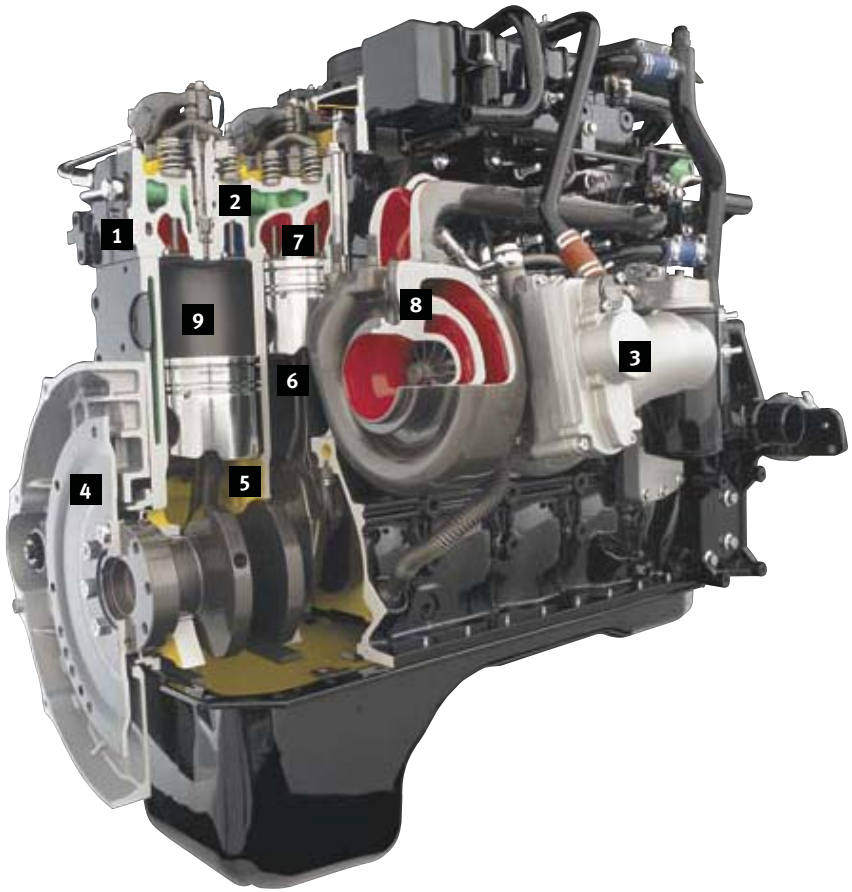
1

2

3

THE INCREDIBLE CUMMINS 6.7-LITER TURBO DIESEL. SO POWERFUL, IT DROPS THE COMPETITION WITH A ONE-TWO-THREE PUNCH OF 650* LB-FT OF TORQUE, 350 HORSEPOWER, AND SQUEAKY-CLEAN EMISSIONS.

THE CUMMINS® 6.7-LITER TURBO DIESEL: A CLEAN BREAK FROM OTHER DIESELS. Cummins and Dodge Ram form a team that results in outstanding reliability. Used in Ram 2500 up to Ram 5500 Chassis Cabs, the Cummins has total capability with 650 lb-ft* of torque and best-in-class low-end torque.† But a history that starts with powering more than 1.6 million Dodge Rams also addresses the future. The Cummins 6.7-liter now ranks among the cleanest of any full-size pickup diesel engine. Emissions are so low, they currently meet 2010 emissions regulations. For more, visit dodge.com/ram_hd *Requires automatic transmission. †Below 1,500 rpm.



1 DURABILITY AND LONGEVITY BY DESIGN. A cast-iron head, hardened nickel-cobalt steel exhaust valve seats, gallery-cooled pistons: The materials and cooling mechanisms are designed to come together to offer decades of use.

2 FUEL INJECTION AT THE SPEED OF LIGHTNING. Electronic solenoid injectors are capable of multiple injections per cycle at pressures up to 23,000 psi. Result? Precise noise and emissions control with maximum performance.

3 EXHAUST BRAKE: RIGHT FROM THE GET-GO. It's factory-installed, ensuring quality. The engine brake contributes to longer brake life, faster cab warm-up, and greater vehicle control.

4 LEAN, MEAN — AND VERY CLEAN. Fewer moving parts than comparable gas engines reduces complexity — and consequent costs. And this Cummins is super-clean, making it the cleanest full-size pickup diesel out there.

5 ULTRA-COOL PERFORMANCE. The gallery-cooled pistons receive a constant stream of oil for cooler operation — while the oil itself is simultaneously cooled by a system of constantly circulating water.

6 SUPER-STRONG CONNECTING RODS. Heavy-duty commercial-grade connecting rods are forged from a single mold — a process that adds to strength — and then fracture-split, for exacting tolerances.

7 BUILT-IN ECONOMIES. The focus on longevity translates into reduced costs-over-lifetime. The hardened nickel-chromium exhaust valves also contribute to long life-to-overhaul range.

8 VARIABLE GEOMETRY TURBOCHARGER (VGT). Highly sophisticated, the VGT here differs radically from Ford and GM engineering — which both place the turbo on top of the engine. Side-mounting of the turbocharger on this inline six-cylinder simplifies the design and helps alleviate under-the-hood heat buildup that can occur with V8 engines.

9 LARGE PISTON BOWL HELPS KEEP THINGS CLEAN. The large piston bowl is another engineering technique used to ensure good power and clean emissions.

- **COMMON-RAIL ARCHITECTURE. *PLUS.*** The common-rail architecture plus sophisticated electronics equals significant advantages: multiple injection pulses and independent control of injection pressures. The result is noticeably quieter operation and outstanding cold starting capability — down to -20° F, unaided.

- **THE FUEL FILTER: EFFICIENCY BY DESIGN.** With fuel properties and emissions standards rapidly changing, the fuel filter offers higher efficiency — along with the capability to handle ultralow sulfur diesel (ULSD).

- **STRONG ENGINE, STRONG WARRANTY.** The Limited Warranty coverage is for 5 years or 100,000 miles. See your Dodge dealer for a copy.

YOU WORK HARD, YOU PLAY HARD ... BUT WHEN IT COMES TO THE TRUCKS THAT LET YOU DO IT ALL, IT REQUIRES HARDLY A THOUGHT: FROM EXTERIOR LOOKS TO INTERIOR COMFORT TO OVERALL CAPABILITY, RAM 2500 AND 3500 HEAVY DUTY PICKUPS MAKE IT ALL EASY.

Ram 3500 Quad Cab® Big Horn 4x4 SRW with 6.7-liter Cummins® Turbo Diesel, shown in two-tone finish of Inferno Red Crystal Pearl and Light Khaki Metallic.

A STEP ABOVE: RAM 2500 AND 3500 PICKUPS. When the job requirements are above the norm, go with the heavy-duty pickups that leave others behind. The Ram family of 2500 and 3500 pickups are working studies for capability and durability.

1 GO WITH THE TOW – OR THE PLOW. Left, 3500 Quad Cab® with Cummins® churns out 350 hp, 650* lb-ft of torque, and easily handles jobs – and crafts. Right, 2500 Quad Cab offers front GAWR of 5,200 pounds – far exceeding snowplow requirements.

2 THE UNIVERSE OF uconnect. Heavy-duty convenience at work. Systems include available phone synching and SIRIUS®† Satellite Radio‡. And uconnect web, an Authentic Dodge Accessory by Mopar, turns your vehicle into a WiFi Hotspot. Subscription required, sold separately.

3 HEAVY-DUTY COMFORT. Space and comfort with every mile: This is an interior you can live with.

4 EVEN THE FABRICS WORK HERE. Ram cloth interiors feature Stain Repel seat fabric, resistant to stains, odors and static. Liquids bead for easy cleanup.

*Requires automatic transmission. †"SIRIUS," the SIRIUS dog logo, "SIRIUS Backseat TV" and related marks are trademarks of SIRIUS Satellite Radio Inc. All other trademarks, service marks and logos are the property of their respective owners. All rights reserved. Pricing and programming content are subject to change. Not available in Alaska and Hawaii. For full Terms & Conditions, visit SIRIUS.com. ‡One-year subscription included.

FROM THE OUTSTANDING EQUIPMENT LEVEL OF RAM POWER WAGON® TO THE SPACIOUSNESS OF A RAM 3500 MEGA CAB® DUALLY, THIS IS THE FAMILY YOU NEED WHEN ONLY THE BEST WILL DO: 2009 RAM HEAVY DUTY.

Ram Mega Cab® 3500 Laramie Dually in Brilliant Black Crystal Pearl, shown with Chrome Tubular Side Steps, Gooseneck Hitch and Trailering Accessories, all Authentic Dodge Accessories by Mopar.

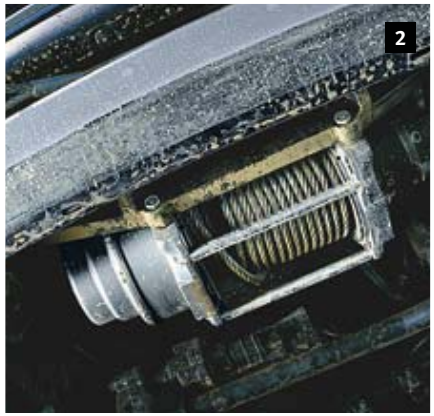
PUT A GIANT TO WORK: RAM MEGA CAB. With the world's biggest cab,* it's made for big jobs and big workers. Standard on 2500 models is the 5.7-liter HEMI® V8 with VVT, or available Cummins® 6.7-liter Turbo Diesel, which is standard on all Ram 3500 pickup models. Capability is just as large: payload of one-and- a-half tons, while towing peaks at 16,700 lb.† (3500 SRW 4x4 with Cummins Turbo Diesel and available 6-speed automatic transmission). *Based on full-size crew cab pickups. †When properly equipped.

1 THE WORLD'S LARGEST CAB* ROOM. Carry six large workers, with comfort to accommodate all. Rear leg and shoulder room are exceptional.

2 FOLD-FLAT CARGO SPACE. Fold the seats for an instant best-in-class* cargo area: 9.5 extra cubic feet behind the rear seats you won't find elsewhere.

3 60/40 VISION. Rear seats offer built-in armrests, recline 37 degrees from the vertical, and split 60/40 for convenience.

Ram Power Wagon® Quad Cab® in Flame Red.
For more on Power Wagon, click over to dodge.com/ram_hd



POWER WAGON. AWARD-WINNING CAPABILITY. This 2008 Ram climbed away with two of *Four Wheeler's* 2008 annual "10 Best Buys in Four-Wheel Drive" awards: Full-size Pickup ¾ Ton; Best 4x4 System.

1 ONLY BILSTEIN® WILL DO. The gas-charged monotube shock absorber design sets the standard for the country.

2 WARN® WINCH. The factory-installed Warn winch excels, with a stunning 12,000-lb capacity.

3 FRONT STABILIZER BAR. Also known as a "sway" bar, the Power Wagon stabilizer bar electronically disconnects, giving you an additional nine inches of articulation.

THEY'RE MADE TO BE REMADE WITH THE UPFIT THAT MAKES YOUR BUSINESS FLY. THEY OFFER UNCOMMON CAPABILITY ON THE JOB, AND OUTSTANDING RELIABILITY WHILE GETTING THERE AND BACK. MEET THE 2009 RAM 3500 CHASSIS CABS.

Ram 3500 Chassis Cab, Quad Cab® Dually in Flame Red, shown with aftermarket hydraulic Dump Body upfit.

RAM 3500 CHASSIS CAB. BUILT TO BE BUILT UPON. It now features a more powerful standard 5.7-liter HEMI® V8 with Variable Valve Timing (VVT) that generates 383 hp and 400 lb-ft of torque. Available is the legendary 6.7-liter Cummins® Turbo Diesel with 305 hp and 610 lb-ft of torque, and a standard diesel exhaust brake. This, along with larger brake rotors than Ford* or GM conventional Class 3 Chassis Cabs helps stop your truck confidently and efficiently. The standard 52-gallon fuel tank helps reduce time between fill-ups and is larger than the standard tanks on both Ford* and GM Class 3 Chassis Cabs. An unsurpassed 50,000 psi frame steel strength rounds out the list of superlatives that is all about earning respect on the job.

THE HANDLE ON HYDRAULICS. With Ram 3500 Chassis Cab, capability comes to the fore: This frame is tough enough to handle heavy hydraulic systems and the enormous cargo they carry, day after day. Power Take Off (PTO) capacity on the 6-speed AISIN automatic is 35 hp and 135 lb-ft of torque.

1 STAKE YOUR REPUTATION ON IT. Stake beds are crucial for agriculture and farming; this 3500 Chassis Cab Dually eats work for breakfast.

2 IT JUST FLAT-OUT WORKS. The proof is in the putting it to work: The GVWR of this 3500 Dually, shown with aftermarket flat bed, accommodates up to 12,500 pounds. Towing capability and GCWR on Ram 3500 Chassis Cab prove strong; it's rated up to a commanding 17,500 pounds and 24,000 pounds respectively.

* Based on 2008 information.

2009 DODGE RAM BUYER'S GUIDE

FEATURES COMMON ACROSS ALL TRIM LEVELS
AIR BAGS[1] — Next Generation multistage front
ASSIST HANDLE — Passenger-side (CSP)
BADGING — 4x4 (on 4x4 models only)
— Ram's Head — Not available with pickup box delete
CIGAR LIGHTER
CLUSTER — Instrument, with tachometer and 120-mph speedometer
HEADLAMPS — Halogen
INSULATION — Dash liner
— Floor tunnel
MONOTONE PAINT
POWER ACCESSORY DELAY
RADIO — AM/FM stereo radio with CD player and 4 speakers
SEAT BELTS — Front, height-adjustable shoulder
SENTRY KEY® ANTITHEFT ENGINE IMMOBILIZER
SHOCK ABSORBERS — Front, heavy-duty
— Rear, heavy-duty
STORAGE — Front, behind seat (Regular Cab only)
— Rear, underseat compartment (Quad Cab® models only)
TAILGATE — Removable
TIP START — Included with all automatic transmissions
TIRE PRESSURE MONITOR (2500 models only)
TIRES — Spare, full-size
TURN SIGNAL — Three-blink lane-change feature
WHEELS — 17"x7.0" steel spare
WINCH — Spare tire carrier
WINDSHIELD WIPERS — Variable-intermittent

• = Included. P = Available within package noted in parentheses. O = Optional. L = Fleet only option. N/A = Not Available.

(1) Always sit properly in the seat with the seat belt fastened. Children 12 and under should always be in a backseat correctly using an infant or child restraint system or the seat belt positioned correctly for the child's age and weight.

(2) Not compatible with all garage door openers. See your retailer for details.

(3) One-year subscription included. Not available in AK and HI.

(4) Always use seat belts. Children 12 and under should always be in a backseat using an infant or child restraint system, or the seat belt positioned correctly for the child's age and size.

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA CAB® F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON® QUAD P	LARAMIE QUAD/ MEGA H
ENGINE/TRANSMISSION						
5.7L HEMI® V8 5-SPEED AUTOMATIC (2500 only)	*26A*	*26B*	*26F*	*26G*	*26P*	*26H*
6.7L CUMMINS® TURBO DIESEL I-6/6-SPEED MANUAL	*2EA*	*2EB*	*2EF*	*2EG*		*2EH*
6.7L CUMMINS TURBO DIESEL I-6/6-SPEED AUTOMATIC	*2FA*	*2FB*	*2FF*	*2FG*		*2FH*
MECHANICAL FEATURES						
ALTERNATOR						
— 136-amp	•	•	•	•		•
— 160-amp (included in Heavy-Duty Snowplow Prep Group)	*P*	*P*	*P*	*P*	•	*P*
AXLES						
— Antispin rear differential (included with TRX4® Off-Road Group)	*O*	*O/P*	*O*	*O*	•	*O*
— Electronically locking front and rear differentials (Power Wagon only)					•	
— 3.42 ratio (requires diesel)	*•/O*	*•/O*	*•/O*	*•/O*		*•/O*
— 3.73 ratio	*O/•*	*O/•*	*O/•*	*O/•*		*O/•*
— 4.10 ratio	*O*	*O*	*O*	*O*		*O*
— 4.56 ratio (2500 Power Wagon only)					•	
BATTERY — 750-amp (included in Trailer Tow, Snow Chief and Heavy-Duty Snowplow Prep Groups; two (2) standard with diesel engine	*P*	*P*	*P*	*P*	•	*P*
DIESEL EXHAUST BRAKE — Standard with 6.7L Cummins only	•	•	•	•		•
ENGINE BLOCK HEATER	*O*	*O*	*O*	*O*	*O*	*O*
— 34-gallon (standard on short box models)	•	•	•	•	•	•
— 35-gallon (long box only)	•	•		•	•	•
STABILIZER BAR	•	•	•	•		•
— Front						
— Front, electronically disconnecting					•	
STEERING	•	•	•	•		•
— Power, rack-and-pinion (N/A for 4x4 models)						
— Power, recirculating ball (standard on 4x4 models only)			•	•	•	•
TRANSFER CASE	•	•				
— Manual, part-time (4x4 models)						
— Electric shift (4x4 models)			•	•	•	•
WINCH — Front electric (12,000-lb capacity)					•	
EXTERIOR FEATURES						
BEDLINER — Box, under-rail	*O*	*O*	*O*	*O*		*O*
BUMPERS	•					
— Front, dark gray						
— Rear, dark gray	•					
— Front, chrome		•	•	•	•	
— Rear, chrome		•	•	•	•	•
— Body-color, rear (included with Sport Appearance Group)				*P*		
FASCIA						•
— Front, body-color with chrome insert						
— Front, upper dark gray	•	•	•		•	
— Front, body-color (included with Sport Appearance Group)				*P*		
— Front, upper body-color				•		
FOG LAMPS — (Included with Sport Appearance and TRX4 Off-Road Groups)		*P*		*O/P /•*	•	•
GRILLE		•	•	•	•	
— Chrome surround, black billet grille						
— Chrome surround, chrome billet grille (Quad Cab only)				•		•
— Dark gray surround, black billet grille	•					
— Body-color surround, chrome billet grille (included with Sport Appearance Group)				*P*		
LAMPS — Clearance (optional on 3500 SRW, standard on 3500 DRW)	*O/•*	*O/•*	•	*O/•*	•	*O/•*
MIRRORS, EXTERIOR	•					
— Manual, 6"x9," black						
— Power, heated, folding 6"x9," black (included with Power Accessory and Power and Remote Entry Groups)	*P*	•	•	•	•	•
— Manual, 7"x10" trailer-tow, black	*O*					
— Power, heated, 7"x10" trailer-tow, black		*O*	*O*	*O*	*O*	*O*

PACKAGE DESIGNATIONS	ST REG/QUAD A	SXT REG/QUAD B	SXT MEGA CAB F	SLT/REG/MEGA/ BIG HORN/QUAD G	POWER WAGON QUAD P	LARAMIE QUAD/ MEGA H
EXTERIOR FEATURES (CONTINUED)						
MOLDINGS	*O*	*O*	*O*	*O*	•	
— Lower bodyside, black						
— Lower bodyside, chrome				*O*		•
PAINT — Two-tone lower break, lower color is Light Khaki Metallic			*O*	*O*		*O*
PICKUP BOX DELETE	*O*	*O*		*O*		*O*
POWER RETRACTABLE RUNNING BOARDS (2500 Quad Cab short/long box only)	*O*	*O*		*O*		*O*
SHIELD — Front hood protection	*O*	*O*	*O*	*O*		*O*
SKID PLATE	*P*	*P*	*P*	*P*	•	*P*
— Transfer case (4x4 only) (included in Protection and TRX4 Off-Road Groups, Heavy-Duty Snowplow Prep and Snow Chief Groups)						
— Fuel tank (included with TRX4 Off Road Group)		*P*			•	
TIRES	•					
— LT245/70R17E BSW all-season (2500 only)						
— LT245/70R17E BSW on-/off-road included with Popular Equipment and Snow Chief Groups (2500 only)	*P*	*•/P*		*P*		*P*
— LT265/70R17E OWL all-terrain (4x4 Mega Cab only)			•	•		•
— LT285/70R17D BSW on-/off-road (Power Wagon only)					•	
— LT265/70R17E BSW all-season (Mega Cab 4x2 and 2500/3500 models) (included with Single Rear Wheel Group on 3500)	*•/P*	*•/P*	*P*	*•/P*		*•/P*
— LT265/70R17E OWL on-/off-road (included with Sport Appearance, TRX, TRX4 and TRX4 Off-Road Groups)	*O*	*O/P*	*O*	*O/P*		*O*
— LT235/80R17E BSW all-season (3500 DRW only) (N/A on Quad Cab SB)	•	•	•	•		•
— LT235/80R17E BSW on-/off-road (3500 DRW 4x4 only)	*O*					
— LT235/80R17E OWL on-/off-road (3500 DRW only) (N/A on Quad Cab SB)	*O*	*O*		*O*		*O*
TOW HOOKS — (included in Protection and Off-Road Groups. Standard on all models with diesel engine)	*O/P*	*O/P*	*O/P*	*O/P*	•	*O/P*
WHEEL WELL FLARES					•	
WHEELS	•					
— 17"x7.5" styled steel (included with Single Rear Wheel Group on 3500 ST)						
— 17"x8.0" forged-aluminum					•	
— 17"x8.0" steel chrome-clad (included with Single Rear Wheel Group on 3500)		•	•	•		
— 17"x8.0" chrome-clad aluminum (included with Sport Appearance Group)				*P*		•
— 17"x8.0" polished forged-aluminum (included with Single Rear Wheel Group on 3500)				*•/P*		
— 17"x6.0" steel with argent wheel skin (3500 DRW only)	•					
— 17"x6.0" steel with chrome wheel skin (3500 DRW only)		•	•	•		•
INTERIOR FEATURES						
AIR CONDITIONING — Dual zone temperature control (included with *VL on Power Wagon)					*P*	•
CONSOLE			•	•	•	•
— Overhead, with trip computer						
— Overhead, with trip computer and HomeLink®[2] (included in Light and Popular Equipment Groups)			*P*	*P*	*P*	•
DEFROSTER — Rear window			*O*	*O*	*O*	*O*
DOOR LOCKS — Power (included in Power Accessory and Power and Remote Entry Groups)	*P*	•	•	•	•	•
ELECTRONIC VEHICLE INFORMATION CENTER (EVIC) — Packaged with 6.7L diesel)	*P*	*P*	*P*	*P*		
FLOOR COVERING	*O*	•	•	•	•	•
— Carpet						
— Heavy-duty vinyl (optional on SLT Regular and Quad Cab®)	•			*O*		
FLOOR MATS	*O*	•	•	•	•	•
— Front and rear, carpeted (Quad and Mega Cab; included with carpet on ST models)						
— Front, carpeted (Regular Cab; included with carpet on ST models)	*O*	•		•	•	

PACKAGE DESIGNATIONS	ST REG/QUAD	SXT REG/QUAD	SXT MEGA CAB®	SLT/REG/MEGA/ BIG HORN/QUAD	POWER WAGON® QUAD	LARAMIE QUAD/ MEGA
	A	B	F	G	P	H
INTERIOR FEATURES (CONTINUED)						
HOMELINK® UNIVERSAL TRANSCEIVER[2] — Programmable 3-function remote control for garage door openers, home lighting or security devices (included in CV2 overhead console)						•
LOAD FLOOR — Rear fold-flat (Quad only) — requires *M9 trim (included with *AJ and all leather-trimmed seats)				O/P	P	P
MIRRORS, INTERIOR — Auto-dimming rearview day/ night (included in Light Group, Popular Equipment Group and uconnect)			O/P	O/P	O	•
PEDALS — Power adjustable			O	O	O	•
SEATS						
— 6-way power driver (included with *M9, *AJ, and *CJ seats)			P	P	P	•
— Power, driver and front passenger (2500/ 3500 Quad Cab and Mega Cab; included with *VL on Power Wagon Quad Cab)					P	•
— Heated, driver and front-passenger (included with *CJ & *VL on Power Wagon)				P	P	•
— Vinyl 40/20/40 split-bench front seat folding center armrest (Quad Cab models include folding rear bench seat trimmed in vinyl)	•					
— Cloth-trimmed 40/20/40 split-bench front seat with folding center armrest/business console		•	•	•	•	
— Leather-trimmed 40/20/40 split-bench front seat featuring fold-flat load floor and folding center armrest/ business console (Quad Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)					O	•
— Cloth-trimmed low-back bucket seats fixed center console and rear fold-flat load floor. Included with Sport Appearance Group. (Quad Cab models include 60/40 split-folding rear bench seat trimmed in cloth; must have automatic transmission)				O/P		
— Leather-trimmed low-back bucket seats fixed center console, and rear fold-flat load floor (Quad Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)				O		
— Leather-trimmed low-back bucket seats with adjustable head restraints, driver and front-passenger recliners, fixed center console and rear fold-flat load floor (Quad Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)						O
SPEED CONTROL — (Included with HEMI V8 engine; included with Popular Equipment Group)	P	•	•	•	•	•
STEERING WHEEL — Leather-wrapped (included with leather seats *VL, Popular Equipment Group and Sport Appearance Group)				P	P	•
SUNROOF — Power (Quad Cab and Mega Cab models only)				O	O	O
WINDOWS						
— Power, front (and rear on Quad Cab) with driver's one-touch down (included with Power Accessory and Power Remote Entry Groups)	P	•	•	•	•	•
— Rear back light, sliding (N/A with rear defroster)	O	O		•	•	
— Rear back light, power-sliding (Quad Cab and Mega Cab only) (not available with rear defroster)				•/P		•
ENTERTAINMENT SYSTEMS						
DVD VIDEO ENTERTAINMENT SYSTEM (VES®) — (N/A with sunroof on Quad Cab; N/A on Regular Cab)				O	O	O
RADIO						
— AM/FM/MP3 stereo radio with 6-disc in-dash CD changer and 7 Premium speakers				O	O	O
— AM/FM/MP3 stereo radio with in-dash 6-disc CD changer, integrated DVD-based GPS Navigation System with 5.8" display screen includes Premium speakers				O/P	O	O
— SIRIUS® Satellite Radio[3] included with TRX4 Off-Road Group	O	O/P	O	•	•	•
— uconnect phone, includes auto-dimming rearview mirror				O/P	O	•/O
RADIO CONTROLS — Steering wheel-mounted (Requires radio RAQ, REC, with leather-wrapped steering wheel) (included with Popular Equipment Group, packaged with 7 Premium speakers)				P	P	P

PACKAGE DESIGNATIONS	ST REG/QUAD	SXT REG/QUAD	SXT MEGA CAB	SLT/REG/MEGA/ BIG HORN/QUAD	POWER WAGON QUAD	LARAMIE QUAD/ MEGA
	A	B	F	G	P	H
SAFETY AND SECURITY						
AIR BAGS — Supplemental side-curtain[4]	O	O	O	O	O	O
BRAKES — Power-assisted 4-wheel antilock disc	•	•	•	•	•	•
REMOTE KEYLESS ENTRY — Power door locks, illuminated entry system, panic alarm, with 2 transmitters (included with Power and Remote Entry Group [fleet only package])	P	•	•	•	•	•
REMOTE START — Requires automatic				O	O	•/P
SECURITY ALARM — (Included with Popular Equipment)				O/P	O/P	•
ACCESSORY OPTION PACKAGES						
CHROME EDITION GROUP — Includes chrome exhaust tip, chrome fuel filler door, chrome tubular side steps and rear wheel well liners	O	O		O		O
CHROME TUBULAR SIDE STEPS	O	O	O	O	O	O
HEAVY-DUTY SNOWPLOW PREP GROUP — 2500/3500 Regular and Quad Cab models only. Includes transfer case skid plate, 160-amp alternator and 750-amp battery (with HEMI V8 only) (requires Trailer Tow Group)	O	O		O		O
PACKAGE GROUPS						
LIGHT GROUP — Includes dome lamp, glove box lamp, cup holder lamp, ashtray lamp, underhood lamp, illuminated vanity mirrors, auto day/night mirror (optional with Sport Group only)			O/P	O/P		
POPULAR EQUIPMENT GROUP — Includes *P9 seats and speed control (on A Package), (for G and P Packages) includes *M9 seats, overhead console with trip computer and HomeLink,®[2] security alarm, sun visors with illuminated mirrors, rearview auto-dimming mirror, glove box/ashtray and underhood lamps, front dome lamps, 7 Premium speakers, leather-wrapped steering wheel with remote mounted audio controls	O			O	O	
PROTECTION GROUP — 4x4 models only (includes tow hooks and skid plates)	O	O	O	O		O
SINGLE REAR WHEEL GROUP — 3500 HD only. (Includes 11.5" axle, 9900-lb GVWR, clearance light delete) standard on Quad Cab Short Box models; optional on Mega Cab and Quad Cab long box models. N/A on Regular Cab long box models	•/O	•/O	O	•/O		•/O
SNOW CHIEF PLOW PACKAGE — 2500 4x4 Regular and Quad Cab models only. Includes unique box side reflective decal, 160-amp alternator, transfer case skid plate, 750-amp battery, antispin rear axle, cab clearance lamps, LT245/70R17E tires, SXT and SLT receive vinyl flooring. Requires gas engine	O	O		O		O
TRAILER TOW GROUP — Class IV hitch receiver, 7-pin wiring harness and 750-amp battery (standard on 2500/3500 Mega Cab) Additional Dodge Towing Accessories may be required	O	O	O/•	O/•	•	O/•
TRX GROUP — 265/70R17 OWL on-/off-road tires, and unique TRX decal (only on 4x2 models; N/A on Quad Cab long box models)		O				
TRX4 GROUP — 265/70R17 OWL on-/off-road tires, and unique TRX4 decal (only on 4x4 models; N/A on Quad Cab long box models)		O				
TRX4 OFF-ROAD GROUP — Includes antispin differential, tow hooks, skid plates for transfer case and front suspension, TRX4 Off-Road decal, fog lamps, SIRIUS® Satellite Radio,[3] 265/70R17 OWL on-/off-road tires, (fuel tank skid plate for 2500 models) (only on 4x4 models; N/A on Quad Cab long box models)		O				

The 2009 Ram includes a Lifetime Powertrain Limited Warranty. No deductible. See dealer for a copy of Limited Warranty details. Non-Transferable. Not available on SRT,® diesel vehicles, Sprinter, Ram Chassis Cab, Hybrid System components (including transmission), and certain fleet vehicles.

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This suite of integrated digital systems bundles entertainment, information, and communication. For more information, visit your dealer.

SIRIUS Satellite Radio delivers over 130 channels, including 100% commercial-free music, sports, news, talk, entertainment, traffic and weather. Factory installed SIRIUS Satellite Radio includes a one-year subscription. For more information go to SIRIUS.com.

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All Dodge vehicles are covered by the Chrysler 3-year/36,000-mile Basic Limited Warranty. See dealer for a copy of this Limited Warranty. Excludes normal maintenance and wear items.

5/100 DIESEL ENGINE WARRANTY
The Turbo Diesel engine for Dodge Ram is protected by a separate Diesel Engine Limited Warranty, covering the engine for 5 years or 100,000 miles, whichever comes first. See your Dodge dealer for complete details.

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BUCKLE UP

MAXIMUM PAYLOAD CAPACITIES

			2500								3500							
			REGULAR CAB		QUAD CAB®				MEGA CAB®		REGULAR CAB		QUAD CAB				MEGA CAB	
			4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
AUTOMATIC TRANSMISSION	Engine	GVWR																
	5.7L HEMI® V8	8,510					2,180											
		8,650	3,350	2,870														
		8,800			3,650	3,070	2,750	2,590	2,820	2,450								
	6.7L Cummins® Turbo Diesel I-6	9,000	2,740	2,330	2,530	2,400	2,080	1,940	2,080	1,760								
		10,100[2]											3,620	3,450	3,230	3,160	3,310	2,970
		10,500[1]															3,300	2,950
		11,500[1]									4,820			4,480				
		12,200[1]										5,130				4,850		

			2500								3500							
			REGULAR CAB		QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB	
			4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
MANUAL TRANSMISSION	Engine	GVWR																
	6.7L Cummins Turbo Diesel I-6	9,000	2,670	2,260	2,450	2,330	2,020	1,860	2,010	1,690								
		10,100[2]											3,540	3,380	3,170	3,100	3,240	2,900
		10,500[1]															3,230	2,880
		11,500[1]									4,740			4,410				
		12,200[1]										5,070				4,780		

Weights given in lb. SB = Short Box LB = Long Box [1] Dual Rear Wheel only. [2] Single Rear Wheel only.

MAXIMUM LOADED TRAILER WEIGHT (LB)

				2500								3500							
				REGULAR CAB		QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB	
				4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
AUTOMATIC TRANSMISSION	Engine	Axle Ratio	GCWR (lb)																
	5.7L HEMI V8	3.73	15,000	9,550	9,050	9,700	9,100	8,800	8,650	8,850	8,500								
		4.10	17,000	11,550	11,050	11,700	11,100	10,800	10,650	10,850	10,500								
		4.56	17,000					10,500											
	6.7L Cummins Turbo Diesel I-6	3.42	17,000	10,600	10,200	10,400	10,250	9,950	9,800	9,950	9,600	10,150	9,800	10,350	10,200/ 9,850[2]	10,000	9,900/ 9,500[2]	10,050	9,700
		3.73	20,000	13,600	13,200	13,400	13,250	12,950	12,800	12,950	12,600								
		4.10	20,000	13,600	13,200	13,400	13,250	12,950	12,800	12,950	12,600								
		3.73	21,000									14,150	13,800	14,350	14,200/ 13,850[2]	14,000	13,900/ 13,500[2]	14,050	13,700
		4.10	23,000									16,150		16,350	16,250/ 15,850[2]			16,050	
		4.10	24,000										16,800			17,000	16,900/ 16,500[2]		16,700

[1] Dual Rear Wheel only. [2] Single Rear Wheel/Dual Rear Wheel.

				2500								3500							
				REGULAR CAB		QUAD CAB				MEGA CAB		REGULAR CAB		QUAD CAB				MEGA CAB	
				4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
MANUAL TRANSMISSION	Engine	Axle Ratio	GCWR (lb)																
	6.7L Cummins Turbo Diesel I-6	3.42	19,000	12,500	12,100	12,300	12,200	11,850	11,700	11,850	11,550	12,100	11,700	12,300	12,150/ 11,750[2]	11,900	11,850/ 11,450[2]	12,000	11,650
		3.73	20,000	13,500	13,100	13,300	13,200	12,850	12,700	12,850	12,550								
		3.73	21,000									14,100	13,700	14,300	14,150/ 13,750[2]	13,900	13,750/ 13,400[2]	14,000	13,650

Maximum towing capacities shown with properly equipped vehicle and a 150-lb driver. Options, equipment, cargo and passengers must be deducted. For more information, see your Dodge dealer.

WHETHER YOU USE YOUR RAM HEAVY DUTY FOR WORK OR PLAY, GRAB EVERY COMFORT AND CONVENIENCE YOU CAN — WITH AUTHENTIC DODGE ACCESSORIES BY MOPAR.

Ram 2500 Mega Cab® shown in Brilliant Black Crystal Pearl.
Get more info by following the Mopar links at dodge.com

Under-The-Rail Bedliner

Fiberglass Tonneau Cover

Bed-Mount Cargo Basket

When it comes to good looks and functionality, nothing delivers like Authentic Dodge Accessories by Mopar. Select Dodge Accessories for Ram Heavy Duty models include:

1 CHROME HONEYCOMB GRILLE. Make a statement right up front. Grille will not adversely affect engine airflow or impede the opening and closing of your Ram's hood.

2 CHROME FRONT AIR DEFLECTOR. Helps deflect road spray, dirt, and bugs up and away from your windshield.

3 CHROME FUEL FILLER DOOR. Add a bright complement to your Ram with this stylish accessory.

4 CHROME TUBULAR SIDE STEPS. Steps feature black molded end caps, slip-resistant step pads, and heavy-duty, drill-free mounting brackets.

5 CHROME BODYSIDE MOLDINGS. Accent your Ram's strong body lines with these bright, bold moldings.

6 CLEARANCE RUNNING LIGHTS. Set of five production-style lights are mounted on the roof to help increase your truck's visibility.

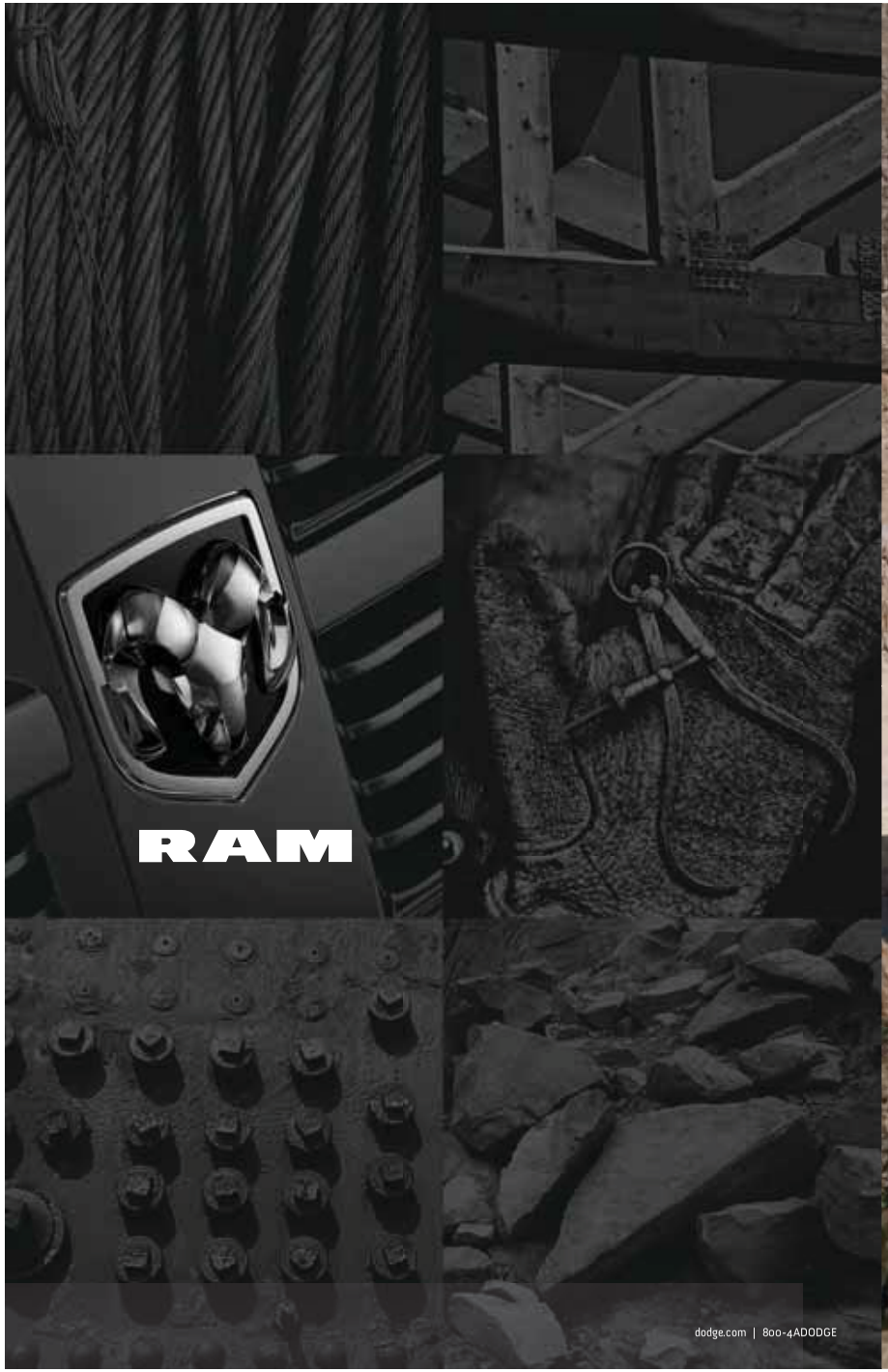
7 UNDER-THE-RAIL BEDLINER. Help protect your truck's bed floor and bed rails with this high-density polyethylene Skid Resistor bedliner.

8 FIBERGLASS TONNEAU COVER. This hard body features a resin-reinforced honeycomb design for durability and a corrosion-resistant aluminum frame for added strength.

9 BED-MOUNT CARGO BASKET.* Basket is designed to carry cargo above your truck bed and works in conjunction with Pickup Box Utility Rails, Sport Utility Bars and cargo net (all sold separately).

* Properly secure all cargo.

EXHIBIT 26



2010 RAM HEAVY DUTY

2500/3500

RAM. STANDOUT CAPABILITY THAT STANDS UP.

THE NEW 2010 RAM HEAVY DUTY. Only Ram would have the audacity to take such proven workhorses like the family of Ram Heavy Duty Pickups — and then refine them to be stronger, tougher and more comfortable than ever.

But that's what gives 2010 Ram such formidable clout. For this is where engineering refinement results in both increased capability and greater interior comfort — notably in the ultra-spacious new Ram Crew Cab. This is where key features like the available legendary Cummins® Turbo Diesel and available 6-speed automatic transmission put your business both on the map and in the black. It's where exterior design improvements result in aerodynamics so sleek, they actually contribute to saving a little green. It's where intelligent innovations — like the new Tailgate Lift Assist — make life and work easier. And it's where that interior comfort and brilliant Uconnect™ technology give you an on-the-go office 24/7.

This is where you come when you want the power to tow or haul — for work or for leisure. Where you find trucks that stand out with proven durability and superb powertrain warranties. This is where you step up to new 2010 Ram Heavy Duty trucks that stand up to the toughest tests of all: your workload and the test of time. Start here, and continue the journey at dodge.com/ram_hd

Big enough for the job: Ram 3500 Mega Cab® Laramie Dually in Bright Silver Metallic.

MORE CAPABILITY TO MASTER TOUGH JOBS.

THE FIRST STEP IN MASTERING YOUR DESTINY IS TO MASTER THE TOWING. Everywhere you look, this is teamwork that works. From Ram and Cummins®: Low-end torque to handle most everything out there. With its class-exclusive,[1] standard exhaust brake adding exceptional braking capability, the formidable 6.7-liter Cummins Turbo Diesel generates best-in-class[1] standard torque — up to 650 lb-ft in a new 2010 Ram 3500 Pickup, an ideal number for any getaway. Fortunately, other numbers for Ram 3500 Pickup are equally as impressive — like up to 12,200 lb of GVWR capability, and up to 24,500 lb for an uncompromised GCWR when properly equipped. Like improved axles with increased front GAWR up to 5,500 lb. The Ram extras that make towing a breeze? Try available assets like the Rear Back-Up Camera,[2] Rear Park Assist,[2] and Electronic Range Select (ERS) on the available 6-speed automatic transmission.

1. BRAKES THAT BENCHMARK CONTROL. Brake rotors on Ram Heavy Duty models have been enlarged, and feature new brake friction material. On Ram 2500 and 3500, stopping power comes from pure authority: these are the largest brake rotors and pads in the class.[1]

2. THE NEW, AVAILABLE INTEGRATED TRAILER BRAKE CONTROLLER helps improve braking properties and trailer stability when towing, allowing the operator to control brake force application. It can even be customized to increase or decrease brake pressure, depending on the weight of the load.

3. CUMMINS DIESEL EXHAUST BRAKE: JOIN THE BIG BOYS ON THE CREW. It's class-exclusive,[1] and standard. The Diesel Exhaust Brake is an invaluable asset when added to the braking properties of Ram, with the additional advantage of saving time and money on the brake system itself.

4. FIFTH-WHEEL HITCH.[3] Instant capability: this premium hitch from Mopar mounts directly to crossmembers of the frame; unique scissor clamps securely attach the hitch to the mounting brackets. Extra clearance greatly expands turning angle, previously 45 degrees, to 80 degrees.

[1]Based on *Automotive News* classification. [2]Always check entire surroundings before backing up. [3]Check Owner's Manual for hitch type, load capacity, and heavy-duty equipment required. Do not exceed the rated tow capacity of vehicle as equipped. Trailering may require some items not supplied by Mopar.

SHOW SOME PULL: USE YOUR MOPAR CONNECTION: Capable towing infers strength; few combinations match Mopar and new Ram Heavy Duty. Ram's new exterior redesign offers yet greater capability when equipped with a Gooseneck[3] or Fifth-Wheel Hitch,[3] from Mopar. Essential is the Bed-Mount Wiring Harness, and making life — and loading — far more comfortable are the Bed Step (not shown) and the custom-designed Chrome Tubular Side Steps, all Authentic Ram Accessories by Mopar.

AUTHENTIC RAM ACCESSORIES MOPAR.

Ram 3500 Crew Cab Laramie Dually shown in Two-Tone Rugged Brown Pearl and Light Graystone Pearl with Chrome Tubular Side Steps, an Authentic Ram Accessory by Mopar.

Ram 2500 Crew Cab SLT in Austin Tan Pearl.

RAM 2500. THE 3/4-TON SOLUTION.

1

2

2010 RAM 2500 HEAVY DUTY. A NEW CREW CAB EXPANDS YOUR CAPABILITY. Step up into a 2010 Ram 2500 Pickup, and you've stepped up the pace of your work life — because today, it's all about capability.

Let's define it further. Capability in 2010 Ram 2500 models gives you engineering that puts this pickup in the second-to-none classification. Powered by the groundbreaking 5.7-liter HEMI® V8, this engine provides best-in-class[1] standard horsepower (383) and torque (400 lb-ft). Variable Valve Timing (VVT) increases performance and also contributes to engine efficiency. Ram 2500 also offers one of the most powerful available engines in the whole 2500 class of pickups: the 6.7-liter Cummins® Turbo Diesel.

Impressive power is only part of the picture. The ability to outthink, outwork, and outsmart the competition is quite another. Here, the result is a level of toughness that makes the 2010 Ram 2500 the immediate solution — like increasing payload by 600 lb on select 2500 models with that Cummins Turbo Diesel. Like increasing the front GAWRs, and by offering an Integrated Trailer Brake Controller. Like backing Ram 2500 with quality so good, it's designed to be one of the longest-lasting, most durable lines of full-size pickups. This is the 2010 Ram 2500 Pickup. Find out more — at dodge.com/ram_hd

[1]Based on *Automotive News* classification. [2]When properly equipped. Properly secure all cargo.

1. SNOWPLOW READY. New increases in front GAWR ratings for Ram 2500 Pickups give you more capability — and put Ram 2500 at the forefront. On 2500 4x2 models, front GAWR maxes out at 5,000 lb; on 4x4 models, front GAWR is boosted to 5,500 lb, easily accommodating large snowplows and other equipment.

2. BIG BED FOR BIG JOBS. The 8-foot bed with a Regular Cab in front is a classic combination for ¾-ton capability. Like all Ram models, Regular Cab offers spacious leg room and head room, providing efficient seating for a crew of three. In back, the long 8-foot cargo bed on Ram 2500 accommodates loads up to 3,160 lb[2] with ease. Shown here with Under-The-Rail Bedliner, Sliding Toolbox, and Pickup Box Utility Rails, Authentic Ram Accessories by Mopar.

Ram 2500 Regular Cab SLT in Inferno Red Crystal Pearl.

COMFORT AND SPACE TO HANDLE WORK AND PLAY.

NEW SPACIOUS RAM CREW CABS. New, available heated and ventilated seats, new storage: this interior works. These pickups prove themselves over brutal preproduction testing — and over the test of time on the job. But that doesn't stop Ram from improving comfort levels — which brings you to ultra-tough transport that now includes the available luxuries of new power lumbar seats, new floor console, new and relocated Electronic Vehicle Information Center (EVIC), new soft-touch trim, new fabrics, and even new Dual-Zone Temperature Control.

Ram 2500 Crew Cab Laramie shown in Light Pebble Beige.

Ram 2500 Crew Cab Laramie shown in Light Pebble Beige.

SUPERIOR TOUCH AND TECH.

It's quality you can touch. The new instrument panel features unexpected touches of luxury — like available upper panel stitching and woodgrain center panel. It's balanced by technology that includes advanced multistage air bags.[1]

1. IN-FLOOR AND UNDER-SEAT STORAGE. On Crew Cab, the in-floor bins are insulated and removable — and accommodate either hot or cold items. In addition, storage under the rear bench is available for new Crew Cab Heavy Duty models. Find it fast, and stow it out of sight. Ideal for valuables and tools.

2. NEW HEATED AND VENTILATED SEATS In front are available, with premium materials and unique seat stitching. Small fans direct heat away from the occupant. Mega Cab® and new Ram Crew Cab offer available heated rear seats.

3. DUAL GLOVE BOXES. Now, glove box storage offers advantages too big to ignore, with no compromise in interior room — but a big jump in everyday convenience and comfort.

[1] Always sit properly in the seat with the seat belt fastened. Children 12 and under should always be in a backseat correctly using an infant or child restraint system or the seat belt positioned correctly for the child's age and weight.

uconnect™ With Uconnect™, you're always connected — to people, places, music, movies, and the Internet.

VOICE COMMAND. Select radio stations, satellite radio channels,[1] and navigation[1] destinations by voice. Works with all Uconnect Media Center radios. Included with Uconnect Phone.

MEDIA CENTER. 730N AM/FM/CD/DVD[2] radio with 30GB hard drive, GPS navigation, 6.5-inch touch screen, MP3/WMA support, USB input, 4,250 song capacity, SIRIUS® Satellite Radio,[3] SIRIUS Traffic™ and Voice Command.

Uconnect WEB.[4] This Authentic Ram Accessory by Mopar is an in-car router that connects any Wi-Fi-enabled device to the Internet at 3G broadband speeds. Multiple passengers can surf the Web, social-network, look up directions, check eMail or download music. Subscription required, sold separately.

iPOD® CONTROL. Connect most iPod compatible devices to your car's stereo using the in-car cable; then control them with your radio or steering wheel controls. Keeps the devices charged too.

AUDIO JACK. Connect a 3.5-mm audio cable from your MP3 player, phone, or electronic book reader to play audio through your car's speakers.

Uconnect PHONE. Lets you talk on your Bluetooth® compatible phone virtually hands-free. Address Sync[5] lets you call anyone in your address book by saying their name.

REAR SEAT ENTERTAINMENT WITH SIRIUS BACKSEAT TV.™ Passengers can play DVD movies or connect gaming consoles to an 8-inch screen. Available SIRIUS Backseat TV™ channels provide a never-ending supply of live content on three of the best family-friendly channels.

[1] When satellite radio and navigation features are equipped on your vehicle. Any voice-commanded system should be used only in safe driving conditions and all attention should be kept on the roadway ahead. Failure to do so may result in an accident causing serious injury or death. [2] In-dash DVD capability not available in all states. [3] SIRIUS service available only in contiguous United States and D.C. Service available in Canada; see siriuscanada.ca. Subscription required after 12-month subscription included with vehicle purchase. Subscriptions governed by SIRIUS. Terms & Conditions available at sirius.com. SIRIUS, XM, and all related marks and logos are trademarks of SIRIUS XM Radio Inc. and its subsidiaries. [4] The Uconnect Web feature is not intended for use by the driver while the vehicle is in motion. [5] Phone must support Bluetooth Phone Book Access Profile (PBAP).

EFFICIENCY. POWER. RAM.

THE DRIVING FORCE BEHIND MANY RAM HEAVY DUTY MODELS: THE SINGULAR 6.7-LITER CUMMINS® TURBO DIESEL. By any measure, it's got game. Torque — the benchmark figure for working power — is almost off the charts, maxing out at 650 lb-ft @ 1,500 rpm. But no matter which model you drive, when measured in terms of quality, it's got legs. Over a million Ram models have been powered by the world-renowned Cummins Turbo Diesel. As one of the cleanest, most powerful, and most respected diesel engines in any commercial pickup, this remarkable power plant can power significantly larger-class vehicles. Measure it in your own terms for strength, quietness and efficiency — when you test-drive a new 2010 Ram Heavy Duty.

THE DIESEL EXHAUST BRAKE: A PREMIUM PERFORMER. AND STANDARD ON EVERY CUMMINS-POWERED RAM. This class-exclusive[1] feature allows greater control over the vehicle, especially on downgrades. It helps extend brake life and helps save in operating costs. And drivers love it. Best of all, the diesel exhaust brake comes standard in every 6.7-liter Cummins Turbo Diesel powering a Ram Heavy Duty.

ADVANTAGE RAM: VGT TECHNOLOGY. Diesel power from Cummins comprises many assets to Ram ownership. One in particular offers a major contribution to that legendary durability. The Variable Geometry Turbocharger (VGT) allows for precise airflow calibration, balancing the need for maximum power and maximum fuel efficiency. Further benefits of the Diesel Exhaust Brake when integrated with VGT include faster cab warmup times and greater vehicle control.

NOTABLE ENGINEERING IN THE 6.7-LITER CUMMINS TURBO:

HIGH FUEL-INJECTION PRESSURES. Rated at 2,900 psi (200 bar), these pressure levels translate into proven capability and performance.

VARIABLE GEOMETRY TURBOCHARGER (VGT). Discussed below, the VGT is used in concert with a large front-mounted intercooler for increased performance and improved fuel economy.

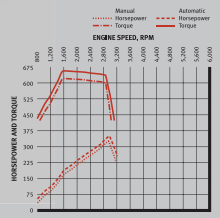
FORMIDABLE BLOCK STIFFNESS. The cast-iron engine block technology contributes to less noise and vibration and helps mitigate harshness.

COMMON-RAIL ARCHITECTURE. The common-rail fuel system in the 6.7-liter Cummins Turbo Diesel works with sophisticated electronics to yield multiple advantages. Among them — uncommonly quiet operation.

INTEGRATED GRID HEATER. An engineering accomplishment by Cummins to help achieve outstanding cold-starting ability. The Cummins starts without glow plugs or an ancillary block heater in temperatures as low as -20°F.

ELECTRONIC CONTROL MODULE (ECM). This proprietary engineering enables the engine to respond faster to throttle and acceleration. Its expanded electronic features were specifically designed for the demands of the commercial market.

FUEL FILTER: A WORKING MODEL OF EFFICIENCY. Changes to fuel properties and emissions standards are in progress this very moment. The 6.7-liter Cummins Turbo Diesel features a fuel filter with outstanding efficiency.

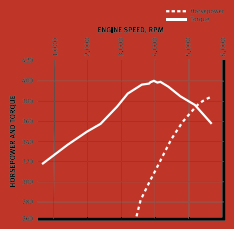


6.7L Cummins Turbo Diesel, available on 2500/3500 Pickups.

350 horsepower @ 3,000 rpm (6-speed automatic)
650 lb-ft of torque @ 1,500 rpm (6-speed automatic)
350 horsepower @ 3,013 rpm (6-speed manual)
610 lb-ft of torque @ 1,400 rpm (6-speed manual)

HEMI

THE 5.7-LITER HEMI® V8: QUALITY AND TECHNOLOGY THAT WORK DAY AFTER DAY — WITH NO END IN SIGHT. It's a legend on-road, off-road, and at the job site — because this is engineering that works. The recent addition of Variable Valve Timing (VVT) gives this engine a high-performance edge: VVT offers increased engine breathing throughout the rpm range by varying the points at which the valves open and close in conjunction with piston position. Results are quantifiable: better performance, more efficient operation, and increased torque for towing and hauling — exactly the demands made on these formidable work trucks, day after day. It's all about refinement, power, and economy, and in every way, the 5.7-liter HEMI V8 in Ram Heavy Duty delivers.



THE HEMI V8 TORQUE CURVE.
It mimics a mountain — and it's what to look for in a gas-powered engine: a quickly rising level of uncompromised power that levels out into a broad top for sustained, yet efficient output.

383 horsepower @ 5,600 rpm
400 lb-ft of torque @ 4,000 rpm

5 YEAR/100,000 MILE POWERTRAIN WARRANTY

TRUCKS THIS TOUGH DESERVE WARRANTIES THIS TOUGH.

They start as molten steel and finish with scorching performance across the board – especially when it comes to built-in dependability. Whether you require the stunning off-the-charts turbo-driven torque of the mighty Cummins, or the best-in-class[1] standard horsepower and torque of the 5.7-liter HEMI V8, all Ram Heavy Duty models feature comprehensive warranties designed to last. Count on a 5-Year/100,000-Mile Powertrain Limited Warranty on your 2010 Ram Heavy Duty.[2]

[1] Based on *Automotive News* classification. [2] Transferable. See dealer for a copy of limited warranty. Includes towing to an authorized dealer. Excludes Chassis Cabs.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3

1. 545RFE 5-SPEED AUTOMATIC.
The 545RFE 5-speed is a sophisticated multirange electronically controlled transmission that provides optimized gear ratios for responsive and durable performance along with good fuel economy. For 2010, this transmission now features Electronic Range Select. Mated to the 5.7-liter HEMI V8. Found on Ram 2500 Pickup models.

2. 68RFE 6-SPEED AUTOMATIC.
With the brilliant Electronic Range Select adding efficient performance, the 68RFE 6-speed automatic transmission provides all the benefits measured by the working world: strength, stamina, reliability. Coupled only to the 6.7-liter Cummins Turbo Diesel. Available for Ram 2500 and 3500 Pickups.

3. 6-SPEED MANUAL.
A high-ratio sixth gear allows lower highway rpm figures — with the welcome economy that comes with a manual transmission. The 6-speed manual is the standard drivetrain combination for Ram Heavy Duty Pickups with the 6.7-liter Cummins Turbo Diesel power plant.

QUALITY THAT TOWERS IN COMPARISON.

1. THE TOUGH HYDROFORMED FRONT STRUCTURE is engineering that focuses possible impact on ultra-tough frame which becomes the primary absorber of frontal impacts.

2. ENHANCED POWERTRAIN MOUNTS have been redesigned to help increase durability and to accommodate increased front GAWR ratings. The application of large volumes of very soft rubber (in a variety of proportions and sizes, depending on the specific Ram model), along with selective tuning of the mounts themselves, result in a dramatic decrease in noise, vibration and harshness, a noticeably enhanced ride, and improved interior silence and comfort.

3. NEW REAR CAB HYDRA-MOUNTS. Located under the "C" pillars of body, these new hydra-mounts greatly enhance the ride in terms of improved comfort and quietness. The mounts are actually "tuned" to help eliminate the vibrations of suspension and frame — problems generally associated with competitive heavy-duty models.

4. ACROSS THE BOARD, RAM BENCHMARKS QUALITY — AND SUPERIORITY. From the get-go, you'll note improved ride and handling, a quality that comes from a wealth of refinements. Reducing the driveshaft mass contributes to improved fuel economy. Road manners? New suspension bushings, new higher front spring rates and higher rebound travel, longer stabilizer bars, and new tuning to the suspension all contribute to Ram's exceptional capability and the deft handling of fully loaded vehicles. And when it comes to work, come to Ram: 2010 Ram 3500 models offer extraordinary towing capability — up to 17,600 lb[1] — with maximum payload reaching 5,130 lb.[1]

5. HUGE TRAILER TOW MIRRORS measure 7x11 inches, nearly the size of a sheet of paper. They're designed for the job, featuring adjustable frames that can be extended outward for maximum visibility. The variety of mirrors in 2010 Ram Heavy Duty can include power, heat, puddle lamps, turn signal lamps and memory.

6. INCREASED FRONT GAWR RATINGS on Ram 4x4 models reach up to 5,500 lb, which translates into increased capability for a wide range of applications, particularly when heavier snowplow blades are needed in snowbelt states.

7. INCREASED STRUCTURAL CAB STRENGTH comes from High-Strength Steel (HSS) reinforcements and new structural inserts integrated into the cab, designed to increase intrusion resistance in frontal offset and side impacts. For 2010 Ram Heavy Duty models, even the windshield pillars and B-pillars have been redesigned to increase overall cab strength.

8. A COMPLETELY SEALED INTERIOR comes from extreme tolerances for fit and finish, the use of expandable applied sealers to fill tiny spaces, expandable baffles and triple-sealed door-cab connections. The result: a nearly airtight and ultra-quiet cabin, with airflow effectively managed through the cab and then out, via proprietary air exhausters in the rear of the cab.

9. THE MULTICHANNEL, FOUR-WHEEL ANTILOCK BRAKE SYSTEM is electronically operated, with the front brakes controlled individually and the rear brakes in tandem. The ABS systems in all 2010 Ram Heavy Duty models include controller antilock brakes; a hydraulic control unit to modulate brakes and prevent wheel lockup, wheel speed sensors, and Electronic Variable Brake Proportioning (EVBP) to balance front-to-rear braking. If all that weren't enough, Ram engineers also took the brake calipers and rotors to extremes. Massive rotors measure greater than 14 inches for uncompromised stopping power.

10. TAILGATE LIFT ASSIST AND BEDRAIL PROTECTION are designed with ease of work in mind. Tailgate Lift Assist is a torsion rod that reduces the effort of opening and closing the tailgate. Bedrail caps are composite covers that help prevent marring and scratching while loading and unloading cargo.

[1] When properly equipped.

Ram 3500 Crew Cab Laramie Dually in Two-Tone Mineral Gray Metallic and Light Graystone Pearl.

POWER WAGON. CAPABILITY TAKEN TO THE EXTREME.

EXCEPTIONAL JOBS DEMAND AN EXCEPTIONAL TRUCK. When it comes to severe work conditions, no competitive truck comes close to Ram Power Wagon. Built to 2500 weight-class capability, Ram Power Wagon offers class-exclusive[1] strengths like no other: Standard 5.7-liter HEMI® V8. Electronically locking front and rear differentials. Electronic disconnecting front sway bar. 4.56 to 1 axle ratios, a 180-amp alternator and the capable 12,000-lb capacity WARN® winch round out the numbers. Get more at dodge.com/ram_hd

Ram 2500 Power Wagon in Bright Silver Metallic.

1. SIX TONS OF PULL. Ram Power Wagon defines severe off-road capability. Standard 12,000-lb WARN winch is indispensable on the job, and is mighty handy when helping less capable vehicles out of a jam.

2. FAR BEYOND "JOB-RATED" QUALITY. The ultra-capable Bilstein® gas-charged monotube shock absorbers just aren't listed in the standard equipment of competitive trucks. With Ram Power Wagon, they're standard.

3. THIS ARTICULATES CAPABILITY MOST ELOQUENTLY. Known as either an electronically disconnecting front stabilizer bar or "sway" bar, this asset vaults Power Wagon beyond comparison and average capability. Class-exclusive,[1] this takes you where few others dare: an incredible nine inches of additional articulation let you tackle rocky paths and timber-strewn back roads with ease.

[1]Based on *Automotive News* classification.

Ram 3500 Mega Cab Laramie in Two-Tone Deep Water Blue Pearl and Light Graystone Pearl.

MEGA. IN SO MANY WAYS.

2010 RAM MEGA CAB® HEAVY DUTY. SURPASSING EXPECTATIONS WITH FLYING COLORS. One look, and you know it's big news. After all, it boasts the largest interior volume of any pickup out there, with beyond-typical leg room and comfort. But best to look for true mega-capability everywhere. Like power supplied by the tough-as-nails available 6.7-liter Cummins® Turbo Diesel. Like an available 6-speed automatic transmission. Combine them, and start talking mega-towing capability: it peaks at 17,000 lb.[1] Payload under that same configuration is equally impressive: one-and-a-half tons,[1] ready and waiting. Now add Authentic Ram Accessories by Mopar (like a Gooseneck Hitch, which now exceeds previous capability through a brilliant exterior redesign), and you've mastered the language of mega-towing. There's tons to tow — and tons to know. Load up at dodge.com/ram_hd

1. FOLD-FLAT CARGO AREA. When we say mega-capability, we mean it. The interiors of Ram Mega Cab models feature fold-down rear seats, instantly creating a flat surface cargo area to handle large items.

2. BEHIND-THE-SEAT STORAGE BINS. They're ideal for maps and papers — and when you need to conceal valuables, small tools, materials or equipment, it's all literally out-of-sight.

[1] When properly equipped.

Ram 3500 Mega Cab Laramie in Dark Slate Gray.

Ram 2500 Crew Cab SLT in Brilliant Black Crystal Pearl. Ram 5500 Chassis Cab in Inferno Red Crystal Pearl, with aftermarket flatbed upfit.

THEY SCOFF AT A LIFETIME OF HARD LABOR.

BUSINESSLINK

IT'S NOT JUST TOUGH TRUCKS THAT PROVIDE YOUR SUPPORT SYSTEM. Count on quality — and respect. After all, this is about your business. Custom-created to meet the specialized needs and time frames demanded by business vehicles, **BusinessLink** dealers nationwide offer an invaluable wealth of business-friendly advantages, like free shuttle services, extended service hours, large service areas for Ram 4500 and 5500 Chassis Cabs — and even free loaners when available.

UNCOMPROMISING SERVICE. **BusinessLink** in a nutshell: No annual dues or fees. Enrollment at no cost. "Next-Bay-Up" expedited service when your registered vehicles need attention. Free shuttles back to your office or work site when available — and much more.

WE MOVE. YOU EARN. Regular maintenance from a dealer that understands business needs ensures your people are kept on-the-go — so your bottom line stays in the black. This is service and maintenance far beyond the corner garage. Get more at your nearby **BusinessLink** dealer, or log on to dodge.com/businesslink.

Properly secure all cargo.

2010 RAM 2500/3500 BUYER'S GUIDE

CAB/BED CONFIGURATIONS

All specifications are in inches.

MEGA CAB® WITH 6'4" BOX

Total Length:	248.4	Total Width (DRW):	96.4	Bed Width:	60.4
Total Width (SRW):	79.5	Bed Length:	76.3	Bed Depth:	20.1

CREW CAB WITH 8' BOX

Total Length:	259.4	Total Width (DRW):	96.4	Bed Width:	60.4
Total Width (SRW):	79.4	Bed Length:	98.3	Bed Depth:	20.2

CREW CAB WITH 6'4" BOX

Total Length:	237.4	Bed Length:	76.3	Bed Depth:	20.1
Total Width:	79.5	Bed Width:	60.4		

REGULAR CAB WITH 8' BOX

Total Length:	231.0	Total Width (DRW):	96.4	Bed Width:	60.4
Total Width (SRW):	79.3	Bed Length:	98.3	Bed Depth:	20.2

FEATURES COMMON ACROSS ALL TRIM LEVELS

- AIR BAGS[1] — Advanced multistage front and supplemental side-curtain
- ASSIST HANDLE — Driver- and passenger-side
- BADGING
  - — 4x4 (on 4x4 models only)
  - — Ram's Head
- BRAKES — Four-wheel, ABS disc
- CLUSTER — Instrument, with tachometer and 120-mph speedometer
- CLASS IV HITCH RECEIVER
- HEADLAMPS — Automatic
- INSULATION
  - — Dash liner
  - — Floor tunnel
- POWER ACCESSORY DELAY
- RADIO — AM/FM stereo radio with CD player
- SEAT BELTS — Front, height-adjustable shoulder
- SENTRY KEY® ANTITHEFT ENGINE IMMOBILIZER
- SHOCK ABSORBERS
  - — Front, heavy-duty
  - — Rear, heavy-duty
- TAILGATE — Removable and lockable
- TIP START — Included with all automatic transmissions
- TIRE PRESSURE MONITOR (2500 models only)
- TIRES — Spare, full-size
- TURN SIGNAL — Three-blink lane-change feature
- WHEELS — 17"x7.0" steel spare
- WINCH — Spare tire carrier
- WINDSHIELD WIPERS — Variable-intermittent

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT/REG/CREW/MEGA G	TRX CREW (2500 ONLY) T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
ENGINE/TRANSMISSION					
5.7L HEMI® V8 WITH VVT (2500 only) 5-Speed Automatic	26A	26G	26T	26P	26H
6.7L CUMMINS® TURBO DIESEL I-6 (2500/3500) 6-Speed Manual	2EA	2EG	2ET	N/A	2EH
6.7L CUMMINS TURBO DIESEL I-6 (2500/3500) 6-Speed Automatic	2FA	2FG	2FT	N/A	2FH
MECHANICAL FEATURES					
ALTERNATOR — 160-amp	•	•	•		•
— 180-amp (included with heavy-duty Snowplow Prep Group)	P	P	P	•	P
AXLES — Antispin rear differential (included with Regional Groups) (standard on 3500)	•/O	•/P	O		•/O
AXLE — Tru-Lok® front and rear electronic locking differentials				•	
— 3.42 ratio (Cummins diesel only)	O	O	O		O
— 3.73 ratio	•	•	•		•
— 4.10 ratio (included with TRX 4x4)	O	O	O/P		O
— 4.56 ratio				•	
BATTERY — 730-amp	•	•	•	•	•
ENGINE BLOCK HEATER	O	O	O	O	O
ENGINE COOLING — Heavy duty	•	•	•	•	•
FUEL TANK — 34-gallon (std. with 6-ft 4-in box)	•	•	•	•	•
— 35-gallon (std. with 8-ft box models)	•	•	•		•
SHOCK ABSORBERS — Front, heavy-duty	•	•	•	•	•
— Rear, heavy-duty	•	•	•	•	•
TRANSFER CASE — Manual shift, part-time T-case, 4x4 only	•			•	
— Electric shift, part-time T-case, 4x4 only		•	•		•
SKID PLATE — Front suspension, Power Wagon® 4x4 only.				•	
— Fuel Tank				•	
— Transfer case (4x4 only) (included in Protection Group, std. on TRX4)	P	P	•	•	P
STABILIZER BAR — Front	•	•	•	•	•
— Front, electronically disconnecting				•	
STEERING — Power, rack-and-pinion 4x2 models only	•	•	•		•
— Power, recirculating ball (4x4 models only)	•	•	•	•	•
TOW HOOKS — Included with Protection Group and Diesel	O/P	O/P	•	•	O/P
WINCH — Front electric (12,000-lb capacity)				•	
— Tire carrier	•	•	•	•	•
EXTERIOR FEATURES					
BADGING — 4x4 (only on 4x4 models)	•	•			•
— Big Horn (included with Big Horn Regional Group)		P			
— Laramie					•
— Lone Star (included with Lone Star Regional Group, Texas only)		P			
— Ram's Head	•	•	•	•	•
— SLT		•			
— TRX (4x2 only)			•		
— TRX4 Off-Road (4x4 only)			•		
BEDLINER — Under-rail	O	O	O	O	O
BUMPERS — Front, Dark Gray	•				
— Rear, Dark Gray	•				
— Front, Painted Gray			•		
— Rear, Painted Gray			•		
— Front, Chrome		•		•	•
— Rear, Chrome		•		•	•
FASCIA — Front, headlamp filler Black	•			•	
— Front, headlamp filler body-color		•	•		•
FOG LAMPS — Included with Regional Groups and Popular Equipment Group		P	•	•	•
GRILLE — Chrome surround, Black insert grille	•	•		•	
— Chrome surround, Chrome insert (included with Regional Groups)		P			•
— Body-color surround, Black insert			•		
HEADLAMPS — Halogen	•	•	•	•	
— Automatic	•	•	•	•	•
— Quad halogen (included with Regional Groups)		P	•	•	•

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT/REG/CREW/MEGA G	TRX CREW (2500 ONLY) T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
EXTERIOR FEATURES (CONTINUED)					
LAMPS, EXTERIOR — Cab clearance (included with 3500 DRW models, Optional on 2500/3500 SRW models)	P/O	P/O	O	•	P/O
— Box and rear fender clearance (included with 3500 DRW models)	P	P			P
MIRRORS, EXTERIOR — Manual, Black, Regular Cab only	•				
— Folding trailer tow, manual, Black, Regular Cab only (optional on 2500, standard on 3500 models)	O/•				
— Power, heated, folding, Black, includes exterior courtesy lamps and supplemental turn signal (included with Light Group on TRX and SLT models)		P	P		
— Power trailer tow, heated, folding, Black, includes exterior courtesy lamps and supplemental turn signal (standard on 3500 Crew and Mega Cab® models)	O/• /P	O/•	O	O	
— Power, heated, folding, Black, (included with Power Accessory or Power and Remote Entry Groups on ST Regular Cab models)	P/•	•	•	•	
— Power multifunction, heated, folding, chrome, includes position memory, exterior courtesy lamps and supplemental turn signal					•
— Power multifunction trailer tow, heated, folding, Chrome, includes position memory, exterior courtesy lamps and supplemental turn signal (optional on 2500, standard on 3500 models)					O/•
MONOTONE PAINT	•	•	N/A	N/A	O
PAINT — Two-tone, Includes accent fender flares; lower color is Mineral Gray Metallic on TRX and Light Graystone Pearl on Laramie			•	•	•
PICKUP BOX DELETE — (2500 HEMI models only)	O	O			O
TAILGATE — Locking	•	•	•	•	•
TIRES — LT265/70R17E BSW on/off road, 4x4 only (std. on 2500 models/opt. on 3500 Mega Cab SRW models)		•/O			•/O
— LT285/70R17D BSW all-terrain, (2500 4x4 only)				•	
— LT245/70R17E BSW all-season (2500 only)	•				
— LT245/70R17E BSW on/off road (2500 only)	O				
— LT265/70R17E BSW all-season (2500/3500 SRW only)	•	•			•
— LT265/70R17E OWL on/off road (2500/3500 SRW models)	O	O	•		O
— LT235/80R17E BSW all-season (3500 DRW models)	•	•			•
— LT235/80R17E OWL on/off road (3500 DRW models)	O	O			O
— Spare, full-size	•	•	•	•	•
WHEELS — 17"x7.0" steel spare	•	•	•	•	•
— 17" x 7.5" styled steel, painted argent (2500/3500 SRW models)	•				
— 17"x8.0" steel chrome-clad (2500/3500 SRW models)	O	•			
— 17"x8.0" forged aluminum (2500 models))			•	•	
— 17"x8.0" polished forged aluminum (included with Regional Groups) (2500/3500 SRW models)		O/P	O		
— 17" x 8.0" polished aluminum (2500/3500 SRW models)					•
— 17"x6" Argent steel, (3500 DRW models only)	•				
— 17"x6" steel (3500 DRW models only)	O	•			•
WHEELWELL FLARES — Painted Mineral Gray Metallic			•		
— Black				•	
— Light Graystone Pearl					•
— Body-color					O
WINDSHIELD WIPERS — Variable-intermittent	•	•	•	•	•
INTERIOR FEATURES					
AIR CONDITIONING	•	•	•	•	
— Dual-Zone Temperature Control					•
ASSIST HANDLE — Driver- and passenger-side	•	•	•	•	•
BEZEL — Center stack, Black	•				
— Center stack, color-keyed		•	•	•	
— Center stack woodgrain insert					•
CLUSTER — Instrument, with tachometer and 120-mph speedometer	•				
— Instrument, with display screen for vehicle information center (EVIC) (included with diesel)	P	•	•	•	•
CONSOLE — Full size floor console (included with front bucket seats)		P	P	P	P
— Overhead		•	•	•	
— Overhead, with HomeLink®[3] (Included in Light Group)		P	P	P	•

• = Standard equipment. O = Optional. O/P = Optional, with Package. P = Available within package noted in parentheses. N/A = Not Available

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT/REG/CREW/MEGA G	TRX CREW (2500 ONLY) T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
INTERIOR FEATURES (CONTINUED)					
DIESEL EXHAUST BRAKE — Included with 6.7L Cummins engine	P	P	P		P
DOOR LOCKS — Manual	•				
— Power (included in Power Accessory and Power and Remote Entry Group)	P	•	•	•	•
FLOOR COVERING — Carpet (included with ST Popular Equipment Group)	P	•	•	•	•
— Heavy-duty vinyl	•	O		O	
FLOOR MATS — Front and rear, carpeted (Crew and Mega Cab; included with carpet on ST models)	P	•	•	•	•
— Front, carpeted (Regular Cab; included with carpet on ST models)	P	•	•		
MIRRORS, INTERIOR — Day/night manual	•	•	•	•	
— Automatic-dimming rearview day/night (included with Light Group and Uconnect™ Phone)		O/P	O/P	O/P	•
— Passenger-side visor with mirror		•	•	•	•
— Illuminated visor passenger and driver-side (included with Light Group)		P	P	P	•
PEDALS — Power adjustable		O	O	O	
— Power adjustable with memory					O
POWER ACCESSORY DELAY	•	•	•	•	•
POWER OUTLET — 12-volt auxiliary	•	•	•	•	•
— 115-volt auxiliary (included with *GJ,*VL,*Mg,*MJ seats)		P	P	P	•
SEATS — 10-way power driver (incl. with *Mg and *MJ seats)		P	P	P	
— 10-way power driver with memory and 6-way power passenger seats (incl. with *GJ and *VL seats)					•
— Heated, driver and front-passenger, includes heated steering wheel (included with *GJ and *VL seats)					•
— Heated, second row (included with *GJ bucket seats)					P
— Vinyl 40/20/40 split-bench front seat, (Crew Cab models include folding rear bench seat trimmed in vinyl)	•				
— Cloth-trimmed 40/20/40 split-bench front seat featuring Stain Repel[4] fabric with folding center armrest/business console (Crew and Mega Cab models include folding rear bench seat trimmed in cloth) (included with ST Popular Equipment Group)	P	•	•	•	
— Premium cloth-trimmed 40/20/40 split-bench front seat featuring Stain Repel[4] fabric, power 10-way drivers seat, power lumbar adjust, folding center armrest/business console with center seat cushion storage, 115V auxiliary power outlet. Included with Popular Equipment Group (Crew and Mega Cab models include 60/40 split-folding rear bench seat)		O/P	O	O	
— Premium cloth-trimmed low-back bucket seats featuring Stain Repel[4] fabric, power 10-way driver seat, power lumbar adjust, fixed center console, 115V auxiliary power outlet. (Crew and Mega Cab models include 60/40 split-folding rear bench seat trimmed in cloth)		O	O	O	
— Leather-trimmed 40/20/40 split-bench heated front seats with power 10-way/memory for driver and power 6-way passenger seat, power lumbar adjust, front center seat cushion storage and folding center armrest/business console, 115V auxiliary power outlet. (Crew and Mega Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)					•
— Leather-trimmed low-back, ventilated and heated bucket seats, includes power 10-way driver and power 6-way passenger, power lumbar adjust, fixed center console, 115V auxiliary power outlet, heated 2nd row seats on Crew and Mega Cab models. (Crew and Mega Cab models include 60/40 split-folding rear bench seat trimmed in vinyl)					O
SPEED CONTROL — Included with ST Popular Equipment Group	P	•	•	•	•
STEERING — Tilt column	•	•	•	•	•
STEERING WHEEL — 4-spoke, urethane	•	•	•	•	
— Leather-wrapped with remote audio control buttons. (included with Light Group)		P	P	P	•
— Heated (included with heated seats)					•
STORAGE — Front seat center cushion (included with *Mg or *VL)		P	P	P	•
— Front, behind seat (Regular Cab only)	•	•			
— Rear, behind 2nd-row seat (Mega Cab only)		•			•
— Rear, under-seat compartment (Crew Cab models only)	•	•	•	•	•
— Rear, in-floor storage bins (Crew Cab models only)	•	•	•	•	•
SUNROOF — Power (Crew and Mega Cab models only)		O	O	O	O
THREE BLINK — Turn-signal lane change feature	•	•	•	•	•
TIP START — Included with automatic	P	P	P	P	P

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT/REG/CREW/MEGA G	TRX CREW (2500 ONLY) T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
INTERIOR FEATURES (CONTINUED)					
VISORS — Driver and front passenger, with illuminated vanity mirrors (included with Light Group)		P	P	P	•
— Front passenger, with mirror		•	•	•	•
WINDOWS — Manual (Regular Cab only)	•				
— Power, front with driver's one touch down (Regular Cab only) (included with Power Accessories and Power Remote Entry Groups)	P	•			
— Power, front and rear with driver's one-touch down and up (Crew and Mega Cab® models only)	•	•	•	•	•
— Rear backlight, fixed (included with rear defrost on Crew and Mega Cab models)	•	P	P	P	P
— Rear defroster (must have fixed rear window glass)		O	O	O	O
— Rear backlight, sliding (Regular Cab only)	O	•			
— Rear backlight, power sliding (Crew and Mega Cab models only)		•	•	•	•
ENTERTAINMENT SYSTEMS					
RADIO — Media Center 130 AM/FM/CD radio with MP3/WMA support, audio jack and Voice Command® of radio stations (when equipped with optional Uconnect™ Phone)	•	•	•	•	
— Media Center 430 AM/FM radio with MP3/WMA support, 30GB hard drive with 6,700 song capacity, CD/DVD[5] player, 6.5-inch touch screen SIRIUS® Satellite Radio, audio jack and Voice Command®		O	O	O	•
— Media Center 730N AM/FM/CD/DVD[5] radio with MP3/WMA support, 6.5-inch touch screen, 30GB hard drive with 4,250 song capacity, SIRIUS Satellite Radio, audio jack, Voice Command, GPS navigation, SIRIUS Real-Time Traffic and Uconnect Phone		O	O	O	O
— SIRIUS Satellite Radio (included with ST Popular Equipment Group	P	•	•	•	•
— SIRIUS Backseat TV™; included with Rear Seat Video™ system on Crew and Mega Cab models only		P	P	P	P
— Uconnect Phone — Hands-free-calling with Address Sync[6] Bluetooth,® GOOG-411, Voice Command (included with Media Center 730N and 430)		O/P	O/P	•	•
— Uconnect Web — Internet connection and Wi-Fi HotSpot. Dealer-installed Authentic Ram Accessory by Mopar. Subscription required, sold separately.					
RADIO CONTROLS — Steering wheel-mounted audio controls (included with leather-wrapped steering wheel)		P	P	P	P
REAR SEAT VIDEO SYSTEM — Includes SIRIUS Backseat TV, (not available on Regular Cab)		O	O	O	O
SPEAKER SYSTEM — 6 standard	•	•	•	•	
— 7 premium speakers (Regular Cab only, included with REN radio)		O			
— 10 premium, amplified speakers including a subwoofer (included with Technology Group)		P	P	P	•
SAFETY AND SECURITY					
AIR BAGS[1] — Advanced multistage front	•	•	•	•	•
AIR BAGS[1] —Supplemental side-curtain	•	•	•	•	•
BRAKES — Power-assisted 4-wheel antilock disc	•	•	•	•	•
PARKSENSE®[3] — Rear Park Assist System (included with Technology Group)		P	P	P	•
PARKVIEW®[3] — Rear Back-Up Camera		O	O	O	O
REMOTE KEYLESS ENTRY — Controls for power door locks, illuminated entry system, panic alarm, includes 2 transmitters (included with Power and Remote Entry Group [fleet only package])	P	•	•	•	•
REMOTE START SYSTEM — Requires automatic transmission		O	O	O	O
SECURITY ALARM		P	P	P	•
SENTRY KEY® THEFT DETERRENT — Engine Immobilizer	•	•	•	•	•
TIRE PRESSURE MONITOR — (2500 models only)	•	•	•	•	•
TRAILER BRAKE CONTROLLER	O	O	•	•	O
PACKAGE GROUPS					
CHROME APPEARANCE GROUP — Includes chrome front and rear bumpers, chrome-clad steel wheel					
HEAVY DUTY SNOWPLOW PREP GROUP — Includes 180-amp altemator, transfer case skid plate, (4x4 models only)	O	O	O		O
LIGHT GROUP — Includes overhead console, sun visors with illuminated vanity mirrors, rearview auto-dimming mirror, power heated mirrors (TRX4 and SLT only), Universal Garage Door Opener, glove box lamp, underhood lamp, rear dome lamp with on/off switch and leather-wrapped steering wheel (included with Regional Groups)		O/P	O	O	•

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT/REG/CREW/MEGA G	TRX CREW (2500 ONLY) T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
PACKAGE GROUPS (CONTINUED)					
POPULAR EQUIPMENT GROUP — Includes premium cloth 40/20/40 bench seat, fog lamps and OWL tires		O			
POWER ACCESSORY GROUP — Regular Cab only, includes power windows, power door locks and power heated, folding exterior mirrors	O				
POWER AND REMOTE ENTRY GROUP — Regular Cab only, includes power windows, power door locks, power, heated, folding exterior mirrors and remote keyless entry	O				
PROTECTION GROUP — 4x4 models only, includes tow hooks, front suspension and transfer case skid plates	O	O	•	•	O
REGIONAL GROUPS — Lone Star and Big Horn Groups. Includes Light Group, Trailer Brake Control, antispin differential, halogen quad headlamps, fog lamps, chrome grille with chrome inserts, 17"x8" polished forged aluminum wheels and unique badging. (Crew and Mega Cab only)		O			
SINGLE REAR WHEEL GROUP — (3500 models only, standard on Crew Cab short box, optional on Crew Cab long box and Mega Cab models) (not available on Regular Cab)	•/O	•/O			•/O
SMOKERS GROUP — Includes ashtray and cigar lighter	O	O	O	O	O
ST POPULAR EQUIPMENT GROUP — Includes cloth 40/20/40 bench seat, carpeted flooring, speed control, floor mats and SIRIUS Satellite Radio	O				
TECHNOLOGY GROUP — Includes premium 10-speaker system and ParkSense® Rear Park Assist System (Crew and Mega Cab models only)		O	O	O	
TRAILER BRAKE CONTROLLER GROUP — Includes trailer brake controller and premium instrument cluster with EVIC. (2500 HEMI® only)	O				
ACCESSORY OPTION PACKAGES					
— Chrome Tubular Side Steps (included with Chrome Accent Group)	O	O	O		O
— Chrome Accent Package — Chrome Tubular Side Steps, Chrome Fuel Filler Door, Chrome Exhaust Tip (where applicable on single exhaust systems), and Chrome bodyside molding (not available for Regular Cab)	O	O			O
— Chrome Steps/Bed Rail Package — Chrome Tubular Side Steps, and Chrome Bed Rails (available for 6'4" beds)	O	O			O

• = Included. P = Available within package noted in parentheses. O = optional. L = Fleet only option. N/A = Not available.

[1]Always sit properly in the seat with the seat belt fastened. Children 12 and under should always be in a backseat correctly using an infant or child restraint system or the seat belt positioned correctly for the child's age and weight.
[3]Not compatible with all garage door openers. See your retailer for details.
[3]Always check entire surroundings before backing up.
[4]Not compatible with aftermarket fabric-protecting treatments.
[5]In-dash DVD capability not available in all states.
[6]Phone must support Bluetooth Phone Book Access Profile (PBAP).

2010 RAM HEAVY DUTY INTERIOR DIMENSIONS	Regular Cab	Crew Cab	Mega Cab
Head Room F/R (in)	40.3	41.0 / 39.9	41.0 / 40.3
Leg Room F/R (in)	41.0	41.0 / 40.3	41.0 / 43.3
Shoulder Room F/R (in)	66.0	66.0 / 65.7	66.0 / 65.7
Hip Room F/R (in)	62.9	63.2 / 63.2	63.2 / 63.2
Behind Second Row (cu ft)	N/A	N/A	12.1
Total Interior Volume (cu ft)	63.1	125.3	142.65

About this catalog: Since the time of printing, some of the information you'll find in this catalog may have been updated. Ask your dealer for details. Some of the equipment shown or described throughout this catalog is available at extra cost. Specifications, descriptions, illustrative materials, and all competitive comparisons contained herein are as accurate as known at the time this publication was approved for printing. Chrysler Group LLC reserves the right to discontinue models at any time or change specifications without notice or without incurring obligation. All options are required in combination with other options. For the price of the model with the equipment you desire, or verification of specifications contained here, see your local dealer. Business*Link*, Dodge, HEMI, Mega Cab, Mopar, ParkSense, ParkView, Power Wagon, Sentry Key and Tru-Lok are registered trademarks and Rear Seat Video and Uconnect are trademarks of Chrysler Group LLC. Cummins is a registered trademark of Cummins, Inc. SIRIUS service available only in contiguous United States and D.C. Service available in Canada; see siriuscanada.ca. Subscription required after 12-month subscription included with vehicle purchase. Subscriptions governed by SIRIUS. Terms & Conditions available at sirius.com. SIRIUS, XM, and all related marks and logos are trademarks of SIRIUS XM Radio Inc. and its subsidiaries. All rights reserved. Insurance is underwritten by member companies of American International Group, Inc. Bluetooth is a registered trademark of Bluetooth SIG Inc. iPod is a registered trademark of Apple, Inc. All rights reserved. Warn is a registered trademark of Warn Industries, Inc.

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MAXIMUM PAYLOAD CAPACITIES

			2500								3500							
			Regular Cab		Crew Cab				Mega Cab*		Regular Cab		Crew Cab				Mega Cab	
			4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
AUTOMATIC TRANSMISSION	Engine	GVWR																
	5.7L HEMI® V8	8,510					1,940											
		8,650	3,160	2,740														
		8,800			3,030	2,860	2,560	2,450	2,570	2,120								
	6.7L Cummins® Turbo Diesel I-6	9,000	2,590	2,250	2,380	2,190			1,980									
		9,600					2,500	2,400		2,140								
		10,100[1]											3,460	3,220	3,130	3,030	3,050	2,670
		10,500[2]															3,130	2,720
		11,500[2]									4,750			4,280				
		12,200[2]										5,130				4,760		

			2500								3500							
			Regular Cab		Crew Cab				Mega Cab		Regular Cab		Crew Cab				Mega Cab	
			4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
MANUAL TRANSMISSION	Engine	GVWR																
	6.7L Cummins Turbo Diesel I-6	9,000	2,490	2,140	2,270	2,110			1,910									
		9,600					2,420	2,320		2,070								
		10,100[1]											3,360	3,120	3,050	2,950	2,970	2,590
		10,500[2]															3,060	2,640
		11,500[2]									4,650			4,190				
		12,200[2]										5,050				4,680		

Weights given in lb. SB = Short Box LB = Long Box [1]Single Rear Wheel only. [2]Dual Rear Wheel only.

MAXIMUM LOADED TRAILER WEIGHT (LB)

				2500								3500							
				Regular Cab		Crew Cab				Mega Cab		Regular Cab		Crew Cab				Mega Cab	
				4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
AUTOMATIC TRANSMISSION	Engine	Axle Ratio	GCWR (lb)																
	5.7L HEMI V8	3.73	15,000	9,350	8,950	9,100	8,900	8,600	8,500	8,600	8,250								
		4.10	17,000	11,350	10,950	11,100	10,900	10,600	10,500	10,600	10,250								
		4.56	17,000					10,300											
	6.7L Cummins Turbo Diesel I-6	3.42	17,000	10,450	10,100	10,250	10,050	9,750	9,650	9,850	9,400	10,100	9,800	10,200	9,950/ 9,650[2]	9,900	9,800/ 9,400[2]	9,800/ 9,500[2]	9,400/ 9,050[2]
		3.73	20,000	13,450	13,100	13,250	13,050	12,750	12,650	12,850	12,400								
		4.10	20,000	13,450	13,100	13,250	13,050	12,750	12,650	12,850	12,400								
		3.73	21,000									14,100	13,800	14,200	13,950/ 13,650[2]	13,900	13,800/ 13,400[2]	13,800/ 13,500[2]	13,400/ 13,050[2]
		4.10	24,000											17,200	16,950	16,900	16,800	16,800	16,400
		4.10	24,500[1]									17,600	17,300		17,150		16,900	17,000	16,550
		4.10	25,400[3]									18,500	18,200		18,050		17,800	17,900	17,450

[1]DRW only. [2]SRW/DRW. [3]Late availability —requires Max Tow Package.

				2500								3500							
				Regular Cab		Crew Cab				Mega Cab		Regular Cab		Crew Cab				Mega Cab	
				4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
MANUAL TRANSMISSION	Engine	Axle Ratio	GCWR (lb)																
	6.7L Cummins Turbo Diesel I-6	3.42	19,000	12,350	12,000	12,100	11,950	11,650	11,550	11,750	11,300	12,000	11,700	12,100	11,850/ 11,550[2]	11,800	11,700/ 11,350[2]	11,700/ 11,400[2]	11,350/ 11,000[2]
		3.73	20,000	13,350	13,000	13,100	12,950	12,650	12,550	12,750	12,300								
		3.73	21,000									14,000	13,700	14,100	13,850/ 13,550[2]	13,800	13,700/ 13,350[2]	13,700/ 13,400[2]	13,350/ 13,000[2]

[1]DRW only. [2]SRW/DRW.

5 YEAR/100,000 MILE POWERTRAIN WARRANTY

Transferable. See dealer for a copy of limited warranty. Includes towing to an authorized dealer. Excludes Chassis Cabs.

5-YEAR/100,000-MILE DIESEL ENGINE LIMITED WARRANTY. The Turbo Diesel engines in Ram Heavy Duty are protected by a separate Diesel Engine Limited Warranty, covering the engine for 5 years or 100,000 miles, whichever comes first. See your Ram dealer for complete details.

3/36 BASIC LIMITED WARRANTY. Ram vehicles are covered by a Chrysler Group LLC 3-year or 36,000-mile Basic Limited Warranty. See your dealer for a copy of this limited warranty. Excludes normal maintenance and wear items.

DODGE AUTO INSURANCE.[1] The only insurance guaranteed to repair your vehicle using Authentic Ram Collision Repair Parts by Mopar for as long as you own your vehicle – at rates that are tough to beat. Plus, get up to $100[2] in deductible waived when repairs are done at a Ram dealership. For a quote, visit cf.com/insurance or call (877) 244-1531.

[1]Insurance provided through 21st Century Insurance and Financial Services, Wilmington, DE, managing general agent for the personal lines insurers of American International Companies. [2]Coverage features and availability may vary by state.

CHRYSLER SERVICE CONTRACTS. Chrysler has a vested interest in your satisfaction with your new Ram vehicle. Chrysler Service Contracts offer extended service plans to help ensure that you'll enjoy your vehicle for many years down the road — for just wpennies a day. For more information, see your Ram dealer, call (800) 442-2666 or visit www.dodge.com/csc.

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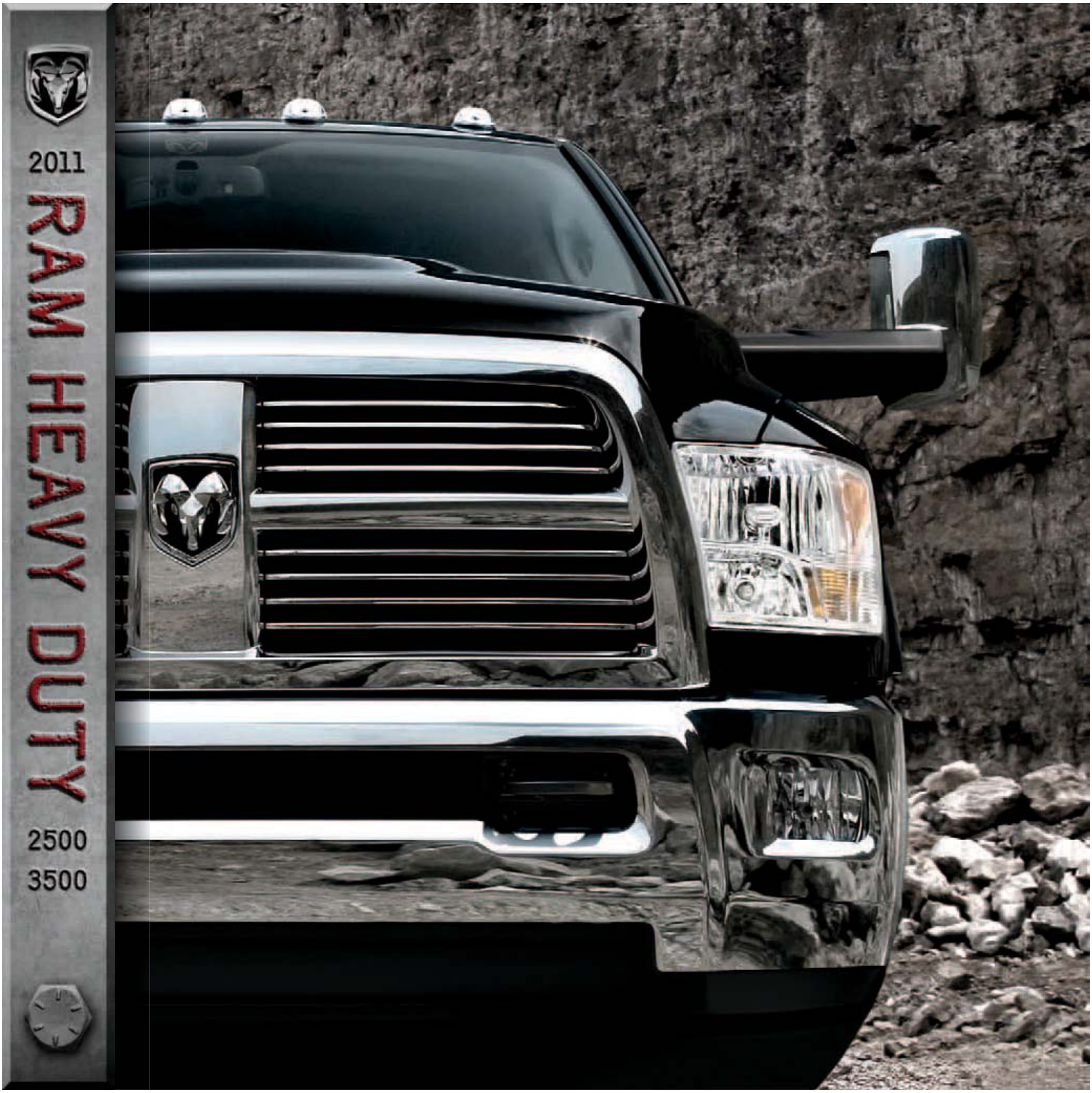
EXHIBIT 27


2011
RAM HEAVY DUTY
2500
3500

TOUGH HARD WORKER
LEGENDARY DURABILITY

Ram Heavy Duty. It stands out, and it stands up. The truck known for getting the job done on work sites and boat launches now takes on the great outdoors, in the new Ram Outdoorsman. But whichever model you choose for your brand of work or lifestyle, the family of 2011 Ram Heavy Duty provides total authority and capability. Standard on 2500 Ram Heavy Duty pickups is nothing less than the legendary 5.7-liter HEMI® V8, an engine which continually proves itself. Need the torque that comes from diesel-generated strength? The available and formidable 6.7-liter Cummins® Turbo awaits your order. Further refinements are seen in interior treatments that encompass available upper-panel stitching and a woodgrain center panel to the convenient rear in-floor storage bins in Ram Crew Cab. As for quality, it's standard equipment, too: every Ram Heavy Duty is backed by a fully transferable 5-Year/100,000-Mile Powertrain Limited Warranty.[1]* Of course, there's more. Start here, visit ramtrucks.com — and then join the online action on our blog at RamZone.com

*A NOTE ABOUT THIS BROCHURE: All disclaimers and disclosures can be found on page 22 of this catalog.

BECAUSE YOUR WORLD *IS* THE REAL WORLD. You need a work truck, a tow truck for cross-country travel trailers, or, in the case of new Ram Outdoorsman, a capable means to handle the far reaches of nature. And you demand comfort. Ram Heavy Duty interior can reach a level of comfort to rival luxury sedans. Count on available power lumbar seats, available heated and ventilated seats, available Dual-Zone Temperature Control, a standard, conveniently located Electronic Vehicle Information Center (EVIC), and available electronics that cover it all: music, navigation, hands-free Bluetooth® compatible communications, even the Internet.[2] Speaking of which, upload your personal Ram story — at youtube.com/Ram


Manage My Files
My Music
My Pictures
My Address Book
12:12
DONE
SE 73°
FM 105.7
LIGHTS ON
RAM LARAMIE INTERIOR SHOWN WITH SELECT AVAILABLE EQUIPMENT. ***DRR21USH_023

DUAL PURPOSE. ONLY RAM.

There are two sides to how people use Ram Heavy Duty pickups. On the one hand, the commercial, industrial, and agricultural worlds get ultra-capable payload capacity from a tough-as-nails truck designed for a lifetime of hard labor. On the other, are the many recreational drivers whose heavy-duty towing needs vary from towing large campers and boats to horse trailers.

Those worlds intersect in the Ram Heavy Duty interior. Here, comfort and convenience are measured by design ingenuity, ease of use, and sheer practicality.

Here's where gauges and controls reflect thoughtful design for easy reach and function. Where instrumentation instantly communicates information, like a speedometer and tachometer with read-at-a-glance white-on-black numbers. Where the EVIC — the Electronic Vehicle Information Center, standard on all Ram Heavy Duty models — offers both crisp readability and a wealth of operating information about the vehicle.

Enlarge the world of Ram Heavy Duty with Authentic Accessories from Mopar.® Start exploring the possibilities at mopar.com

No matter how you use your Ram Heavy Duty, we're keen on seeing it for ourselves. Upload video, pics and commentary at two new dedicated sites: youtube.com/Ram and twitter.com/RamTrucks

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IN-FLOOR AND UNDER-SEAT STORAGE. On Crew Cab models, the removable in-floor bins conveniently accommodate wet or dry items. Storage under the rear bench is also available for Crew Cab Heavy Duty models, when you need to stow things out of sight but find them fast. The underseat bins are ideal for valuables and tools.

AVAILABLE DUAL GLOVE BOXES. Now glove box storage offers advantages too big to ignore, with no compromise in interior room — but a big jump in everyday convenience and comfort.

HEATED AND VENTILATED FRONT SEATS are available, using premium materials and unique seat stitching. Small, unobtrusive fans direct heat away from the occupants. Mega Cab® and Ram Crew Cab also offer available heated rear seats.

IN-FLOOR AND UNDERSEAT STORAGE

DUAL GLOVE BOXES

HEATED AND VENTED FRONT SEATS

uconnect Today's world is all about your connections. Outfit your Ram Heavy Duty with Uconnect® to help stay in touch with the people, music, and devices that matter most. It acts as the hub for your most important media — cell phone, Internet, satellite radio, navigation system, and personal devices, such as an iPod® or smartphone. The Uconnect systems are user-friendly and put communications at your fingertips.

PHONE. Talking on the phone while driving has never been easier — or more responsible. Uconnect Phone is the in-vehicle, voice-activated communication system that allows you to pair up to seven Bluetooth® compatible phones and then talk virtually hands-free. This system is also clever enough to synchronize with your phone's address book[3] — up to 1,000 entries — every time you get into your vehicle. Remote USB port provides charge to mobile devices.

WEB. Put the power of high-speed Internet in your vehicle with Uconnect Web.[4] Effortlessly connect any WiFi-enabled device to the Internet at 3G broadband speeds making your vehicle a mobile Hotspot. Passengers can use multiple devices at the same time. There's no need for cell cards or software with this unique Authentic Accessory by Mopar® — connectivity is all done wirelessly. Subscription required. Sold separately.

VOICE COMMAND. It simplifies driving by letting you keep your eyes on the road and your hands on the wheel. Vocally select FM radio stations, SIRIUS® Satellite Radio[5] channels, make and receive calls, select navigation destinations, and record voice memos. This smart system technology can also be trained to better recognize your voice and can understand commands in English, French, and Spanish.

MULTIMEDIA. Manage all of your media. You'll have six ways to access audio, including SIRIUS Satellite Radio[5] (your first year of service is included), a 30GB hard drive, iPod Control with Voice Command, and wirelessly stream music through Bluetooth streaming audio. Rear Seat Video can be accessed in multiple ways: from Mopar, SIRIUS Backseat TV,™[5] DVDs, compatible multimedia devices and gaming consoles.

NAVIGATION SOLUTIONS. Choose either Garmin® or Enhanced GPS Navigation. Garmin is easy to use with Lane Guidance. Enhanced GPS Navigation provides destination entry via Voice Command and SIRIUS Traffic™[5] for real-time traffic information on the go.

UCONNECT MEDIA CENTER RADIO AVAILABILITY	130 (RES)	430 (RBZ)	430N (RHB)	730N (RER) (Available from launch until 1/11//2011)	730N (RHR) (Available after 1/11//2011)
ST	•				
SLT	•	O	O		
Big Horn	•	O	O		
Outdoorsman	•	O	O		
Power Wagon®	•	O	O		O
Laramie		•	O	O	O
SELECTED FEATURES					
LCD Display		6.5-inch Touch	6.5-inch Touch	6.5-inch Touch	6.5-inch Touch
Optical Drive	CD/MP3	CD/DVD/MP3	CD/DVD/MP3	CD/DVD/MP3	CD/DVD/MP3
Navigation			Garmin		
SIRIUS Travel Link[5]			•		•
SIRIUS Satellite Radio[5]	O	O	•	•	•
Storage		30GB HDD	30GB HDD	30GB HDD	30GB HDD
Audio Jack	•	•	•	•	•
Hands-Free Voice Command of Phone, Texting, Radio, Players	O	O	O		•
Bluetooth Streaming Audio	O	O	O		•
Remote USB Port for Digital Media Storage/Players (iPod) (Not available on ST)	O	O	O		•

• = Standard O = Optional

SIRIUS SIRIUS TRAVEL LINK™[5] brings a wealth of useful and immediate information, including national weather information for current and forecasted conditions, fuel prices to let you check local gas prices, and sports scores for in-game and final scores, as well as weekly schedules and local movie theater listings.


S ADAMS RD
M-59 W
I-75-BL W /WIDE T...
M-59 /W HURON ST
1:49
MAIN MENU
OPTIONS
TOW/ HAUL
AUTO
PUSH
68 72
SYNC
NEUTRAL
RAM HEAVY DUTY SHOWN WITH LARAMIE WOODGRAIN TRIM. OPTIONAL EQUIPMENT SHOWN. ***DRRLIUSV_112

CUMMINS.® THE QUIET AUTHORITY IN CHARGE OF DIESEL POWER. This is teamwork that just flat-out works. Ram Heavy Duty pickups and the formidable Cummins Turbo Diesel are a partnership of shared strengths — for this is a relationship that goes back decades while constantly looking forward to the next generation of trucks. The Cummins 6.7-liter workhorse is capable of driving much larger vehicles — part of the reason it works so well in Ram Heavy Duty pickups. Boasting quiet and clean performance, the Cummins generates between 610 and 650 lb-ft of torque (at only 1,500 rpm) and 350 horsepower, depending on transmission, meeting virtually every need for towing, hauling, and responsive acceleration. Unlike Ford and Chevy diesel-powered pickups, the Cummins in a Ram pickup requires no Diesel Exhaust Fluid (DEF). Backed by a 5-Year/100,000-Mile Limited Warranty,[1] additional Cummins highlights include:

NO DIESEL EXHAUST FLUID (DEF) REQUIRED HERE. The Cummins 6.7-liter Turbo Diesel in Ram Heavy Duty is the only one in its class to meet all 50-state emissions standards — with no need for DEF — resulting in impressive savings in time, costs and hassles.

HIGH FUEL-INJECTION PRESSURES. Rated at 26,107 psi (1800 bar), these pressure levels translate into proven capability and performance.

FORMIDABLE BLOCK STIFFNESS. The cast-iron engine block technology contributes to less noise and vibration and helps mitigate harshness.

COMMON-RAIL ARCHITECTURE. The common-rail fuel system in the 6.7-liter Cummins Turbo Diesel works with sophisticated electronics to yield multiple advantages. Among them — uncommonly quiet operation.

INTEGRATED GRID HEATER. An engineering accomplishment by Cummins to help achieve outstanding cold-starting ability. The Cummins starts without glow plugs or an ancillary block heater in temperatures as low as -20°F.

ELECTRONIC CONTROL MODULE (ECM). This proprietary engineering enables the engine to respond faster to throttle inputs. Its expanded electronic features were specifically designed for the demands of the commercial market.

FUEL FILTER: A WORKING MODEL OF EFFICIENCY. There is little doubt that diesel will play an increasingly important role for both truck and car propulsion. Diesel engines today are a model of cleanliness — in part, due to the fuel filter. The Cummins Turbo Diesel features a fuel filter with outstanding efficiency.

THIS STANDARD IS EXCEPTIONAL: THE DIESEL EXHAUST BRAKE. Out of many technologies built into every Ram Heavy Duty, this feature on the Cummins Turbo Diesel ranks as one of the best. It allows greater control over the vehicle, especially on downgrades. It can help extend brake life and help save in operating costs. Little wonder why drivers love it.

VGT TECHNOLOGY: THE DETAILS. Diesel power from Cummins encompasses a number of advanced technologies. Contributing to the legendary Cummins durability is the Variable Geometry Turbocharger (VGT), a controller used in concert with a large front-mounted intercooler. It's all about increasing performance: this engineering allows precise airflow calibration, and helps balance the need for maximum power while obtaining maximum engine efficiency. One further benefit: when the Diesel Exhaust Brake integrated with the VGT is activated, cab warm-up times are faster.

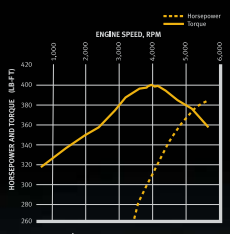
PHENOMENAL PERFORMANCE. The Cummins features a strong flat torque curve over the rpm cycle, with the characteristic inverted check mark showing superb acceleration. The Cummins 6.7-liter Turbo Diesel engine is standard on Ram 3500 Heavy Duty pickups and is available for Ram 2500 Heavy Duty pickups.

With 6-speed manual transmission
- 350 horsepower @ 3,013 rpm
- 610 lb.-ft of torque @ 1,400 rpm

With 6-speed automatic transmission
- 350 horsepower @ 3,000 rpm
- 650 lb.-ft of torque @ 1,500 rpm

HEMI

HERITAGE IS IN. It's just right for Ram Heavy Duty, and it's just what you need in the race to be the best. Because the HEMI® V8 was designed to carry everything imaginable: payload, passengers and, in the end, a reputation for outstanding performance. And that's exactly why the decision of our engineers to incorporate Variable Valve Timing (VVT) into the legendary 5.7-liter HEMI V8 power plant shows genius on our part and practicality on yours. VVT offers increased engine breathing throughout the rpm range, by varying the points at which the valves open and close in relation to particular piston position. It's a refinement with real-world benefits, which include more efficient operation, and — notably for Ram Heavy Duty — VVT increases torque, giving you exceptional towing and hauling: exactly the principal demands made of the pickups built for decades of work. From the dual standpoints of acceleration and torque, the HEMI V8 is unquestionably the gas engine of efficiency.

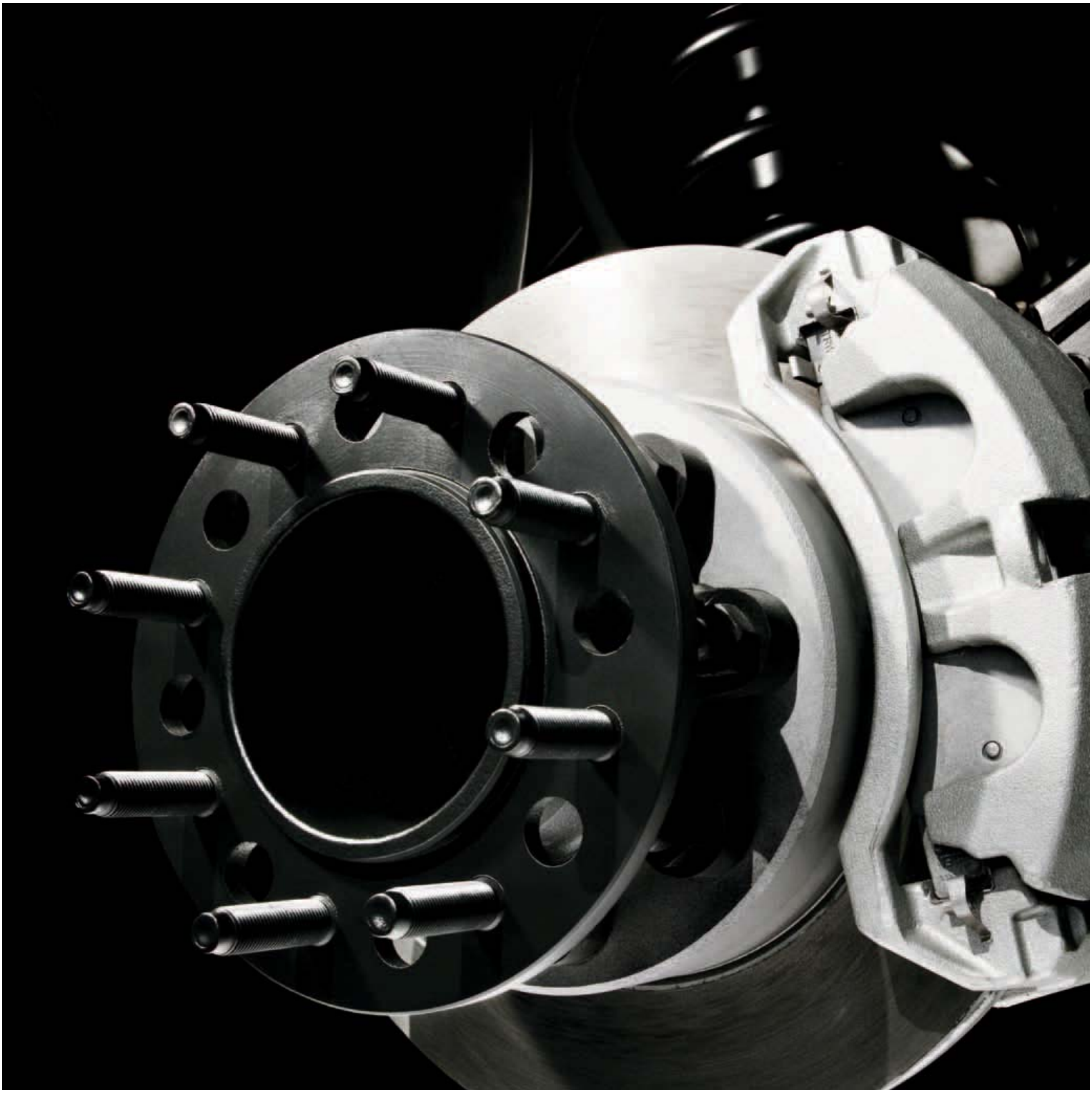


383 horsepower @ 5,600 rpm
400 lb-ft of torque @ 4,000 rpm

545RFE 5-SPEED AUTOMATIC.
A sophisticated multirange electronically controlled transmission with optimized gear ratios and Electronic Range Select for responsive, durable performance. Standard with the 5.7-liter HEMI V8 on 2500 models.

68RFE 6-SPEED AUTOMATIC.
Features Electronic Range Select for optimal performance. Outstanding strength, stamina, and reliability, with impressive performance at all rpm levels. Available for Ram 2500 and 3500 Pickups.

6-SPEED MANUAL.
Here, a high-ratio sixth gear offers ideal lower highway figures for all rpm ranges along with the welcome efficiency inherent in manual transmissions. The proven 6-speed manual is the standard drivetrain component for Ram Heavy Duty models powered by the 6.7-liter Cummins Turbo Diesel power plant.



NO IS NOT AN OPTION.

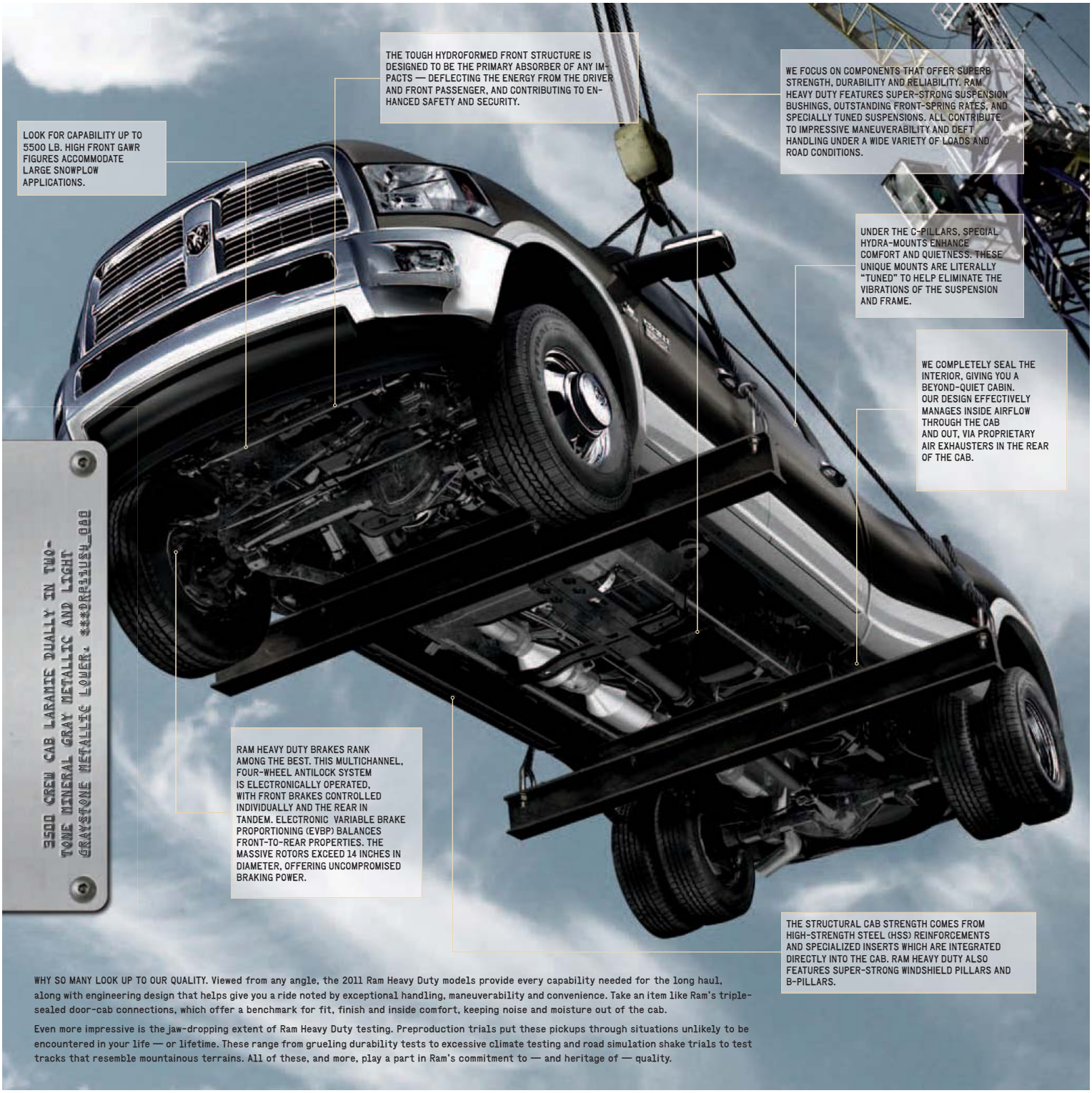
INTEGRATED TRAILER BRAKE CONTROLLER

PROPERLY SECURE ALL CARGO.

IT'S THE ULTIMATE IN *CAN-DO* ATTITUDES. Let owners of other trucks offer "maybe" and "might" when it comes to getting something done. Because whether it's your day job or helping a pal on a weekend, Ram Heavy Duty has what it takes. That available Cummins® Turbo Diesel and its massive 650 lb-ft of torque[8] are more than legendary. Mate it to the available 6-speed automatic transmission with Electronic Range Select to manually select each gear for hands-on control. Adjust towing control ranges with a dash-mounted button for the Tow/Haul mode, which reprograms the transmission to optimize the shift points and gear selection for towing or hauling heavy loads.

MASTER THE TOWING. Towing with the Cummins puts a wealth of technology to work for you. The invaluable diesel exhaust brake — standard with every Cummins Turbo Diesel — is activated by a simple dash-mounted button and lets you control the truck and the trailer speed with engine braking. It's an everyday convenience that's ideal when towing through mountainous terrain. Further confidence while towing large loads comes from Ram's four-wheel ABS with massive front and rear disc size; rotors that measure over 14 inches are more than capable of bringing Ram's maximum GCWR of 24,500 lbs[8] to an effortless halt. The brake story continues with the available fully integrated electronic trailer brake controller: drivers can customize the amount of brake force the trailer uses, depending on load requirements.

CONNECTIONS ARE CRUCIAL. Ram covers it all. Every Ram Heavy Duty Pickup comes equipped with a standard Class IV trailer hitch receiver with a convenient four- and seven-pin trailer harness connector — but when more towing capability is required, look to Authentic Ram Accessories by Mopar® to add critical towing assemblies like a Fifth-Wheel or a Gooseneck Hitch. The finishing touch to the Ram Heavy Duty towing story is the Electronic Vehicle Information Center (EVIC), allowing the driver to monitor temperatures and pressures for the engine, the oil, the transmission, and even the available trailer brake controller. Put it all together, and there's little doubt that Ram Heavy Duty is the perfect tow vehicle.



THE TOUGH HYDROFORMED FRONT STRUCTURE IS DESIGNED TO BE THE PRIMARY ABSORBER OF ANY IMPACTS — DEFLECTING THE ENERGY FROM THE DRIVER AND FRONT PASSENGER, AND CONTRIBUTING TO ENHANCED SAFETY AND SECURITY.

LOOK FOR CAPABILITY UP TO 5500 LB. HIGH FRONT GAWR FIGURES ACCOMMODATE LARGE SNOWPLOW APPLICATIONS.

WE FOCUS ON COMPONENTS THAT OFFER SUPERB STRENGTH, DURABILITY AND RELIABILITY. RAM HEAVY DUTY FEATURES SUPER-STRONG SUSPENSION BUSHINGS, OUTSTANDING FRONT-SPRING RATES, AND SPECIALLY TUNED SUSPENSIONS. ALL CONTRIBUTE TO IMPRESSIVE MANEUVERABILITY AND DEFT HANDLING UNDER A WIDE VARIETY OF LOADS AND ROAD CONDITIONS.

UNDER THE C-PILLARS, SPECIAL HYDRA-MOUNTS ENHANCE COMFORT AND QUIETNESS. THESE UNIQUE MOUNTS ARE LITERALLY "TUNED" TO HELP ELIMINATE THE VIBRATIONS OF THE SUSPENSION AND FRAME.

WE COMPLETELY SEAL THE INTERIOR, GIVING YOU A BEYOND-QUIET CABIN. OUR DESIGN EFFECTIVELY MANAGES INSIDE AIRFLOW THROUGH THE CAB AND OUT, VIA PROPRIETARY AIR EXHAUSTERS IN THE REAR OF THE CAB.

RAM HEAVY DUTY BRAKES RANK AMONG THE BEST. THIS MULTICHANNEL, FOUR-WHEEL ANTILOCK SYSTEM IS ELECTRONICALLY OPERATED, WITH FRONT BRAKES CONTROLLED INDIVIDUALLY AND THE REAR IN TANDEM. ELECTRONIC VARIABLE BRAKE PROPORTIONING (EVBP) BALANCES FRONT-TO-REAR PROPERTIES. THE MASSIVE ROTORS EXCEED 14 INCHES IN DIAMETER, OFFERING UNCOMPROMISED BRAKING POWER.

THE STRUCTURAL CAB STRENGTH COMES FROM HIGH-STRENGTH STEEL (HSS) REINFORCEMENTS AND SPECIALIZED INSERTS WHICH ARE INTEGRATED DIRECTLY INTO THE CAB. RAM HEAVY DUTY ALSO FEATURES SUPER-STRONG WINDSHIELD PILLARS AND B-PILLARS.

WHY SO MANY LOOK UP TO OUR QUALITY. Viewed from any angle, the 2011 Ram Heavy Duty models provide every capability needed for the long haul, along with engineering design that helps give you a ride noted by exceptional handling, maneuverability and convenience. Take an item like Ram's triple-sealed door-cab connections, which offer a benchmark for fit, finish and inside comfort, keeping noise and moisture out of the cab.

Even more impressive is the jaw-dropping extent of Ram Heavy Duty testing. Preproduction trials put these pickups through situations unlikely to be encountered in your life — or lifetime. These range from grueling durability tests to excessive climate testing and road simulation shake trials to test tracks that resemble mountainous terrains. All of these, and more, play a part in Ram's commitment to — and heritage of — quality.

OUTDOORSMAN

Meet the perfect package for people whose lives revolve around camping, fishing, hunting, and exploring the great outdoors. New Ram Outdoorsman is available for all Heavy Duty single rear wheel models in 4x4 and 4x2 configurations, powered by either the 5.7-liter HEMI® V8 or the 6.7-liter Cummins® Turbo Diesel. With its distinctive exterior working with interior comforts designed for long trips both on- and off-road, new Ram Outdoorsman distinguishes itself with outstanding amenities — above all, for towing.

We know that your ATV, camper, boat or trailer is almost part of the family. So our focus on super-capable towing gives you heavy-duty cooling systems for the engine, transmission, and power steering system; authoritative, oversize 17-inch All-Terrain tires, tough tow hooks, and a Class IV trailer hitch — all standard.

MOSSY OAK

The interior brings home every nuance valued by the outdoorsman. Standard equipment includes Remote Start (automatic transmission only) — ideal for moving from cool duck blind or boat launch into a cabin that's campfire warm — a leather-wrapped steering wheel with audio controls, Power Driver Seat, satellite radio, built-in 115-volt outlet, five-speed automatic and security alarm.

You can further personalize your new 2011 Ram Outdoorsman Heavy Duty with a wide variety of Authentic Accessories by Mopar specifically designed for this exceptional Ram model. Offering superb fit and finish are seat covers and vinyl graphics featuring a camo pattern from Mossy Oak® — the official camouflage supplier for Ram Outdoorsman. The distinctive touches continue with a wide range of items that make working in the great outdoors a breeze including: Bed Tie-Downs, Cargo Ramps, and the indispensable Back-Up Camera.[9] The available Drop-In Bedliners and Tonneau Covers help protect your new Ram's cargo area for decades. You'll also find items to extend capability and security — like the available Pickup Box Utility Rails, Bed Extender, Bed Mount Cargo Basket/Cargo Net and Cargo Bin Locks. There are literally hundreds of accessories for your Ram. Get more at mopar.com

MEGA. IN SO MANY WAYS.

If you're going to go anywhere, go beyond expectations, with Ram Heavy Duty Mega Cab® and the largest interior volume in its class.[7] Properly equipped with the available 6.7-liter Cummins® Turbo Diesel and 6-speed automatic transmission, your mega-towing capability peaks at 16,950 lb,[8] with payload reaching an impressive 3,110 lb.[8] For occasions when the more-than-average rear leg room isn't needed, mega-capability comes into play: the rear seats fold flat, letting you transport large items with minimal hassle getting in and out.

In a truck designed for space and convenience, there's even mega-storage at your disposal. Note the convenient behind-the-seat bins for maps, papers, valuables, small tools, and other equipment. For even further capability, outfit your Ram Mega Cab with Authentic Accessories by Mopar — the Gooseneck Hitch or Fifth-Wheel Hitch allows maximum towing capability[8] — to tow with mastery. For more on what is clearly big news, check us out at ramtrucks.com

POWER WAGON®.
CAPABILITY TO THE EXTREME.

SO FAR ABOVE, OTHERS JUST DON'T COME CLOSE. There are certain work conditions out there that require capability and strength that put the competition to shame. The features you'll find in the 2011 Ram Power Wagon put this exceptional pickup at the top — and other trucks out of the running.

Exceptions are always designed and built to create new rules for others to follow. And follow they will — that is, if they can even get there. For the principal purpose of Ram Power Wagon is to prevail under the most extreme work conditions.

Constructed to meet the three-quarter-ton weight class capabilities, the legendary 5.7-liter HEMI® V8 in Power Wagon starts a list of standard equipment that includes extensive underbody skid plate protection, class-exclusive[7] electronically locking front and rear differentials and a class-exclusive[7] electronic disconnecting front sway bar (also known as a stabilizer bar), which offers an incredible nine inches of additional articulation, letting you handle rocky paths and timber-strewn back roads with unexpected fluency. The ultra-capable Bilstein® gas-charged monotube shock absorbers, like the 12,000-pound capacity WARN® winch, are both critical elements of Ram Power Wagon: standard, and indispensable should you be called to help a less-capable truck out of a jam. Additional standard features also go to extremes, like Power Wagon's robust 4.56-to-1 axle ratio, 33-inch All-Terrain tires and no-nonsense 180-amp alternator.

Ram Power Wagon. In a world where seeing is believing, we encourage you to show this phenomenal truck in action. Shoot your videos that show the out-of-the-ordinary capabilities that give Power Wagon its own identity in the truck world — by posting them on youtube.com/Ram

MOPAR. PROVING RAM IS ALL ABOUT WORK.

PROPERLY SECURE ALL CARGO.

FOR HEAVY-DUTY PERFORMANCE, RAM ACCESSORIES GET THE JOB DONE. Authentic Ram Accessories provide the style that matches your Ram's power. From grille to gate and everything in between, these are the accessories to help your Ram work harder.

STEEL LADDER RACK. Features raised side rails, impressive cargo bed clearance, 1,000-lb. capacity. (Properly secure all cargo.)

SLIDING TOOLBOX. Durable aluminum toolbox with easy access lid, protective seal coat, stainless steel hinges, locking handle, and continuous body welds. Available for conventional beds equipped with Pickup Box Utility Rails (shown, sold separately) or RamBox.®

UNDER-THE-RAIL-BEDLINER. Skid Resistor bedliner's ribbed construction helps keep cargo from shifting, promotes water drainage from bed, and includes built-in supports to split cargo. The liner is molded of a high-density polyethylene blend for added durability. Tailgate cover also included. (See dealer for details.)

BED STEP. This retractable step mounts securely to provide a convenient intermediate platform to the truck bed, making it much easier to step up to the tailgate. The spring-loaded cam allows the step to be easily extended by stepping down on it, and it retracts with a slight push.

FIFTH-WHEEL HITCH WITH GLIDER. Count on impressive 16,000-lb capacity. This premium hitch mounts directly to the crossmember of the frame; unique scissor clamps securely attach hitch to mounting brackets. Hitch does not touch cargo bed, and when removed, allows full use of bed area.

AUTHENTIC RAM ACCESSORIES

MOPAR.


RAM 2500/3500 EXTERIOR COLORS
Brilliant Black Crystal Pearl
Deep Water Blue Pearl
Hunter Green Pearl
Mineral Gray Metallic
Flame Red
Rugged Brown Pearl
Deep Cherry Red Crystal Pearl
Bright Silver Metallic
Saddle Brown Pearl
Bright White
Note: Light Graystone not shown above. Available only as lower two-tone color on Laramie. See page 10 for reference.
Bristol Vinyl/Bristol Vinyl
Dark Slate Gray/Medium Graystone
(ST)
Racine/Dallas Cloth
Dark Slate Gray/Medium Graystone
(ST, SLT, Outdoorsman, Power Wagon™)
Racine/Dallas Cloth
Light Pebble Beige/Light Pebble Beige
(SLT, Outdoorsman, Power Wagon)
Bristol Leather Trim/Bristol Vinyl
Light Pebble Beige/Light Pebble Beige
(Laramie)
Bristol Leather Trim/Bristol Vinyl
Dark Slate Gray/Dark Slate Gray
(Laramie)
RAM 2500/3500 INTERIOR SEAT FABRICS

17-inch Argent Steel Wheel
(Standard on 2500/3500 ST SRW)

17-inch Chrome-Clad Steel Wheel
(Standard on 2500/3500 SLT SRW, Available on ST)

17-inch Polished Forged Aluminum Wheel
(Standard on Outdoorsman SRW, Power Wagon®)

17-inch Polished Forged Aluminum Wheel
(Standard on 2500/3500 SRW Big Horn/Lone Star, Available on SLT, Outdoorsman)

17-inch Polished Aluminum Wheel
(Standard on 2500/3500 Laramie SRW)

17-inch Argent Steel Wheel
(Standard on 3500 ST DRW)

17-inch Chrome Wheel Skins
(Standard on 3500 Laramie SLT, Available on ST DRW)

17-inch Aluminum Wheel
(Available on 3500 Laramie, Available on SLT DRW)

MEGA CAB® WITH 6'4" BOX

Total Length:	248.4	Bed Length:	76.3
Total Width (SRW):	79.5	Bed Width:	60.4
Total Width (DRW):	96.4	Bed Depth:	20.1

CREW CAB WITH 8' BOX

Total Length:	259.4	Bed Length:	98.3
Total Width (SRW):	79.4	Bed Width:	60.4
Total Width (DRW):	96.4	Bed Depth:	20.2

CREW CAB WITH 6'4" BOX

Total Length:	237.4	Bed Width:	60.4
Total Width:	79.5	Bed Depth:	20.1
Bed Length:	76.3		

REGULAR CAB WITH 8' BOX

Total Length:	231.0	Bed Length:	98.3
Total Width (SRW):	79.3	Bed Width:	60.4
Total Width (DRW):	96.4	Bed Depth:	20.2

INTERIOR DIMENSIONS	Regular Cab	Crew Cab	Mega Cab®
Head Room F/R (in)	40.3	41.0 / 39.9	41.0 / 40.3
Leg Room F/R (in)	41.0	41.0 / 40.3	41.0 / 43.3
Shoulder Room F/R (in)	66.0	66.0 / 65.7	66.0 / 65.7
Hip Room F/R (in)	62.9	63.2 / 63.2	63.2 / 63.2
Behind Second Row (cu ft)	NA	NA	12.1
Total Interior Volume (cu ft)	63.1	125.3	142.65

NA = Not applicable. All measurements given in inches.

RAM HEAVY DUTY BUYER'S GUIDE

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT REG/CREW/MEGA CAB® G	BIG HORN CREW/MEGA Z	OUTDOORSMAN REG/CREW/MEGA T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
ENGINE/TRANSMISSION						
5.7L HEMI® V8 with VVT (2500 only) (EZC) 5-Speed Automatic (DGQ)	26A	26G	26Z	26T	26P	26H
6.7L Cummins® Turbo Diesel I-6 (2500/3500) (ETJ) 6-Speed Manual (DEG)	2EA	2EG	2EZ	2ET	N/A	2EH
6.7L Cummins Turbo Diesel I-6 (2500/3500) (ETJ) 6-Speed Automatic (DG7)	2FA	2FG	2FZ	2FT	N/A	2FH
MECHANICAL FEATURES						
ALTERNATOR — 160-amp (BAB)	•	•	•	•		•
— 180-amp 4x4 only (included with Heavy-Duty Snowplow Prep Group) (BAD)	P	P	P	P	•	P
AXLES 2500						
— Antispin rear differential (DSA)	O	O	O	•		O
— Tru-Lok® front and rear electronic locking differentials (DSE)					•	
— 3.42 ratio (standard with diesel only) (DMR)	O	O	O	O		O
— 3.73 ratio (optional with diesel) (DME)	•/O	•/O	•/O	•/O		•/O
— 4.10 ratio (DMF)	O	O	O	O		O
— 4.56 ratio (DMU)					•	
AXLES 3500						
— Antispin rear differential (DSA)	•	•	•	•		•
— 3.42 ratio (DMR)	•	•	•	•		•
— 3.73 ratio (DME)	O	O	O	O		O
— 4.10 ratio (DMF)	O	O	O	O		O
BATTERY — 730-amp (BCN)	•	•	•	•	•	•
DIESEL EXHAUST BRAKE — Included with 6.7L Cummins engine (NEN)	P	P	P	P		P
ENGINE BLOCK HEATER — Included with Cold Weather Group (NHK)	O/P	O/P	O/P	O/P	O	O/P
ENGINE COOLING — Heavy-duty (NMC)	•	•	•	•	•	•
FUEL TANK — 34-gallon (std with 6ft 4in box) (NFU)	•	•	•	•	•	•
— 35-gallon (std with 8ft box models) (NFV)	•	•	•	•		•
SHOCK ABSORBERS — Front, heavy-duty (SFB)	•	•	•	•	•	•
— Rear, heavy-duty (SGB)	•	•	•	•	•	•
STABILIZER BAR — Front (SHA)	•	•	•	•		•
— Front, electronic disconnect (SHG)					•	
STEERING — Power, rack-and-pinion 4x2 models only (SBA)	•	•	•	•		•
— Power, recirculating ball (4x4 models only) (SBE)	•	•	•	•	•	•
TOW HOOKS — Included with Protection Group (XEA)	O/P	O/P	O/P	•	•	O/P
TRAILER HITCH RECEIVER — Class IV, includes four- and seven-pin trailer wire harness (XFH) (XFK)	•	•	•	•	•	•
TRANSFER CASE — Manual shift, part-time transfer case, 4x4 only (DH1)	•				•	
— Electric shift, part-time transfer case, 4x4 only (DH3)		•	•	•		•
WINCH — Front electric WARN® (12,000-lb capacity) (XE5)					•	
— Tire carrier (TBM)	•	•	•	•	•	•
EXTERIOR FEATURES						
BADGING — 4x4 (only on 4x4 models) (MUS)	•	•	•	•	•	•
— Big Horn (MYF)			•			
— Laramie (MTE)						•
— Lone Star (Texas only) (MYG)			P			
— Ram's Head (MGA)	•	•	•	•	•	•
— SLT (MTD)		•		•		
— Outdoorsman				•		
BEDLINER — Box, under rail (XME)	O	O	O	O	O	O
— Spray-in (XMF)	O	O	O	O	O	O
BUMPERS — Front, Dark Gray (MCC)	•					
— Rear, Dark Gray (MBZ)	•					
— Front, painted Mineral Gray (MBA)				•		
— Rear, painted Mineral Gray (MBC)				•		
— Front, chrome (included with Chrome Appearance Group) (MCT)	P	•	•		•	•
— Rear, chrome (included with Chrome Appearance Group) (MBF)	P	•	•		•	•
CHROME TUBULAR SIDE STEPS — Authentic Ram Accessory by Mopar (MRT)	O	O	O	O		O
FASCIA — Front, headlamp filler Black (MCJ)	•				•	
— Front, headlamp filler body-color (MCM)		•	•	•		•
FOG LAMPS — Included with Popular Equipment Group (LNJ)		P	•	•	•	•
GRILLE — Chrome surround, Black insert (MFD)	•	•			•	
— Chrome surround, chrome insert (MF1)			•			•
— Body-color surround, Black insert (MFT)				•		
HEADLAMPS — Automatic (LMG)	•	•	•	•	•	•
— Halogen (LMA)	•	•				
— Quad halogen (LME)			•	•	•	•
LAMPS, EXTERIOR — Cab clearance (included with 3500 DRW models, optional on 2500/3500 SRW models) (LNC)	P/O	P/O	P/O	O	•	P/O
— Box and rear fender clearance (included with 3500 DRW models) (LND)	P	P	P			P
2500 MIRRORS						
MIRRORS, EXTERIOR — Manual, Black, Regular Cab only (GPU)	•					
— Folding trailer tow, manual, Black, Regular Cab only (GPD)	O					
— Power, heated, folding, Black, (GT6)	•	•	•	•	•	
— Power, heated, folding, Black, includes exterior courtesy lamps and supplemental turn signal (included with Luxury Group) (GUK)		P	P	P	P	
— Power trailer tow, heated, manual folding, Black, includes exterior courtesy lamps and supplemental turn signal (GPG)	O	O	O	O	O	
— Power folding trailer tow, heated, Black, includes exterior courtesy lamps and supplemental turn signal (GP1)	O	O	O	O	O	
— Power multifunction, heated, folding, chrome, includes position memory, exterior courtesy lamps and supplemental turn signal (GU4)						•

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT REG/CREW/MEGA CAB® G	BIG HORN CREW/MEGA Z	OUTDOORSMAN REG/CREW/MEGA T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
EXTERIOR FEATURES (cont.)						
MIRRORS, EXTERIOR (cont.) — Power multifunction trailer tow, heated, manual folding, chrome, includes position memory, exterior courtesy lamps and supplemental turn signal (GPC)						O
— Power folding multifunction trailer tow, heated, chrome, includes position memory, exterior courtesy lamps and supplemental turn signal (GP2)						O
3500 MIRRORS						
MIRRORS, EXTERIOR — Folding trailer tow, manual, Black, Regular Cab only (GPD)	•					
— Power trailer tow, heated, manual folding, Black, includes exterior courtesy lamps and supplemental turn signal (GPG)	•	•	•	•		
— Power folding trailer tow, heated, Black, includes exterior courtesy lamps and supplemental turn signal (GP1)	O	O	O	O		
— Power multifunction trailer tow, heated, manual folding, chrome, includes position memory, exterior courtesy lamps and supplemental turn signal (GPC)						•
— Power folding multifunction trailer tow, heated, chrome, includes position memory, exterior courtesy lamps and supplemental turn signal (GP2)						O
MONOTONE PAINT (included with Brilliant Black Crystal Pearl paint) (APA)	•	•	•	N/A	P	O
PAINT — Two-tone, includes accent fender flares; lower color is Mineral Gray Metallic on Outdoorsman and Light Graystone Pearl on Laramie (APD)				•	•	•
TAILGATE — Locking (XJJ)	•	•	•	•	•	•
2500 TIRES						
— LT245/70R17E BSW All-Season (TWD)	•					
— LT245/70R17E BSW on/off road (TWE)	O					
— LT265/70R17E BSW All-Season (not available on Mega Cab® 4x4) (TT3)		•	•			•
— LT265/70R17E BSW on/off road, 4x4 only (std on Mega Cab 4x4 models) (TXE)		•	•			•
— LT285/70R17D BSW All-Terrain, (Power Wagon only) (TXA)					•	
— LT265/70R17E OWL on/off road (included with Popular Equipment Group) (TT5)		P/O	O	•		O
— Spare, full-size (TBB)	•	•	•	•	•	•
3500 TIRES						
— LT265/70R17E BSW All-Season (SRW only) (TT3)	•/P	•/P	•/P			•/P
— LT265/70R17E OWL on/off road (SRW only) (TT5)	O	O	O			O
— LT235/80R17E BSW All-Season (DRW models only) (TPY)	•	•	•			•
— LT235/80R17E OWL on/off road (DRW models only) (TP9)	O	O/P	O			O
— Spare, full-size (TBB)	•	•	•			•
2500 WHEELS						
— 17 x 7.5-inch styled steel, painted Argent (WD2)	•					
— 17 x 8.0-inch steel chrome-clad (included with Chrome Appearance Group) (WGS)	P	•				
— 17 x 8.0-inch polished forged aluminum (WBG)		O	•	O		
— 17 x 8.0-inch cast aluminum (WFF)				•	•	
— 17 x 8.0-inch cast aluminum (WFK)						•
— 17 x 7.0-inch steel spare (WF1)	•	•	•	•	•	•
3500 WHEELS						
— 17 x 7.5-inch styled steel, painted Argent (SRW only) (WD2)	•					
— 17 x 8.0-inch steel chrome-clad (included with Chrome Appearance Group) (SRW only) (WGS)	P	•				
— 17 x 8.0-inch polished forged aluminum (SRW only) (WBG)		O	•			
— 17 x 8.0-inch cast aluminum (SRW only) (WFK)						•
— 17 x 6.0-inch Argent steel (DRW models only) (WFU)	•					
— 17 x 6.0-inch steel chrome finish (included with Chrome Appearance Group; DRW models only) (WD4)	P	•	•			•
— 17 x 6.0-inch aluminum (DRW models only) (WF7)		O	O			O
WHEELWELL FLARES — Painted Mineral Gray Metallic (MMJ)				•		
— Black (K5O)					•	
— Painted LT. Graystone Pearl (MRD)						•
— Monotone Body Color (MML)						O
WINDSHIELD WIPERS — Variable-intermittent (JHA)	•	•	•	•	•	•
INTERIOR FEATURES						
AIR CONDITIONING (HAA)	•	•	•	•	•	
— Dual-Zone Temperature Control (HAF)						•
ASSIST HANDLE — Driver and passenger-side (CSP)	•	•	•	•	•	•
BEZEL — Center stack, Black (JBF)	•					
— Center stack, color-keyed (JBY)		•	•	•	•	
— Center stack, woodgrain insert (JBB)						•
CIGAR LIGHTER — Included with Smoker's Group (JJA)	P	P	P	P	P	P
CLUSTER — Instrument, with display screen for vehicle information center (JAT)	•	•	•	•	•	•
CONSOLE — Full-size floor console with floor-mounted automatic shifter (included with front bucket seats)		P	P	P	P	P
— Overhead (CUN)		•			•	
— Overhead, with universal garage door opener (included in Luxury Group) (CV2)		P	•	•	P	•
DOOR LOCKS — Manual, Regular Cab only (JE8)	•					
— Power (JPB)		•	•	•	•	•
FLOOR COVERING — Heavy-duty vinyl (CKJ)	•	O	O		O	
— Carpet (included with ST Popular Equipment Group) (CKE)	P	•	•	•	•	•
FLOOR MATS — Front, carpeted (Regular Cab; included with carpet on ST models) (CLA)	P	•				
— Front, rubber all-weather	O	O		•		
— Front and rear rubber all-weather	O	O	O	•	O	O
— Front and rear, carpeted (Crew and Mega Cab; included with carpet on ST models) (CLE)	P	•			•	•
MIRRORS, INTERIOR — Day/night manual (GNA)	•	•				
— Automatic-dimming rearview day/night (included with Luxury Group and Uconnect® Phone) (GNK)		P	•	•	•	•
— Passenger-side visor with mirror (GNM)		•			•	
— Illuminated visor passenger and driver side (included with Luxury Group) (GNC)		P	•	•	P	•
PEDALS — Power adjustable (requires automatic transmission) (XAP)		O	O	O	O	
— Power adjustable with memory (requires automatic transmission) (XAM)						O
PICKUP BOX DELETE — (2500 Regular and Crew Cab 5.7L V8 models only) (XBC)	O	O	O			

BUYER'S GUIDE (cont.)

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT REG/ CREW/MEGA CAB® G	BIG HORN CREW/MEGA Z	OUTDOORSMAN REG/CREW/MEGA T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
INTERIOR FEATURES (cont.)						
POWER ACCESSORY DELAY (JKY)	•	•	•	•	•	•
POWER OUTLET — Two 12-volt auxiliary (JJJ)	•	•	•	•	•	•
— 115-volt auxiliary (included with *M9, *MJ seats) (JKV)		P	P	•	P	•
SEATS — Belt, front shoulder height-adjustable (CGD)	•	•	•	•	•	•
— 10-way power driver (included with *M9 and *MJ seats) (JRT)		P	P	•	P	
— 10-way power driver with memory and 6-way power passenger seats (JRF)						•
— Heated, driver and front-passenger, includes heated steering wheel (CMA)						•
— Heated, second-row (included with *GJ bucket seats) (JPZ)						P
— Vinyl 40/20/40 split-bench front seat, (Crew Cab models include folding rear bench seat trimmed in vinyl) (*TX)	•					
— Cloth-trimmed 40/20/40 split-bench front seat with folding center armrest/business console (Crew and Mega Cab models include folding rear bench seat trimmed in cloth; included with ST Popular Equipment Group) (*V9)	P	•	•		•	
— Premium cloth-trimmed 40/20/40 split-bench front seat, power 10-way driver's seat, power lumbar adjust, folding center armrest/business console with center seat cushion storage, 115V auxiliary power outlet. Included with Popular Equipment Group (Crew and Mega Cab models include 60/40 split-folding rear bench seat) (*M9)		O/P	O	•	O	
— Premium cloth-trimmed low-back bucket seats, power 10-way driver seat, power lumbar adjust, fixed center console, 115V auxiliary power outlet. (Crew and Mega Cab models include 60/40 split-folding rear bench seat trimmed in cloth) (*MJ)		O	O	O		
— Leather-trimmed 40/20/40 split-bench heated front seats with power 10-way/memory for driver and power 6-way passenger seat, power lumbar adjust, front center seat cushion storage and folding center armrest/business console, 115V auxiliary power outlet. (Crew and Mega Cab models include 60/40 split-folding rear bench seat trimmed in vinyl) (*VL)						•
— Leather-trimmed low-back, ventilated and heated bucket seats, includes power 10-way driver and power 6-way passenger, power lumbar adjust, fixed center console, 115V auxiliary power outlet, heated 2nd-row seats on Crew and Mega Cab models.(Crew and Mega Cab models include 60/40 split-folding rear bench seat trimmed in vinyl) (*GJ)						O
SPEED CONTROL — Included with diesel engine, ST Popular Equipment Group (NHM)	P	•	•	•	•	•
STEERING — Tilt column (SUA)	•	•	•	•	•	•
STEERING WHEEL — 4-spoke, urethane (SCF)	•	•	•	•	•	
— Leather-wrapped with remote audio control buttons (included with Luxury Group) (SCV)		P	•	•	P	•
— Heated (included with heated seats) (NHS)						•
STORAGE — Front seat center cushion (included with *M9) (CVH)		P	P	•	P	•
— Front, behind seat (Regular Cab only) (CU3)	•	•				
— Rear, behind 2nd-row seat (Mega Cab only) (CU3)		•	•	•		•
— Rear, underseat compartment (Crew Cab models only) (CUE)	•	•	•	•	•	•
— Rear, in-floor storage bins (Crew Cab models only)	•	•	•	•	•	•
SUNROOF — Power (Crew and Mega Cab models only) (GWA)		O	O	O	O	O
THREE BLINK — Turn signal lane change feature	•	•	•	•	•	•
TIP START — Included with automatic transmissions	P	P	P	P	P	P
VISORS — Front passenger, with mirror (GNM)		•		•	•	
— Driver and front passenger, with illuminated vanity mirrors (included with Luxury Group) (GNC)		P	•	P	P	•
WINDOWS — Manual (Regular Cab only) (JF8)	•					
— Power, front with one-touch down (Regular Cab only) (JPY)		•	•			
— Power, front and rear with front one-touch down and up (Crew and Mega Cab models only) (JP3)	•	•	•	•	•	•
— Rear backlight, fixed (included with rear defrost on Crew and Mega Cab models) (GJD)	•	P	P	P	P	P
— Rear defroster (Crew and Mega Cab models only; requires fixed rear window glass) (GFA)		O	O	O	O	O
— Rear backlight, sliding (Regular Cab only) (GFD)	O	•				
— Rear backlight, power sliding (Crew and Mega Cab models only) (GFE)		•	•	•	•	•
UCONNECT® MULTIMEDIA						
MEDIA CENTER 130 RADIO — AM/FM/CD radio with MP3/WMA support, audio jack and Voice Command of radio when equipped with optional Uconnect Phone (RES)	•	•	•	•	•	
MEDIA CENTER 430 RADIO — AM/FM radio with MP3/WMA support, 30GB hard drive with 6,700 song capacity, CD/DVD player, 6.5-inch touch screen, SIRIUS® Satellite Radio,[5] audio jack and Voice Command (RBZ)		O	O	O	O	•
MEDIA CENTER 430N RADIO — AM/FM/CD/DVD radio with MP3/WMA support, 6.5-inch touch screen, 30GB hard drive with 4,250 song capacity, SIRIUS Satellite Radio,[5] audio jack, Voice Command, Garmin® Navigation, SIRIUS Traffic™[6] and Uconnect Phone (RHB)		O	O	O	O	O
MEDIA CENTER 730N RADIO — AM/FM/CD/DVD radio with MP3/WMA support, 6.5-inch touch screen, 30GB hard drive with 4,250 song capacity, SIRIUS Satellite Radio,[5] audio jack, Voice Command, GPS Navigation, SIRIUS Traffic,[5] SIRIUS TravelLink and Uconnect Phone (RHR)					O	O
MEDIA CENTER 730N RADIO — AM/FM/CD/DVD radio with MP3/WMA support, 6.5-inch touch screen, 30GB hard drive with 4,250 song capacity, SIRIUS Satellite Radio,[5] audio jack, Voice Command, GPS Navigation, SIRIUS Traffic[5] and Uconnect Phone (RER)						O
iPod® CONTROL — Included with Uconnect Voice Command (RST)		P	P	P	P	P
RADIO CONTROLS — Steering wheel-mounted audio controls included with leather-wrapped steering wheel) (RDZ)		P	P	P	P	•
REAR SEAT VIDEO™ SYSTEM — (not available on Regular Cab) (XRV)		O	O	O	O	O
SIRIUS SATELLITE RADIO[5] — Included with ST Popular Equipment Group (RSC)	P	•	•	•	•	•
SPEAKER SYSTEMS — 6 standard (RCG)	•	•	•	•	•	
— Premium I speakers (Regular Cab only) (RCK)		O				
— 10 premium, amplified speakers including a subwoofer (included with Technology Group) (RC3)		P	P	P	P	•
Uconnect PHONE — Hands-free calling with Address Sync,[3] Bluetooth® and Voice Command (included with Media Center touch-screen radios) (RSP)		O/P	O/P	P	•	•
Uconnect WEB[4] — Internet connection WiFi Hotspot. Dealer-installed Authentic Ram Accessory by Mopar.® (Subscription required; sold separately.)	O	O	O	O	O	O

PACKAGE DESIGNATIONS	ST REG/CREW A	SLT REG/ CREW/MEGA CAB® G	BIG HORN CREW/MEGA Z	OUTDOORSMAN REG/CREW/MEGA T	POWER WAGON® CREW (2500 ONLY) P	LARAMIE CREW/MEGA H
SAFETY AND SECURITY						
AIR BAGS — Multistage front[10] (CG3)	•	•	•	•	•	•
—Supplemental side-curtain[10] (CGS)	•	•	•	•	•	•
BRAKES — Power-assisted 4-wheel antilock disc (BRT)	•	•	•	•	•	•
PARKSENSE® — Rear Park Assist System[9] (included with Technology Group) (XAA)		P	P	P	P	•
PARKVIEW® — Rear Back-Up Camera[9] (requires Media Center touch-screen radio) (XAC)		O	O	O	O	O
REMOTE KEYLESS ENTRY — Controls for power door locks, illuminated entry system, panic alarm, includes 2 transmitters (GXM)		•	•	•	•	•
REMOTE START SYSTEM — Requires automatic transmission (XBM)		O	O	•	O	O
SECURITY ALARM — (LSA)		O	O	•	O	•
SENTRY KEY® THEFT DETERRENT — Engine immobilizer (GXX)	•	•	•	•	•	•
TIRE PRESSURE MONITOR WITH DISPLAY — (2500 models only; included with Electronic Vehicle Information Center) (XGM)	•	•	•	•	•	•
TRAILER BRAKE CONTROL — Fully integrated electronic (XHC)	O	•	•	•	•	•
PACKAGE GROUPS						
CHROME APPEARANCE GROUP — Includes chrome front and rear bumpers, 17" chrome steel wheels (AED)	O					
CHROME SIDE STEP AND BED RAIL GROUP — Includes chrome front and rear bumpers, 17" chrome steel wheels (ACZ)	O	O	O			O
CHROME TUBULAR SIDE STEP (MRT)	O	O	O	O	O	O
COLD WEATHER GROUP — Includes engine block heater and winter front grille cover (requires diesel engine) (ADE)	O	O	O	O		O
FRONT SLUSH MAT (CLY)	O	O	O		O	O
HEAVY-DUTY SNOWPLOW PREP GROUP — Includes 180-amp alternator, transfer case skid plate (4x4 models only) (AHD)	O	O	O	O		O
LUXURY GROUP — Includes overhead console, sun visors with illuminated vanity mirrors, rearview auto-dimming mirror, power heated mirrors (on G, Z and T CPOS only), universal garage door opener, glove box lamp, underhood lamp, rear dome lamp with on/off switch and leather-wrapped steering wheel (ADA)		O	•	•	O	•
POPULAR EQUIPMENT GROUP — Regular cab only, includes premium cloth 40/20/40 bench seat, fog lamps and OWL tires (ALW)		O				
PROTECTION GROUP — 4x4 models only; includes tow hooks and transfer case skid plate (ADB)	O	O	O	O	•	O
REAR SLUSH MAT (CLF)	O	O	O		O	O
SINGLE REAR WHEEL GROUP — 3500 models only, standard on Crew Cab short box, optional on Crew Cab long box and Mega Cab models (not available on Regular Cab) (AR9)	•/O	•/O	•/O			•/O
SMOKER'S GROUP — Includes ashtray and cigar lighter (AWS)	O	O	O	O	O	O
ST POPULAR EQUIPMENT GROUP — Includes cloth 40/20/40 bench seat, carpeted flooring, speed control, Remote Keyless Entry, floor mats and SIRIUS Satellite Radio[5] (AJY)	O					
TECHNOLOGY GROUP — Includes premium 10-speaker system and ParkSense Rear Park Assist System[9] (Crew and Mega Cab models only) (ADG)		O	O	O	O	

• = Included. P = Available within package noted in parentheses. O = optional. L = Fleet only option. N/A = Not available

MAXIMUM PAYLOAD CAPACITIES[8]

			2500								3500							
			Regular Cab		Crew Cab				Mega Cab®		Regular Cab		Crew Cab				Mega Cab	
			4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
AUTOMATIC TRANSMISSION	Engine	GVWR																
	5.7L HEMI® V8	8,510					1,780											
		8,650	3,120	2,650														
		8,800			3,030	2,800	2,550	2,450	2,520	2,080								
	6.7L Cummins® Turbo Diesel I-6	9,000	2,580	2,220	2,370	2,200			1,950									
		9,600					2,430	2,410		2,040								
		10,100[11]											3,420	3,230	3,140	3,030	3,050	2,610
		10,500[12]															3,110	2,980
		11,500[12]									4,730			4,250				
		12,200[12]										5,130				4,760		

MAXIMUM PAYLOAD CAPACITIES[8]

			2500								3500							
			Regular Cab		Crew Cab				Mega Cab		Regular Cab		Crew Cab				Mega Cab	
			4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
MANUAL TRANSMISSION	Engine	GVWR																
	6.7L Cummins Turbo Diesel I-6	9,000	2,490	2,140	2,270	2,110			1,860									
		9,600					2,340	2,320		1,950								
		10,100[11]											3,310	3,140	3,050	2,950	2,960	2,520
		10,500[12]															3,020	2,590
		11,500[12]									4,640			4,160				
		12,200[12]										5,050				4,680		

Weights given in lb. SB = Short Box LB = Long Box [11]Single Rear Wheel only. [12]Dual Rear Wheel only.

MAXIMUM LOADED TRAILER WEIGHT (LB)[8]

				2500								3500							
				Regular Cab		Crew Cab				Mega Cab		Regular Cab		Crew Cab				Mega Cab	
				4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
AUTOMATIC TRANSMISSION	Engine	Axle Ratio	GCWR (lb)																
	5.7L HEMI V8	3.73	15,000	9,300	8,850	9,100	8,850	8,600	8,500	8,550	8,150								
		4.10	18,000	12,300	11,850	12,100	11,850	11,600	11,500	11,550	11,150								
		4.56	17,000					10,100											
	6.7L Cummins Turbo Diesel I-6	3.42	17,000	10,450	10,050	10,200	10,050	9,700	9,650	9,800	9,300	10,100	9,800	10,150	10,000/ 9,600[22]	9,900	9,800/ 9,400[11]	9,800/ 9,450[11]	9,350/ 9,350[11]
		3.73	20,000	13,450	13,050	13,200	13,050	12,700	12,650	12,800	12,300								
		4.10	22,000	15,450	15,050	15,200	15,050	14,700	14,650	14,800	14,300								
		3.73	21,000									14,100	13,800	14,150	14,000/ 13,600*	13,900	13,800/ 13,400[11]	13,800/ 13,450[11]	13,350/ 13,350[11]
		4.10	24,000											17,150	17,000	16,900	16,800	16,800	16,350
		4.10	24,500[22]									17,600	17,300		17,100		16,900	16,950	16,850

[11]SRW/DRW. [22]DRW only.

MAXIMUM LOADED TRAILER WEIGHT (LB)[8]

				2500								3500							
				Regular Cab		Crew Cab				Mega Cab		Regular Cab		Crew Cab				Mega Cab	
				4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4	4x2	4x4	SB 4x2	LB 4x2	SB 4x4	LB 4x4	4x2	4x4
MANUAL TRANSMISSION	Engine	Axle Ratio	GCWR (lb)																
	6.7L Cummins Turbo Diesel I-6	3.42	19,000	12,350	12,000	12,100	11,950	11,600	11,550	11,700	11,200	12,000	11,700	12,050	11,900/ 11,500*	11,800	11,700/ 11,350*	11,700/ 11,350*	11,250/ 10,950*
		3.73	20,000	13,350	13,000	13,100	12,950	12,600	12,550	12,700	12,200								
		3.73	21,000									14,000	13,700	14,050	13,900/ 13,500*	13,800	13,700/ 13,350*	13,700/ 13,350*	13,250/ 12,950*

*SRW/DRW.

[1]Transferable. See dealer for a copy of limited warranty. Includes towing to an authorized dealer. [2]Subscription to Uconnect Web required. Subscription sold separately. [3]Phone must support Bluetooth Phone Book Access Profile (PBAP). [4]Uconnect Web feature is not intended for use by the driver while the vehicle is in motion. Always drive carefully. Subscription required. [5]Required SIRIUS Radio, Traffic, Travel Link, and Backseat TV subscriptions sold separately after trial period. Other fees and taxes will apply. SIRIUS Traffic and Travel Link available in select markets; Backseat TV subscription not available without SIRIUS Radio subscription; and SIRIUS data displays and individual product availability vary by hardware equipment. SIRIUS service available only to those at least 18 years of age in the 48 contiguous U.S.A., DC, and Puerto Rico (with coverage limitations), while Internet radio is also available in AK, HI, and PR. Fees and programming subject to change. Service automatically renews and you will be billed, at then-current rates, unless you call 1-888-539-7474 to cancel. Subscriptions governed by SIRIUS Terms and Conditions available at sirius.com. Service available in Canada; see siriuscanada.ca. [6]When satellite radio and navigation features are equipped on your vehicle. Any voice-commanded system should be used only in safe driving conditions and all attention should be kept on the roadway ahead. Failure to do so may result in an accident causing serious injury or death. [7]Based on *Automotive News* classification. [8]When properly equipped. [9]Always check entire surroundings before backing up. [10]The Advanced Front Air bags in this vehicle are certified to the new U.S. federal regulations for advanced air bags. Children 12 years old and younger should always ride buckled up in a rear seat. Infants in rear-facing child restraints should never ride in the front seat of a vehicle with a passenger front air bag. All occupants should always wear their lap and shoulder belts properly.

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EXHIBIT 28

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 18 2015

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Volkswagen AG
Audi AG
Volkswagen Group of America, Inc.
Thru:

David Geanacopoulos
Executive Vice President Public Affairs and General Counsel
Volkswagen Group of America, Inc.
2200 Ferdinand Porsche Drive
Herndon, VA 20171

Stuart Johnson
General Manager
Engineering and Environmental Office
Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326

Re: Notice of Violation

Dear Mr. Geanacopoulos and Mr. Johnson:

The United States Environmental Protection Agency (EPA) has investigated and continues to investigate Volkswagen AG, Audi AG, and Volkswagen Group of America (collectively, VW) for compliance with the Clean Air Act (CAA), 42 U.S.C. §§ 7401–7671q, and its implementing regulations. As detailed in this Notice of Violation (NOV), the EPA has determined that VW manufactured and installed defeat devices in certain model year 2009 through 2015 diesel light-duty vehicles equipped with 2.0 liter engines. These defeat devices bypass, defeat, or render inoperative elements of the vehicles' emission control system that exist to comply with CAA emission standards. Therefore, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B). Additionally, the EPA has determined that, due to the existence of the defeat

devices in these vehicles, these vehicles do not conform in all material respects to the vehicle specifications described in the applications for the certificates of conformity that purportedly cover them. Therefore, VW also violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1), by selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing these vehicles, or for causing any of the foregoing acts.

Law Governing Alleged Violations

This NOV arises under Part A of Title II of the CAA, 42 U.S.C. §§ 7521–7554, and the regulations promulgated thereunder. In creating the CAA, Congress found, in part, that "the increasing use of motor vehicles . . . has resulted in mounting dangers to the public health and welfare." CAA § 101(a)(2), 42 U.S.C. § 7401(a)(2). Congress' purpose in creating the CAA, in part, was "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population," and "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution." CAA § 101(b)(1)–(2), 42 U.S.C. § 7401(b)(1)–(2). The CAA and the regulations promulgated thereunder aim to protect human health and the environment by reducing emissions of nitrogen oxides (NOx) and other pollutants from mobile sources of air pollution. Nitrogen oxides are a family of highly reactive gases that play a major role in the atmospheric reactions with volatile organic compounds (VOCs) that produce ozone (smog) on hot summer days. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Breathing ozone can also worsen bronchitis, emphysema, and asthma. Children are at greatest risk of experiencing negative health impacts from exposure to ozone.

The EPA's allegations here concern light-duty motor vehicles for which 40 C.F.R. Part 86 sets emission standards and test procedures and section 203 of the CAA, 42 U.S.C. § 7522, sets compliance provisions. Light-duty vehicles must satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. § 86.1811-04. The EPA administers a certification program to ensure that every vehicle introduced into United States commerce satisfies applicable emission standards. Under this program, the EPA issues certificates of conformity (COCs), and thereby approves the introduction of vehicles into United States commerce.

To obtain a COC, a light-duty vehicle manufacturer must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86.1844-01(d)(11). An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86.1803-01. The COC application must also include "a justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C.F.R. § 86.1844-01(d)(11).

A defeat device is an AECD "that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and

use, unless: (1) Such conditions are substantially included in the Federal emission test procedure; (2) The need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) The AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . . . ." 40 C.F.R. § 86.1803-01.

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, *Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device* (Dec. 11, 1972); *see also* 40 C.F.R. §§ 86-1809-01, 86-1809-10, 86-1809-12. Electronic control systems which may receive inputs from multiple sensors and control multiple actuators that affect the emission control system's performance are AECDs. EPA, *Advisory Circular Number 24-2: Prohibition of Emission Control Defeat Devices – Optional Objective Criteria* (Dec. 6, 1978). "Such elements of design could be control system logic (i.e., computer software), and/or calibrations, and/or hardware items." *Id.*

"Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . . ." 40 C.F.R. § 86.1848-10(c)(6). Similarly, a COC issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. *See also* 40 C.F.R. §§ 86.1844-01 (listing required content for COC applications), 86.1848-01(b) (authorizing the EPA to issue COCs on any terms that are necessary or appropriate to assure that new motor vehicles satisfy the requirements of the CAA and its regulations).

The CAA makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use." CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86.1854-12(a)(3)(ii). Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued COC. CAA § 203(a)(1), 42 U.S.C. § 7522(a)(1); 40 C.F.R. § 86.1854-12(a)(1). It is also a violation to cause any of the foregoing acts. CAA § 203(a), 42 U.S.C. § 7522(a); 40 C.F.R. § 86-1854-12(a).

Alleged Violations

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of these vehicles that sensed when the vehicle was being tested for compliance with EPA emission standards. For ease of reference, the EPA is calling this the "switch." The "switch" senses whether the vehicle is being tested or not based on various inputs including the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure. These inputs precisely track the parameters of the federal test procedure used for emission testing for EPA certification purposes. During EPA

emission testing, the vehicles' ECM ran software which produced compliant emission results under an ECM calibration that VW referred to as the "dyno calibration" (referring to the equipment used in emissions testing, called a dynamometer). At all other times during normal vehicle operation, the "switch" was activated and the vehicle ECM software ran a separate "road calibration" which reduced the effectiveness of the emission control system (specifically the selective catalytic reduction or the lean NOx trap). As a result, emissions of NOx increased by a factor of 10 to 40 times above the EPA compliant levels, depending on the type of drive cycle (e.g., city, highway).

The California Air Resources Board (CARB) and the EPA were alerted to emissions problems with these vehicles in May 2014 when the West Virginia University's (WVU) Center for Alternative Fuels, Engines & Emissions published results of a study commissioned by the International Council on Clean Transportation that found significantly higher in-use emissions from two light duty diesel vehicles (a 2012 Jetta and a 2013 Passat). Over the course of the year following the publication of the WVU study, VW continued to assert to CARB and the EPA that the increased emissions from these vehicles could be attributed to various technical issues and unexpected in-use conditions. VW issued a voluntary recall in December 2014 to address the issue. CARB, in coordination with the EPA, conducted follow up testing of these vehicles both in the laboratory and during normal road operation to confirm the efficacy of the recall. When the testing showed only a limited benefit to the recall, CARB broadened the testing to pinpoint the exact technical nature of the vehicles' poor performance, and to investigate why the vehicles' onboard diagnostic system was not detecting the increased emissions. None of the potential technical issues suggested by VW explained the higher test results consistently confirmed during CARB's testing. It became clear that CARB and the EPA would not approve certificates of conformity for VW's 2016 model year diesel vehicles until VW could adequately explain the anomalous emissions and ensure the agencies that the 2016 model year vehicles would not have similar issues. Only then did VW admit it had designed and installed a defeat device in these vehicles in the form of a sophisticated software algorithm that detected when a vehicle was undergoing emissions testing.

VW knew or should have known that its "road calibration" and "switch" together bypass, defeat, or render inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track the parameters of the federal test procedure and cause emission control systems to underperform when the software determined that the vehicle was not undergoing the federal test procedure.

VW's "road calibration" and "switch" are AECDs[1] that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1), each time it sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the hundreds of thousands of new motor vehicles within these test groups. Additionally, VW

[1] There may be numerous engine maps associated with VW's "road calibration" that are AECDs, and that may also be defeat devices. For ease of description, the EPA is referring to these maps collectively as the "road calibration."

violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the "switch" and "road calibration."

The vehicles are identified by the table below. All vehicles are equipped with 2.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGAV02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

Enforcement

The EPA's investigation into this matter is continuing. The above table represents specific violations that the EPA believes, at this point, are sufficiently supported by evidence to warrant the allegations in this NOV. The EPA may find additional violations as the investigation continues.

The EPA is authorized to refer this matter to the United States Department of Justice for initiation of appropriate enforcement action. Among other things, persons who violate section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), are subject to a civil penalty of up to $3,750 for each violation that occurred on or after January 13, 2009;[1] CAA § 205(a), 42 U.S.C. § 7524(a); 40 C.F.R. § 19.4. In addition, any manufacturer who, on or after January 13, 2009, sold, offered for sale, introduced into commerce, delivered for introduction into commerce, imported, or caused any of the foregoing acts with respect to any new motor vehicle that was not covered by an EPA-issued COC is subject, among other things, to a civil penalty of up to $37,500 for each violation.[2] CAA § 205(a), 42 U.S.C. § 7524(a); 40 C.F.R. § 19.4. The EPA may seek, and district courts may order, equitable remedies to further address these alleged violations. CAA § 204(a), 42 U.S.C. § 7523(a).

[1] $2,750 for violations occurring prior to January 13, 2009.
[2] $32,500 for violations occurring prior to January 13, 2009.

The EPA is available to discuss this matter with you. Please contact Meetu Kaul, the EPA attorney assigned to this matter, to discuss this NOV. Ms. Kaul can be reached as follows:

Meetu Kaul
U.S. EPA, Air Enforcement Division
1200 Pennsylvania Avenue, NW
William Jefferson Clinton Federal Building
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(202) 564-5472
kaul.meetu@epa.gov

Sincerely,

Phillip A. Brooks
Director
Air Enforcement Division
Office of Civil Enforcement

Copy:
Todd Sax, California Air Resources Board
Walter Benjamin Fisherow, United States Department of Justice
Stuart Drake, Kirkland & Ellis LLP

EXHIBIT 29

CAFEE

Center for Alternative Fuels, Engines & Emissions

West Virginia University

Final Report

In-Use Emissions Testing of Light-Duty Diesel Vehicles in the United States

Prepared by:

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May 15, 2014

EXECUTIVE SUMMARY

The Center for Alternative Fuels, Engines and Emissions (CAFEE) at West Virginia University (WVU) was contracted by the International Council on Clean Transportation (ICCT) to conduct in-use testing of three light-duty diesel vehicles, using a portable emissions measurement system (PEMS), over a variety of pre-defined test routes exhibiting diverse driving conditions pertinent to major United States population centers located in the state of California. Additionally, one vehicle was operated over an extended distance of nearly 4000km predominantly composed of highway driving conditions between California and Washington State. Also, two out of the three test vehicles were selected for chassis dynamometer testing at California Air Resources Board's (CARB) El Monte, CA vehicle certification test facility; however, a detailed discussion of these results is not part of this report.

The test vehicles were certified to US-EPA Tier2-Bin5 and California LEV-II ULEV emissions limits and were equipped with NO_x after-treatment technologies, including one lean-NO_x trap (LNT) (*Vehicle A*) and two urea-based selective catalytic reduction (SCR) systems (*Vehicles B* and *C*). Furthermore, all three test vehicles were thoroughly checked for possible engine or after-treatment malfunction codes using an ECU scanning tool prior to selecting a vehicle for this on-road measurement campaign, with none of them showing any fault code or other anomalies. The after-treatment system was assumed to be '*de-greened*' as all three vehicles have accumulated more than 3,000 to 4,000 miles, and no reduction in catalytic activity due to aging was expected as the total mileage was relatively low (< 15,000 miles) for all test vehicles. Gaseous emissions of NO_x, CO, THC and CO_2 were measured using the OBS-2200 PEMS from Horiba Ltd., while particulate number and mass concentrations were inferred from real-time particle charge measurements employing a Pegasor particle sensor, model PPS-M, from Pegasor.

Real-world NO_x emissions were found to exceed the US-EPA Tier2-Bin5 (at full useful life) standard by a factor of 15 to 35 for the LNT-equipped vehicle, by a factor of 5 to 20 for one and at or below the standard for the second urea-SCR fitted vehicle over five pre-defined routes categorized based on their predominant driving conditions, namely, i) highway, ii) urban/suburban, and iii) rural-up/downhill driving. The second urea-SCR equipped vehicle exceeded the standard only during rural-up/downhill operating conditions by a factor of ~10. Most importantly, distance-specific NO_x emissions for the two high-emitting vehicles were below the US-EPA Tier2-Bin5 standard for the weighted average over the FTP-75 certification

cycle during chassis dynamometer testing at CARB's El Monte facility, with 0.022g/km ±0.006g/km (±1σ, 2 repeats) and 0.016g/km ±0.002g/km (±1σ, 3 repeats) for the LNT and urea-SCR equipped vehicles, respectively. It has to be noted that on-road emissions testing was performed with the engine and after-treatment in warmed-up condition (i.e. warm/hot start). Increased NO_x emissions are usually expected for cold-start as seen during the first portion (i.e. '*Bag-1*') of the FTP-75 cycle, however, not for hot, running conditions as exhibited during '*Bag-2 and 3*' of the FTP-75 cycle or on-road operation of the vehicle.

Generally, distance-specific NO_x emissions were observed to be highest for rural-up/downhill and lowest for high-speed highway driving conditions with relatively flat terrain. The LNT after-treatment based vehicle was observed to emit significantly (> 19% to 90%) more NO_x during diesel particulate filter (DPF) regeneration events. This was speculated to be due to an extended duration of lean exhaust conditions and a lack of frequent enrichment of the exhaust gas ($\lambda < 1$) while DPF regeneration was ongoing, leading to an inhibition of necessary LNT regeneration (D_eNOx), and thus, causing the NO_x storage catalyst to become saturated with NO_x emissions that ultimately started to break through. *Vehicles B* and *C* were not observed to exhibit such a predominant increase in NO_x emissions during DPF regeneration events and changes in NO_x emissions rates were generally confounded by driver and traffic pattern influences.

Even though exceeding the US-EPA Tier2-Bin5 standard on average by a factor of 6 (i.e. 0.26g/km ±0.21g/km (±1σ)) during extended highway driving between California and Washington State, *Vehicle B*, the urea-SCR equipped vehicle, was found to have NO_x emissions below the regulatory standard for portions of the route characterized by low or negligible changes in altitude (i.e. near zero road grade), and with the vehicle operated in cruise-control mode at highway speeds (i.e. 120km/h).

In general, CO and THC emissions were observed to be well below the regulatory level for all three test vehicles and driving conditions, with exception of two routes for the LNT-equipped vehicle where THC emissions were observed at slightly elevated levels. Interestingly, chassis dynamometer testing of *Vehicles A* and *B* indicated THC emissions to be primarily composed of methane (CH_4/THC ratio > 0.95) which is surprising for diesel fueled vehicle and might be attributed to secondary reactions occurring over the surface of the oxidation catalyst or the LNT in case of *Vehicle A*.

As expected, highway driving showed lowest distance-specific CO_2, whereas urban/suburban driving conditions lead to highest CO_2 emissions factors for all vehicles.

During PEMS testing, average fuel economy for highway driving with *Vehicles A* and *B* was 45.3 mpg ±8.6mpg (±σ1) and 43.7mpg ±5.7mpg (±σ1), respectively, and 27.3 mpg (no repetition) for *Vehicle C* which is ~39% lower compared to *Vehicles A* and *B*. On the other hand, urban/suburban driving results in average fuel economies of 30.0mpg ±2.9mpg (±σ1) and 26.6 mpg ±1.4mpg (±σ1) for *Vehicles A* and *B*, respectively, and 18.5mpg ±4.0mpg (±σ1) for *Vehicle C* which is 35% lower compared to *Vehicles A* and *B*. Overall, urban/suburban driving leads to a 32-39% reduction in fuel economy over highway driving.

Particulate number emissions, inferred from PPS measurements, were observed below the Euro 5b/b+ standard except during vehicle operation exhibiting DPF regeneration events where PN emissions significantly increased by two to three orders of magnitude, thereby exceeding the Euro 5b/b+ standard under all driving conditions for the LNT and first urea-SCR vehicles. It is noted that PN is not regulated in the United States. Also, for the latter vehicle DPF regeneration frequencies were found to be predominantly based on distance traveled, occurring after every 756km ±29km (±1σ), corresponding to ~7.07hours ±0.06hours for highway driving conditions.

It is noted that only three vehicles were tested as part of this measurement campaign with each vehicle being a different after-treatment technology or vehicle manufacturer; conclusions drawn from the data presented herein are confined to these three vehicles. The limited data set does not necessarily permit drawing more generalized conclusions for a specific vehicle category or after-treatment technology.

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LIST OF ABBREVIATIONS AND UNITS

CAFEE	-	Center for Alternative Fuels, Engines and Emissions
CARB	-	California Air Resources Board
CLD	-	Chemiluminescence Detector
CO	-	Carbon Monoxide
CO_2	-	Carbon Dioxide
CVS	-	Constant Volume Sampler
DPF	-	Diesel Particle Filter
EERL	-	Engines and Emissions Research Laboratory
EFM	-	Exhaust Flow Meter
EPA	-	Environmental Protection Agency
EU	-	European Union
FTP	-	Federal Test Procedure
GPS	-	Global Positioning System
FID	-	Flame Ionization Detector
LNT	-	Lean NO_x Trap
MPG	-	Miles per Gallon
NDIR	-	Non-Dispersive Infrared Spectrometer
NEDC	-	New European Driving Cycle
NO	-	Nitrogen Monoxide
NO_x	-	Oxides of Nitrogen
NTE	-	Not-to-Exceed
OC	-	Oxidation Catalyst
PEMS	-	Portable Emissions Measurement System
PM	-	Particulate Matter
PN	-	Particle Number
RPA	-	Relative Positive Acceleration
SCR	-	Selective Catalytic Reduction
THC	-	Total Hydrocarbons

1 INTRODUCTION

Researchers at the Joint Research Centre (JRC) in Europe have identified off-cycle oxides of nitrogen (NO_x) emissions from light-duty diesel vehicles (LDV) to substantially exceed the Euro 3-5 emissions standards on average by a factor of 4 to 7 over specific test routes [1]. Hence, the study concluded that the introduction of tighter emissions limits for the purpose of vehicle/engine certification has not necessarily translated into effective on-road NO_x reductions of the same magnitude [1]. Furthermore, work conducted by other researchers has highlighted the thermodynamic conditions of the exhaust gas and after-treatment components to be a primary limiting factor for achieving high NO_x conversion efficiencies using the aqueous-urea based selective catalytic reduction (SCR) system, especially during low-load, low-speed operation such as frequently encountered during urban driving and stop-and-go traffic on congested highways.

Sparked by these findings, the International Council on Clean Transportation (ICCT) contracted West Virginia University (WVU) to perform on-road emissions measurements in order to study off-cycle emissions performance and fuel economy from three diesel light-duty vehicles (LDV's) under typical United States (US) driving conditions using a portable emissions measurement system (PEMS). The PEMS testing aided in comparing the performance of different NO_x control technologies under off-cycle conditions against United States Environmental Protection Agency (US-EPA) Tier2-Bin5 and California Air Resources Board (CARB) LEV-II ULEV emissions standards.

The test plan covered a wide variety of topological, road and ambient conditions as well as traffic densities over three major urban areas along the West coast, namely, San Diego, Los Angeles, and San Francisco (California). Additionally, one vehicle, specifically one equipped with urea-SCR after-treatment technology, was operated over a total distance of ~4000km between Los Angeles, CA and Seattle, WA to investigate emissions reduction characteristics over extended highway driving conditions. Furthermore, two out of the three test vehicles were selected for chassis dynamometer testing over standardized test cycles at CARB's vehicle certification laboratory in El Monte, CA. This also allowed for comparison of the PEMS against laboratory grade instruments to verify measurement accuracy of the on-board system.

1.1 Objectives

The primary objective of this study was to gain insight into real-world emissions of NO_x and other regulated gaseous pollutants from diesel LDVs certified to US-EPA Tier2-Bin5 and CARB LEV-II ULEV (CA) standards. Emissions were measured during typical driving conditions pertinent to major US population centers using on-board instrumentation (PEMS). For a subset of vehicles and test routes, particulate matter mass emissions (PM) and particle number (PN) emission concentrations were also measured on-board.

To that aim, the Center for Alternative Fuels, Engines and Emissions (CAFEE) at WVU conducted light-duty PEMS testing on two 2012 model year (MY) and one MY 2013 vehicles equipped with two different NO_x after-treatment technologies, including lean NO_x trap (LNT) and aqueous urea-based selective catalytic reduction (SCR) system. Gaseous exhaust emissions, including NO_x, carbon monoxide (CO), carbon dioxide (CO_2) and total hydrocarbons (THC) were measured on a continuous basis utilizing a Horiba OBS-2200 portable emissions measurement system, whereas particle number concentrations and particulate mass emissions were inferred from real-time measurements performed using a Pegasor particle sensor, model PPS-M from Pegasor.

Specifically, the data collected during the course of this study allowed for following analysis and comparisons:

i. comparison of off-cycle NO_x emissions against US-EPA Tier 2-Bin 5 and CARB LEV-II ULEV emissions standards;

ii. evaluation of fuel economy in comparison to standardized chassis dynamometer test cycles and EPA evaluated fuel economy ratings as published on window stickers for new cars sold in the United States [2];

iii. calculation of in-use emissions factors based on the '*Averaging Windows Method*' (AWM) [3] using CO_2 emissions emitted over a certification cycle as the threshold value to define the averaging window size;

iv. evaluation of NO_x after-treatment conversion efficiencies of two different technologies as a function of driving conditions, traffic density, ambient conditions and exhaust gas thermodynamic properties;

v. quantification of particle number (PN) emissions concentrations with regard to the particle number limits (i.e. $6.0x10^{11}$ #/km) set forth by the European Union (EU) in 2013 with the introduction of Euro 5b/b+ emission standards [4];

vi. evaluation of diesel particulate filter (DPF) filtration efficiency and frequency of regeneration events; and

vii. quantification of maximum route emissions rates and their respective location along the routes.

2 BACKGROUND

The background information given hereafter will be limited to a discussion of United States Environmental Protection Agency's (US-EPA) Tier 2 and California Air Resources Board's (CARB) LEV-II emissions regulations that are applicable to the two light-duty vehicles (LDV) and one light-duty truck (LDT) whos on-road emissions have been evaluated as part of this study.

The ongoing effort by EPA and CARB to comply with National Ambient Air Quality Standards (NAAQS), particularly in several non-attainment regions, has led to ever-increasingly stringent regulations on LDVs emissions. These are currently regulated under EPA's Tier 2 and California LEV-II emissions regulations. EPA's vehicle classification is based on gross vehicle weight rating (GVWR) and is shown in Table 2.1. It has to be noted that medium duty passenger vehicles (MDPV) are regulated under light-duty vehicle emissions regulations.

Table 2.1: Vehicle classification based on gross vehicle weight rating (GVWR) [5]

<table>
<tr><th colspan="11">Gross Vehicle Weight Rating (GVWR) [lbs]</th></tr>
<tr><td></td><td colspan="2">6,000</td><td colspan="2">8,500</td><td>10,500</td><td>14,000</td><td>16,000</td><td>19,500</td><td>26,000</td><td>33,000</td><td>60,000</td></tr>
<tr><td rowspan="4">Federal</td><td colspan="2">LDV</td><td colspan="2">MDPV[c)]</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">LDT</td><td colspan="9">HDV / HDE</td></tr>
<tr><td>LLDT</td><td>HLDT</td><td colspan="4">LHDDE</td><td colspan="2">MHDDE</td><td colspan="2">HHDDE / Urban Bus</td></tr>
<tr><td>LDT 1 & 2[a)]</td><td>LDT 3 & 4[b)]</td><td>HDV2b</td><td>HDV3</td><td>HDV4</td><td>HDV5</td><td>HDV6</td><td>HDV7</td><td>HDV8a</td><td>HDV8b</td></tr>
</table>

[a)] *Light-duty truck (LDT) 1 if loaded vehicle weight (LVW) = 3,750; LDT 2 if LVW > 3,750*

[b)] *LDT 3 if adjusted loaded vehicle weight (ALVW) = 5,750; LDT 4 if ALVW > 5,750*

[c)] *MDPV vehicles will generally be grouped with and treated as HLDTs in the Tier 2 program*

The EPA's Tier 2 emission standards that were phased in over a period of four years, beginning in 2004, for LDV/LLDTs, with an extension of two years for HLDTs, were in full effect starting from MY 2009 for all new passenger cars and light-duty trucks, including pickup trucks, vans, minivans and sport-utility vehicles. The Tier 2 standards were designed to significantly reduce ozone-forming pollution and PM emissions from passenger vehicles regardless of the fuel used and the type of vehicle, namely car, light-duty truck or larger passenger vehicle. The Tier 2 standards were implemented along with the gasoline fuel sulfur standards in order to enable emissions reduction technologies necessary to meet the stringent

vehicle emissions standards. The gasoline fuel sulfur standard mandates the refiners and importers to meet a corporate average gasoline sulfur standard of 30 ppm starting from 2006 [6].

The EPA Tier 2 emissions standard requires each LDV/LDT vehicle manufacturer to meet a corporate average NO_x standard of 0.07g/mile (0.04 g/km) for the fleet of vehicles being sold for a given model year. Furthermore, the Tier 2 emissions standard consists of eight sub-bins, each one with a set of standards to which the manufacturer can certify their vehicles provided the corporate sales weighted average NO_x level over the full useful life of the vehicle (10 years/120,000 miles/193,121 km), for a given MY of Tier 2 vehicles, is less than 0.07g/mile (0.04 g/km). The corporate average emission standards are designed to meet the air quality goals allowing manufacturers the flexibility to certify some models above or below the standard, thereby enabling the use of available emissions reduction technologies in a cost-effective manner as opposed to meeting a single set of standards for all vehicles [6]. Final phased-in full and intermediate useful life Tier 2 standards are listed in Table 2.2.

Table 2.2: Light-duty vehicle, light-duty truck, and medium-duty passenger vehicle - EPA Tier 2 exhaust emissions standards in [g/miles] [6]

Bin#	Intermediate life (5 years / 50,000 mi)					Full useful life (10 years/120,000 mi)				
	NMOG*	CO	NO_x	PM	HCHO	NMOG*	CO	NO_x†	PM	HCHO
Temporary Bins										
11 MDPV[c]						0.28	7.3	0.90	0.12	0.032
10[a,b,d,f]	0.125 (0.160)	3.4 (4.4)	0.40	-	0.015 (0.018)	0.156 (0.230)	4.2 (6.4)	0.60	0.08	0.018 (0.027)
9[a,b,e,f]	0.075 (0.140)	3.4	0.20	-	0.015	0.090 (0.180)	4.2	0.30	0.06	0.018
Permanent Bins										
8[b]	0.100 (0.125)	3.4	0.14	-	0.015	0.125 (0.156)	4.2	0.20	0.02	0.018
7	0.075	3.4	0.11	-	0.015	0.09	4.2	0.15	0.02	0.018
6	0.075	3.4	0.08	-	0.015	0.09	4.2	0.10	0.01	0.018
5	0.075	3.4	0.05	-	0.015	0.09	4.2	0.07	0.01	0.018
4	-	-	-	-	-	0.07	2.1	0.04	0.01	0.011
3	-	-	-	-	-	0.055	2.1	0.03	0.01	0.011
2	-	-	-	-	-	0.01	2.1	0.02	0.01	0.004
1	-	-	-	-	-	0	0	0	0	0

* *for diesel fueled vehicle, NMOG (non-methane organic gases) means NMHC (non-methane hydrocarbons)*
† *average manufacturer fleet NO_x standard is 0.07 g/mi for Tier 2 vehicles*
a *Bin deleted at end of 2006 model year (2008 for HLDTs)*
b *The higher temporary NMOG, CO and HCHO values apply only to HLDTs and MDPVs and expire after 2008*

c *An additional temporary bin restricted to MDPVs, expires after model year 2008*
d *Optional temporary NMOG standard of 0.195 g/mi (50,000) and 0.280 g/mi (full useful life) applies for qualifying LDT4s and MDPVs only*
e *Optional temporary NMOG standard of 0.100 g/mi (50,000) and 0.130 g/mi (full useful life) applies for qualifying LDT2s only*
f *50,000 mile standard optional for diesels certified to bins 9 or 10*

All Tier 2 exhaust emissions standards must be met over the FTP-75 chassis dynamometer test cycle. In addition to the above listed emissions standards, Tier 2 vehicles must also satisfy the supplemental FTP (SFTP) standards. The SFTP standards are intended to control emissions from vehicles when operated at high speed and acceleration rates (i.e. aggressive driving, as simulated through the US06 test cycle), as well as when operated under high ambient temperature conditions with vehicle air-conditioning system turned on (simulated through the SC03 test cycle). The SFTP emissions results are determined using the relationship outlined in Equation (1) where individual emissions measured over FTP, US06 and SC03 test cycles are added together with different weighting factors.

$$E_{pollutant} = 0.35 * (FTP) + 0.28 * (US06) + 0.37 * (SC03) \qquad \textbf{Eq. 1}$$

Manufacturers must comply with 4000 mile and full useful life SFTP standards. The 4000 mile SFTP standards are shown in Table 2.3.

Table 2.3: US-EPA 4000 mile SFTP standards in [g/mi] for Tier 2 vehicles [6]

Vehicle Class [1)]	US06		SC03	
	NMHC + NO_x	CO	NMHC + NO_x	CO
LDV/LDT1	0.14	8.0	0.20	2.7
LDT2	0.25	10.5	0.27	3.5
LDT3	0.40	10.5	0.31	3.5
LDT4	0.60	11.8	0.44	4.0

[1)] *Supplemental exhaust emission standards are applicable to gasoline and diesel-fueled LDV/Ts but are not applicable to MDPVs, alternative fueled LDV/Ts, or flexible fueled LDV/Ts when operated on a fuel other than gasoline or diesel*

The full useful life SFTP standards are determined following Equation 2, which is based on Tier 1 SFTP standards, lowered by 35% of the difference between the Tier 2 and Tier 1 exhaust emissions standards. Tier 1 full useful life SFTP standards for different vehicle classes along with CO standards for individual chassis dynamometer test cycles as well as Tier 1 full useful life FTP standards are shown in Table 2.4 and Table 2.5, respectively.

$$Tier\ 2\ SFTP\ Std. = Tier\ 1\ SFTP\ Std. - 0.35 * (Tier\ 1\ FTP\ Std. - Tier\ 2\ FTP\ Std.) \quad \textbf{Eq. 2}$$

Table 2.4: US-EPA Tier 1 full useful life SFTP standards in [g/mi] [6]

Vehicle Class	NMHC + NO_x [a,c]	CO [b,c]		
		US06	SC03	Weighted
LDV/LDT1	0.91 (0.65)	11.1 (9.0)	3.7 (3.0)	4.2 (3.4)
LDT2	1.37 (1.02)	14.6 (11.6)	4.9 (3.9)	5.5 (4.4)
LDT3	1.44	16.9	5.6	6.4
LDT4	20.9	19.3	6.4	7.3

a) *Weighting for NMHC + NO_x and optional weighting for CO is 0.35*(FTP) + 0.28*(US06) + 0.37*(SC03)*

b) *CO standards are stand alone for US06 and SC03 with option for a weighted standard*

c) *Intermediate life standards are shown in parentheses for diesel LDV/LLDTs opting to calculate intermediate life SFTP standards in lieu of 4,000 mile SFTP standards as permitted.*

Table 2.5: US-EPA Tier 1 full useful life FTP standards in [g/mi] [6]

Vehicle Class	NMHC [a]	NO_x [a]	CO [a]	PM
LDV/LDT1	0.31 (0.25)	0.60 (0.40)	4.2 (3.4)	0.10
LDT2	0.40 (0.32)	0.97 (0.70)	5.5 (4.4)	0.10
LDT3	0.46	0.98	6.4	0.10
LDT4	0.56	1.53	7.3	0.12

a) *Intermediate life standards are shown in parentheses for diesel LDV/LLDTs opting to calculate intermediate life SFTP standards in lieu of 4,000 mile SFTP standards as permitted*

In-use testing of light duty vehicles under the Tier 2 regulation involves testing of vehicles on a chassis dynamometer that have accumulated at least 50,000 miles during in-use operation, to verify compliance with FTP and SFTP emissions standards at intermediate useful life. There has been no regulatory requirement in the United States to verify compliance of Tier 2 vehicles for emissions standards over off-cycle tests such as on road emissions testing with the use of PEMS equipment, similar to what is being mandated for heavy-duty vehicles via the engine in-use compliance requirements (i.e. NTE emissions). Meanwhile, the European Commission (EC) has established a working group to propose modifications to its current vehicle certification procedures in order to better limit and control off-cycle emissions [7]. Over the course of a two-year evaluation process, different approaches were being assessed with two of them believed to be promising for application in a future light-duty emissions regulation, namely; i) emissions testing with random driving cycle generation in the laboratory, and ii) on-road emissions testing with PEMS equipment [7].

Fuel economy and CO_2 emission ratings as published by the US-EPA and the US Department of Energy (DOE) are based on laboratory testing of vehicles while being operated over a series of five driving cycles on a chassis dynamometer specified in more detail in Table 2.6 [2]. Originally, only the '*city*' (i.e. FTP-75) and '*highway*' cycles were used to determine vehicle fuel economy, however, starting with model year 2008 vehicles the test procedure has been augmented by three additional driving schedules, specifically, '*high-speed*' (i.e. US06), '*air conditioning*' (i.e. SC03 with air conditioning turned on), and '*cold temperature*' (i.e. FTP-75 at 20°F ambient temperature) driving cycles [2]. Vehicle manufacturer are required to test a number of vehicles representative of all available combinations of engine, transmission and vehicle weight classes being sold in the US. The fuel economy label provides distance-specific fuel consumption and CO_2 emissions values for '*city*', and '*highway*' driving as well as a combined value (i.e. Combined MPG) calculated as a weighted average of 55% '*city*' and 45% '*highway*' driving, allowing for a simplified comparison of fuel efficiency across different vehicles [2].

Table 2.6: Fuel economy and CO_2 emissions test characteristics [2]

Driving Schedule Attributes	Test Schedule				
	City	**Highway**	**High Speed**	**AC**	**Cold Temp.**
Trip type	Low speeds in stop-and-go urban traffic	Free-flow traffic at highway speeds	Higher speeds; harder accel. and braking	AC use under hot ambient conditions	City test w/ colder outside temperature
Max. speed [mph]	56	60	80	54.8	56
Avg. speed [mph]	21.2	48.3	48.4	21.2	21.2
Max. accl. [mph/s]	3.3	3.2	8.46	5.1	3.3
Distance [miles]	11	10.3	8	3.6	11
Duration [min]	31.2	12.75	9.9	9.9	31.2
Stops [#]	23	None	4	5	23
Idling time [%] [1)]	18	None	7	19	18
Engine Startup [2)]	Cold	Warm	Warm	Warm	Cold
Lab temperature [°F]	68 - 86	68 - 86	68 - 86	95	20
Vehicle AC	Off	Off	Off	On	Off

[1)] *Idling time in percent of total test duration*

[2)] *Maximum fuel efficiency is not reached until engine is in warmed up condition*

3 METHODOLOGY

The following section of the report will discuss the test vehicles selected for this study, describe the specific test routes and their characteristics, as well as present the emissions sampling setup and instrumentation utilized during this work.

3.1 Test Vehicle Selection

The vehicles tested in this study comprise two MY 2012 and one MY 2013, diesel-fueled passenger cars, and will hereinafter be referred to as '*Vehicle A*', '*Vehicle B*', and '*Vehicle C*' in order to anonymize model- and make-specific information for the purpose of this report. *Vehicle A* and *Vehicle B* were equipped with the same 2.0L turbocharged, four cylinder base engine. However, they were equipped with two different NO_x reduction technologies. *Vehicle A* featured a lean NO_x trap (LNT) for NO_x abatement, whereas *Vehicle B* was fitted with an aqueous urea-based selective catalytic reduction system. Both vehicles had a DPF installed for controlling particulate matter emissions. *Vehicle C* was fitted with a 3.0L turbocharged in-line six-cylinder engine in conjunction with an aqueous urea-SCR system and DPF for NO_x and PM control, respectively. The drive-train of both *Vehicles A* and *B* comprised 6-speed automatic transmissions with front wheel drive, whereas *Vehicle C* featured all-wheel drive with a 6-speed automatic transmission.

All three test vehicles were compliant with EPA Tier2-Bin5, as well as California LEV-II ULEV (for *Vehicles A* and *B)* and LEV-II LEV (for *Vehicle C*) emissions standards as per EPA certification documents. *Vehicles A* and *B* are categorized as '*light-duty vehicles*' (LDV) whereas *Vehicle C* as '*light-duty truck 4*' (LDT4). Actual CO_2 emissions and fuel economy for city, highway, and combined driving conditions, as advertised by the EPA for new vehicles sold in the US are given in Table 3.1 for all three test vehicles.

Vehicle A and *Vehicle C* were rented from two separate rental agencies and had initial odometer readings of 4,710 and 15,031 miles, respectively. *Vehicle B* had 15,226 miles at start of testing and was acquired from a private owner. Furthermore, all three test vehicles were thoroughly checked for possible engine or after-treatment malfunction codes using an ECU scanning tool prior to selecting a vehicle for this on-road measurement campaign, with none of them showing any fault code or other anomalies. The after-treatment system was assumed to be '*de-greened*' as all three vehicles have accumulated more than 3,000 to 4,000 miles, and no

reduction in catalytic activity due to aging was expected as the total mileage was relatively low (< 15,000 miles) for all test vehicles. More specific details for the three test vehicles are presented in Table 3.1.

Table 3.1: Test vehicles and engine specifications

Vehicle		**A**	**B**	**C**
Mileage at test start [miles]		4,710	15,226	15,031
Fuel		ULSD	ULSD	ULSD
Engine displacement [L]		2.0	2.0	3.0
Engine aspiration		Turbocharged/ Intercooled	Turbocharged/ Intercooled	Turbocharged/ Intercooled
Max. engine power [kW]		104 @ 4200 rpm	104 @ 4200 rpm	198
Max. engine torque [Nm]		320 @ 1750 rpm	320 @ 1750 rpm	-
Emission after-treatment technology		OC, DPF, LNT	OC, DPF, urea-SCR	OC, DPF, urea-SCR
Drive train		2-wheel drive, front	2-wheel drive, front	4-wheel drive
Applicable emissions limit	*U.S. EPA*	T2B5 (LDV)	T2B5 (LDV)	T2B5 (LDV)
	CARB	LEV-II ULEV	LEV-II ULEV	LEV-II LEV
EPA Fuel Economy Values [mpg] [1)]	*City*	29	30	19
	Highway	39	40	26
	Combined	33	34	22
EPA CO_2 Values [g/km] [1)]		193	186	288

[1)] *EPA advertised fuel economy and CO_2 emissions values for new vehicles in the US (www.fueleconomy.gov)*

Table 3.2 lists the individual curb weights, gross vehicle weight ratings (GVWR), and actual test weights while performing the on-road PEMS testing. Actual test weights were calculated as the sum of manufacturer specified vehicle curb weights and physically acquired weights of the payload on a scale. The payload comprised the entire instrumentation and associated equipment, including pressurized gas bottles for the emissions analyzers, as well as the weight of a driver and passenger of 77kg each. The total payload for *Vehicle C* was approximately 200kg heavier than for *Vehicles A* and *B* due to additional instrumentation as will be explained in more detail in Section 3.3. Table 3.2 further allows for a comparison between the actual test weight of the three vehicles during PEMS testing and the respective equivalent test weight (ETW) as applied during emissions certification testing on the chassis dynamometer according to 40 CFR paragraph 86.129-00(f)(1).

The diesel fuel used during this study was commercially available ultra-low diesel fuel (ULSD) in California. Fuel for *Vehicles A* and *B* originated from the same batch and was purchased from a truck stop in Fontana, CA. A fuel analysis showed a sulfur content of 5ppm (via Microcoulometry, ASTM D3120, see Appendix 7.4 for more details). This same batch of diesel fuel was also used for chassis dynamometer testing of *Vehicles A* and *B* at CARB's El Monte, CA, testing facility. The fuel used during on-road testing of *Vehicle C* was purchased from the Quick Gas Valero fuel station in Ontario, CA. ULSD used for the California to Washington State trip with *Vehicle B* was purchased exclusively from Shell fuel stations along highway I-5. Specifically, the test vehicle was refueled six times during the entire trip, namely in Kettleman, CA, Redding, CA, Vancouver, WA, Olympia, WA, Medford, OR and finally Gustine, CA.

Table 3.2: Test weights for vehicles

Vehicle	Curb Weight [kg]	GVWR [kg]	Payload [kg]	Actual Test Weight [kg]	Equiv. Test Weight [kg]
Vehicle A	1550	2010	305	1855	1701
Vehicle B	1570	2110	314	1884	1701
Vehicle C	2370	3001	533	2903	2495

3.2 Vehicle Test Routes

On-road PEMS testing was grouped into two main route categories for this study, with one comprising a set of strictly defined test routes that were used for all test vehicles and the other containing predominantly highway driving solely defined by the departure and final destination, specifically, Los Angeles, CA as the starting point and Seattle, WA as the end point, that was only used in conjunction with *Vehicle B*. Section 3.2.1 will describe the pre-defined test routes of category one in more detail, whereas Section 3.2.2 will highlight the characteristics of the multi-state driving route between California and Washington State.

3.2.1 Pre-defined Test Routes

Five test routes were defined within the three primary population centers in California, namely, Los Angeles, San Diego, and San Francisco, aimed at reflecting a rich diversity of

topological characteristics, driving patterns, as well as ambient conditions, that are expected to be representative of typical vehicle operation within the given areas. The routes can be split into four categories, including i) *highway operation*, characterized by high speed driving during regular hours and frequent stop/go patterns during rush-hours, ii) *urban driving*, characterized by low vehicle speeds and frequent stop and go, iii) *rural driving*, medium vehicle speed operation with occasional stops in the suburbs of the selected metropolitan areas, and finally iv) *uphill/downhill driving*, characterized by steeper than usual road grades and medium to higher speed vehicle operation. Table 3.3 summarizes the characteristics of the five defined test routes whose driving patterns are described as follows:

1) Route 1: highway driving in Los Angeles
2) Route 2: urban driving in downtown Los Angeles
3) Route 3: rural and uphill/downhill driving in Los Angeles foothills
4) Route 4: urban driving in downtown San Diego
5) Route 5: urban driving in downtown San Francisco

Table 3.3: Comparison of test route and driving characteristics

Route	**Route 1[1)]**	**Route 2[2)]**	**Route 3**	**Route 4[2)]**	**Route 5[2)]**
Route distance [km]	70.18	25.67	59.09	21.22	26.72
Avg. vehicle speed [km/h]	77.85	24.09	52.27	26.54	24.69
Max. vehicle speed [km/h]	112.65	92.57	112.65	109.87	112.65
Avg. RPA [3)] [m/s^2]	0.24	0.27	0.26	0.30	0.33
Characteristic Power [m^2/s^3]	2.57	2.24	3.93	2.60	2.97
Min. elevation [m a.s.l. [4)]]	46.0	42.1	300.1	1.1	1.0
Max. elevation [m a.s.l]	360.1	123.5	1319.7	101.4	190.9
Share [%] (*time based*)					
- idling (≤2 km/h)	7.0	23.8	13.5	26.8	27.9
- low speed (>2≤50 km/h)	20.5	64.2	23.9	57.0	58.9
- medium speed (>50≤90 km/h)	14.9	11.2	55.6	12.9	7.5
- high speed (>90 km/h)	57.7	0.8	7.0	3.3	5.6

[1)] *week-day, non-rush-hour driving conditions*
[2)] *typical week-day driving conditions*
[3)] *RPA - relative positive acceleration*
[4)] *a.s.l. - above sea level*

Route and driving characteristics provided in Table 3.4 are representative of typical week-day driving conditions for the urban routes (i.e. Routes 2, 4, and 5), and non-rush-hour, week-day driving conditions for highway driving (i.e. Route 1). Relative positive acceleration (RPA) is

a frequently used metric for analysis of route characteristics [1, 8] and will be described in more detail later in this section (see Eq. 4 and 5). '*Characteristic Power*' is a metric derived by Delgado *et al*. [9, 10] taking kinematic power and grade changes over the driving route into account, and is representative of the positive mechanical energy supplied per unit mass and unit time. Delgado *et al*. [9, 10] described '*Characteristic Power*' as outlined in Equation 3 having units [m^2/s^3 or W/kg] with 'T' being the duration of the route, 'g' the gravitational acceleration (i.e. 9.81m/s^2), 'v_i' and 'h_i' being the vehicle speed and altitude at each time step, respectively.

$$P_{ch} = \frac{1}{T} \cdot \sum_{i=2}^{N} \left[\frac{1}{2} \cdot (v_i^2 - v_{i-1}^2) + g \cdot (h_i - h_{i-1}) \right]^+ \qquad \textbf{Eq. 3}$$

For comparison reason with the five defined test routes, Table 3.4 provides a summary containing the same metrics as shown in Table 3.3 for a set of chassis dynamometer vehicle certification test cycles that are currently used by the US EPA (FTP-75, US06) and the European Union (NEDC). It can be noticed that the US06 cycle shows similar maximum and average speed patterns as the highway (i.e. Route 1) and uphill/downhill (i.e. Route 3) routes, whereas the FTP-75 closer represents maximum and average speed characteristics of the urban test routes (i.e. Route 2, 4, and 5).

Table 3.4: Comparison of characteristics of light-duty vehicle certification cycles

Cycle	FTP-75	US06	NEDC
Cycle duration [sec]	1877	596	1180
Cycle distance [km]	17.77	12.89	10.93
Avg. vehicle speed [km/h]	34.08	77.84	33.35
Max. vehicle speed [km/h]	91.25	129.23	120.00
Avg. RPA [3] [m/s^2]	0.23	0.52	0.15
Characteristic Power [m^2/s^3]	1.65	4.55	1.04
Share [%] (*time based*)			
- idling (≤2 km/h)	19.6	7.2	24.8
- low speed (>2≤50 km/h)	59.3	18.8	53.9
- medium speed (>50≤90 km/h)	19.5	18.0	14.2
- high speed (>90 km/h)	1.6	56.0	7.0

The topographic map of Route 1 is depicted in Figure 3.1. Route 1 is ~70 kilometers in distance and comprises approximately 95% highway driving between the convention center in Ontario and the main campus of the University of Southern California (USC) South of

downtown LA, following interstate I-10 East and highway 110 South till exit 20B (W. Exposition Blvd.). Average vehicle speed during day-time and outside morning or evening rush-hours was ~ 77.8 km/h.

Figure 3.1: Topographic map of Route 1, highway driving between Ontario and downtown LA

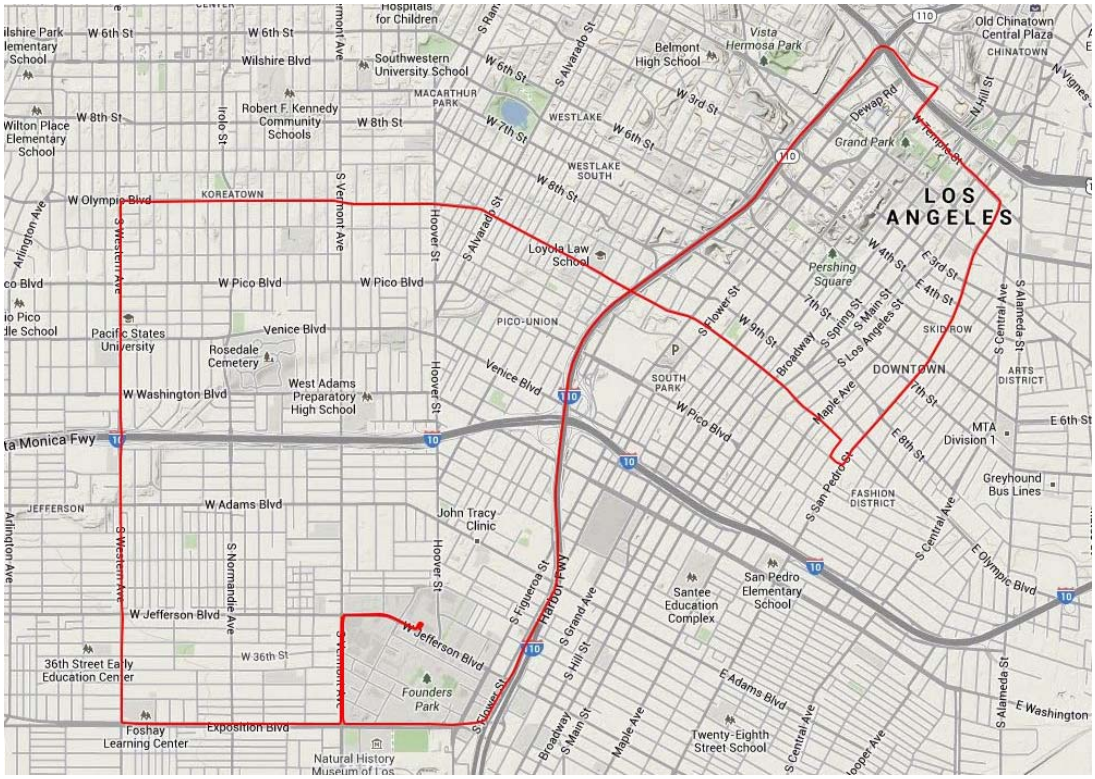

Figure 3.2: Topographic map of Route 2, urban driving downtown Los Angeles

Figure 3.2 shows the topographic map of Route 2, representative of urban driving downtown Los Angeles. This route essentially represents the "*Los Angeles Route Four*" (i.e. LA4) which was ultimately used in developing the original FTP vehicle certification cycle [11], with some minor modifications at locations where the traffic pattern or roads have changed since the FTP's development. The route is ~25.6 km long, and started and terminated at USC's main campus on

Jefferson Blvd. From USC the route followed westwards on W. Exposition Blvd., then North on S. Western Ave. till W. Olympic Blvd. From there it turned eastwards and followed W. Olympic Blvd. till S. San Pedro Street, then North on S. San Pedro St., and again West on W. Temple Street before merging onto highway 110 South leading back to the USC campus (Exit 20B, W. Exposition Blvd.). Even though the route contains ~5.3 km or 20% of highway driving on Hwy 110-S, the average vehicle speed is only marginally affected due to highly dense traffic on this portion of Hwy 110-S with many roads intersecting or merging.

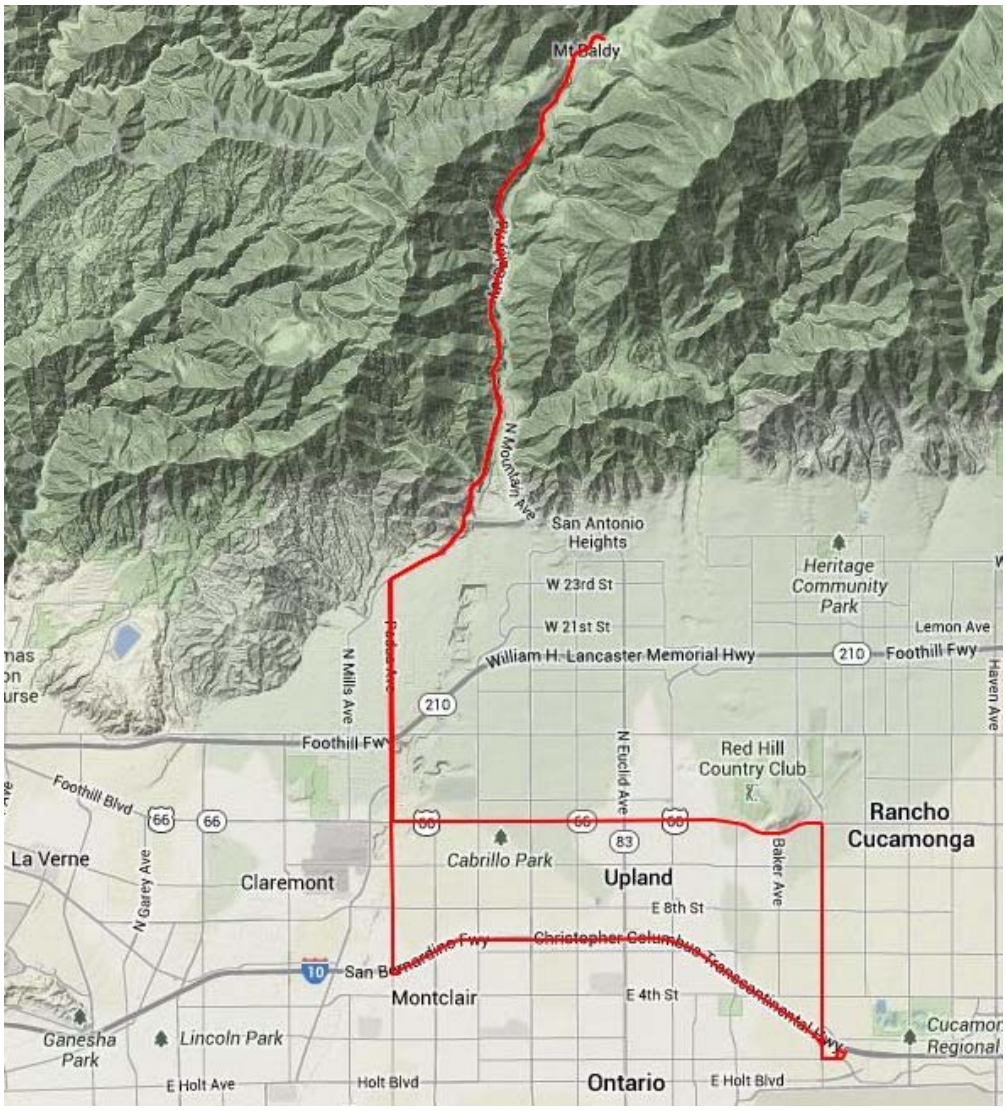

Figure 3.3: Topographic map of Route 3, rural-up/downhill driving between Ontario and Mt. Baldy

The topographic map of Route 3, representative of rural and uphill/downhill driving is shown in Figure 3.3. The route is ~59 kilometers in distance and experiences an elevation change

of approximately 1000 meters between the lowest and highest points of the route. The route starts and terminates at the convention center in Ontario, CA and follows Foothill Blvd. eastwards till the intersection with Mt. Baldy Rd. From there the route climbs up a windy road to Mt. Baldy and back. On the return the route follows for ~9km on interstate I-10 East, which represents 15% of the total route's distance. The average vehicle speed for Route 3 is 52.3 km/h.

Figure 3.4: Topographic map of Route 4, urban driving downtown San Diego

Figure 3.4 depicts the topographic map of the urban driving route, Route 4, in downtown San Diego. Route 4 is slightly shorter when compared to Route 2, approximately 21 km in length; however, it experiences more elevation changes than the downtown LA route. The route starts and terminates at the harbor at sea level (N. Harbor Drive). It first follows along the harbor then leads through downtown before climbing up on Park Blvd. to the Bridgeview and Hillcrest

neighborhood. From there the route follows W. Washington St. to San Diego airport where it merges onto interstate I-5 South till Exit B St., and then going back through downtown to the harbor again. Route 4 comprises roughly 20% or 4.2 km of highway driving on interstate I-5 South. However, similar to Route 2, this portion of I-5 is heavily congested throughout the day, thus not significantly affecting the average vehicle speed of Route 4 which was measured as ~26.5 km/h.

Figure 3.5: Topographic map of Route 5, urban driving downtown San Francisco

Finally, the topographic map of Route 5 is shown in Figure 3.5. Route 5 is located in and around downtown San Francisco and is specifically characterized by faster speed changes of the

traffic flow and steep inclines and declines of the road when compared to the two other urban routes in LA and San Diego. In terms of average vehicle speeds Route 5 is similar to Routes 2 and 4; however, it exhibited highest average relative positive acceleration of all three urban routes. The route is ~26.7 km in distance and starts as well as terminates in the Marina District on Marina Blvd. From there the route goes southwards to Eureka Valley area and climbs over Diamond Heights neighborhood before merging onto highway 280 North and descending back to downtown and the Financial District. Approximately 28% of the entire route or 7.4 km are driven on highway 280.

Figure 3.6 presents a comparison of vehicle speed distributions for all five test routes and three regulatory vehicle certification cycles over four distinct vehicle speed bins defined as i) *idle*, speeds at or below 2 km/h, ii) *low speed*, speeds higher than 2 km/h and lower or at 50 km/h, iii) *medium speed*, speeds higher than 50 km/h and lower or at 90 km/h, and finally iv) *high speed*, speeds higher than 90 km/h. Vehicle speed bins ii, iii and iv can alternatively be described as urban, rural, and highway operation, respectively, following the notation used by Weiss *et al.* [1]. It can be noticed from Figure 3.6 that highway driving (i.e. Route 1, week-day non-rush-hour) is similar to the US06 chassis dynamometer schedule as both show the same vehicle speed distribution pattern. A similar conclusion can be drawn between the three urban routes and two certification cycles FTP-75 and NEDC. Route 3, the rural and up/downhill route on the other hand is not well represented by any of the three certification cycles as they all lack significant medium speed operation. At vehicle speeds below 50 km/h Route 3 shows similar speed distributions as the US06 cycle. One observation from Figure 3.6 is that the introduction of the US06 test cycle to the US light-duty vehicle certification process has led to a better representation of high-speed vehicle operation as compared to the FTP-75.

It has to be noted that data presented in Figure 3.6 are representative of week-day, non-rush-hour driving conditions for highway driving (i.e. Route 1) and typical week-day traffic conditions for the urban routes (i.e. Route 2, 4, and 5). Changing traffic densities, for example during morning or evening rush-hours as opposed to regular day-time traffic conditions can lead to significant alterations in driving characteristics for a given test route.

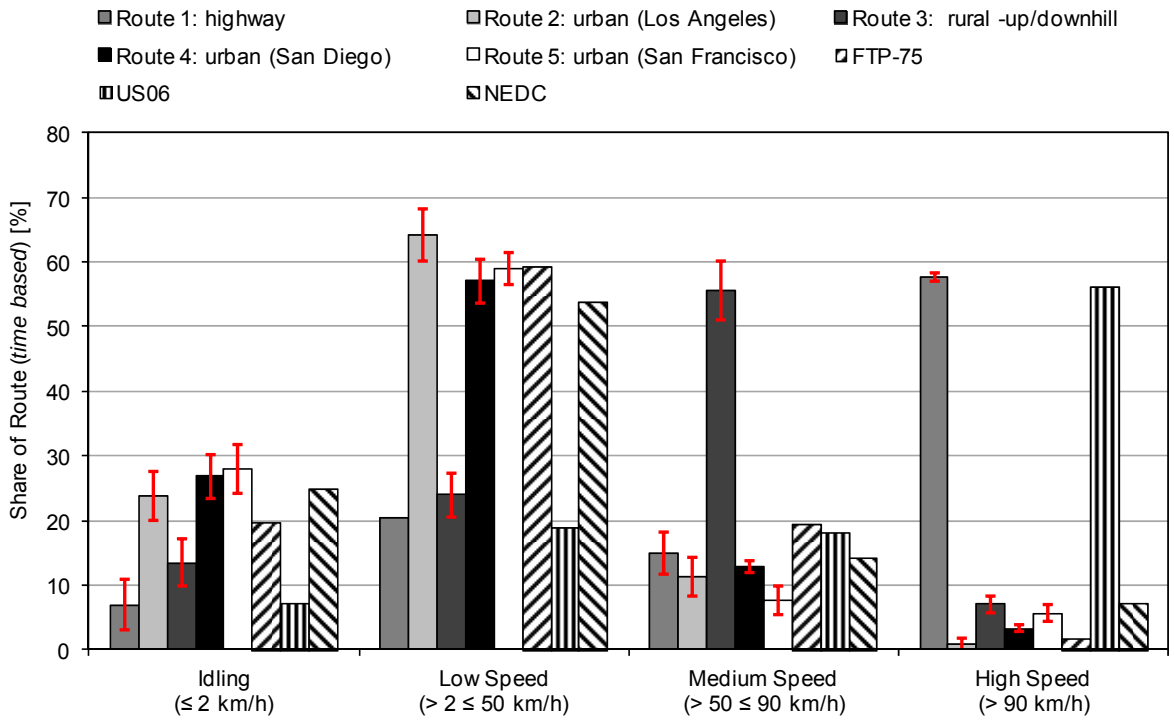

Figure 3.6: Comparison of vehicle speed distribution (*time based*) over the test routes and certification cycles, red bars represent ±1σ

Table 3.5: Comparison of test route and driving characteristics with low and high traffic densities

Route	Route 1 low traffic [1)]	Route 1 high traffic [2)]	Diff [%]	Route 2 low traffic [3)]	Route 2 high traffic [4)]	Diff [%]
Route distance [km]	70.18	71.11	*-1.3* [5)]	25.67	25.67	*0.0*
Avg. vehicle speed [km/h]	77.85	42.41	*45.5*	37.70	24.09	*36.1*
Max. vehicle speed [km/h]	112.65	112.65	*0.0*	110.27	92.57	*16.1*
Avg. RPA [3)] [m/s^2]	0.24	0.21	*11.3*	0.31	0.27	*11.8*
Characteristic Power [m^2/s^3]	2.57	2.50	*2.7*	3.27	2.24	*31.4*
Share [%] (*time based*)						
- idling (≤2 km/h)	7.0	7.8	*-11.9*	15.8	23.8	*-50.3*
- low speed (>2≤50 km/h)	20.5	59.0	*-188.1*	48.7	64.2	*-31.9*
- medium speed (>50≤90 km/h)	14.9	19.7	*-32.3*	29.9	11.2	*62.6*
- high speed (>90 km/h)	57.7	13.5	*76.6*	5.6	0.8	*85.8*

[1)] *week-day, non-rush-hour driving conditions*
[2)] *week-day, evening-rush-hour driving conditions*
[3)] *typical week-day driving conditions*
[4)] *weekend (holiday) driving conditions*
[5)] *low traffic route: inbound (Ontario to LA), high traffic route: outbound (LA to Ontario)*

Table 3.5 compares the route characteristics of Route 1 and 2 between low and high traffic densities. In case of Route 2, urban driving downtown LA, the traffic densities during weekdays were usually high with an average vehicle speed of ~24 km/h and frequent stop/go patterns. This

can be underlined by the fact that both *Vehicles A* and *B* were tested on two random and regular working weekdays in the afternoon between 13:00 and 16:00 and both experienced the same route characteristics. On the other hand, the low traffic characteristics for Route 2, shown in Table 3.5, were measured during testing of *Vehicle C* which happened to fall on Memorial Day Monday (May 27, 2013) in the afternoon between 14:00 and 18:00. Due to the holiday, downtown traffic was greatly reduced and average vehicle speeds rose by 36% from ~24 to 37.7 km/h. Overall, the share of medium speeds increased by 62% while the idling portion dropped significantly by 50%. Another example of the strong influence of traffic densities onto route characteristics is given for Route 1, the highway operation. Table 3.5 shows a comparison for *Vehicle A* between low traffic conditions while driving from Ontario to downtown LA during regular daytime traffic (around 11:30), and high traffic densities going from downtown LA towards Ontario (same route, opposite direction) during evening rush-hours (around 16:30) when a large number of people were leaving their offices/workplaces and driving back to their suburban homes. As a result, the average speed dropped by 46% from 77.9 to 42.4 km/h, while the time to cover the same distance nearly doubled from 54min to 1h 41min. Figure 3.7 shows how the speed distributions changed and the low speed bin's share increased from 20% to nearly 60% while at the same time the share of speeds above 90 km/h dropped by 77% from 58% to merely 14% of the entire route.

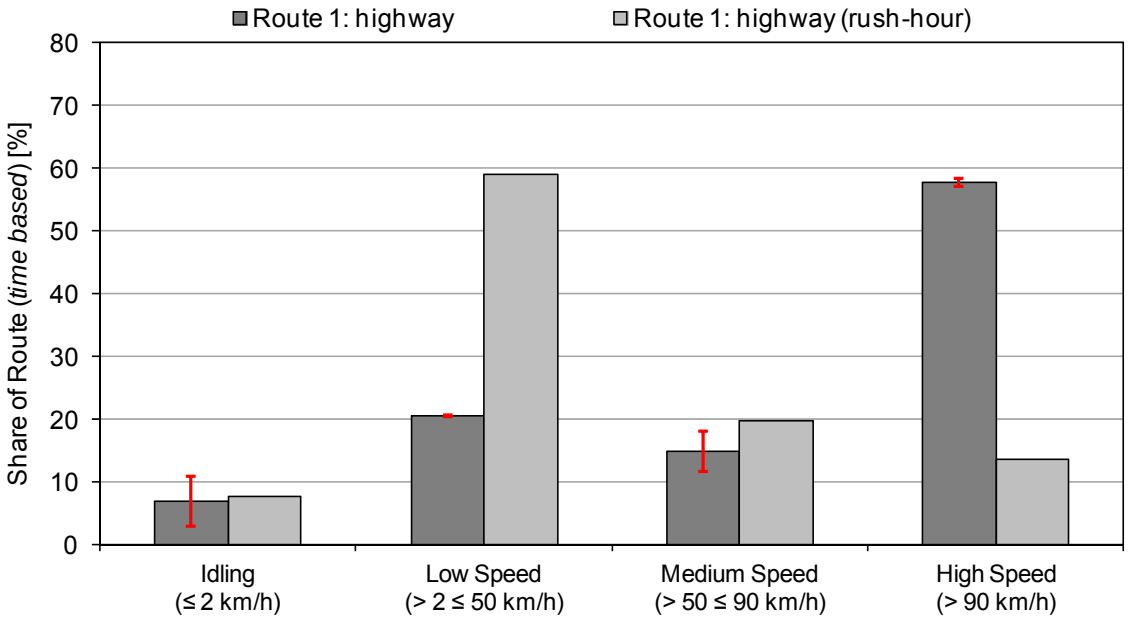

Figure 3.7: Comparison of vehicle speed distribution (*time based*) over Route 1 during low traffic and rush-hour, red bars represent ±1σ

Figure 3.8 summarizes the cumulative frequencies of the vehicle speeds for all three test vehicles and Routes 1 through 4 in comparison to three chassis dynamometer certification cycles. It has to be noted that for comparison purposes, vehicle speed data presented herein for chassis dynamometer cycles is based on vehicle speed set-point rather than actually measured data. As already concluded from Figure 3.6 and Table 3.3, the top left graph in Figure 3.8 confirms again the representativeness of the US06 cycle of highway driving during non-rush-hour vehicle operation. In stark contrast are cumulative frequency pattern for vehicle operation during rush-hours (i.e. high traffic densities) as shown by one *Vehicle A* and one *Vehicle B* test run. Highway speed patterns during rush-hours seem to be close to FTP-75 or NEDC vehicle operation characteristics.

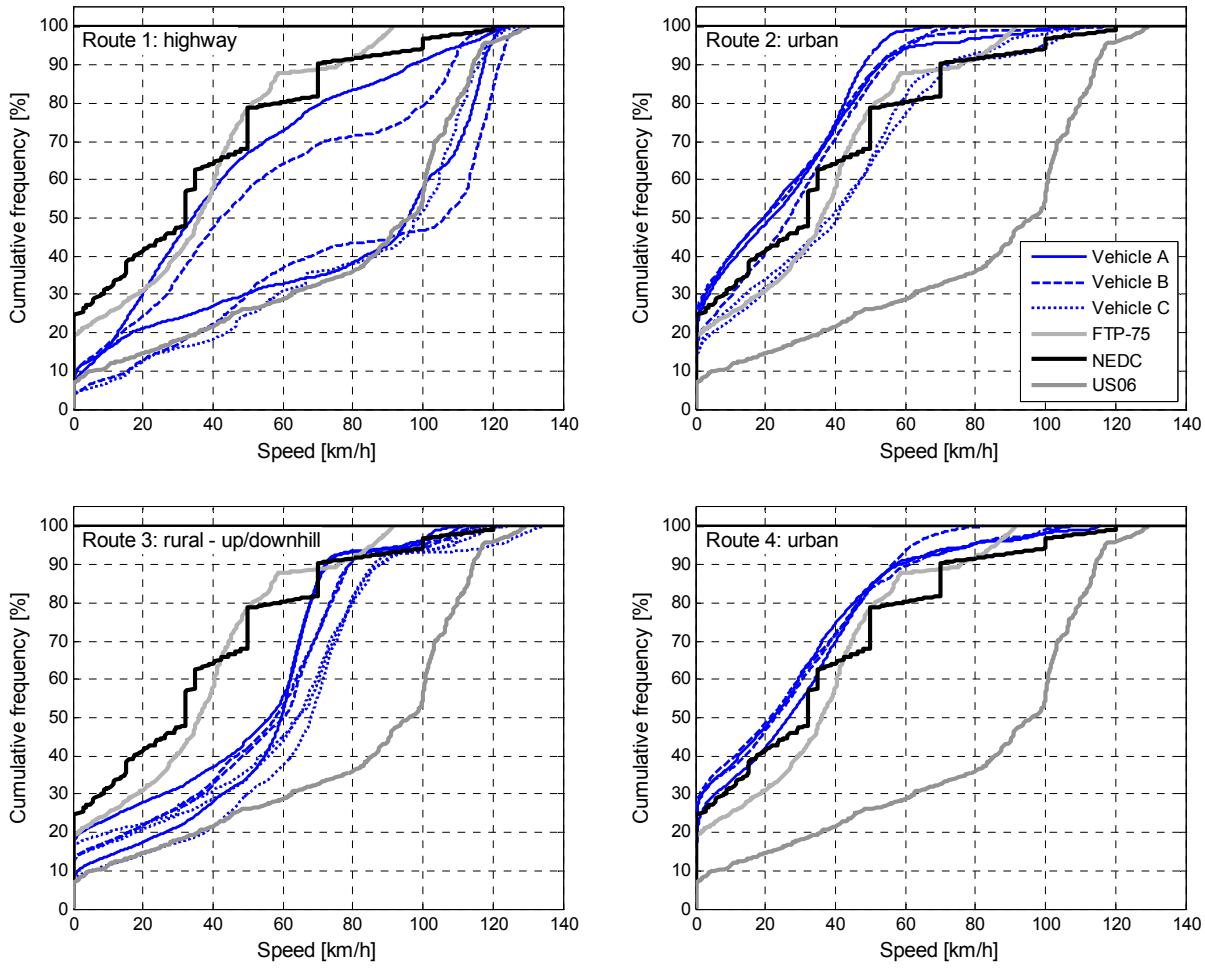

Figure 3.8: Vehicle speed distributions of test routes 1 through 4 in comparison to certification test cycles (FTP-75, US06, and NEDC, based on speed set-point data)

Urban driving in downtown LA and San Diego are shown to exhibit cumulative frequencies of vehicle speeds close to the frequencies of FTP-75 and NEDC certification cycles, although mostly slightly on the slower side compared to the certification cycles (top right and bottom right graphs). Route 2 driving for Vehicle C shows a noticeable difference when compared to both *Vehicles A* and *B* (top right graph) as previously discussed. The bottom left graph in Figure 3.8 shows rural and uphill/downhill driving, emphasizing again its significant contribution to the medium speed range, which is poorly represented by any of the three light-duty certification cycles depicted herein.

The altitude profiles for all five test routes are compared in Figure 3.9 in terms of elevation above sea level (i.e. meter a.s.l.). The majority of urban routes varied between sea level and 100 meters, with the San Francisco route (Route 5) being the only one exhibiting elevation changes more frequently with a range of ~200 meters from lowest to highest point.

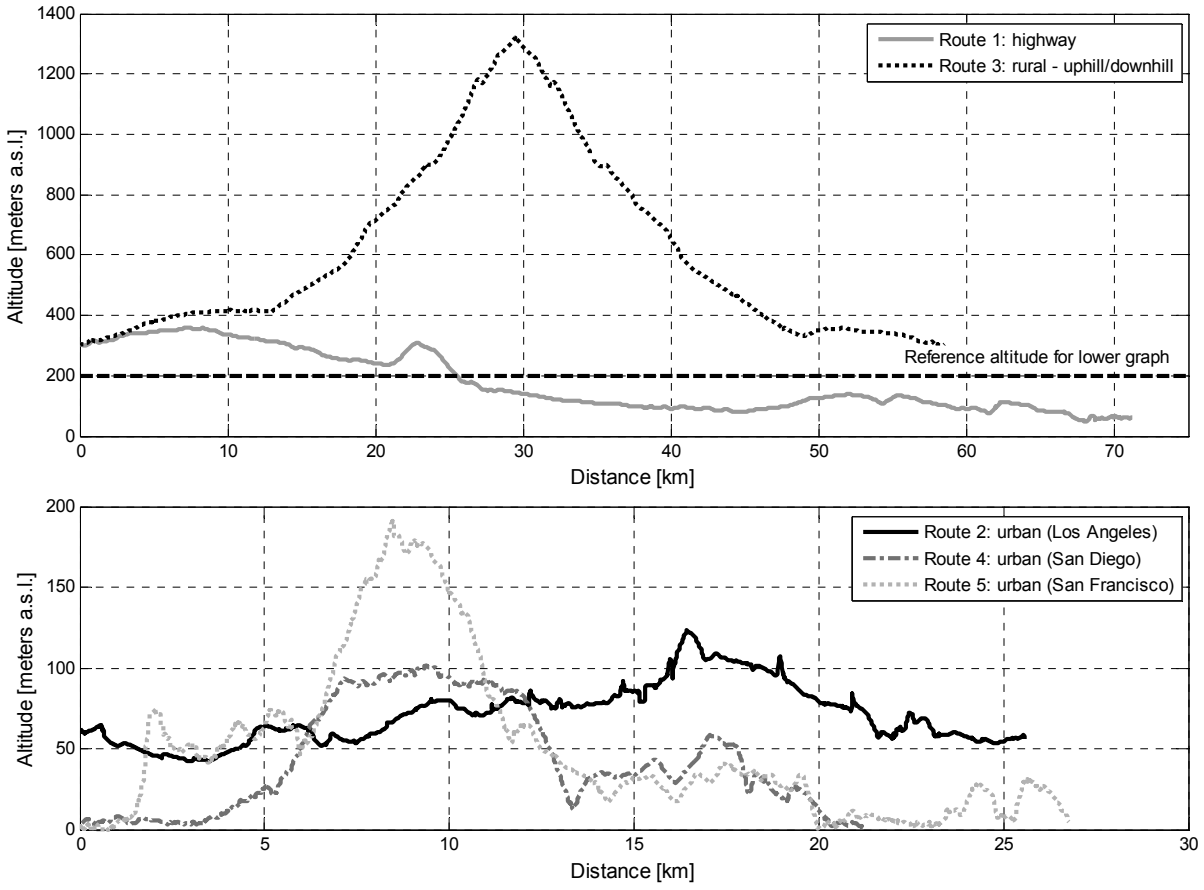

Figure 3.9: Altitude profiles of test routes given in meters above sea level (a.s.l.)

The uphill/downhill driving route experienced an elevation change of approximately 1000 meters, starting at about 300 meters a.s.l. with a turning point at 1300 meters a.s.l. The road grade was on the order of 5.5 to 6% over a distance of ~16 km (between distance marker 14 and 30km). The same road grade applied for the downhill portion of the route, as the same road was chosen to drive back from Mt. Baldy. The primary measure of altitude during the course of this study was the GPS signal. However, due to sporadically deteriorating GPS reception, caused by a multitude of factors, including but not limited to heavy cloud overcast, road tunnels and underpasses (e.g. bridges), as well as high buildings in downtown areas, an alternative backup method to calculate altitude was employed by means of measuring changes in barometric pressure as a function of altitude using a high resolution pressure transducer. The latter method has proven, during previous studies at WVU [9, 12], to be more accurate for the purpose of calculating road grade changes, however, it is plagued by the requirement to consider local weather conditions as changes in environmental conditions will lead to changing barometric pressures, hence, offset the altitude calculation.

Equation 3 shows a simplified version of the formula used to calculate altitude '*H*' as a function of reference temperature 'T_0' and pressure 'p_0' at ground level as well as the actually measured barometric pressure 'p_{baro}'. With '*L*' being the temperature lapse rate, 0.0065K/m, and *g*, *M*, *R* being the gravitational acceleration, molar mass of dry air and universal gas constant, respectively [12]. Equation 3 is derived from the International Standard Atmosphere (ISA) model which has been formulated by the International Civil Aviation Organization (ICAO) and is based on assuming ideal gas, gravity independence of altitude, hydrostatic equilibrium, and a constant lapse rate [9].

$$H = f(T_0, p_0, p_{baro}) = \left(\frac{T_0}{L}\right) \cdot \left[1 - \left(\frac{p_{baro}}{p_0}\right)^{\left[\frac{R \cdot L}{g \cdot M_{air}}\right]}\right] \qquad \textbf{Eq. 3}$$

Figure 3.10 shows a sample of the individual vehicle speed profiles for all five test routes as a function of driving time during week-day, non-rush-hour conditions for highway driving (i.e. Route 1) and typical week-day traffic conditions for the urban routes (i.e. Route 2, 4, and 5).

Figure 3.11 depicts ambient conditions, including temperature, barometric pressure, and relative humidity experienced during the five test routes for *Vehicles A* through *C*. The variation

intervals (red bars) represent minimum and maximum values encountered over the test route. An increase in the observed range of barometric pressure (i.e. minimum to maximum value) is indicative of larger elevation changes experienced over a given test route (see Figure 3.9 for altitude profiles).

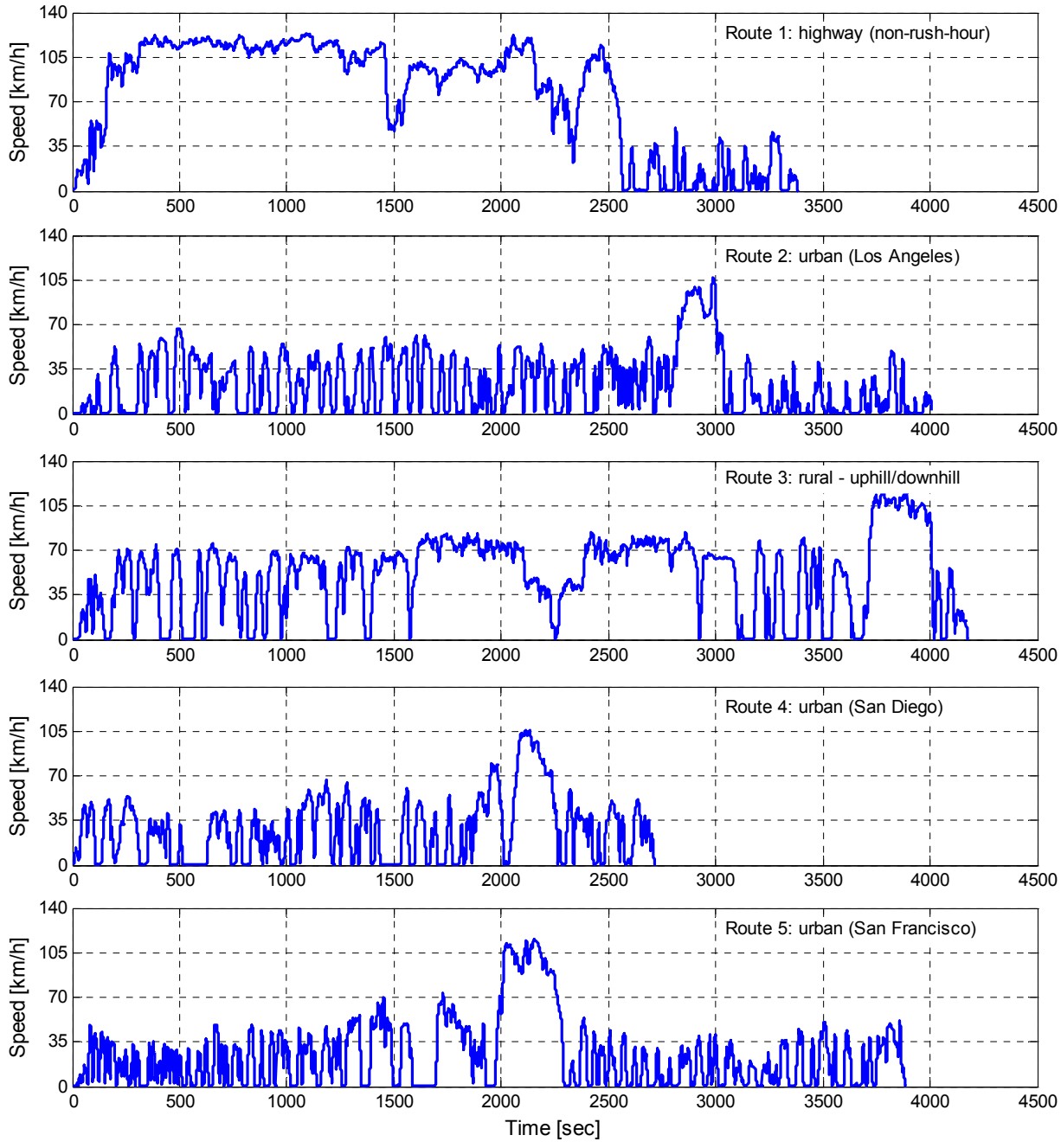

Figure 3.10: Characteristic vehicle speed vs. time for five test routes during typical week-day non-rush-hour traffic densities for highway and urban driving

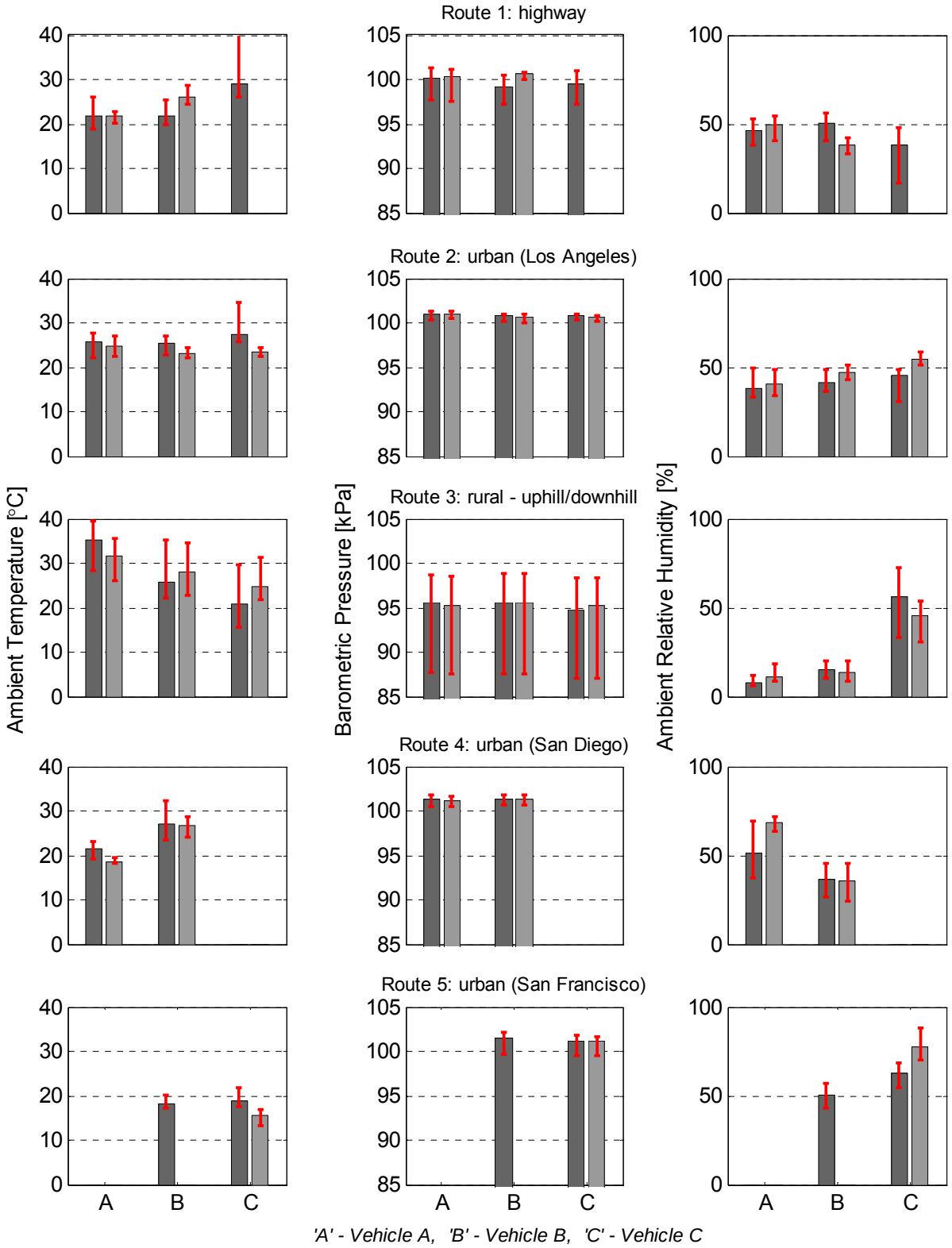

Figure 3.11: Average ambient conditions (temperature, barometric pressure, and relative humidity) experienced over five test routes for all three vehicles. Note: variation intervals (red bars) refer to minimum and maximum values experienced over the test route

Relative positive acceleration (RPA) is a frequently used metric [1, 8] for the analysis of driving patterns and as input parameter to aid in developing chassis dynamometer test cycles representative of real-world driving. The RPA is calculated as the integral of the product of vehicle speed and positive acceleration for each instance in time, over a given '*micro-trip*' of the test route under investigation as shown by Equation 4. For this study a '*micro-trip*' was defined following the same convention as proposed by Weiss *et al.* [1] as any portion of the test route, where the vehicle speed is equal or larger than 2 km/h for a duration of at least 5 seconds or more. Instantaneous vehicle acceleration was calculated according to Equation 5 by means of differentiating vehicle speed data collected via GPS, and subsequently filtered with negative values being forced to zero.

$$RPA = \frac{\int_0^{t_j} (v_i \cdot a_i) dt}{x_j} \qquad \textbf{Eq. 4}$$

where: t_j duration of micro-trip j

x_j distance of micro-trip j

v_i speed during each time increment i

a_i instantaneous positive acceleration during each time increment i contained in the micro-trip j

$$a_i = \begin{cases} \frac{(v_2 - v_1)}{(t_2 - t_1)} & if\ i = 1 \\ \frac{(v_{i+1} - v_{i-1})}{(t_{i+1} - t_{i-1})} & if\ 2 \le i \le n-1 \\ \frac{(v_n - v_{n-1})}{(t_n - t_{n-1})} & if\ i = n \end{cases} \qquad \textbf{Eq. 5}$$

Figure 3.12 and Figure 3.13 depict the relative positive accelerations for routes 1 through 4, and 5, respectively, in comparison to RPAs for three chassis dynamometer vehicle certification test cycles (note: using vehicle speed set-point data for calculations). A distinct pattern can be recognized between the highway, rural, and urban test routes. The urban routes show a predominant cluster in the range of 15 to 40 km/h with RPA values between 0.2 and 0.6 m/s^2, and up to 0.8 m/s^2 for the San Francisco route. The latter was characterized by more pronounced grade changes (i.e. increased '*hilliness*') and '*aggressiveness*' of the driving pattern (i.e. increased stop-go). Furthermore, RPA values for the urban routes show similarity to RPA values calculated for the FTP-75 certification cycle. Average RPA values are shown in Table 3.3.

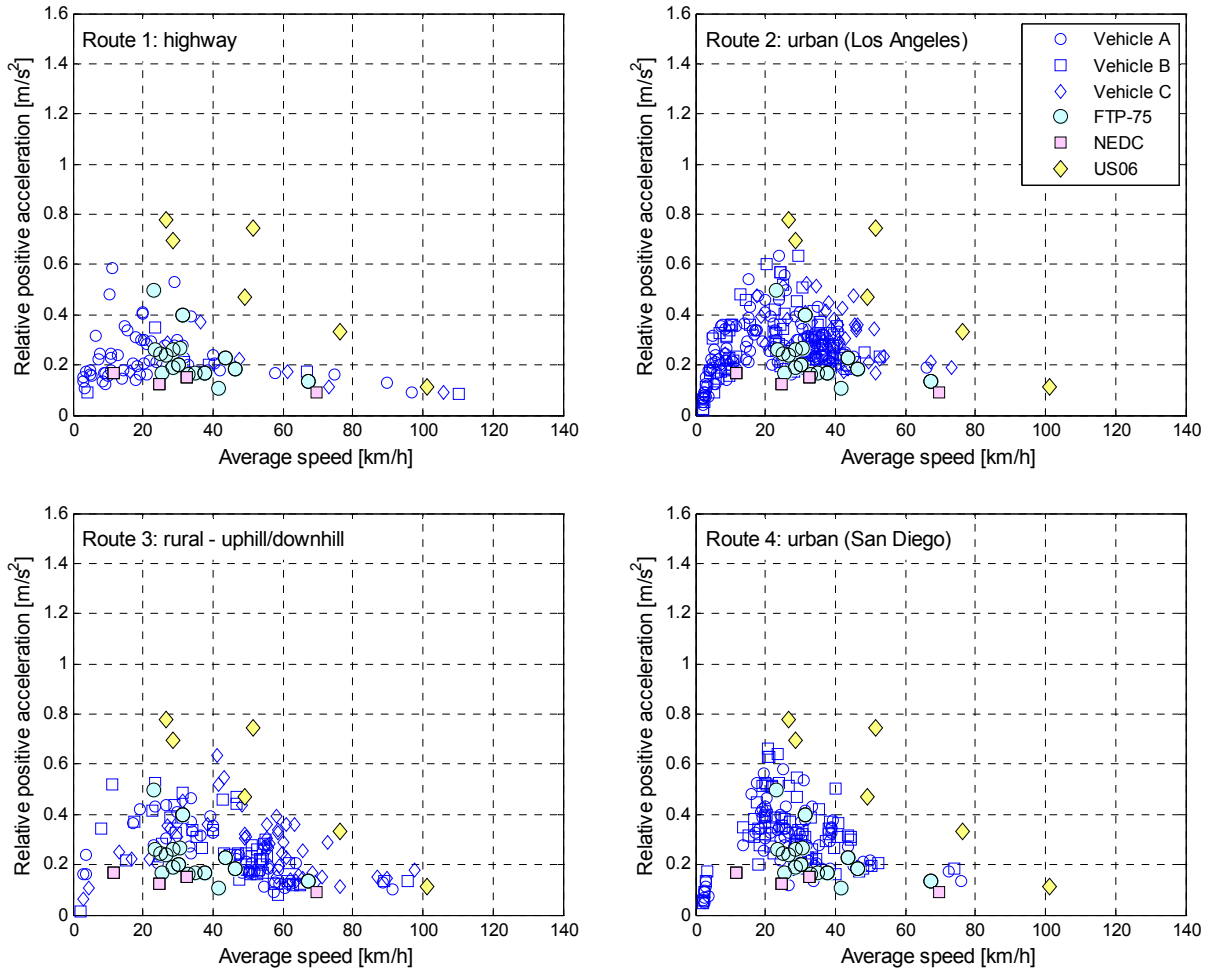

Figure 3.12: Relative positive acceleration of sub-trips composing test routes 1 through 4 in comparison to certification cycles (FTP-75, US06, and NEDC)

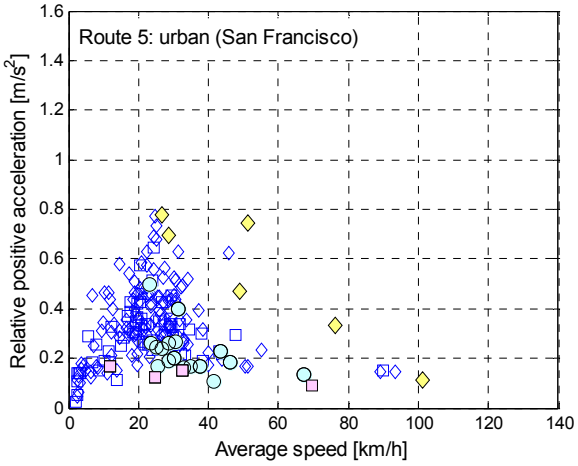

Figure 3.13: Relative positive acceleration of sub-trips composing test Route 5 in comparison to certification cycles (FTP-75, US06, and NEDC)

Interestingly, the relative positive acceleration values for highway driving, Route 1 (top left graph), were not well represented by the US06 certification cycle even though vehicle speed distributions were in good agreement with each other as previously shown in Figure 3.6 and Figure 3.8. There are only a few matching RPA values at the upper end of the vehicle speed range (around 100 km/h). However, it has to be noted that the US06 certification cycle was not developed with the intention to be a representative test cycle but rather to address shortcomings of the FTP-75 cycle in representing high-speed driving and increased acceleration behavior (i.e. aggressive driving) [13, 14], thereby accounting for '*off-cycle*' emissions not reflected in the standard FTP-75 certification cycle [14]. The US06 cycle was adopted by the US-EPA in 1997 as part of the '*Supplemental Federal Test Procedure*' (SFTP) (see Section 2) [13]. The RPA values for the European certification cycle NEDC are well below the majority of RPA values calculated for all five test routes, whereas the US certification cycles (i.e. FTP-75, US06) appear to be more representative of real-world driving for a wide range of vehicle operating conditions for this test program.

3.2.2 Cross-Multi-State Driving Route

Vehicle B was driven over a total distance of 3968 miles between Los Angeles, CA and Seattle, WA in order to characterize after-treatment performance and emissions rates over an extended time of in-use operation. The route, hereinafter referred to as the '*cross-multi-state driving route*' comprises out/inbound Los Angeles to Seattle driving as well as urban/suburban vehicle operation in Seattle, WA and Sacramento, CA, and is dominated by a majority of 83.5% highway driving at speeds above 90 km/h. The average vehicle speed over the entire route was ~100 km/h with maximum speeds of up to ~140 km/h. Table 3.6 lists additional characteristics for the cross-multi-state driving route including highway and urban/suburban vehicle operation (i.e. highway, Route 6, and Route 7).

Figure 3.14 shows the topographic maps for the LA to Seattle route on the left following interstate I-5 North as well as the Seattle to LA route on the right. The return route from Seattle to LA included additional urban driving in Seattle, Sacramento and San Francisco (i.e. Route 5). Figure 3.15 and Figure 3.16 depict the topographical maps for the urban/suburban route in Seattle (referred to as '*Route 6*') and urban route in Sacramento (referred to as '*Route 7*'), respectively. Route 6 was driven in the morning, thus included rush-hour traffic from the

surrounding residential suburban towns into downtown Seattle. Furthermore, Seattle is located in a hilly costal area, whereas Sacramento lies in the relatively flat San Joaquin valley.

Table 3.6: Overall cross-multi-state route and driving characteristics

Parameters	**Value**
Route duration [hr]	39.31
Route distance [km]	3968.10
Avg. vehicle speed [km/h]	100.95
Max. vehicle speed [km/h]	120.00
Avg. RPA [1)] [m/s^2]	0.23
Characteristic Power [m^2/s^3]	2.63
Min. elevation [m a.s.l. [2)]]	1.0
Max. elevation [m a.s.l.]	1320.1
Share [%] (*time based*)	
- idling (≤2 km/h)	3.4
- low speed (>2≤50 km/h)	8.1
- medium speed (>50≤90 km/h)	5.0
- high speed (>90 km/h)	83.5

[1)] *RPA - relative positive acceleration*
[2)] *a.s.l. - above sea level*

Figure 3.14: Topographic map of *left)* Los Angeles to Seattle, and *right)* Seattle to Los Angeles cross-multi-state driving route

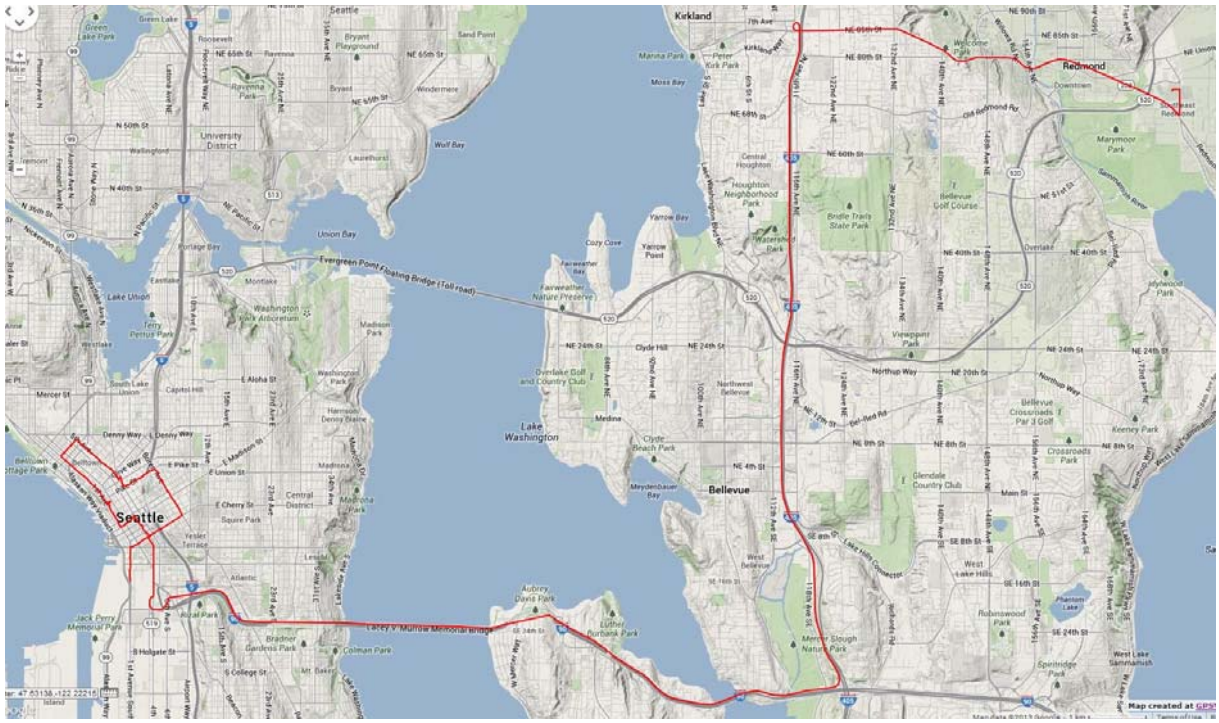

Figure 3.15: Topographic map of Route 6, urban and suburban driving around Seattle, WA

Figure 3.16: Topographic map of Route 7, urban driving downtown Sacramento, CA

Figure 3.17 b) depicts the vehicle speed distribution for the entire cross-multi state driving route against standard chassis dynamometer test cycles. It can be noticed that even though 85% of the vehicle speeds are in excess of 90 km/h, and thereby significantly exceeding the high-speed (>90 km/h) contribution in the US06 cycle (i.e. 56%), the shape of the two vehicle speed distributions are comparable. The relative positive acceleration for the cross-multi state driving route is plotted in Figure 3.17 a), with urban/suburban driving (i.e. Seattle and Sacramento) contributing to the high RPA values at lower speeds (towards lower left corner), and highway driving predominantly to the low RPA values at high vehicle speeds (towards right corner). Furthermore, comparing RPA values in Figure 3.17 a) with values presented in Figure 3.12 and Figure 3.13 it is possible to identify the individual contributions of urban/suburban as well as high speed highway driving.

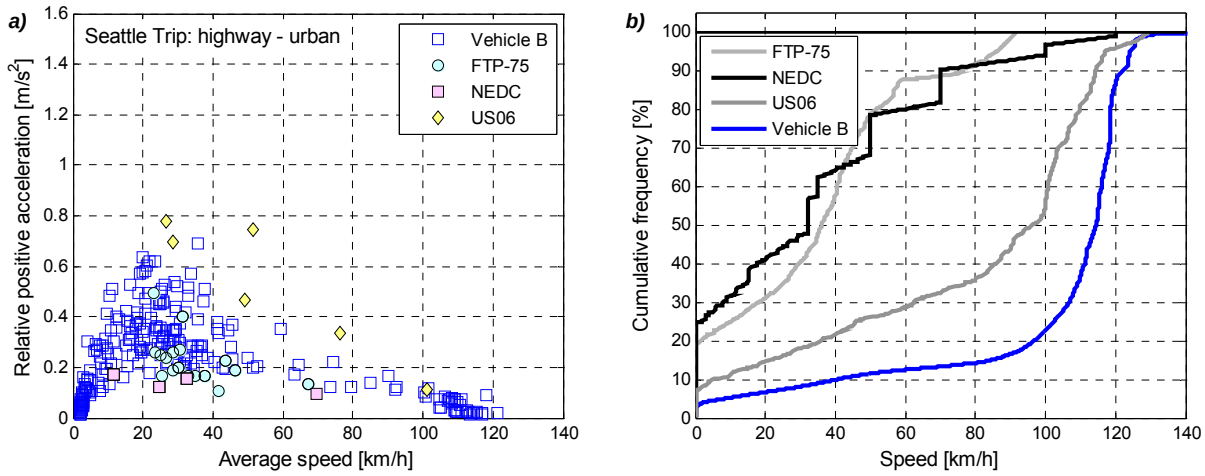

Figure 3.17: *a)* Relative positive acceleration of sub-trips composing cross-multi-state route in comparison to certification cycles (FTP-75, US06, and NEDC); *b)* vehicle speed distributions of cross-multi-state route in comparison to certification test cycles

Figure 3.18 a) and Figure 3.18 b) shows the vehicle speed and altitude, respectively, for the entire cross-multi state driving route as a function of distance traveled. From the altitude graph (see Figure 3.18 b)), one can recognize the symmetry of the driving route predominantly following Interstate I-5 North and South. The reduced vehicle speeds at around 1800km and 3100km into the route mark the urban/suburban driving portions in Seattle, WA and Sacramento, CA, respectively. Furthermore, from the vehicle speed trace one can distinguish portions of the route where the vehicle was driven in cruise control mode (i.e. constant vehicle speeds), from parts where vehicle speed was manually governed by the pedal position of the driver.

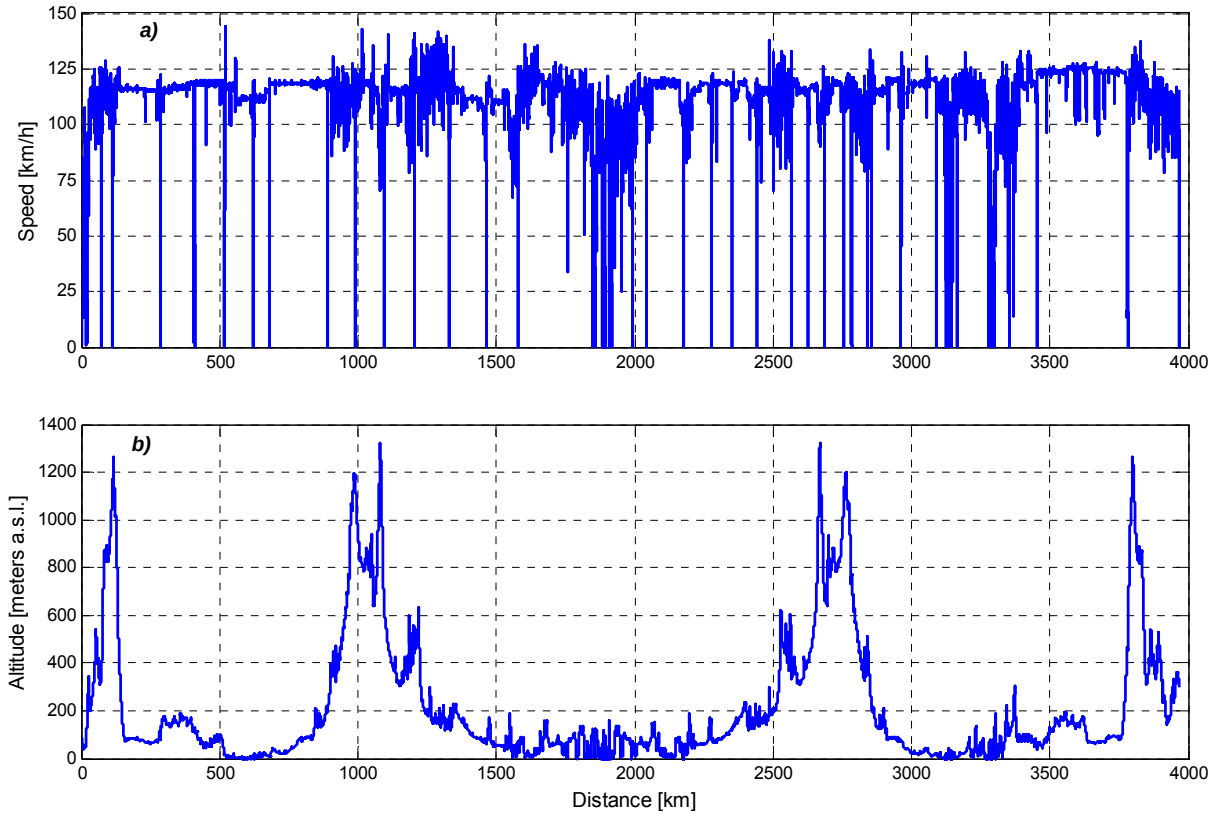

Figure 3.18: *a)* Characteristic vehicle speed and, *b)* altitude profile of cross-multi-state route given in meters above sea level (a.s.l.)

Finally, Table 3.7 lists the individual readiness of the primary instruments and data acquisition components, namely for i) gaseous, ii) particle, and iii) vehicle parameters, that have been utilized to collect data during the cross-multi state driving route. It can be noticed that gaseous and particle matter emissions were collected for ~60% of the entire route, corresponding to approximately 2300km. Instrument operation got primarily limited due to i) cold temperature conditions during late night driving (e.g. sample condensation issues inside analyzer units), and ii) rain fall during portions of the route between Seattle and Sacramento. It has to be noted that instrument readiness was 100% for vehicle testing over the pre-defined test routes (Route 1 to 5).

Table 3.7: Instrumentation readiness during cross-multi state driving route

Instrument	Total time of operation [hr]	Fraction of total trip duration [%]	Total distance of operation [km]	Fraction of total trip distance [%]
OBS (gaseous emissions)	23.6	60.1	2352.0	59.3
ECU (engine parameter)	31.2	79.4	3143.3	79.2
PPS (particle emissions)	22.7	57.8	2304.6	58.1

Figure 3.1 along with Table 3.8 provide ambient air conditions, including barometric pressure, temperature, and relative humidity encountered during the entire cross-multi-state route as a function of distance traveled. Ambient temperatures ranged from below freezing to ~+30°C with an average temperature of around 13°C as seen from Table 3.8.

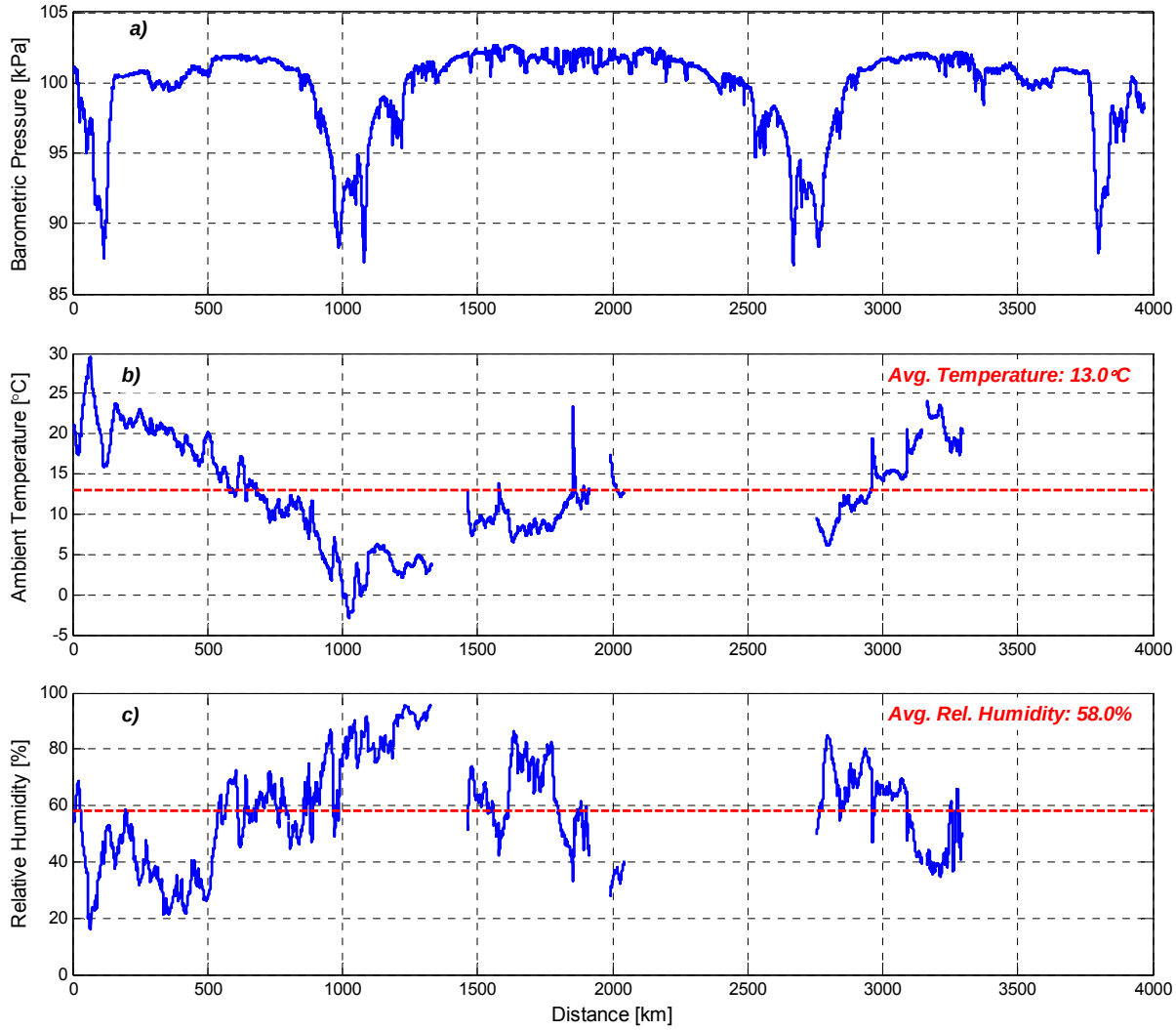

Figure 3.19: a) Barometric pressure, b) ambient temperature, and c) relative humidity experienced during cross-multi-state route as a function of distance traveled (Note: missing data for b) and c) is due to non-operational ambient sensor)

Table 3.8: Range of ambient conditions experienced during cross-multi state route

	Temperature [C]	Baro. Pressure [kPa]	Rel. Humidity [%]
Average	12.97	99.63	57.95
Minimum	-2.87	86.97	15.84
Maximum	29.65	102.43	96.02

3.3 Emissions Testing Procedure and PEMS Equipment

The emissions sampling setup employed during the course of this study comprised three measurement sub-systems as shown in the schematic in Figure 3.20. Gaseous exhaust emissions were quantified using the on-board measurement system, OBS-2200, from Horiba described in more detail in Section 3.3.1. Real-time particle number concentration measurements were performed using the Pegasor particle sensor (PPS), model PPS-M from Pegasor Ltd. discussed in Section 3.3.2.2, while particle mass measurements were made with the OBS-TRPM system from Horiba as described in Section 3.3.2.1. The Horiba OBS-2200 PEMS system was chosen for this study as it is an approved device under the US EPA heavy-duty in-use emissions compliance program and complies to the EU 582/2011 in-use emissions measurement requirements as well.

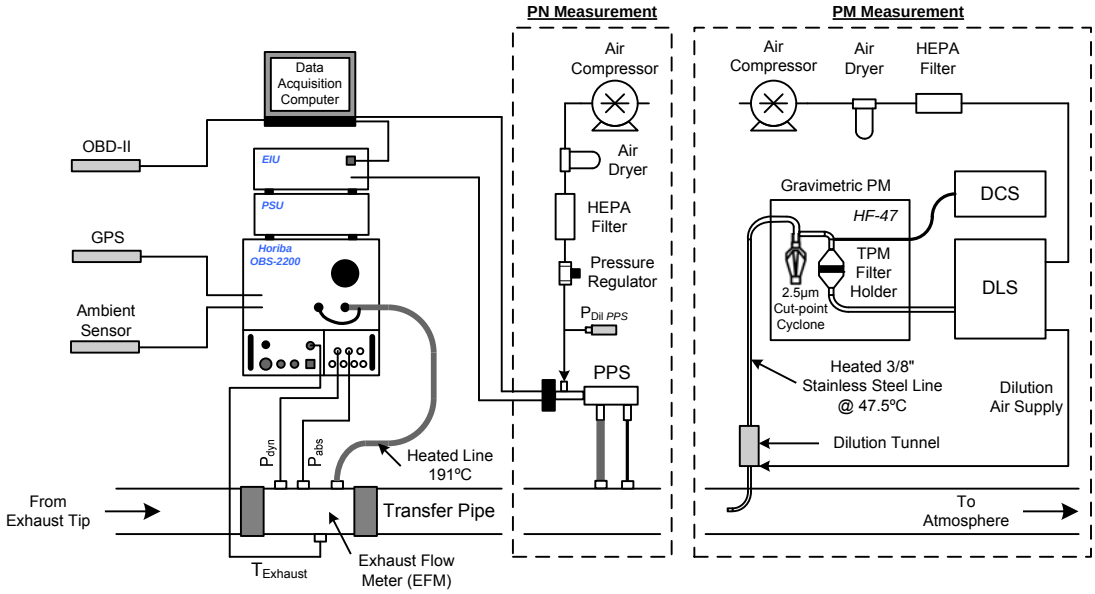

Figure 3.20: Schematic of measurement setup, PN measurement for Vehicles A and B, PM measurement for Vehicle C

Table 3.9 lists all the parameters and emissions constituents collected during on-road testing for this study. Emissions parameters were sampled and stored continuously at 10 Hz frequency, whereas GPS and ECU data were updated at 1 Hz, but stored at the same frequency as emissions data (i.e 10 Hz) by the data acquisition system. An external sensor was used to measure ambient conditions, including temperature, barometric pressure and relative humidity, feeding data directly to the OBS data acquisition software. Vehicle position (i.e. longitude, latitude and altitude) and relative speed were measured by means of a GPS receiver, allowing for subsequent calculation of instantaneous vehicle acceleration and distance traveled. An additional high-

resolution barometric pressure sensor was used to calculate road grade changes and altitude as an alternative to the GPS signal based on Equation 3 as presented in Section 3.2.1.

Engine specific parameters were recorded from publicly broadcasted ECU signals through the vehicles OBD-II port using a commercially available CAN logging software called AutoTap® from B&B Electronics Manufacturing Company Inc. Logged parameters included engine speed and load, intake air mass flow rate and exhaust temperatures. *Vehicle A* broadcasted DPF outlet temperature, whereas *Vehicle B* broadcasted two exhaust temperatures, namely the DPF inlet and SCR inlet temperatures.

Table 3.9: Overview of measured parameters and respective instruments/analyzers

Category	Parameter	Measurement Technique
Exhaust gas pollutants	THC [ppm]	FID (Horiba OBS-2200)
	CO [%]	NDIR (Horiba OBS-2200)
	CO_2 [%]	NDIR (Horiba OBS-2200)
	NO_x [ppm]	CLD (Horiba OBS-2200)
	H_2O [%]	NDIR (Horiba OBS-2200)
Exhaust flow	Exhaust flow rate [m^3/min]	EFM (Horiba OBS-2200)
	Exhaust temperature [°C]	EFM, K-type thermocouple
	Exhaust absolute pressure [kPa]	EFM (Horiba OBS-2200)
Exhaust PN/PM emissions	PN concentration [#/cm^3]	Pegasor Particle Sensor
	PM (gravimetric) [mg]	Horiba OBS-TRPM
Ambient conditions	Ambient temperature [°C]	Temp. Sensor (OBS-2200)
	Ambient humidity [%]	Humidity Sensor (OBS-2200)
	Barometric pressure [kPa]	Pressure Sensor (OBS-2200)
Vehicle/route characteristics	Vehicle speed [km/h]	GPS
	Vehicle position [°]	GPS
	Vehicle altitude [m a.s.l.]	GPS
	Vehicle acceleration [m/s^2]	Derived from GPS data
	Vehicle distance traveled [km]	Derived from GPS data
Engine characteristics	Engine speed [rpm]	ECU OBD-II
	Engine load [%]	ECU OBD-II
	Engine coolant temperature [°C]	ECU OBD-II
	Engine intake air flow [kg/min]	ECU OBD-II
	Exhaust temperature [°C]	ECU OBD-II

Table 3.10 gives the combination of measurement sub-systems employed for the individual test vehicles. Gaseous emissions of CO, CO_2, THC, and NO_x were measured for all three

vehicles, whereas particle number concentration measurements via the PPS were only performed for *Vehicles A* and *B* and particle mass quantification via the OBS-TRPM only for *Vehicle C*.

Table 3.10: Emissions constituent measurement matrix

Component	Vehicle A	Vehicle B	Vehicle C
Gaseous emissions	X	X	X
Particle number (*PPS*)	X	X	
Particle mass (*OBS-TRPM*)			X

Figure 3.21: Vehicle A instrumentation setup

Figure 3.21 through Figure 3.23 depict the experimental setup and instrument arrangement inside the test vehicles, *Vehicle A*, *B*, and *C*, respectively. For on-road testing with both *Vehicles A* and *B*, a 2kW Honda generator (gasoline fueled) was utilized to supply the necessary electrical power to operate the OBS, PPS and ancillary systems. The power requirements for the OBS-TRPM however, required the addition of a second 2kW Honda generator to support the power demand for the entire sampling setup during testing of *Vehicle C*. Using a vehicle independent power generator had the advantage of not having to draw any current from the test vehicles power system; hence, no additional load was added to the engine which might have skewed the emissions production rate and therefore the results of this study. On the other hand, it has to be

noted that the addition of measurement equipment was increasing the actual vehicle weight, thereby possibly influencing the engine's load demand and resulting emissions rates. The payload of *Vehicles A* and *B* was representative of four adult passengers totaling 300kg when assuming 75kg per individual passenger (i.e. *Vehicle A*: 305kg, *Vehicle B*: 314kg), whereas *Vehicle C*'s payload had to account for additional 230kg (i.e. 533kg).

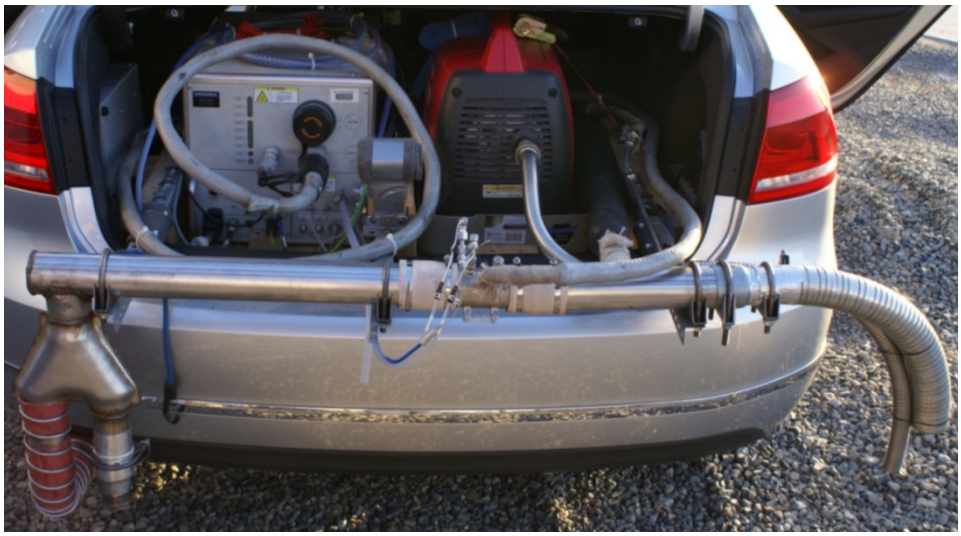

Figure 3.22: Vehicle B instrumentation setup

Figure 3.23: Vehicle C instrumentation setup

3.3.1 Gaseous Emissions Sampling – Horiba OBS-2200

Gaseous raw emissions, including CO, NO_x, THC as well as CO_2 were measured on a continuous basis using the Horiba OBS-2200 on-board emissions measurement system which has been specifically developed with regard to PEMS requirements for on-road vehicle emissions testing according to recommendations outlined in CFR, Title 40, Part 1065. The emissions of CO and CO_2 were measured using a non-dispersive infrared (NDIR) spectrometer (heated wet sample), THC using a flame ionization detector (FID) (heated wet sample), and total NO_x using a chemiluminescence detector (CLD) in conjunction with an NO_2-to-NO converter (heated wet sample). The Horiba OBS system gives the option to either sample in NO_x mode (NO_2-to-NO converter on) or NO mode (NO_2-to-NO converter off), however, for the entire duration of this study the instrument was solely operated in NO_x mode (total NO_x measurement). Detailed information regarding the chosen measurement ranges, span values to which the analyzers were calibrated to, as well as analyzer linearity, accuracy and repeatability of the Horiba OBS-2200 system are given in Table 3.11.

Gaseous emissions were extracted by means of an averaging sample probe through a ½" NPT port installed on the exhaust flow meter adapter that was mounted to the exhaust end pipe. The exhaust sample was directed through a heated line, maintained at a nominal temperature of 191°C using a PID-type controller, to the analyzer inlet port.

Table 3.11: Horiba OBS-2200, Gaseous analyzer specifications [15]

Comp.	Range	Span	Linearity	Accuracy	Repeatability
CO	0.1 vol.%	0.099%	within ±1.0% of full scale	within ±2.5% of full scale	Zero: within ±1.0% of full scale Span: within ±1.0% of readings
CO_2	12 vol.%	11.9%	within ±1.0% of full scale	within ±2.5% of full scale	Zero: within ±1.0% of full scale Span: within ±1.0% of readings
NO_x	1600 ppm	1492ppm	within ±1.0% of full scale	within ±2.5% of full scale	Zero: within ±1.0% of full scale Span: within ±1.0% of readings
THC	350 ppm	303ppm	within ±1.0% of full scale	within ±2.5% of full scale	Zero: within ±1.0% of full scale Span: within ±1.0% of readings

The exhaust flow meter (EFM), used in conjunction with the OBS-2200 instrument is a Pitot-tube type flow meter involving the measurement of dynamic and static pressure heads by means of differential and absolute pressure transducers. The fluid temperature (exhaust gas) is measured via a K-type thermocouple allowing to adjust the exhaust gas flow measurement to

EPA defined standard conditions (i.e. 293.15K and 101.325 kPa). Additional to pressure and thermocouple ports the EFM adapter features a port for connecting the exhaust gas sampling probe. An averaging type probe with multiple holes spanning the entire EFM adapter's diameter was used to extract continuous exhaust samples. Depending on the vehicle tested two differently sized EFM units were utilized for this study. An EFM adapter with 2" diameter (ID) was installed for testing *Vehicles A* and *B* as shown in Figure 3.24 and Figure 3.25, respectively, whereas a 3.5" diameter EFM was employed during *Vehicle C* testing as depicted in Figure 3.26.

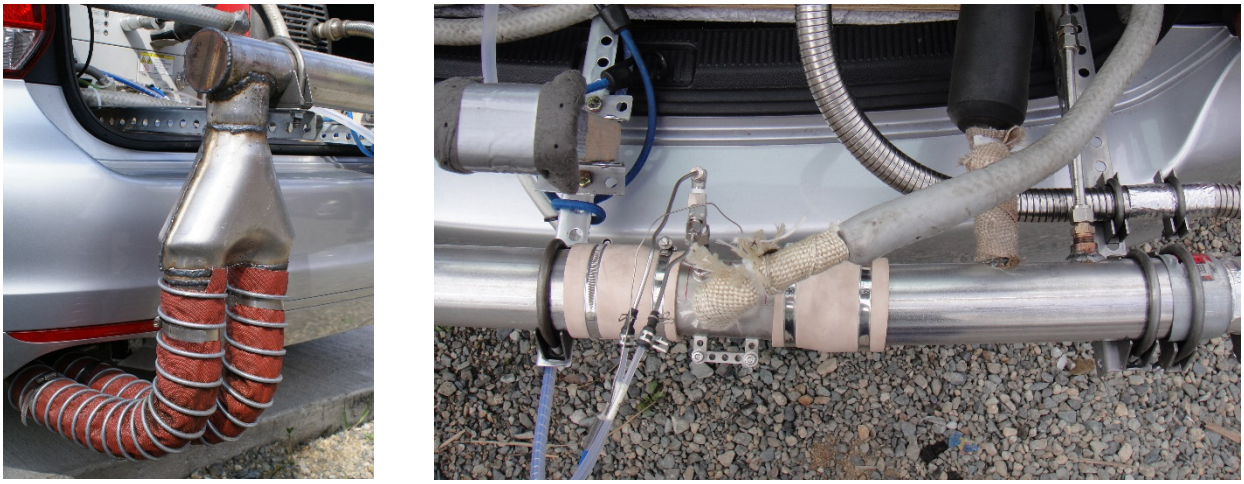

Figure 3.24: Exhaust adapter setup for Vehicle A, *left*: flexible high temperature exhaust hose connecting double vehicle exhaust tip to exhaust transfer pipe, *right*: 2" exhaust flow meter (EFM)

Figure 3.25: Exhaust adapter setup for Vehicle B, *left*: flexible high temperature exhaust hose connecting single vehicle exhaust tip to exhaust transfer pipe, *right*: 2" exhaust flow meter (EFM)

Prior to vehicle testing, the exhaust flow meter units were verified against a NIST traceable laminar flow element (LFE) installed on a flow bench at WVU's on-campus laboratory (i.e. EERL). A least-square regression analysis between the LFE and the EFM measurements resulted in a coefficient of determination (R^2) of 0.9986 and 0.9989 for the 2" and 3.5" EFM adapter, respectively.

Figure 3.26: Exhaust adapter setup for Vehicle C, *left*: 3.5" exhaust flow meter (EFM), *right*: joining double vehicle exhaust stack into exhaust transfer pipe

3.3.2 PEMS Particle Mass/Number Measurements

PEMS development for PM quantification (PM-PEMS) during on-road operation has been primarily driven by the heavy-duty diesel sector in recent years. Numerous studies were performed within the US [16] and Europe [17, 18, and 19] aimed at evaluating the sensitivity and accuracy of different PM-PEMS, their comparability to the standard engine certification method (i.e. gravimetric sampling via CVS) as well as the feasibility and practicality of their application in a harsh environment such as on-road emissions measurement. Giechaskiel et al. [20] recently performed a comprehensive study comparing commercially available PM-PEMS and PM sensors to the standard gravimetric PM sampling method used for engine certification and type-approval, with regard to particle mass and number concentration measurements during in-use testing. The authors specifically highlighted the advantage of particle number (PN) measurement approaches, due to their possible applicability to future PN emissions standards as will be introduced in the EURO VI heavy-duty regulation by 2014. Based on the positive performance of the Horiba

OBS-TRPM system during the aforementioned studies [16, 17, 18, 19, and 20] and due to the fact that this system is currently the only commercially available system with approval from the European Union for heavy-duty on-road PM measurement, Horiba's PM-PEMS system was chosen to conduct PM sampling during this study. On the other hand the, Pegasor particle sensor model PPS-M from Pegasor Ltd. was selected for on-line particle number concentration measurements directly from the raw exhaust stream.

3.3.2.1 Gravimetric PM Measurement with Horiba OBS-TRPM

As described earlier Horiba's OBS-TRPM (On-Board System for Transient PM Mass Measurement) system was selected to perform in-use particle mass quantification. This instrument has been specifically developed for the primary purpose of in-use certification of on-road heavy-duty diesel vehicles, as mandated by the US Environmental Protection Agency (US-EPA) [21] and is designed to be used in conjunction with Horiba's OBS-2200 gaseous system. The OBS-TRPM is a combination of a proportional diluted sampling system for gravimetric PM sampling on 47mm filter media and real-time measurements of particle length [mm/cm^3] (including soot, sulfates and volatile particles), which can be defined as the product of total number concentration and average particle diameter, by means of a diffusion charging type sensor called Electrical Aerosol Detector (EAD) from TSI Inc. The underlying assumption is that the mass accumulated on the filter is proportional to the PM length parameter as measured by the EAD, therefore, making the OBS-TRPM ultimately capable of calculating a quasi "real-time" PM mass concentration rate. However, the gravimetric sampling component of the OBS-TRPM, requiring physical weighing of the filter media on a microbalance, makes "real-time" PM mass concentration information only available after post-processing of the measured data.

A proportional sample was extracted through a 3/8" stainless steel J-type probe located downstream the OBS exhaust flow meter unit. Proportionality was calculated based on the EFM signal and controlled by a series of fast acting piezo-valves and mass-flow controllers (MFC). Close-coupled to the sampling probe was a dilution unit (i.e. "*dilution tunnel*") that uniformly introduced HEPA filtered dilution air. A ½" heated stainless steel line connected the dilution unit to the temperature controlled filter holder compartment (called "*HF-47*", see Figure 3.27) where the exhaust sample was first directed through a $PM_{2.5}$ cut-point cyclone separator to remove particles bigger than 2.5µm (50% efficiency at cut-point), and then through the filter media

holder where PM was retained on 47mm Pallflex® Quartz-fiber filter (TX40) membranes (Pall Corporation) for subsequent gravimetric analysis. All components, including, dilution tunnel, transfer line and HF-47 filter box were heated in order to maintain the filter-face temperature at constant 47±5°C. A constant slip stream was extracted from the sample flow before entering the filter media holder and routed to the diffusion-charger (i.e. EAD) for quantification of the particle length parameter. Dilution and sample flows for the entire system were controlled by the flow control unit (called "*DLS*").

Figure 3.27: Horiba OBS-TRPM heated filter holder box for gravimetric PM quantification, sample is introduced from the top, *left*: 47mm filter holder, *right*: 2.5 cut-point cyclone

All filter media (i.e. TX40 membranes) used during the course of this study were pre and post-weighed at CAFEE's on-campus clean room facility and shipped (overnight) to and back from the vehicle testing location in California. The clean room is environmentally controlled (Class 1000, maintained at 21°C and 50% RH), thus allowing for stable conditions for PM filter media handling, storage and weighting procedures. A Sartorius microbalance with a minimum detection limit of 10 µg and an accuracy of 0.1µg was utilized to pre and post-weigh filter media. The measurement system was operated with in-house developed software to calibrate the scale, perform measurements, as well as to monitor the history of individual filter membranes.

3.3.2.2 Real-Time PM Measurement with Pegasor Particle Sensor

Particle number concentration measurements were performed using the Pegasor particle sensor, model PPS-M from Pegasor Ltd. (Finland) [22] which is capable of performing continuous measurements directly in the exhaust stack and providing a real-time signal with a frequency response of up to 100Hz (see Figure 3.28). The sensor operates as diffusion-charging (DC) type device and measures PM based on the current induced by the charged particles leaving the sensor. Figure 3.29 shows the PPS as well as the sample gas flow paths. Dry, HEPA filtered dilution air is supplied at about 22psi and subsequently charged by a unipolar corona discharge charger using a tungsten wire at ~2kV and 5μA. The pressurized dilution air, carrying the unipolar ions, then draws raw exhaust gas through an ejector-type diluter into a mixing chamber, where the ions are turbulently mixed with exhaust aerosol particles for diffusion charging. The sample gas flow is controlled by means of a critical flow orifice and is a function of the supplied dilution air pressure. An electrostatic precipitator (ion trap), installed downstream of the mixing chamber and operating at a moderate voltage of approximately 100V, traps excess ions that escaped the charging zone. Finally, the charge of the out-flowing particles is measured using a built-in electrometer. The measured current signal is amplified and filtered by the internal electronic control unit of the sensor and outputted either as a voltage or current value. The sensors output can be subsequently correlated to other aerosol instruments by means of linear regression in order to measure the concentration of the mass, surface or number of the exhaust particles, depending on the chosen reference instrument.

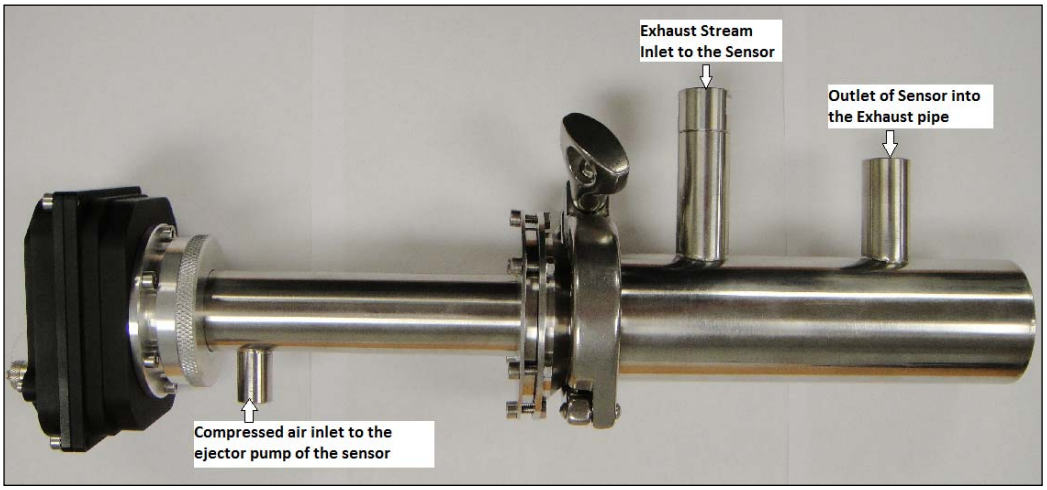

Figure 3.28: Pegasor particle sensor, model PPS-M from Pegasor Ltd. (Finland)

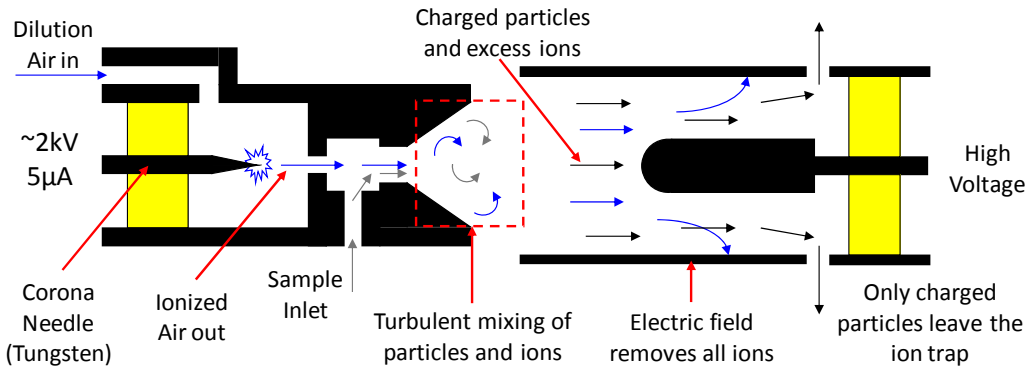

Figure 3.29: PPS measurement principle with sample gas and dilution air flow paths [23, 24]

Extensive testing of this sensor at the engine testing facility at WVU, has shown the capability of this sensor to accurately measure the total PM concentration in comparison to other standard aerosol instruments such as the Ultrafine Condensation Particle Counter (TSI UCPC, Model 3025), the Engine Exhaust Particle Sizer spectrometer (TSI EEPS™, Model 3090) as well as the Micro-Soot Sensor (MSS) from AVL (Model 483) [24]. The sensor was designed as a flow through device and therefore does not involve collection or contact with particles in the exhaust stream, which is especially advantageous for long-term stability and operation without frequent maintenance; hence, best suited for in-use application.

Figure 3.30 shows the positioning of the PPS within the test vehicle. The sensor was enclosed in a compartment (green box seen in Figure 3.30) that provided thermal insulation from the surroundings. Additionally, the sensor was wrapped in insulation material and a resistive heater, in conjunction with a PID controller, maintained the sensor core at a nominal 200°C in order to prevent condensation of volatile components within the sensors. A three-foot heated sampling line (maintained at 200°C) was used to transfer the extracted exhaust sample from the exhaust transfer pipe to the PPS inlet, whereas a non-heated, but thermally insulated stainless steel line was used to direct the sample exiting the PPS back to the exhaust transfer pipe.

Pressurized air supply for the PPS was provided by a small electrical air compressor (Blue Hawk, 0.3hp with 2 gallon reservoir). Prior to the sensor inlet, the pressurized air was dried and HEPA filtered as can be seen in the top left corner of Figure 3.30. A manually adjustable pressure control value was used to maintain the dilution air supply pressure at constant 22 psi (~ 1.5bar). As the PPS draws and dilutes the exhaust sample via an ejector type diluter/pump and controls the sample and dilution air flows, and thus, the internal dilution ratio, by means of a

critical flow orifice, knowledge of the dilution air pressure is required to calculate particle number concentrations in the exhaust stream. An absolute pressure transducer (Omega, model PX602, range 30psi) was used to continuously measure the dilution air pressure.

Figure 3.30: PPS setup, the sensor is housed within the green box, *top left*: pressurized, dried and HEPA filtered air supply for PPS

Using the dilution air pressure as input to linear Equation 6 the sample flow rate can be calculated as a function of constant coefficients β_0 and β_1 only. These coefficients depend on the internal configuration (i.e. orifice dimensions) of the PPS and were evaluated as $\beta_0 \approx 3.668$ and $\beta_1 \approx 0.105$ for the sensor used during the course of this study.

$$\dot{V}_{sample}[slpm] = \beta_1 \cdot P_{Dil}[psi] + \beta_0 \qquad \textbf{Eq. 6}$$

For the purpose of this study the raw sensor signal was calibrated for both particle number concentration in [#/cm^3] as well as particle mass concentration in [mg/m^3] by means of the linear calibration coefficients developed by Ntziachristos et al. [25, 26], and given by Equations 7 through 10 with constant $C_1 = 3333.33$.

$$PN\ [\#/cm^3] = f_N\left(\dot{V}, C_{N-calib}\right) \cdot PPS_{Signal}[mV] \qquad \textbf{Eq. 7}$$

$$PM\ [mg/m^3] = f_M\left(\dot{V}, C_{M-calib}\right) \cdot PPS_{Signal}[mV] \qquad \textbf{Eq. 8}$$

$$f_N = \frac{288}{\dot{V}_{sample}[slpm]} \cdot C_1 \qquad \textbf{Eq. 9}$$

$$f_M = \frac{6.3 \cdot 10^{-5}}{\dot{V}_{sample}[slpm]} \cdot C_1 \qquad \textbf{Eq. 10}$$

The particle number concentration measurement setup (i.e. PPS) used in this study was designed and configured to follow the spirit of the Particle Measurement Program (PMP) method as mandated by the European Union [3, 27] for regulatory particle number concentration quantification. The three foot sample transfer line and the PPS sensor itself were heated and maintained at a nominal temperature of 200°C, thereby reducing the probability for volatile and semi-volatile components to condensate and possibly nucleate and form measurement artifacts. Even though the PPS temperature of 200°C is below the recommended temperature for the first stage dilution (150 to 400°C) and evaporation tube (300 to 400°C) it has to be considered that the PMP method is designed to sample from an already diluted, and therefore '*cooled*', sample stream from either a constant volume sampling (CVS) or partial dilution system [27] as opposed to the PPS sampling from the raw exhaust at elevated gas temperatures. Particle nucleation phenomena are strongly driven by exhaust gas dilution and cooling which does not occur when the sample is extracted directly from the exhaust stack (or transfer line). As described earlier, the PPS requires a small amount of pressurized dry air to drive the sample flow via an internal ejector diluter, however, the dilution process is assumed to be rapid and without the necessary residence time required to form artifacts before particle charging and measurement occurs. It is therefore believed that the measurement setup used in this study mainly detects solid particles as required by the PMP method.

The electrostatic precipitator (ion trap) installed downstream the mixing chamber of the PPS allows, depending on the voltage applied, not only to remove excess ions but also to trap particle of a certain mobility diameter. Increasing the voltage on the center electrode leads to a stronger electrical field causing particles to deflect and impact inside the PPS, and thereby escape from being counted. This particle removal mechanism can be utilized towards inducing a lower particle cut-point similar to the 50% counting efficiency for particles of 23nm in an ultrafine particle counter as recommended by the PMP method [27].

Based on the above discussion it can be concluded that, even though the PPS method for particle number concentration measurements does not comply with recommendations outlined in the European regulation for PN measurements [3, 27], it follows the spirit of the PMP method of counting '*only solid particles of size larger than 23nm*' (and smaller than 2.5µm). Tikkanen *et al*. [28] found good agreement between a PPS measuring directly from the exhaust stack and a second PPS, equipped with a catalytic stripper (CS) to remove volatile and semi-volatile particles, sampling from the diluted exhaust gas in a CVS system for both light and heavy-duty engines. Finally, it has to be emphasized again that the PPS does not directly measure particle number concentrations but rather infers PN counts from a charge measurement as opposed to the ultrafine particle counters required by the PMP method [27] that are based on optical counting of individual particles after they were allowed to grow to a detectable size in a saturated Butanol or water environment.

Therefore, the reader is cautioned when directly comparing the particle number concentration results presented in this report (see Results and Discussion, Section 4) with European PN limits (i.e. Euro 5b/b+ [4]) for light-duty diesel vehicles as the measurement method used during this study differs from the measurement protocol set forth by the European Union [3, 27]. An additional and more detailed discussion about the PMP method required for PN measurements according to the European regulation is given in Appendix 7.2.

3.3.3 PEMS Verification and Pre-test Checks

3.3.3.1 PEMS Verification and Analyzer Checks

All PEMS instruments employed during the course of this study were calibrated, verified and operated according to manufacturer's recommendations and requirements outlined in CFR, Title 40, Part 1065, Subparts D and J [29]. Individual analyzers of the OBS system were calibrated and verified prior to deployment of the instrument to the field at WVU's on-campus laboratory. The following discussion will briefly outline the verification and system checks performed on the OBS-2200 instrument.

As recommended by the manufacturer, "*amplifier zero*" and "*detector gain*" adjustments for flame ionization detector and chemiluminescence detector, and "*amplifier gain*" adjustments for the FID were performed prior to analyzer linearization as these adjustments affect the sensitivity

of the FID and CLD analyzers. Following this, analyzer "*linearity*" verifications were performed for each individual analyzer (i.e. CO, CO_2, THC, and NO_x) by flooding the instruments inlet port with a calibration gas mixture, blended at 10 different ratios equally spaced across the selected measurement range for a given analyzer. A least-squares regression analysis was subsequently performed between the analyzer's response and the theoretical calibration gas blend concentrations and verified to comply with linearization criterions as per 40 CFR §1065.307.

After "*linearity*" verifications a set of interference checks was performed in order to quantify the amount of interference between the component being measured and any other components that are known to interfere with its measurement and that are ordinarily present in the exhaust gas sample. These include, CO_2 and water (H_2O) quench checks on NO_x, CO_2, propane (C_3H_8), and H_2O interference checks on CO, oxygen (O_2) interference check on THC, as well as CO, C_3H_8, and H_2O interference checks on CO_2. The Horiba OBS-2200 system automated these procedures to help guide the operator through the respective processes with a routine that compares interference results against pre-determined limits based on 40 CFR 1065 Subpart D and J. Additionally, NO_x converter efficiency and THC hang-up checks were performed to ensure proper analyzer response.

The heated sample lines for gaseous (OBS-2200) and PM (OBS-TRPM) samples were checked for any leaks, and for proper control of the heated surfaces. Leak checks were performed via a vacuum-side leak verification (40 CFR §1065.345), using a pressure calibration device, and temperature traces were established with a thermocouple and thermocouple calibrator.

The OBS-TRPM system was verified according to manufacturer recommendations, involving various leak checks and sample flow checks using calibrated reference mass flow meters.

3.3.3.2 PEMS Installation and Testing

After initial installation of the PEMS on the test vehicle and prior to start of each test day, the PEMS was warmed-up and allowed to thermally stabilize for at least one hour. After warm-up and prior to start of each test route "*zero*" and "*span*" checks and adjustments were performed for each analyzer, followed by an automated internal system check.

Prior to start of testing, the PEMS equipment was validated by placing all systems in sample mode with the test vehicle's engine turned on and set to idle operation. During this time, each measurement was checked for consistency, using good engineering judgment.

"Zero" and "span" checks and adjustments were performed before and immediately after completion of each test route and analyzer drift values were automatically recorded by the OBS software for subsequent drift correction of measurement results.

3.3.3.3 PEMS Comparison with CVS System

One out of the three test vehicles, specifically the *Vehicle B*, was selected for a cross-correlation evaluation between the OBS-2200 PEMS and laboratory grade instruments while the vehicle was operated over standardized test cycles on a chassis dynamometer at CARB's light-duty constant volume sampling (CVS) test facility in El Monte (CA). This allowed to establish confidence in the measurement results of the PEMS, as well as to identify possible issues with the on-road measurement setup.

The same 2" diameter (ID) EFM adapter as used during on-road testing of *Vehicles A* and *B* (see Figure 3.24 and Figure 3.25) was installed into the exhaust transfer line leading from the vehicles exhaust tip to the CVS tunnel as shown in Figure 3.31 (see right side of figure). The OBS-2200 PEMS was setup and configured in the same manner as it was used during on-road testing, measuring raw exhaust gas concentrations of CO_2, NO_x, CO, and THC, volumetric exhaust flow, and ambient air conditions inside the test cell. Also, the Pegasor particle sensor was installed downstream the EFM using the same sample extraction configuration as during on-road testing. Upstream of the OBS-2200 sampling location, CARB personnel installed a Semtech-DS PEMS unit from Sensors Inc. along with an exhaust flow meter allowing for additional cross-correlation of between two different PEMS instruments. Furthermore, an AVL SESAM FTIR multi-component measurement system sampling raw exhaust gas as well as an AVL Particle Counter (APC) and an Engine Exhaust Particle Sizer (EEPS®) spectrometer (model 3090) from TSI Inc. quantifying particle number concentrations and size distributions from diluted exhaust (CVS) were being operated during chassis dynamometer testing of *Vehicle B*.

However, this report will only present and discuss cross-correlation analysis performed between regulated exhaust gas constituents measured with the OBS-2200 PEMS and the CVS system, including CO_2, NO_x, CO, and THC.

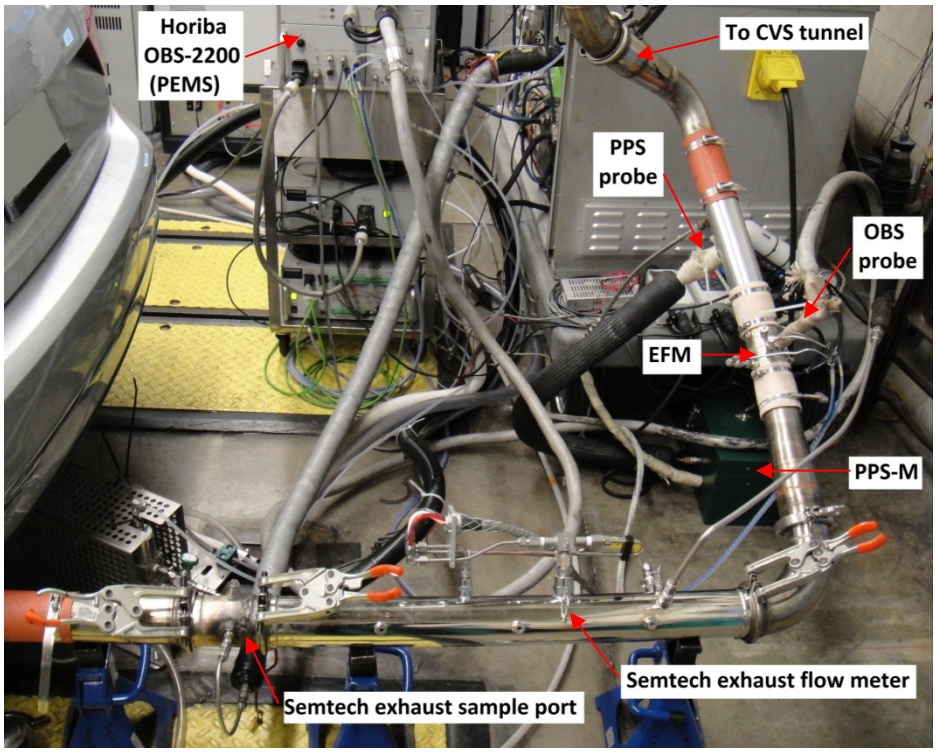

Figure 3.31: Experimental setup and exhaust sample extraction during chassis dynamometer testing of Vehicle B at CARB's El Monte, CA, vehicle test facility

Experiments were performed over three certification test cycles, namely the FTP-75, US06, and the European NEDC as shown in Table 3.12 using the same test fuel as has been used during the on-road emissions testing (see Appendix 7.4 for fuel specifications). Figure 3.32 depicts the continuous emissions mass rates of both PEMS and CVS system in [g/s] over the three bags of the FTP-75 cycle, where '*Bag 1*' is a cold start and transient phase, '*Bag 2*' the stabilized phase followed by a 10min hot soak, and finally '*Bag 3*' a hot start and transient phase (same vehicle speed as '*Bag1*'). It has to be noted that the scale of the y-axis in Figure 3.32 for '*Bags 2* and *3'* for NO_x, CO and THC is being reduced by up to one order of magnitude compared to '*Bag 1*' (i.e. cold start).

Table 3.12: Chassis dynamometer test matrix for Vehicle B

Test Cycle	Condition	CVS	PEMS	Comment
NEDC	Cold	X	X	w/ DPF regen. event
US06	Warm	X	X	
FTP-75	Cold/Hot	X	X	
US06	Warm	X	X	
NEDC	Cold	X	X	

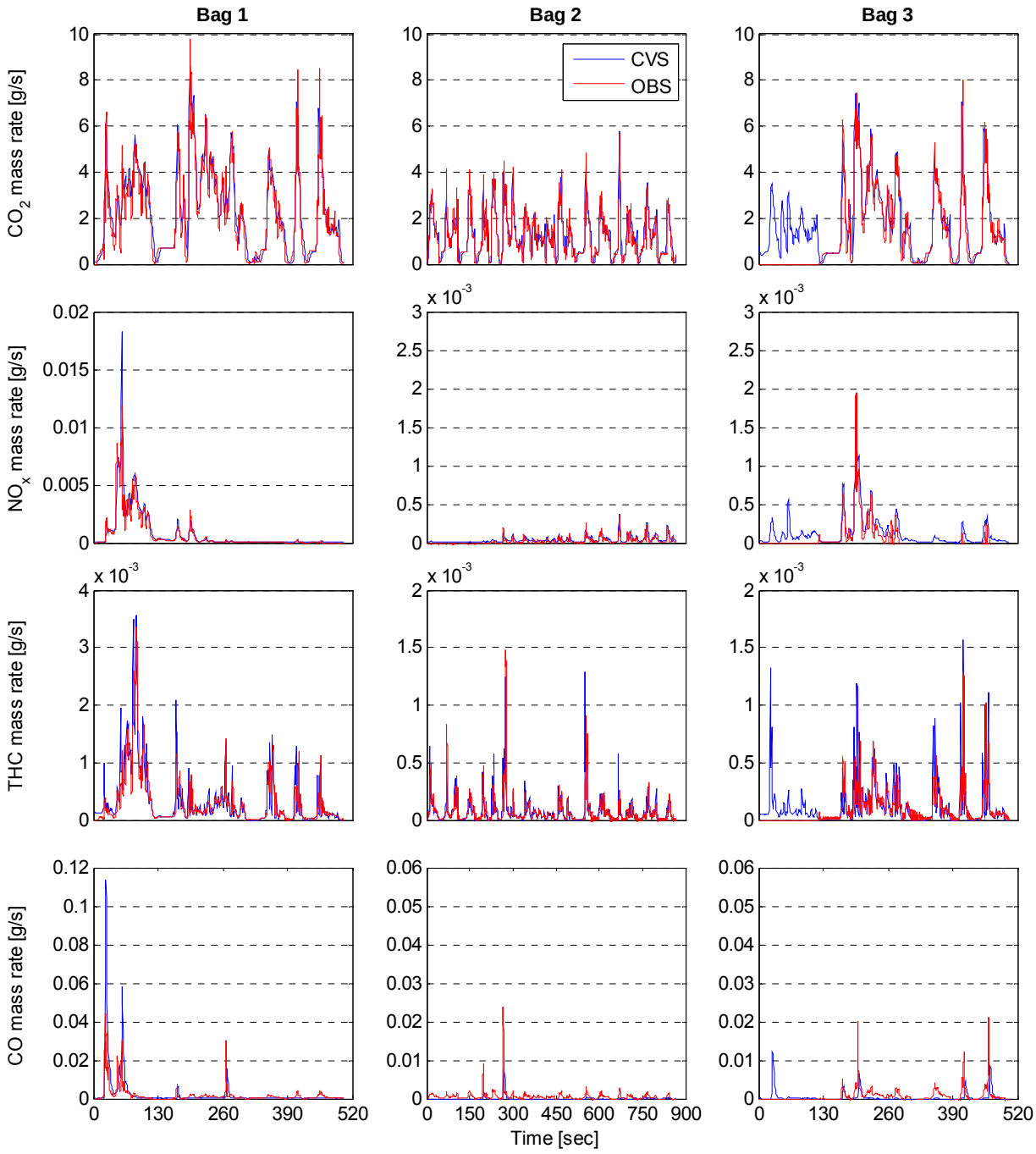

Figure 3.32: Emissions rate comparison between CVS laboratory (CARB, El Monte CA) and Horiba OBS-2200 PEMS measurements over the FTP-75 standard chassis dynamometer test cycle

Furthermore, as seen from the continuous mass rates in Figure 3.32, '*Bag 3*' data collection with the PEMS only started after 130 seconds, thus, data points for the first 130 seconds of '*Bag 3*' were not considered for the emissions mass rate calculation and PEMS evaluation presented in this chapter. In addition, Figure 7.1 in Appendix 7.3 provides a linear regression analysis between the emissions mass rates as measured by the two different systems.

As can be seen from Figure 3.32 the PEMS shows fairly good overall correlation with the CVS for CO_2 and NO_x over all three bags of the FTP-75. For NO_x emissions the PEMS fails to adequately capture the full magnitude of some of the larger emissions spikes during acceleration events (see e.g. NO_x spike during initial acceleration for '*Bag 1*' (~30sec) being larger for CVS as compared to PEMS, Figure 3.32). However, one has to keep the low concentrations in mind when interpreting the data, especially with '*Bag 2*' and '*Bag 3*' NO_x emissions being up to two orders of magnitude lower than for '*Bag 1*'. The latter is primarily due to the SCR system becoming effective in reducing NO_x only after achieving a certain threshold temperature, while not being active during cold-start conditions.

Total hydrocarbons and CO both exhibit low emissions rates, as is typical for diesel combustion engines, thus, regression analysis between the two measurement methods shows reduced correlation on an instantaneous basis. Especially CO emissions were observed to be near zero as measured by the CVS system once the after-treatment system was warmed up, while the PEMS captured occasional emissions spikes during acceleration events.

However, when comparing continuous emissions mass rates calculated from diluted CVS and raw PEMS concentration measurements one has to consider the different transport phenomena such as transport times and possible '*smearing*' effects (i.e. especially for CVS), amongst others, between the two systems that might significantly affect the instantaneous concentration measurements. Also, the different flow rate quantification methods, namely subsonic venturi (SSV) or critical flow orifice for CVS and Pitot-tube type flow measurement for the PEMS will additionally impact the instantaneous calculated emissions mass rates.

Regardless of the instantaneous correlation of the signals, it is important to point out that the PEMS follows overall mass emissions with good accuracy for all pollutants. This is shown in Figure 3.33, which depicts the distance-specific emissions in [g/km] of regulated emissions as measured by the PEMS and CVS system over the three bags of the FTP-75 chassis dynamometer test cycle. The integrated values for all three bags do correlate to within ~6% for CO_2, ~10% for NO_x, ~10% for THC and ~30% for CO. The dotted red and dashed blue lines (see Figure 3.33) indicate the weighted average emissions factors calculated from the CVS and PEMS results, respectively, whereas the dotted green lines (see Figure 3.33) represent the US-EPA Tier2-Bin5 standards for NO_x, CO, and THC, and the EPA advertised label value for CO_2, respectively. A

significant reduction in emissions factors for criteria pollutants can be noticed between '*Bag 1*' versus '*Bag 2 & 3*' which is attributed to the change in conversion efficiencies as the after-treatment system is being warmed-up after the cold-start. It takes approximately 2 minutes to warm-up the after-treatment system as can be concluded from the drastic drop in emissions rates in Figure 3.32. NO_x, CO, and THC emissions are reduced by 92%, 61% and 94%, respectively, between '*Bag 1*' (cold start) and '*Bag 2*' (stabilized phase). Table 3.13 lists the weighted emissions factors for the criteria pollutants and CO_2 as calculated from CVS system and PEMS measurements along with the US-EPA Tier2-Bin5 (at full useful life) standards. It can be noticed that weighted NO_x emissions are approximately 60% below the applicable standard. Note that although the CO difference between the CVS and PEMS is large, these measurements are two orders of magnitude lower than the Tier2-Bin5 regulatory limit.

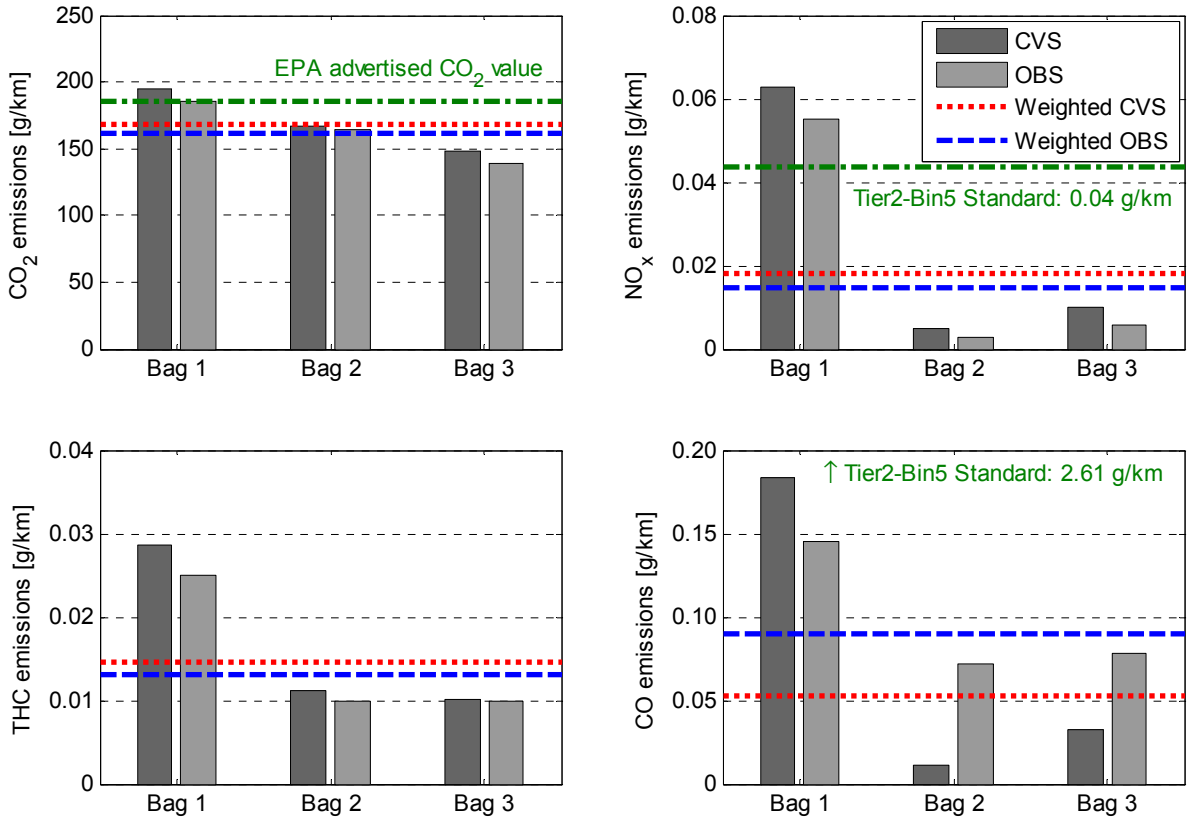

Figure 3.33: Comparison of integrated emissions rates between CVS laboratory (CARB, El Monte, CA) and Horiba OBS-2200 PEMS for bags 1 through 3 of the FTP-75 standard chassis dynamometer test cycle. Note: red dotted and blue dashed lines represent weighted emission rates from the CVS and PEMS; green dotted lines are US-EPA Tier2-Bin5 standards (@ full useful life)

Table 3.13: Weighted emissions factors over FTP-75 test cycle measured by CVS system and PEMS vs. US-EPA Tier2-Bin5 standard (at full useful life) and EPA advertised CO_2 values for *Vehicle B*; along with relative differences between measurement systems

Category	CO_2 [g/km]	NO_x [g/km]	THC [g/km]	CO [g/km]
Tier2-Bin5	186 [1)]	0.043	0.056 [3)]	2.610
Weighted CVS	167.69	0.018	0.014	0.053
Weighted PEMS	161.59	0.015	0.013	0.089
Difference	**[%]**	**[%]**	**[%]**	**[%]**
Tier2-Bin5 vs. CVS	9.8 [2)]	58.0	74.1	98.0
Tier2-Bin5 vs. PEMS	13.1 [2)]	65.9	76.5	96.6
CVS vs. PEMS	3.6	18.8	9.4	-69.8

[1)] *EPA advertised CO_2 emissions value for Vehicle B (www.fueleconomy.gov) [2]*
[2)] *CVS and PEMS vs. EPA advertised CO_2 emissions value for Vehicle B*
[3)] *NMOG standards taken for THC limit*

Similarly, Figure 3.34 depicts the emissions factors for the criteria pollutants and CO_2 over the two bags of the NEDC, where '*Bag 1*' refers to urban driving including cold-start during the first portion (i.e. four repeats of ECE) and '*Bag 2*' to high-speed highway driving conditions during the second portion (i.e. one repeat of EUDC) of the cycle. The significant reduction in NO_x, CO, and THC emissions of 65%, 99%, and 95% between '*Bag 1*' and '*Bag 2*' is attributed to the fully warmed up after-treatment system during the second portion of the test cycle, thus, leading to improved emissions conversion efficiencies.

Additionally, Figure 3.34 shows a 40% reduction in CO_2 emissions factor between urban and highway driving conditions that translates into an approximately 67% improvement in fuel economy from ~28mpg to ~48mpg, respectively.

Table 3.14 summarizes the emissions factors over the NEDC for both CVS system and PEMS along with the relative differences. As seen in this table, there is good correlation between the CVS and PEMS unit for CO_2 and NO_x while a relatively large variation in THC and CO was observed (i.e. especially for '*Bag 2*'). The relative error in the THC and CO emissions should be kept in perspective with the relatively low levels as compared to the regulatory emissions limits.

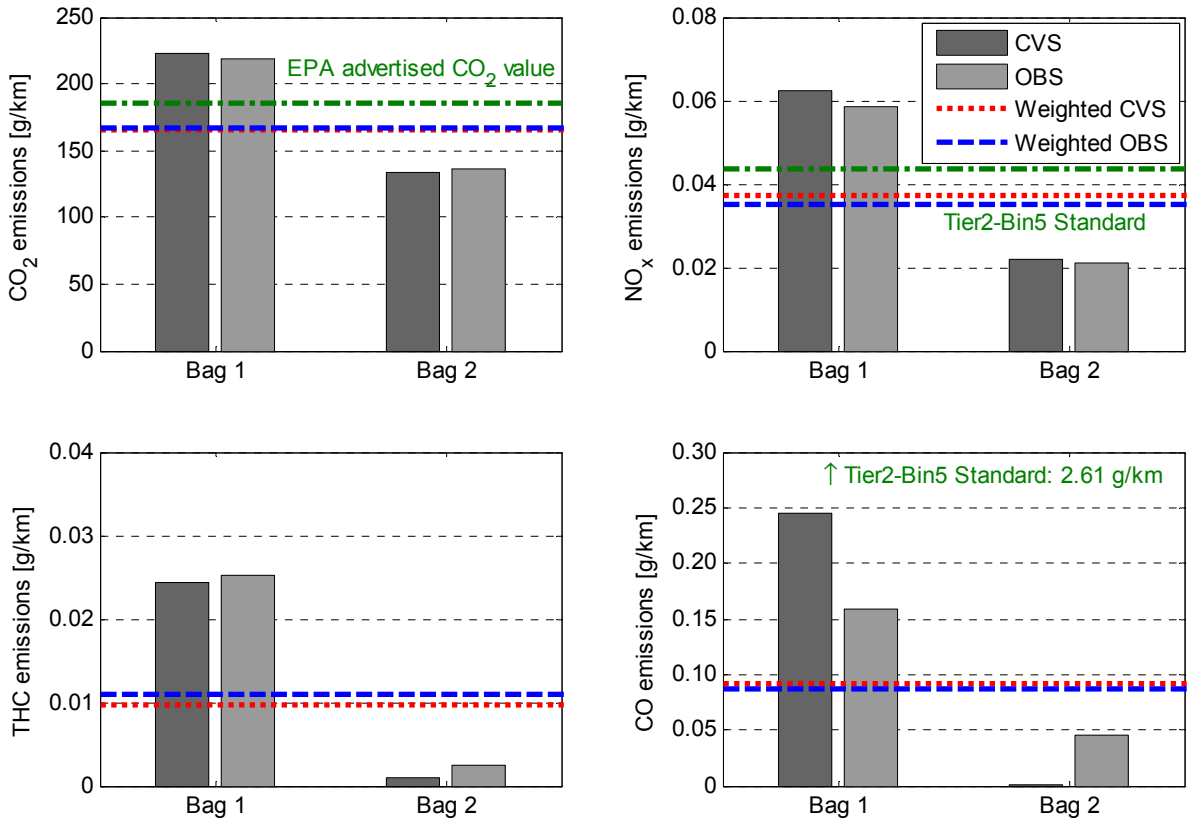

Figure 3.34: Comparison of integrated emissions rates between CVS laboratory (CARB, El Monte, CA) and Horiba OBS-2200 PEMS over the NEDC standard chassis dynamometer test cycle. Note: red dotted and blue dashed lines represent weighted emission rates from the CVS and PEMS; green dotted lines are US-EPA Tier2-Bin5 standards (@ full useful life)

Table 3.14: Emissions factors over the NEDC test cycle as measured by CVS system and PEMS; along with relative differences between measurement systems

Category	CO_2 [g/km]	NO_x [g/km]	THC [g/km]	CO [g/km]
CVS '*Bag 1*'	222.28	0.063	0.024	0.246
CVS '*Bag 2*'	133.09	0.022	0.001	0.001
PEMS '*Bag 1*'	218.42	0.059	0.025	0.159
PEMS '*Bag 2*'	136.73	0.021	0.003	0.045
Total CVS	166.10	0.037	0.010	0.092
Total PEMS	166.96	0.035	0.011	0.087
Difference	**[%]**	**[%]**	**[%]**	**[%]**
CVS vs. PEMS '*Bag 1*'	1.7	6.1	-3.5	35.2
CVS vs. PEMS '*Bag 2*'	-2.7	4.2	-151.6	-3688.8
CVS vs. PEMS '*Total*'	-0.5	5.4	-13.1	5.0

3.4 Vehicle Test Matrix

The test matrix followed during this study is given in Table 3.15. *Vehicle A* was tested over routes 1 through 4, performing two repeats of each route. *Vehicle B* was tested over routes 1 through 5, and additionally over a total distance of ~3968 km between Los Angeles, CA and Seattle, WA. Testing of *Vehicle C* involved driving over routes 1 through 3 as well as route 5. Test routes that were repeated twice were driven with alternating drivers in order to make emissions results independent from a specific driver, hence, driving style. All test routes (i.e. Route 1 through 5) for all three vehicles were performed with the engine and aftertreatment system in warmed-up condition.

Table 3.15: Vehicle test matrix

Route	Vehicle A	Vehicle B	Vehicle C
Route 1: highway	2	2	1
Route 2: urban (Los Angeles)	2	2	2
Route 3: rural - uphill/downhill	2	2	3
Route 4: urban (San Diego)	2	2	
Route 5: urban (San Francisco)		1	2
Cross-State Trip CA to WA		X	

3.5 Data Analysis and Emissions Calculations

All data analysis and data quality assurance as well as emissions calculations presented herein are following recommendations outline in CFR, Title 40, Subpart 1065 D, G, and J [29] as well as WVU CAFEE internal and publicly available standard operating procedures (SOP). Drift correction for measured exhaust concentrations, emissions mass rates and distance or work-specific emissions factors are calculated according to CFR, Title 40, Subpart G [29], while moving averaging window method (AWM) calculations follow Annex B of the European draft on PEMS measurement for light-duty vehicles as well as guidelines prescribed in the European Regulations No. 582/2011 for in-use emissions from heavy-duty vehicles [3]. The integrated emissions results and averaging window emissions factors presented in this report are based on total emissions emitted over a given test route and are not corrected for any exclusion conditions such as exhaust temperature limits, altitude, DPF regeneration events or similar. Also, all averaging windows were considered for calculation and none were invalidated based on the 20% minimum power condition as outlined in the European Regulations No. 582/2011 [3]. Additional

information about specific emissions calculating procedures applied to data presented in this report is given in Appendix 7.1.

4 RESULTS AND DISCUSSION

The results chapter will discuss the average on-road emissions for the criteria pollutants and CO_2 from all three test vehicles in Section 4.1 for the pre-defined test routes (see Section 4.1.1) as well as the cross-multi state driving route (see Section 4.1.2), followed by an in depth analysis of the NO_x emissions using the averaging window method in Section 4.2. Finally, individual results for particle number concentrations and PM mass will be presented and discussed in Section 4.3 of this chapter.

This report presents gaseous emissions mass rates in [g/s] and emissions factors in [g/km], while particle number and mass concentrations are reported in [#/cm^3] and [mg/m^3], respectively, and particle number and mass emissions factors in [#/km] and [mg/km], respectively. Along with distance-specific emissions, dimensionless deviation ratios (DR) are reported for each emissions constituent as a measure of how much the actual on-road emissions are deviating from the regulatory limit. The calculation of deviation ratios is given by Equation 11 and follows the European regulation for emissions from heavy-duty vehicles [3] and recommendations made by Weiss *et al.* [1], where m_{x_i} and $[s(t_{end}) - s(t_{start})]_i$ are the emissions mass and distance traveled for a given averaging window or test route, respectively. $EF_{x\ stand}$ was selected to be the regulatory limit for the respective pollutant as given by Table 4.1.

$$DR_i = \frac{m_{x_i}}{\frac{[s(t_{end}) - s(t_{start})]_i}{EF_{x_{standard}}}} \qquad \textbf{Eq. 11}$$

Table 4.1: Applicable regulatory emissions limits and other relevant vehicle emission reference values; US-EPA Tier2-Bin5 at full useful life (10years/ 120,000 mi) for NO_x, CO, THC (eq. to NMOG), and PM [6]; EPA advertised CO_2 values for each vehicle [2]; Euro 5b/b+ for PN [4]

NO_x [g/km]	CO [g/km]	THC [g/km]	CO_2 [g/km]	PM [g/km]	PN [#/km]
0.043	2.610	0.056	193 (*Vehicle A*) 186 (*Vehicle B*) 288 (*Vehicle C*)	0.006	6.0×10^{11}

DPF regeneration events occurring during on-road operation of the test vehicles were identified by a simultaneous increase in particle number concentrations as measured with the Pegasor particle sensor and exhaust gas temperatures measured downstream of the DPF. For test runs with DPF regeneration events exhaust gas temperatures were observed to increase to

approximately 600°C which is required to initiate the periodic soot oxidation from the surface of the filter substrate. Table 4.2 lists the individual test runs for each route and vehicle that exhibited a DPF regeneration event.

Table 4.2: Identified DPF regeneration events during vehicle operation over the five test routes

Route	Vehicle A	Vehicle B	Vehicle C
Route 1: highway	Run 2	-	-
Route 2: urban (Los Angeles)	-	Run 1	-
Route 3: rural - uphill/downhill	Run 1	Run 1 & 2	-
Route 4: urban (San Diego)	Run 2	-	(*nd*)
Route 5: urban (San Francisco)	(*nd*)	-	-

nd - vehicle not tested over this specific route

For comparison purposes with on-road emissions presented hereinafter, Figure 4.1 and Figure 4.2 show average CO_2 and NO_x emissions factors, respectively, for *Vehicles A* and *B* as measured over three standard vehicle certification test cycles while operated on CARB's El Monte chassis dynamometer. The test cycles include i) the FTP-75 (presented as individual '*Bags*' and weighted average), ii) the US06, and iii) the European NEDC (presented as individual ECU and EUDC as well as weighted average).

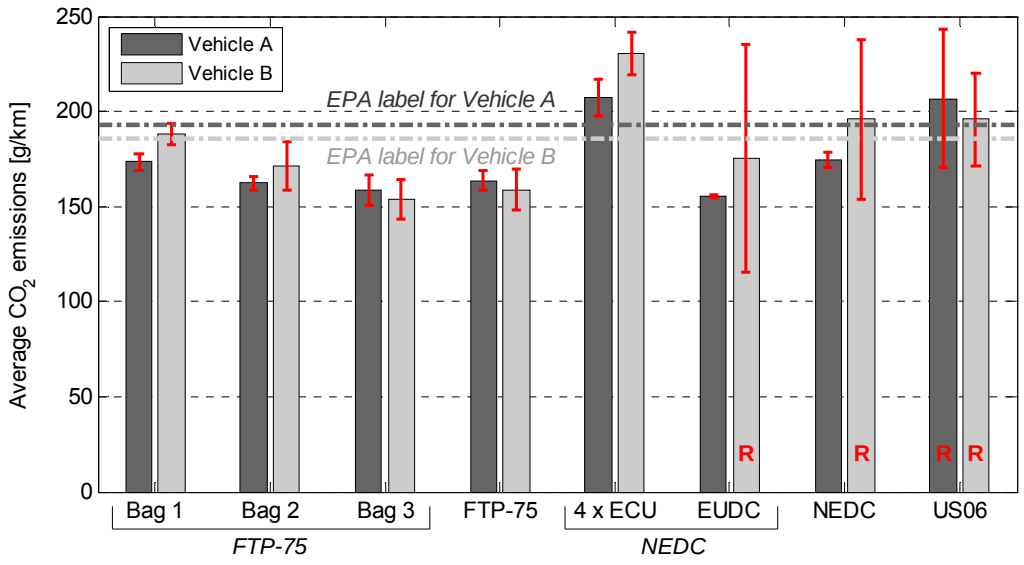

Figure 4.1: Average CO_2 emissions of test vehicles A and B over three standard chassis dynamometer test cycles (FTP-75, NEDC, and US06) measured by the vehicle certification CVS laboratory (CARB, El Monte, CA) compared to EPA advertised CO_2 values; repeat test variation intervals are presented as ±1σ; '*R*' designates cycles including a test with DPF regeneration event

Emissions factors presented in Figure 4.1 and Figure 4.2 were measured with CARB's CVS laboratory that is designed and operated for vehicle certification, and are compared against EPA advertised CO_2 values for CO_2 and US-EPA Tier2-Bin5, Euro 5b/b+, and Euro 6b/6c emissions standards for NO_x. It can be noticed that test cycles exhibiting DPF regeneration events (marked with '*R*' in Figure 4.1 and Figure 4.2) show a significant increase in both CO_2 and NO_x emissions. NO_x emissions increase by ~91% for *Vehicle A* over the US06 cycle and by ~88% to 89% for *Vehicle B* over both EUDC and US06 for test cycles with DPF regeneration events. At the same time, CO_2 emissions were observed to increase by ~25% for *Vehicle A* over the US06 cycle and by ~39% and ~18% for *Vehicle B* over the US06 and NEDC, respectively.

Most importantly, it can be concluded from Figure 4.2 that both *Vehicles A* and *B* are compliant with US-EPA Tier2-Bin5 emissions standards exhibiting NO_x emissions at levels (i.e. weighted average) 50.4% and 64.1% below the regulatory limit (at full useful life, 10years/ 120,000 mi) over the certification FTP-75 cycle for *Vehicle A* and *B*, respectively. NO_x emissions over the US06 are ~97.% below the US-EPA Tier2-Bin5 standard for the SCR equipped *Vehicle B* and approximately ~58% above the standard for *Vehicle A*, during test runs without DPF regeneration event for both vehicles.

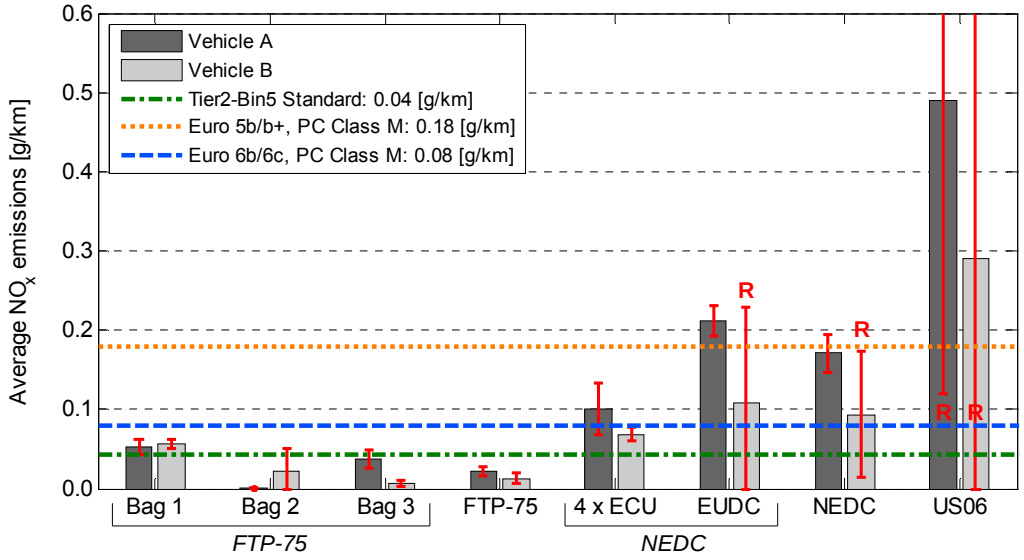

Figure 4.2: Average NO_x emissions of test vehicles A and B over three standard chassis dynamometer test cycles (FTP-75, NEDC, and US06) measured by the vehicle certification CVS laboratory (CARB, El Monte, CA) compared to US-EPA Tier2-Bin5 (at full useful life, 10years/ 120,000 mi), Euro 5b/b+, and Euro 6b/6c emissions standards; repeat test variation intervals are presented as ±1σ; '*R*' designates cycles including a test with DPF regeneration event

4.1 Average On-Road Emissions of Light-Duty Vehicles

This chapter will present average on-road emissions factors for gaseous, including NO_x, CO, THC, and CO_2 as well as particle number and mass emissions as measured over pre-defined test routes for all three vehicles (see Section 4.1.1) and over the cross-multi state driving route for *Vehicle B* (see Section 4.1.2). Results presented in this chapter are reported as total emissions over the respective routes and are not corrected for any data exclusion conditions. All three test vehicles exhibited warmed-up engine and after-treatment conditions before being operated over a test route, thus, average emissions results presented in this chapter will be compared to '*Bag-3*' emissions levels as measured over the FTP-75 chassis dynamometer test cycle.

4.1.1 Emissions over Pre-Defined Test Routes

Figure 4.3 along with Figure 4.4 show average NO_x emissions factors and their respective deviation ratio from the US-EPA Tier2-Bin5 standard, respectively, over the five pre-defined test routes for vehicles A through C. Additionally, Table 4.3 summarizes the average values and standard deviation (1σ) computed over two consecutive repetitions of a given test route.

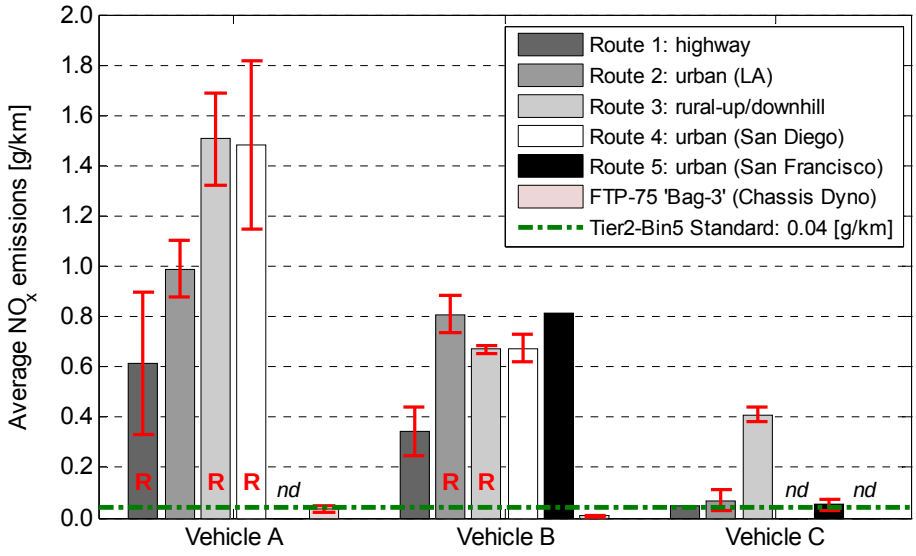

Figure 4.3: Average NO_x emissions of test vehicles over the five test routes compared to US-EPA Tier2-Bin5 emissions standard; repeat test variation intervals are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

In general, NO_x emissions factors are highest for rural-up/downhill and lowest for high-speed highway driving conditions. All three test vehicles show distinct NO_x emissions patterns, with the LNT equipped *Vehicle A* exhibiting NO_x values 15 to 35, and the urea-SCR equipped

Vehicle B NO_x values 5 to 20 times the Tier2-Bin5 standard depending on test route. *Vehicle C* was observed to emit NO_x emissions around or below the Tier2-Bin5 standard except during the rural-up/downhill route (Route 3), where emissions averaged 0.41 g/km or ~10 times the Tier2-Bin5 standard.

Vehicle A and *B* are outfitted with the same engine model. However, they also feature different after-treatment systems allowing to conclude, based on the available data, that the LNT shows deficiencies over the urea-SCR system in efficiently reducing NO_x in-use, especially during highly transient, low-speed urban driving as well as high-load uphill driving. On the other hand, *Vehicles B* and *C* are both equipped with a similar after-treatment technology, namely urea-SCR, but show significantly different NO_x emissions factors for the same test routes. This could be caused by i) different after-treatment control strategies, ii) a difference in catalytic substrate between the two vehicles (different SCR type), iii) under-sized SCR catalyst for *Vehicle B*, or iv) different diesel exhaust fluid (DEF) injection strategy in case of *Vehicle B* to reduce DEF consumption, hence, increasing DEF re-filling intervals.

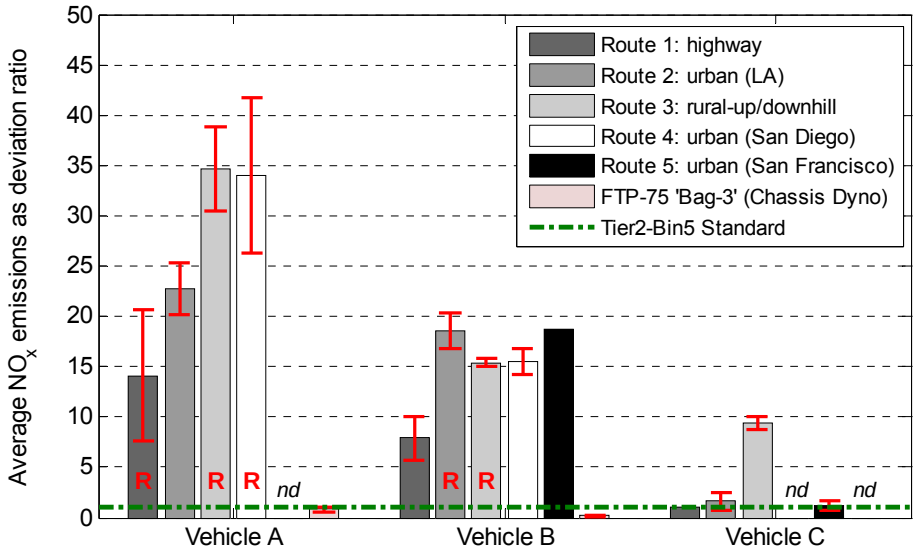

Figure 4.4: Average NO_x emissions of test vehicles over the five test routes expressed as deviation ratio; repeat test variation intervals are presented as ±1σ, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

It has to be noted that all three vehicles were checked for possible engine or after-treatment malfunction codes using an ECU scanning tool prior to selecting each vehicle for this on-road measurement campaign, with none of them showing any fault code or other anomalies. The after-

treatment system was assumed to be '*de-greened*' as all three vehicles had accumulated more than 3,000 to 4,000 miles, and no reduction in catalytic activity due to aging was expected as the total mileage was relatively low (< 15,000 miles) for all test vehicles.

Interestingly, NO_x emissions for *Vehicles A* and *B* were below the US-EPA Tier2-Bin5 standard for the weighted average over the FTP-75 during chassis dynamometer testing at CARB's El Monte facility. NO_x emissions were 0.022g/km ±0.006g/km (±1σ, 2 repeats) and 0.016g/km ±0.002g/km (±1σ, 3 repeats) for *Vehicle A* and *B*, respectively, during chassis dynamometer testing (i.e. weighted FTP-75 results). This is further confirmation that *Vehicles A* and *B* were operating as intended and did not have any malfunctions.

The LNT equipped *Vehicle A* shows increased variability between two consecutive test runs, especially for Routes 1, 3, and 4. This behavior coincides with DPF regeneration events (see Figure 4.45 through Figure 4.52) that are occurring during one of the repeats for the above listed routes. NO_x emissions factors increase by 97% (0.41 g/km to 0.81g/km), 19% (1.38g/km to 1.63g/km), and 38% (1.24g/km to 1.72g/km) for Routes 1, 3, and 4, respectively, between test runs with and without DPF regeneration events. It has to be mentioned that the same test run exhibiting the DPF regeneration event for Route 1 also experienced increased stop-and-go traffic conditions during evening rush-hours, thereby confounding the factors leading to the 97% increase in NO_x compared to the test run without DPF regeneration event. Referring to reference [31] presenting a detailed discussion of DPF regeneration as well as LNT D_eNO_x and D_eSO_x regeneration strategies and control mechanisms, it can be noted (from Figure 12 in [31]) that during an ongoing DPF regeneration event no cyclic D_eNO_x regeneration of the LNT occurs. As described by [31], DPF regeneration happens under oxygen surplus conditions ($\lambda > 1$) and is on the order of up to 15min in duration. Therefore, it is speculated that due to a lack of frequent enrichment of the exhaust gas ($\lambda < 1$) while DPF regeneration is ongoing, necessary LNT regeneration is inhibited, and thus, the NO_x storage catalyst becomes saturated with NO_x emissions starting to break through. Indeed, increased NO_x mass rates were observed from continuous data coinciding with DPF regeneration events during Routes 1, 3, and 4.

Furthermore, when comparing THC emissions factors shown in Figure 4.7 with NO_x emissions factors in Figure 4.3 for *Vehicle A*, it can be noticed that highest THC emissions are exhibited during test routes with lowest NO_x emissions, specifically, for Routes 1 and 2.

Increased THC values could point towards an increased frequency of rich mode operation, thus, leading to an improved NO_x reduction over the LNT catalyst. However, no conclusive explanation can be presented herein for why this behavior is observed, especially considering the vastly different driving conditions experienced between Routes 1 and 2, with Route 1 being representative of highway and Route 2 of urban driving. Additionally, Route 1 included a test run with a DPF regeneration event which normally leads to increased THC emissions, however, appears to have been masked by the order of magnitude increase in THC emissions (see Figure 4.7) caused by this unexplained event.

Table 4.3: Average NO_x emissions in [g/km] of test vehicles over the five test routes; σ is standard deviation over two consecutive test runs, Route 1 for Vehicle A includes rush-hour/non rush-hour

Route		Vehicle A	Vehicle B	Vehicle C
Route 1: highway	**μ**	**0.614**	**0.344**	**0.048**
	σ	*0.283*	*0.096*	-
Route 2: urban (LA)	**μ**	**0.989**	**0.809**	**0.070**
	σ	*0.114*	*0.075*	*0.041*
Route 3: rural-up/downhill	**μ**	**1.505**	**0.671**	**0.409**
	σ	*0.181*	*0.016*	*0.029*
Route 4: urban (San Diego)	**μ**	**1.480**	**0.675**	-
	σ	*0.335*	*0.057*	-
Route 5: urban (San Francisco)	**μ**	-	**0.815**	**0.053**
	σ	-	-	*0.021*

Figure 4.5 along with Figure 4.6 show average CO emissions factors and their respective deviation ratio from the US-EPA Tier2-Bin5 standard, respectively, over the five pre-defined test routes for *Vehicles A* through *C*. Additionally, Table 4.4 summarizes the average values and standard deviations (1σ) computed over two consecutive repetitions of a given test route.

In general, CO emissions factors are close to two orders of magnitude lower than the applicable US-EPA Tier2-Bin5 standard for all three vehicles and no particular pattern in CO emissions rates can be found as a function of driving and/or route conditions. For *Vehicles A* and *B*, highest CO emissions factors were exhibited during urban driving in Los Angeles (i.e. Route 2), whereas *Vehicle C* showed highest CO for rural-up/downhill driving (i.e. Route 3), which however, is accompanied by a significant variation (of same order than mean value) between repeated test runs. The increased variation in CO emissions factor for *Vehicle B* over Route 2

coincides with a regeneration event during one of the test runs leading to an order of magnitude increase in CO emissions from 0.02g/km to 0.26g/km.

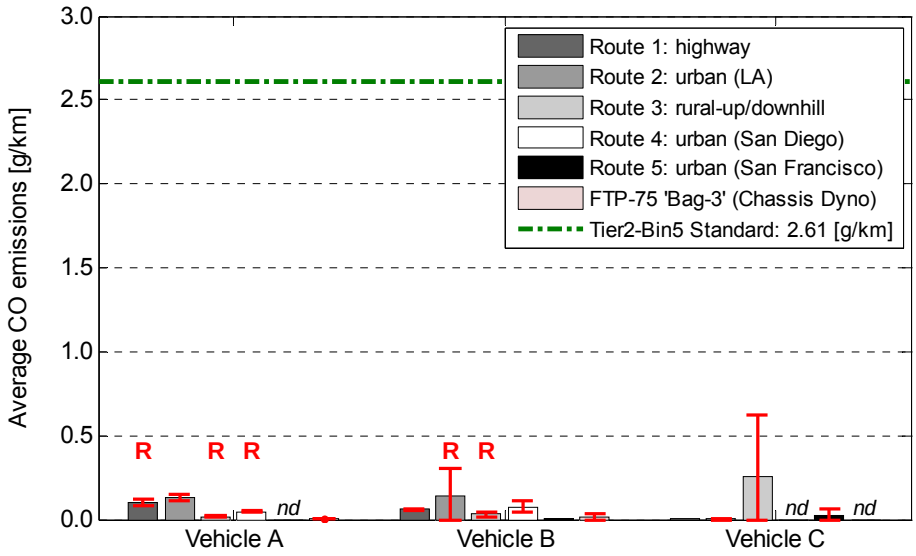

Figure 4.5: Average CO emissions of test vehicles over the five test routes compared to US-EPA Tier2-Bin5 emissions standard; repeat test variation intervals are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

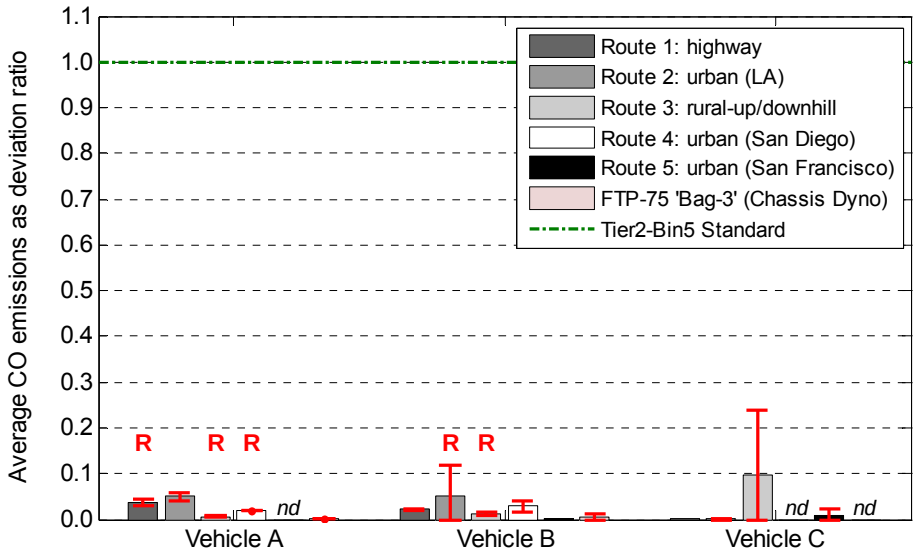

Figure 4.6: Average CO emissions of test vehicles over the five test routes expressed as deviation ratio; repeat test variation intervals are presented as ±1σ, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

Table 4.4: Average CO emissions in [g/km] of test vehicles over the five test routes; σ is standard deviation over two consecutive test runs, Route 1 for Vehicle A includes rush-hour/non rush-hour

Route		Vehicle A	Vehicle B	Vehicle C
Route 1: highway	**μ**	**0.100**	**0.059**	**0.000**
	σ	0.019	0.004	-
Route 2: urban (LA)	**μ**	**0.130**	**0.138**	**0.004**
	σ	0.021	0.169	0.005
Route 3: rural-up/downhill	**μ**	**0.018**	**0.029**	**0.256**
	σ	0.005	0.010	0.369
Route 4: urban (San Diego)	**μ**	**0.048**	**0.076**	**-**
	σ	0.001	0.033	-
Route 5: urban (San Francisco)	**μ**	**-**	**0.007**	**0.027**
	σ	-	-	0.038

Figure 4.7 along with Figure 4.8 show average THC emissions factors and their respective deviation ratio from the US-EPA Tier2-Bin5 standard, respectively, over the five pre-defined test routes for *Vehicles A* through *C*. Additionally, Table 4.5 summarizes the average values and standard deviations (1σ) computed over two consecutive repetitions of a given test route.

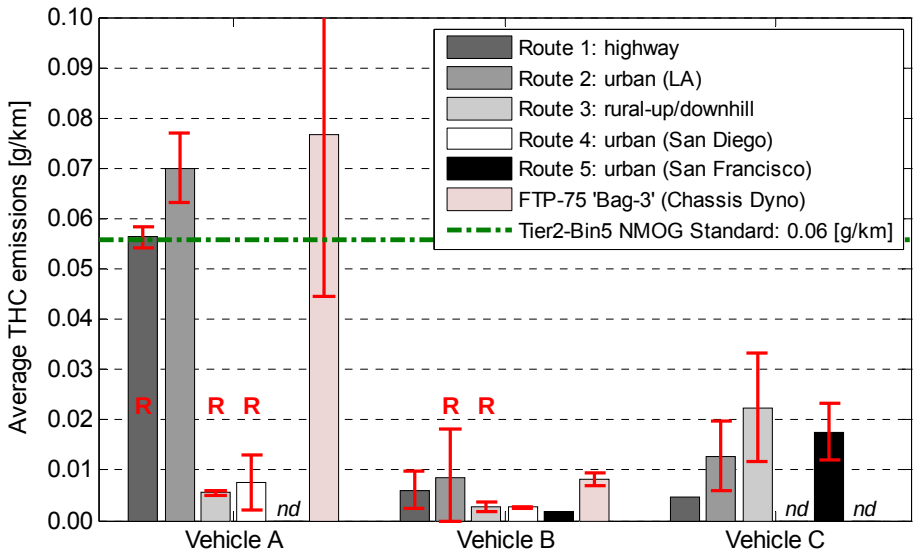

Figure 4.7: Average THC emissions of test vehicles over the five test routes compared to US-EPA Tier2-Bin5 emissions standard; repeat test variation intervals are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving, '*R*' includes DPF regeneration events

It has to be noted that chassis dynamometer testing of *Vehicle A* and *B* indicated that 95 - 98% of the total hydrocarbons emitted were measured as methane (CH_4) which is somewhat surprising for diesel fueled vehicles, however, could be attributed to reactions over the catalytic

surface of the oxidation catalyst or the LNT in case of *Vehicle A*. The NMOG Tier2-Bin5 standard was chosen for comparison as it is currently the only applicable standard for hydrocarbons for Tier 2 light-duty vehicles in the US and since NMOG primarily comprises NMHC for diesel and gasoline fueled vehicles. However, in light of the large CH_4/THC ratio observed during chassis dynamometer testing, conclusions between the measured THC emissions during on-road operation and the NMOG standard have to be drawn with caution.

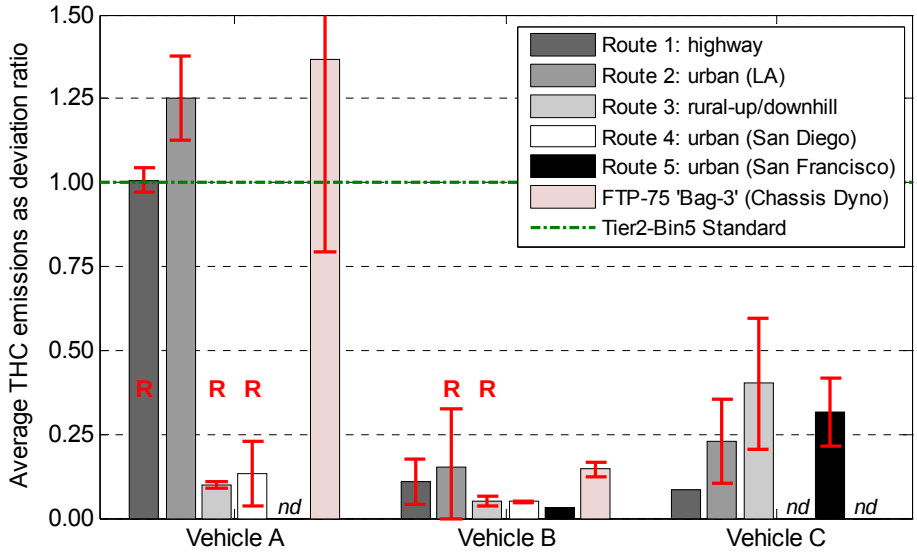

Figure 4.8: Average THC emissions of test vehicles over the five test routes expressed as deviation ratio; repeat test variation intervals are presented as ±1σ, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

Table 4.5: Average THC emissions in [g/km] of test vehicles over the five test routes; σ is standard deviation over two consecutive test runs, Route 1 for Vehicle A includes rush-hour/non rush-hour

Route		Vehicle A	Vehicle B	Vehicle C
Route 1: highway	**μ**	**0.056**	**0.006**	**0.005**
	σ	*0.002*	*0.004*	-
Route 2: urban (LA)	**μ**	**0.070**	**0.009**	**0.013**
	σ	*0.007*	*0.010*	*0.007*
Route 3: rural-up/downhill	**μ**	**0.005**	**0.003**	**0.022**
	σ	*0.000*	*0.001*	*0.011*
Route 4: urban (San Diego)	**μ**	**0.007**	**0.003**	-
	σ	*0.005*	*0.000*	-
Route 5: urban (San Francisco)	**μ**	-	**0.002**	**0.018**
	σ	-	-	*0.006*

In general, THC emissions factors are well below the US-EPA Tier2-Bin5 NMOG standard for *Vehicles B* and *C* as well as over Routes 3 and 4 for *Vehicle A*. Only for *Vehicle A* and Routes 1 and 2, THC emissions were observed at (i.e. Route 1, highway) or exceeding (i.e. Route 2, urban Los Angeles, by 1.25) the NMOG standard. However, this has already been discussed in more detail along with the average NO_x results above. *Vehicle A* and *B* showed a tendency for increased THC emissions during test runs with DPF regeneration events compared to tests without such events, however, the same has not been observed for *Vehicle C*.

Figure 4.9 along with Figure 4.10 show average CO_2 emissions factors and their respective deviation ratio from EPA advertised CO_2 values for each vehicle, respectively, over the five pre-defined test routes for *Vehicles A* through *C*. Additionally, Table 4.6 summarizes the average values and standard deviations (1σ) computed over two consecutive repetitions of a given test route. In general, and as expected, highway driving showed lowest CO_2, whereas urban/suburban driving conditions lead to highest CO_2 emissions factors.

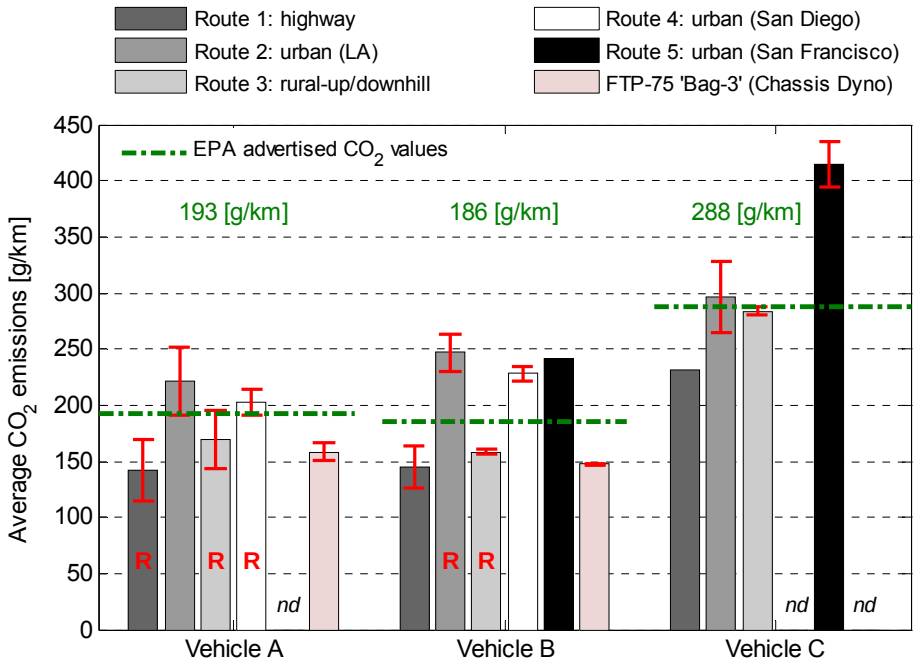

Figure 4.9: Average CO_2 emissions of test vehicles over the five test routes compared to EPA advertised CO_2 values for each vehicle; repeat test variation intervals are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

Since both *Vehicle A* and *B* were equipped with the same engine their CO_2 consumption pattern appear similar in Figure 4.9. Routes 1 and 2 are characterized by higher average vehicle

speeds and reduced amount of stop/go conditions (especially for highway Route 1) which translates into lower vehicle acceleration events and thus, lower CO_2 emissions ultimately leading to improved fuel economy over these routes as shown in Figure 4.15.

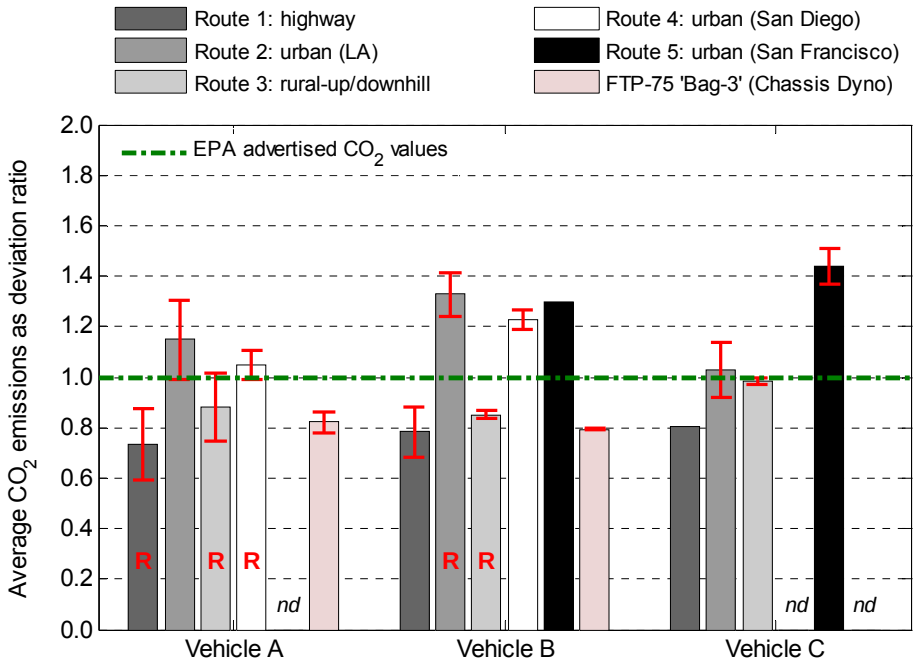

Figure 4.10: Average CO_2 emissions of test vehicles over the five test routes expressed as deviation ratio from the EPA advertised CO_2 values; repeat test variation intervals presented as ±1σ, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

Table 4.6: Average CO_2 emissions in [g/km] of test vehicles over the five test routes; σ is standard deviation over two consecutive test runs, Route 1 for Vehicle A includes rush-hour/non rush-hour

Route		Vehicle A	Vehicle B	Vehicle C
Route 1: highway	**μ**	**141.9**	**145.6**	**231.8**
	σ	*27.0*	*18.8*	-
Route 2: urban (LA)	**μ**	**221.7**	**246.9**	**296.3**
	σ	*30.1*	*16.2*	*32.1*
Route 3: rural-up/downhill	**μ**	**169.8**	**158.6**	**283.6**
	σ	*25.6*	*2.5*	*3.6*
Route 4: urban (San Diego)	**μ**	**202.3**	**228.2**	-
	σ	*11.5*	*6.8*	-
Route 5: urban (San Francisco)	**μ**	-	**241.8**	**414.4**
	σ	-	-	*20.2*

On the other hand, urban driving conditions lead to increased fuel consumption, hence, more CO_2 emissions as seen for urban routes 2, 4, and 5. Differences between CO_2 emissions factors

for *Vehicle A* and *B* could be attributed to varying traffic patterns over a given route, influences of ambient conditions as both vehicles were tested on a different day (however, within the span of two weeks during March), and most importantly variations in driving style as the experiments have been conducted with three different drivers.

Highway driving (i.e. Route 1) for *Vehicle A* includes non-rush-hour as well as evening rush-hour conditions causing the variability in CO_2 emissions factor seen in Figure 4.9. During rush-hour conditions, CO_2 emissions increased by ~31% from 123g/km to 161g/km. Furthermore, based on data for *Vehicles A* and *B*, it is observed that CO_2 emissions are generally increased during test runs with DPF regeneration events which could be explained by the oxidation of carbon from the DPF substrate as well additional fuel injected to augment exhaust gas and after-treatment temperatures in order to initiate and sustain DPF regeneration.

Overall, CO_2 emissions from *Vehicles A* and *B* compare well with CO_2 emissions observed during chassis dynamometer testing over the NEDC which consists of a dedicated urban/suburban (i.e. '*Bag 1*') and highway (i.e. '*Bag 2*') driving portion. The urban/suburban driving portion of the NEDC exhibited 212.3g/km ±11.2g/km (±1σ, 3 tests of which are 2 with *Vehicle A* and 1 with *Vehicle B*), whereas the highway driving resulted in 148.0g/km ±12.9g/km (±1σ, same sample set) of CO_2 on the chassis dynamometer.

Finally, increased variability was observed over the two urban routes in Los Angeles and San Francisco (i.e. Routes 2 and 5) for *Vehicle C*, which can be attributed to differences in driving style between the two drivers, as well as changing traffic patterns between repeated test runs. Furthermore, the topographical differences between Routes 2 and 5 (flat vs. hilly) seem to influence the CO_2 emissions factor to a higher degree for *Vehicle C* as compared to *Vehicle B*. This could be caused by the heavier overall weight of *Vehicle C*, which was ~54% heavier than *Vehicle B*, as well as the larger engine (~52% larger displacement for *Vehicle C*), leading to more aggressive accelerations, especially under the hilly and often larger road grade conditions as experienced over Route 5 (i.e. San Francisco).

Figure 4.11 along with Figure 4.12 show average particulate mass (PM) emissions factors and their respective deviation ratio from the US-EPA Tier2-Bin5 standard, respectively, over the five pre-defined test routes for *Vehicles A* and *B*. Additionally, Table 4.7 summarizes the average values and standard deviations (1σ) computed over two consecutive repetitions of a given test

route. It has to be noted that particulate masses reported in Figure 4.11 and Figure 4.12 are not directly measured masses via traditional filter samples, but rather inferred from a charge based real-time particle sensor as described in more detail in Section 3.3.2.2.

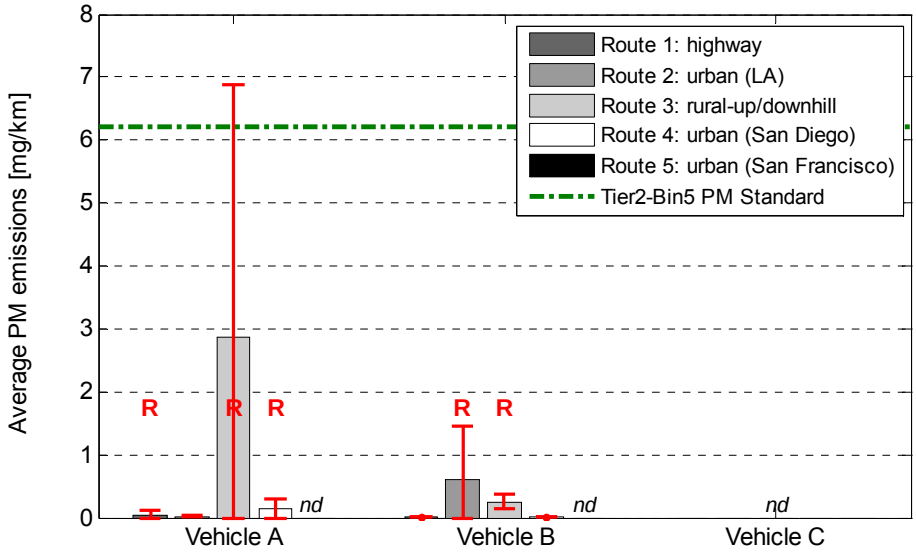

Figure 4.11: Average PM emissions of test vehicles over the five test routes compared to US-EPA Tier2-Bin5 emissions standard; repeat test variation intervals are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving, no PM data collected for Vehicle C, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

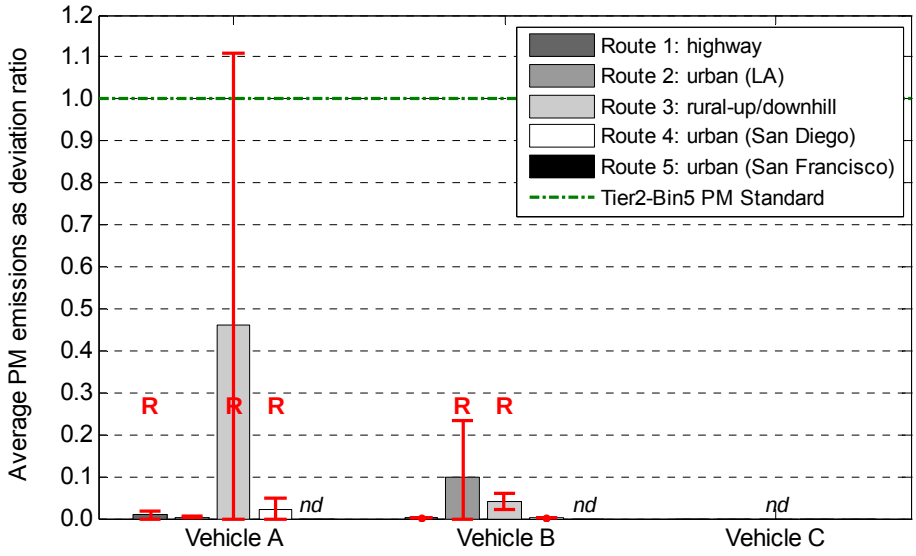

Figure 4.12: Average PM emissions of test vehicles over the five test routes expressed as deviation ratio; uncertainty repeat test variation are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving, no PM data collected for Vehicle C, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

In general, particulate mass emissions were observed to be well below the applicable US-EPA Tier2-Bin5 standard over all test routes for *Vehicles A* and *B* with the exception of Route 3 for *Vehicle A* which exhibited a DPF regeneration event during one of the test runs. Average PM emissions increased by two orders of magnitude from 0.01mg/km to 5.7mg/km between the test run with and without DPF regeneration for Route 3.

Table 4.7: Average PM emissions in [mg/km] of test vehicles over the five test routes; σ is standard deviation over two consecutive test runs, Route 1 for Vehicle A includes rush-hour/non rush-hour

Route		Vehicle A	Vehicle B	Vehicle C
Route 1: highway	**μ**	**0.051**	**0.007**	-
	σ	*0.058*	*0.001*	-
Route 2: urban (LA)	**μ**	**0.015**	**0.613**	-
	σ	*0.012*	*0.839*	-
Route 3: rural-up/downhill	**μ**	**2.858**	**0.250**	-
	σ	*4.023*	*0.117*	-
Route 4: urban (San Diego)	**μ**	**0.137**	**0.005**	-
	σ	*0.160*	*0.001*	-
Route 5: urban (San Francisco)	**μ**	-	-	-
	σ	-	-	-

Figure 4.13 along with Figure 4.14 show average particulate number (PN) emissions factors and their respective deviation ratio from the European Euro 5b/b+ standard (i.e. $6x10^{11}$ #/km, same as Euro 6b effective Sept. 2014 for LDVs (Class M)), respectively, over the five pre-defined test routes for *Vehicles A* and *B*. Additionally, Table 4.8 summarizes the average along with minimum and maximum values computed over two consecutive repetitions of a given test route. Similarly to PM emissions, particulate numbers presented herein are inferred from a charge based real-time particle sensor as described in more detail in Chapter 3.3.2.2.

The European Euro 5b/b+ standard (same level as Euro 6b, effective Sept. 2014 for LDVs) has been chosen for comparison as it is currently the only particulate number standard in legislation, and applicable to new vehicles sold within the confines of the European Union [4].

Increased variation in average particulate number emissions was observed for test routes that included DPF regeneration events during one of the route repetitions. DPF regeneration events lead to a one or two order of magnitude increase in PN emissions factors when compared to test runs without DPF regeneration as seen for Routes 1, 3, and 4 as well as Routes 2, and 3 for

Vehicle A and *B*, respectively. Route 3 for *Vehicle B* exhibited DPF regeneration events during both repeats (see Figure 4.50) thus, leading to the observed low variability between tests.

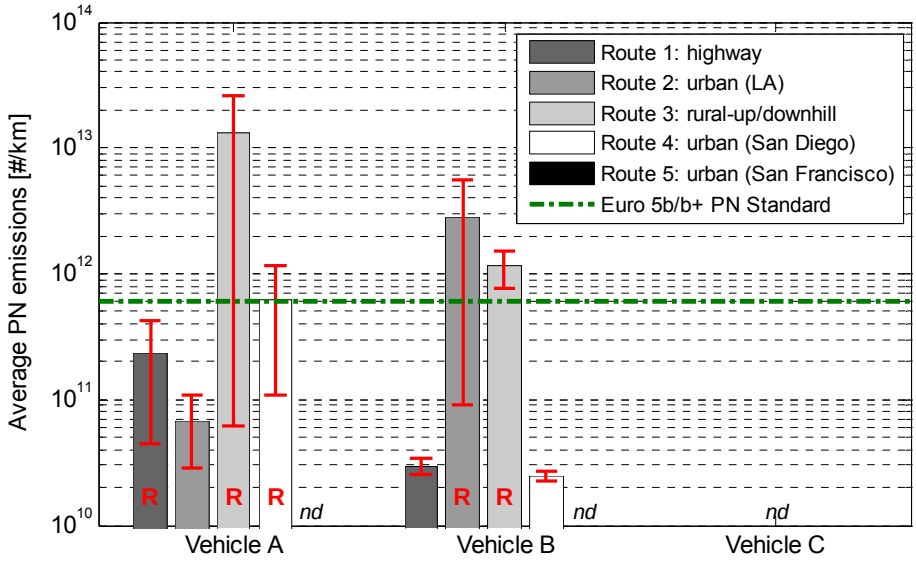

Figure 4.13: Average PN emissions of test vehicles over the five test routes compared to Euro 5b/b+ emissions standard; repeat test variation intervals are presented as minimum/maximum test value; Route 1, Vehicle A includes rush-hour/non rush-hour driving, no PM data collected for Vehicle C, '*R*' designates routes including a test with DPF regeneration event, '*nd*' - no data available

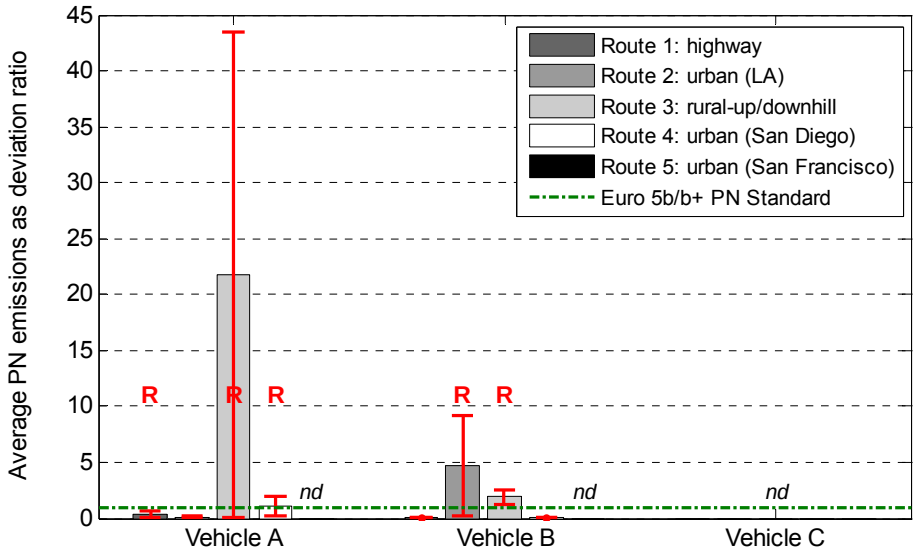

Figure 4.14: Average PN emissions of test vehicles over the five test routes expressed as deviation ratio; repeat test variation intervals are presented as minimum/maximum test value, no PM data collected for Vehicle C, '*R*' designates routes with DPF regeneration event, '*nd*' - no data available

In general, average PN emissions factors remain an order of magnitude below the applicable Euro 5b/b+ standard for all routes/tests that did not include DPF regeneration events. However,

for routes/tests with DPF regeneration particle number emissions increase rapidly and exceed the Euro 5b/b+ standard in most cases (i.e. Route 3, 4 for *Vehicle A*; Route 2, 3 for *Vehicle B*).

Table 4.8: Average, minimum, and maximum PN emissions in [#/km] of test vehicles over the five test routes; Route 1 for Vehicle A includes rush-hour/non rush-hour

Route		Vehicle A	Vehicle B	Vehicle C
Route 1: highway	**μ**	**2.32E+11**	**2.98E+10**	-
	Min	*4.43E+10*	*2.54E+10*	-
	Max	*4.20E+11*	*3.41E+10*	-
Route 2: urban (LA)	**μ**	**6.85E+10**	**2.80E+12**	-
	Min	*2.88E+10*	*9.05E+10*	-
	Max	*1.08E+11*	*5.51E+12*	-
Route 3: rural-up/downhill	**μ**	**1.31E+13**	**1.14E+12**	-
	Min	*6.24E+10*	*7.65E+11*	-
	Max	*2.61E+13*	*1.52E+12*	-
Route 4: urban (San Diego)	**μ**	**6.28E+11**	**2.48E+10**	-
	Min	*1.09E+11*	*2.25E+10*	-
	Max	*1.15E+12*	*2.70E+10*	-
Route 5: urban (San Francisco)	**μ**	-	-	-
	Min	-	-	-
	Max	-	-	-

Figure 4.15 a) and b) present average fuel economy values in units [km/L] and [mpg], respectively, over the five pre-defined test routes for vehicles A through C. Additionally, Table 4.9 summarizes the average values and standard deviations (1σ) computed over two consecutive repetitions of a given test route.

As fuel economy values are derived via carbon balance with CO_2 emissions being the dominant fraction, they essential become a mirror of CO_2 emissions fractions. Therefore, any observations discussed earlier for CO_2 emissions are valid as well for fuel economy results, hence, in general, and as expected, highway driving showed increased fuel economy over urban/suburban driving conditions.

Average fuel economy for highway driving with *Vehicles A* and *B* was 45.3 mpg ±8.6mpg (±σ1) and 43.7mpg ±5.7mpg (±σ1), respectively, and 27.3 mpg (no repetition) for *Vehicle C* which is ~39% lower compared to *Vehicles A* and *B*. On the other hand, urban/suburban driving results in average fuel economies of 30.0mpg ±2.9mpg (±σ1) and 26.6 mpg ±1.4mpg (±σ1) for

Vehicles A and *B*, respectively, and 18.5mpg ±4.0mpg (±σ1) for *Vehicle C* which is 35% lower compared to *Vehicles A* and *B*. Overall, urban/suburban driving leads to a 32-39% reduction in fuel economy over highway driving.

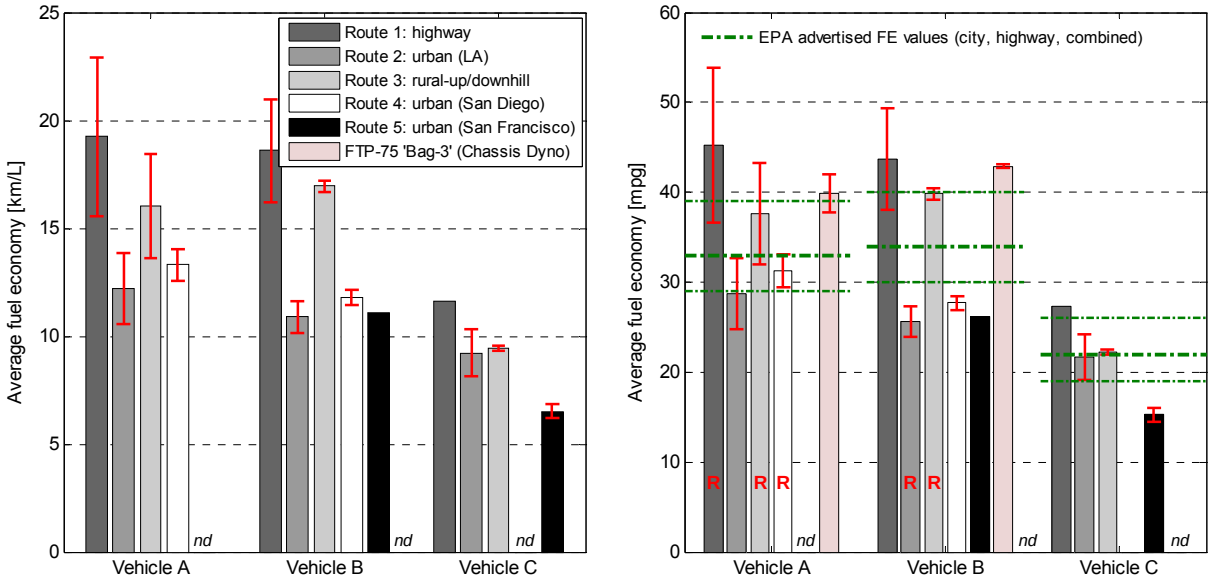

Figure 4.15: Average fuel economy of test vehicles over the five test routes in km/L and mpg; repeat test variation intervals are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving

Table 4.9: Average fuel economy in [mpg] of test vehicles over the five test routes; σ is standard deviation over two consecutive test runs, Route 1 for Vehicle A includes rush-hour/non rush-hour

Route		Vehicle A	Vehicle B	Vehicle C
Route 1: highway	**μ**	**45.3**	**43.7**	**27.3**
	σ	*8.6*	*5.7*	-
Route 2: urban (LA)	**μ**	**28.7**	**25.6**	**21.7**
	σ	*3.9*	*1.7*	*2.6*
Route 3: rural-up/downhill	**μ**	**37.6**	**39.9**	**22.3**
	σ	*5.7*	*0.6*	*0.3*
Route 4: urban (San Diego)	**μ**	**31.3**	**27.7**	-
	σ	*1.8*	*0.8*	-
Route 5: urban (San Francisco)	**μ**	-	**26.2**	**15.3**
	σ	-	-	*0.8*

Figure 4.16 depicts average engine work values and standard deviations (1σ) in units [kWh] over the five pre-defined test routes for vehicles A through C. The average engine work presented herein is inferred from estimated real-time engine power calculated according to

Equation 12, and based on an assumed calorific value for the test fuel and combustion efficiency as well as the real-time fuel consumption derived from a carbon balance using the measured exhaust constituents as input parameter. The calorific value for the diesel fuel was selected as 43,500kJ/kg and the combustion efficiency as 0.35. It can be noticed form Figure 4.16 that the engine of *Vehicle C* produces more work as compared to *Vehicles A* and *B* which can be explained by the overall heavier vehicle and larger engine for *Vehicle C*.

$$\dot{P}(t) = Calori_{fuel} \cdot \dot{Fuel}_{CB}(t) \cdot \eta_{comb} \cdot \frac{1}{1000} \qquad \textbf{Eq. 12}$$

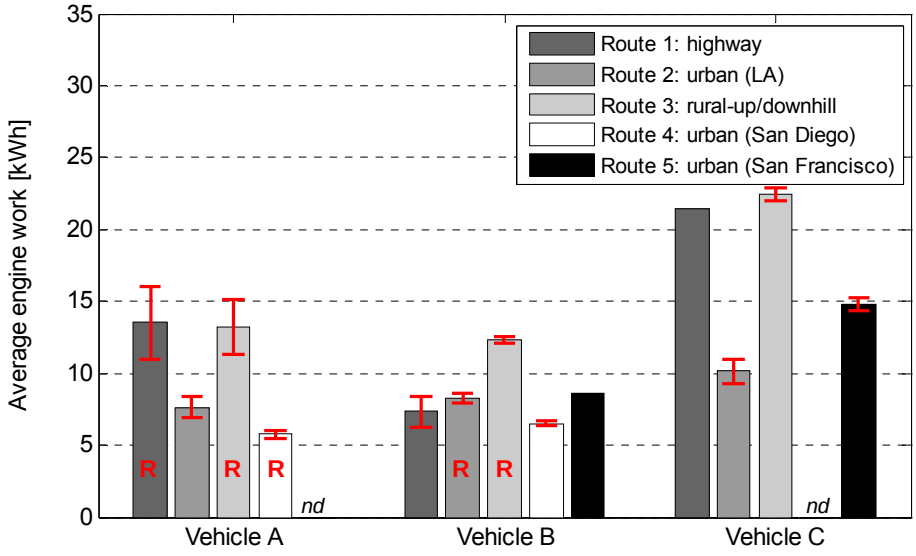

Figure 4.16: Average engine work of test vehicles over the five test routes, calculated from carbon balance and combustion efficiency; repeat test variation intervals are presented as ±1σ; Route 1 for Vehicle A includes rush-hour/non rush-hour driving

4.1.2 Emissions over Cross-Multi-State Driving Route

This section will report averaged emissions factors for gaseous and particulate matter emissions from *Vehicle B* over the cross-multi state driving route. Each figure in this section will present averaged emissions factors for route portions between Los Angeles and Seattle that comprise predominantly highway driving with the addition of two routes representative of urban/suburban driving in Seattle, WA and Sacramento, CA. Additionally, average values and standard deviations (1σ) computed separately for highway and urban/suburban portions of the

route as well as the grand average over the entire cross-multi state driving route are included to the right of each individual graph.

Figure 4.17 along with Figure 4.18 show average NO_x emissions factors and their respective deviation ratio from the US-EPA Tier2-Bin5 standard, respectively. Over the entire route, NO_x emissions factors were on average 0.26g/km ±0.21g/km (±1σ) or approx. 6 times exceeding the US-EPA Tier2-Bin5 standard. NO_x emissions factors for urban/suburban driving portions were observed at twice the level of highway-only route portions with 0.52g/km ±0.27g/km versus 0.24g/km ±0.19g/km NO_x, respectively. For highway driving average, NO_x emissions factors were close to NO_x emissions observed during Route 1 (i.e. highway) driving (i.e. 0.344g/km ±0.096g/km), considering the large variation in NO_x emissions over the highway portions of the cross-multi state route. Urban driving in Seattle (i.e. Route 6) exhibits NO_x emissions factors at a similar level as seen for the pre-defined urban Routes 2, 4 and 5 shown in Figure 4.3. On the other hand, urban/highway driving in Sacramento (i.e. Route 7) shows greatly reduced NO_x emissions compared to other urban routes, which is primarily due to the large share of highway driving contained in this route segment (> 60% by distance), thus, causing the large variability seen for total urban/suburban average NO_x emissions factor.

However, more interesting is the large variation in NO_x emissions factors over highway driving and in particular portions of the route where NO_x emissions were observed below the US-EPA Tier2-Bin5 standard. In order to provide a possible explanation, Figure 4.17 needs to be interpreted in light of the vehicle speed and altitude graphs for the cross-multi state driving route shown in Figure 3.18 a) and b), respectively. Increased NO_x emissions during route portions 1 and 2 as well as 8 through 11 (see Figure 4.17) coincide with up/downhill driving conditions while crossing mountain ranges near Los Angeles and in Northern California/Southern Oregon, respectively, with elevation changes of up to 1200 meters. On the other hand, NO_x emissions at or below the US-EPA Tier2-Bin5 standard (see route portions 3 through 6 in Figure 4.17) were observed while traveling northbound on Interstate 5 through the San Joaquin Valley characterized by low or negligible changes in altitude (i.e. near zero road grade), and with the vehicle operated in cruise-control mode at approximately 120km/h.

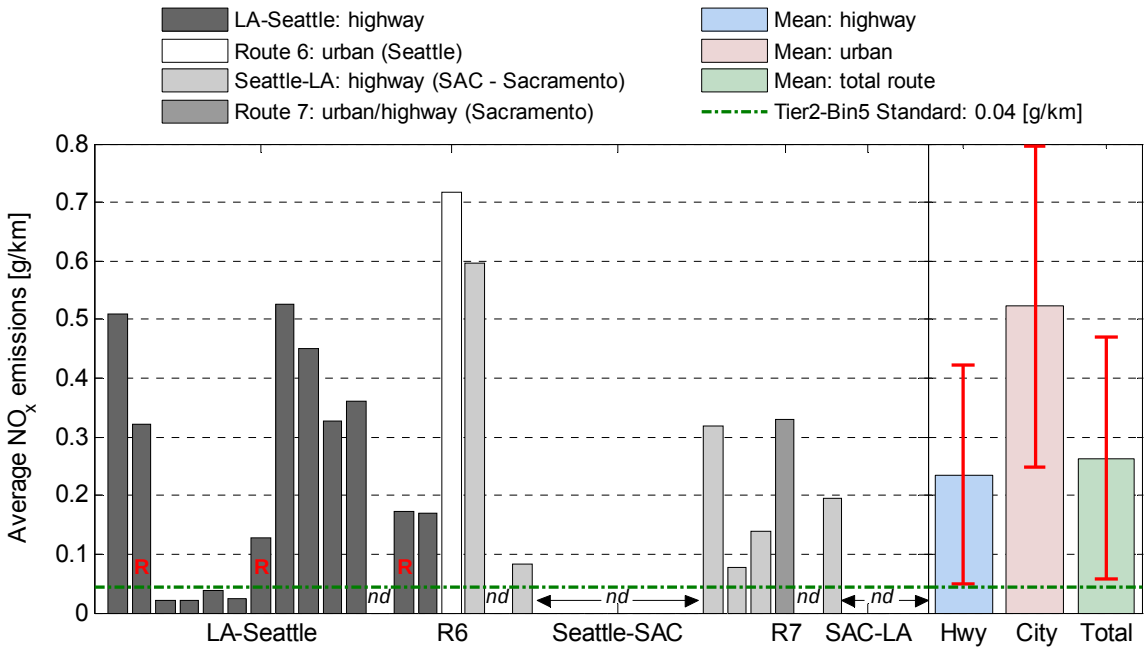

Figure 4.17: Average NO_x emissions of test vehicle over cross-multi-state driving route portions compared to US-EPA Tier2-Bin5 emissions standard; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

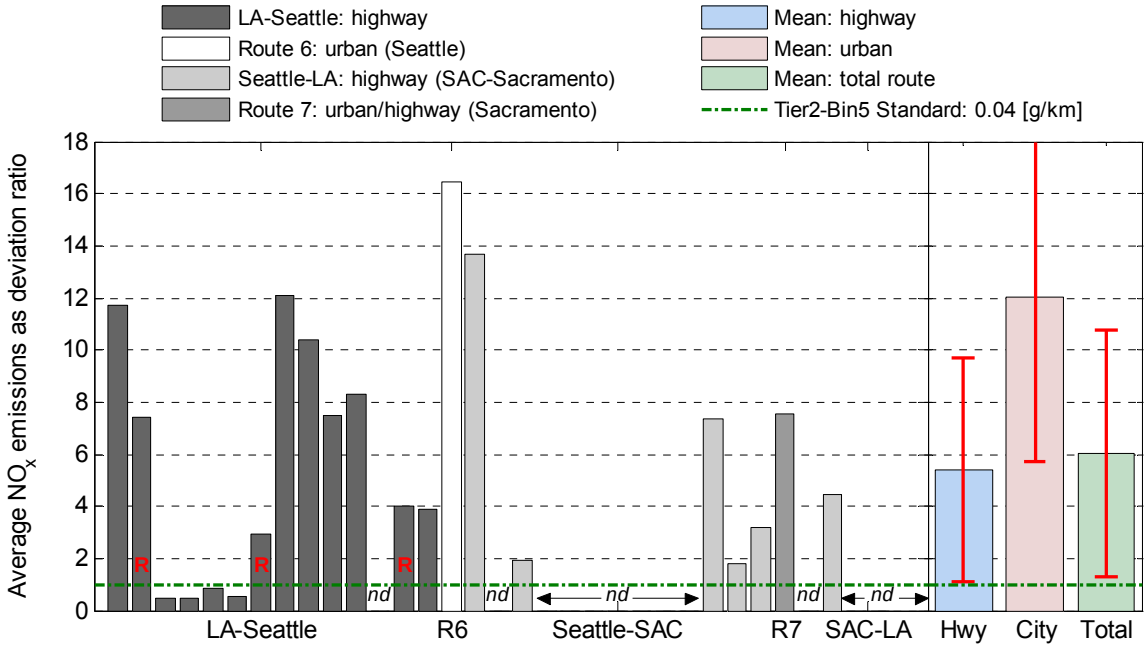

Figure 4.18: Average NO_x emissions of test vehicle over cross-multi-state driving route portions expressed as deviation ratio; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

Figure 4.19 along with Figure 4.20 show average CO emissions factors and their respective deviation ratio from the US-EPA Tier2-Bin5 standard, respectively. In general, and as expected,

CO emissions were observed at two orders of magnitude below the applicable standard and no specific pattern could be identified from the results.

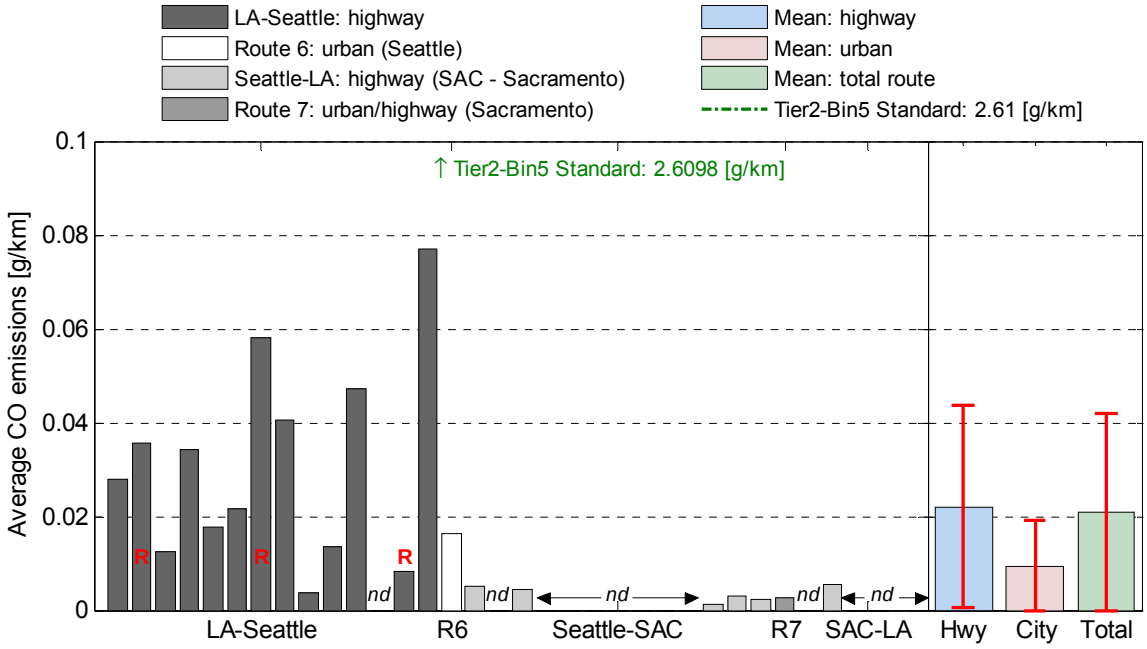

Figure 4.19: Average CO emissions of test vehicle over cross-multi-state driving route portions compared to US-EPA Tier2-Bin5 emissions standard; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

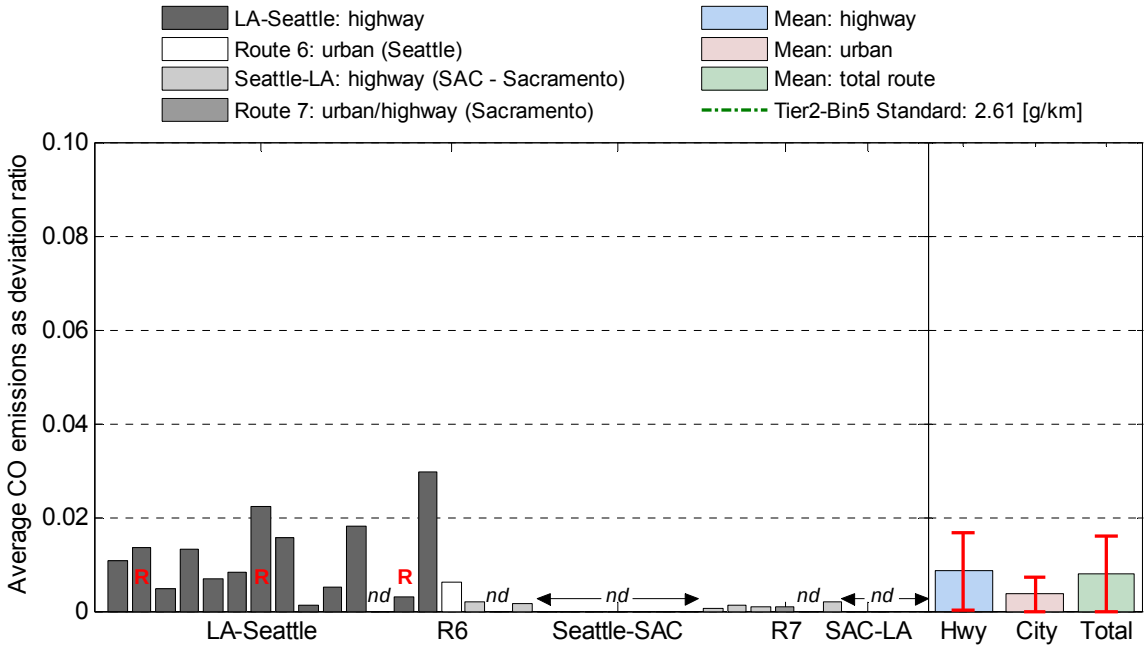

Figure 4.20: Average CO emissions of test vehicle over cross-multi-state driving route portions expressed as deviation ratio; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

Similarly, Figure 4.21 along with Figure 4.22 show average THC emissions factors and their respective deviation ratio from the US-EPA Tier2-Bin5 standard, respectively, which were well below the applicable emissions standard.

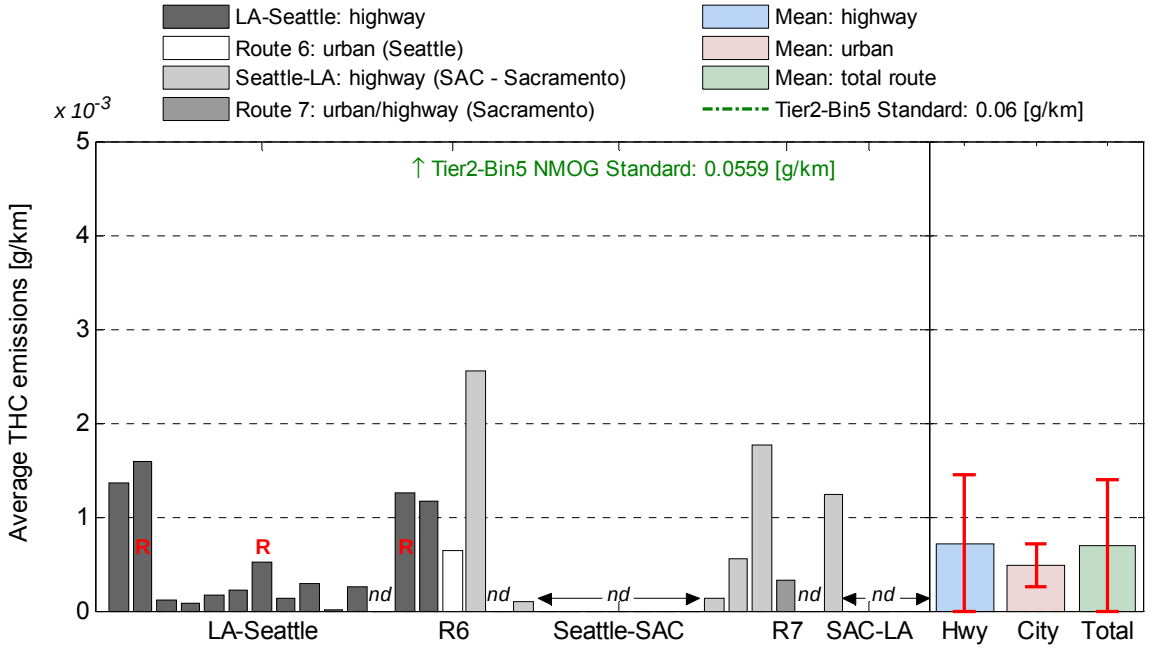

Figure 4.21: Average THC emissions of test vehicle over cross-multi-state driving route portions compared to US-EPA Tier2-Bin5 emissions standard; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

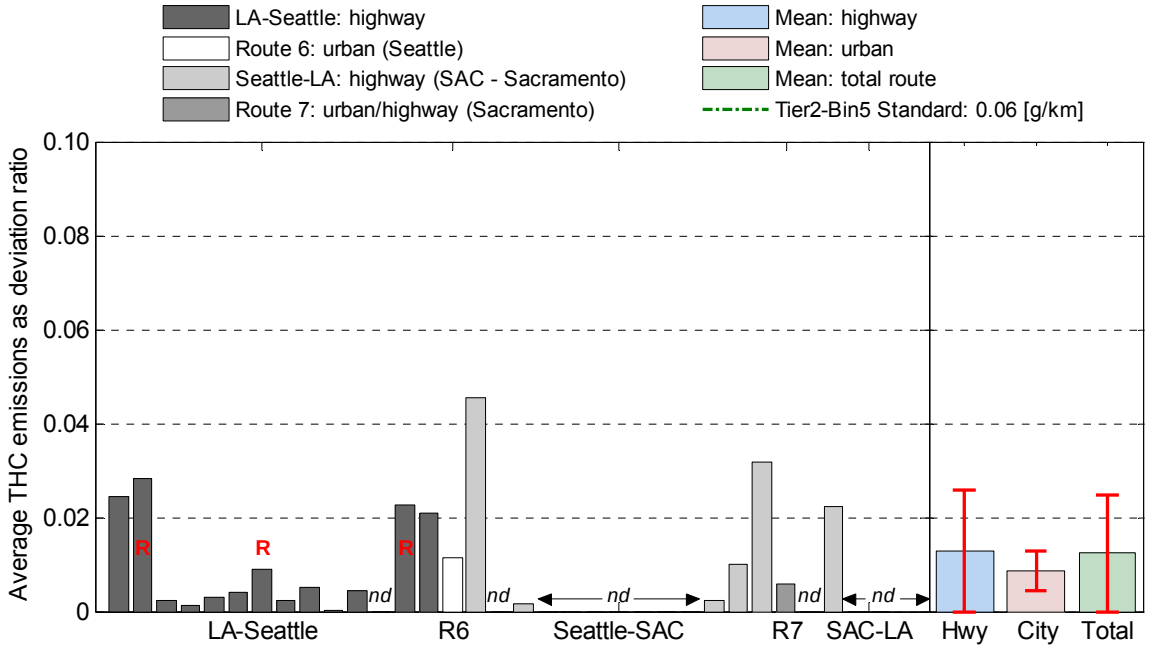

Figure 4.22: Average THC emissions of test vehicle over cross-multi-state driving route portions expressed as deviation ratio; repeat test variations are presented as ±1σ

Figure 4.23 along with Figure 4.24 show average CO_2 emissions factors and their respective deviation ratio from the EPA advertised CO_2 value for *Vehicle B* (i.e. 186g/km), respectively, over the individual sub-portions of the cross-multi state driving route.

As already has been observed for the pre-defined test routes (see Figure 4.9) CO_2 emissions are in general lowest for highway driving, whereas urban/suburban driving conditions lead to increased CO_2 emissions factors (155g/km ±14.4g/km vs. 178g/km ±19.9g/km). It has to be noted again that the second urban route presented in Figure 4.23 (i.e. Route 7) includes a proportionally large amount of highway driving and, thus, skews the CO_2 emissions factor for this route towards a lower value as was typically experienced for *Vehicle B* over urban driving conditions (e.g. see Route 2, 4, 5, and 6). On average, CO_2 emissions are ~16.7% below the EPA advertised CO_2 value for *Vehicle B* during highway operation. Increased CO_2 emissions as observed for route portions 7 and 8 coincide with larger elevation changes and therefore steeper road grades as can be seen from Figure 3.18 thus, resulting in increased engine load demand and thereby emitting more CO_2 on a distance-specific basis.

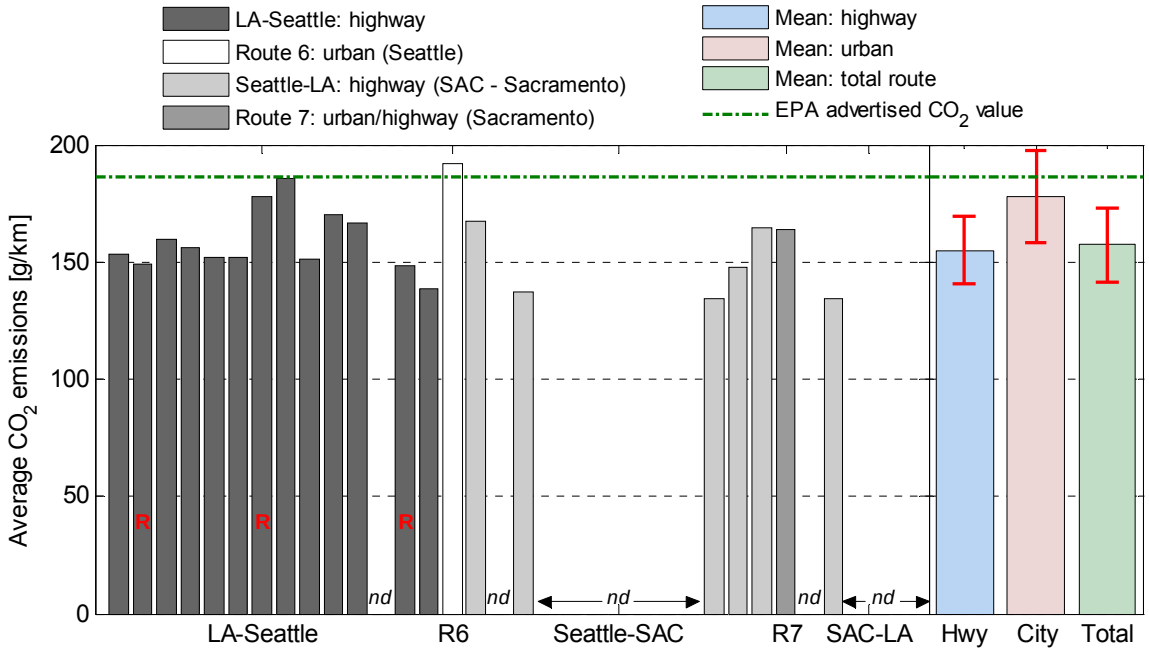

Figure 4.23: Average CO_2 emissions of test vehicle over cross-multi-state driving route portions compared to EPA advertised CO_2 value for Vehicle B; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

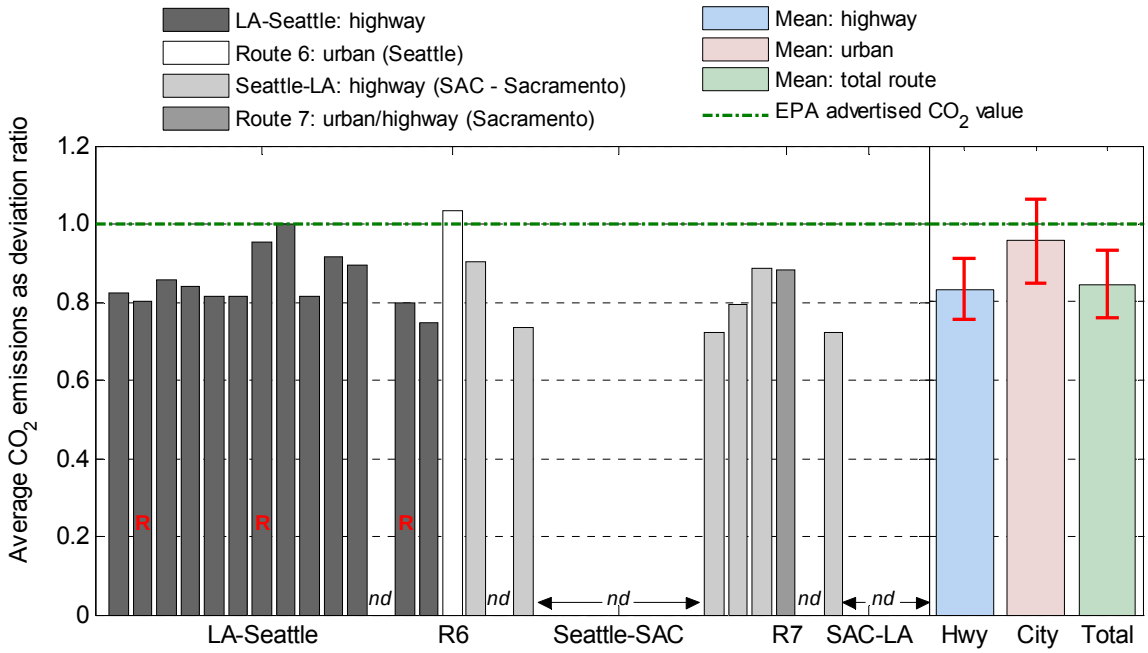

Figure 4.24: Average CO_2 emissions of test vehicle over cross-multi-state driving route portions expressed as deviation ratio; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

Figure 4.25 shows average particulate matter mass emissions factors whereas Figure 4.26 presents average particulate matter number emissions factors along with the respective regulatory standards, specifically, US-EPA Tier2-Bin5 for PM and Euro 5b/b+ for PN. It has to be noted again that both PM and PN emissions are inferred from real-time particle charge measurements using the Pegasor particle sensor.

In general, PM emissions are on the order of 0.01mg/km ±0.005mg/km (±1σ), thereby nearly 100% (99.89%) below the US-EPA Tier2-Bin5 standard. From Figure 4.25 three portions of the cross-multi state driving route, namely, portions 2, 7, and 13 stand out showing distinctly different PM emissions levels as compared to all other route portions. This is due to DPF regeneration events occurring during these three route portions leading to a nearly 700 fold increase in PM emissions to 4.55mg/km ±0.003mg/km (±1σ). However, even during DPF regeneration events PM emissions levels remain ~27% below the regulatory standard of 6.2mg/km (i.e. US-EPA Tier2-Bin5), owing to the diesel particulate filters ability to retain particulate matter mass emissions with high efficiency from the exhaust gas stream.

Figure 4.26 shows a similar picture for particulate number emissions factors with PN levels typically on the order of 3.01×10^{10}#/km (min: 2.03×10^{9}#/km /max: 9.12×10^{10}#/km) during both

highway and urban/suburban driving conditions. However, during DPF regeneration events as observed during route portions 2, 7, and 13 PN emissions factors increase by 2 to 3 orders of magnitude to 2.08×10^{13}#/km $\pm 1.36 \times 10^{10}$#/km ($\pm 1\sigma$, including only PN for portions 7 and 13), thereby, exceeding the Euro 5b/b+ PN standard by more than an order of magnitude (factor 35).

Previous studies [32 and 33] have shown that particle number concentrations downstream the PM trap can momentarily increase during, and within a limited time period after, experiencing a regeneration event. During regeneration of a wall-flow type DPF the '*cake-layer,*' as referred to the soot layer deposited on top of the filter substrate and responsible for the high particle retention efficiency of wall-flow type DPF's (>99%), is partially oxidized, thus, momentarily reducing the filtration efficiency of the DPF [32]. Within a usually short, but ultimately depending on engine load, period after the regeneration event the '*cake-layer*' will be built up again and the DPF will resume its maximum filtration efficiency.

A more detailed discussion of DPF regeneration events and the frequency of their occurrence as observed for *Vehicle B* is presented in Section 4.3.2.

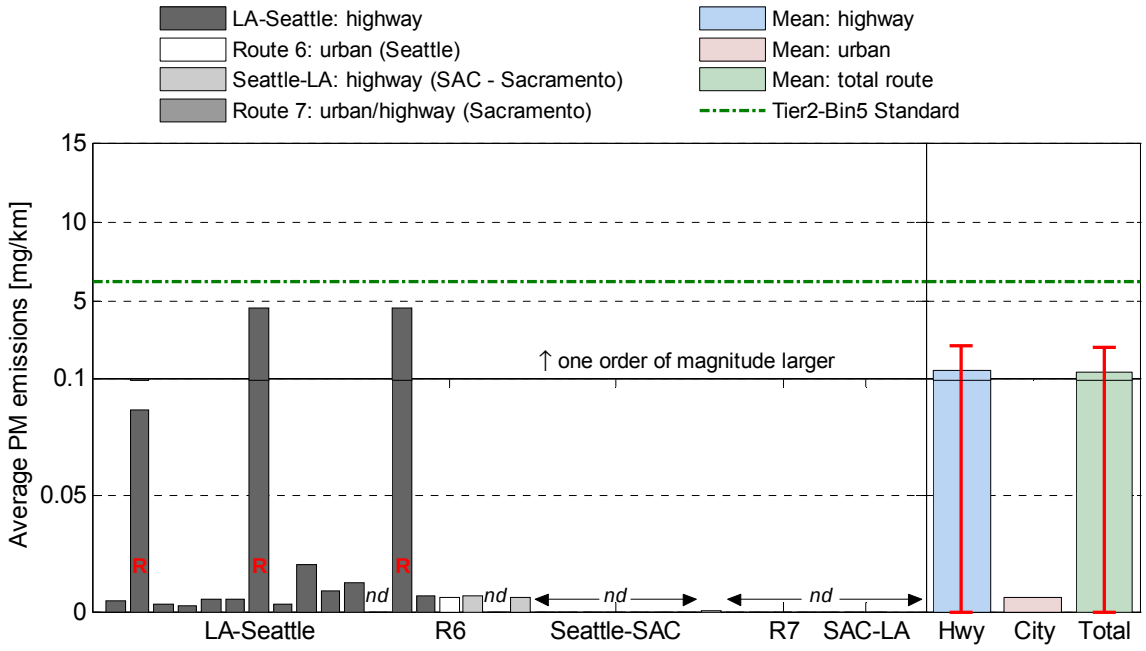

Figure 4.25: Average PM emissions of test vehicle over cross-multi-state driving route portions compared to US-EPA Tier2-Bin5 emissions standard; repeat test variations are presented as ±1σ, '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

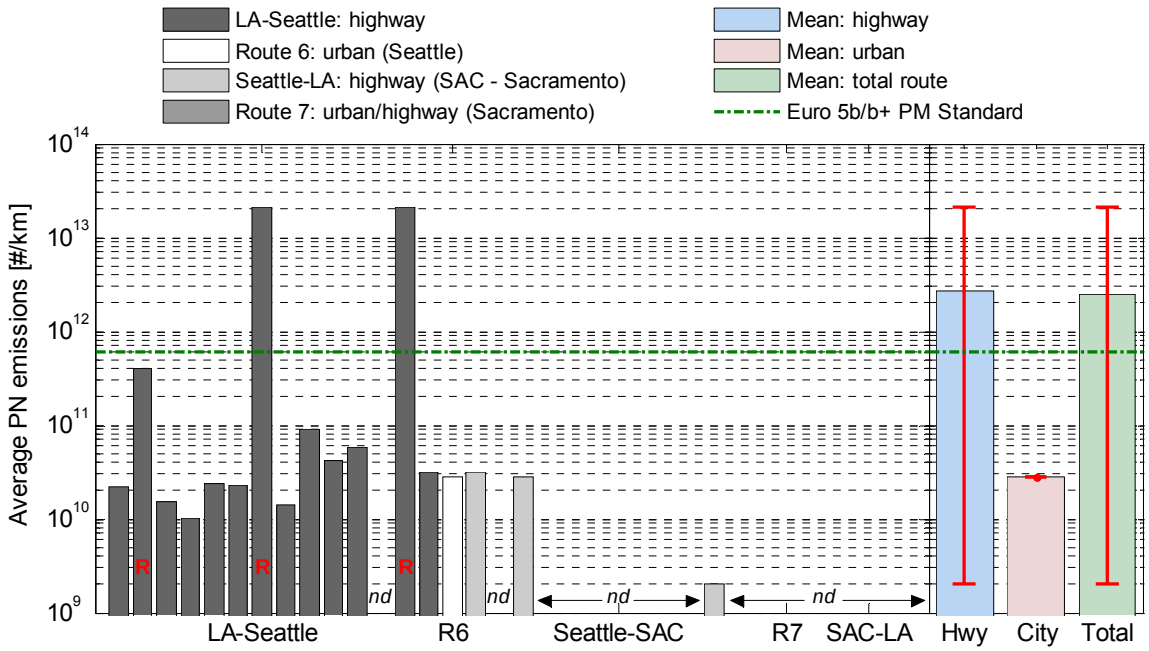

Figure 4.26: Average PN emissions of test vehicle over cross-multi-state driving route portions compared to Euro 5b/b+ emissions standard; repeat test variations are presented as minimum/maximum test value, total city emissions are only based on Route 6 (R6), '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

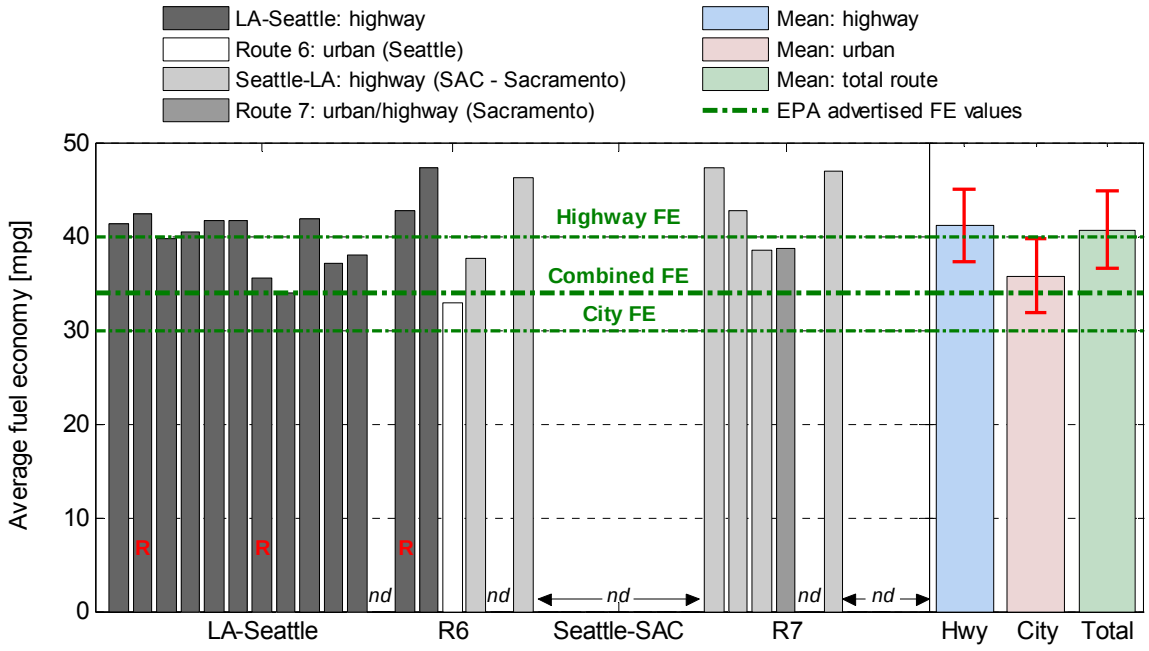

Figure 4.27: Average fuel economy of test vehicle over cross-multi-state driving route portions expressed as mpg; repeat test variations are presented as ±1σ), '*R*' designates segments including a DPF regeneration event, '*nd*' - no data available

Finally, Figure 4.27 shows average fuel economy values in units of [mpg] for the entire cross-multi state driving route. On average, fuel economy was 41.2mpg ±3.9mpg (±1σ) during highway driving conditions, spanning from 33.98mpg to 47.2mpg during route portions 8 and 26, respectively. Lowest fuel economy coincides with uphill driving, whereas highest fuel economy values were observed during downhill slopes while crossing the mountain ranges in Northern California/Southern Oregon (see Figure 3.18 for altitude reference). Furthermore, urban/suburban driving (i.e. Route 6) has been shown to result in ~20% reduced fuel economy over highway driving.

4.2 On-Road NO_x Emissions

This chapter will present NO_x emissions calculated based on the averaging window method over pre-defined test routes for all three vehicles (see Section 4.2.1) and over the cross-multi state driving route for *Vehicle B* (see Section 4.2.2).

The averaging windows were calculated following recommendations outlined in the European regulation [3] with the total mass of CO_2 in [g], emitted over a given vehicle certification chassis dynamometer cycle chosen as the reference criterion to determine window size. Two reference cycles were chosen, namely, FTP-75 and NEDC as actual CO_2 emissions data was available for both these cycles from *Vehicle A* and *B*, collected during chassis dynamometer testing at CARB's El Monte facility. Table 4.10 lists the respective CO_2 mass emissions emitted over the reference cycles. No actual CO_2 emissions data were available for *Vehicle C*, therefore, CO_2 values were instead taken from EPA certification documents for the FTP-75 cycle. Additionally, averaging window based NO_x emissions will be presented as deviation ratios from the US-EPA Tier2-Bin5 standard for NO_x (i.e. 0.043g/km) as described by Equation 11.

Table 4.10: Window size criterion for AWM; total CO_2 mass over FTP-75 and NEDC (evaluated at CARB El Monte chassis dynamometer laboratory for Vehicle A and B; taken from EPA certification document for Vehicle C)

Vehicle	CO_2 over FTP-75 [g]	CO_2 over NEDC [g]
Vehicle A	2921.9	1938.6
Vehicle B	2944.8	1841.8
Vehicle C	5042.5 [1)]	5042.5 [2)]

[1)] *CO_2 mass value for FTP-75 according to EPA certification documents (see http://www.epa.gov/otaq/crttst.htm)*
[2)] *CO_2 mass value for FTP-75 chosen since no NEDC specific values available from EPA certification documents*

4.2.1 NO_x Emissions over Pre-Defined Test Routes

Cumulative frequency plots for averaging window NO_x emissions in [g/km] and deviation ratios from the regulatory standard are presented for *Vehicle A* in Figure 4.28 along with Figure 4.29, for *Vehicle B* in Figure 4.30 along with Figure 4.31, and finally for *Vehicle C* in Figure 4.32 along with Figure 4.33, respectively. Total CO_2 emitted over the NEDC was chosen as reference value for calculating AWM-NO_x emissions results presented in the above mentioned figures. Overall, the LNT equipped *Vehicle A* shows the highest, while the urea-SCR after-treatment based *Vehicle C* the lowest NO_x emissions.

In general, highway driving (i.e. Route 1) shows lowest NO_x emissions whereas rural-up/downhill driving conditions (i.e. Route 3) contribute to the largest amounts of NO_x observed. For *Vehicles A* and *B*, about 30-40% of the NO_x emissions emitted during Route 3 are below levels observed for urban driving and close to what was seen for highway conditions. Contrarily, *Vehicle C* emitted significantly more NO_x during the rural-up/downhill route as compared to any of the other urban or highway routes (see Figure 4.32), with about 50% of the emissions released exceeding ~10 times the UA-EPA Tier2-Bin5 standard. This agrees well with route average NO_x emissions presented earlier in Figure 4.3 and Figure 4.4. However, when comparing results for Route 3 between *Vehicles C* and *B* (see Figure 4.32 vs. Figure 4.30), close similarities in shape and magnitude can be noticed for the cumulative frequencies. The large increase in NO_x emissions observed during the rural-up/downhill driving over other test routes could be attributed to the fact that the emissions presented herein are normalized for distance traveled rather total work produced by the engine. This impacts results from heavier vehicles (*Vehicle C* was ~54% heavier than *Vehicles A* and *B*) with larger and more powerful engines while operating over routes comprising increased altitude changes since proportionally more work needs to be done by the engine to move the vehicle uphill over a finite increment of distance.

The impact of DPF regenerations onto NO_x emissions is especially pronounced for *Vehicle A*, visible as significant differences in cumulative frequency graphs between repetitions of routes with and without regeneration event (i.e. Route 1, 3, and 4). It has to be noted that this observation might be confounded for Route 1 as the test exhibiting the DPF regeneration event was also experiencing heavy evening rush-hour traffic conditions, thereby additionally affecting NO_x emissions. However, owing the increased difference between both test runs for Route 1, as compared to the differences seen between test runs for Route 3 and 4, it could be justified as a

combined effect of DPF regeneration and increased stop-go conditions due to rush-hour traffic. Figure 4.36 shows a direct comparison of continuous averaging window NO_x emission over Route 3 between two repeats, one with (i.e. Test 1) an the other without (i.e. Test 2) DPF regeneration event. The location of the regeneration event can be identified from the PN concentration and exhaust gas temperature (measured at the exhaust tailpipe outlet) graphs in the lower part of Figure 4.36, with the duration of the event observed to be on the order of 14min and thereby in agreement with [31]. During regeneration events averaging window NO_x emissions are found to nearly double from ~3g/km to ~5.5g/km for Route 3 for example (see Figure 4.36). Similar behavior was observed for Routes 1 and 4 for *Vehicle A* between tests with and without DPF regeneration. A possible explanation for the observed increase in NO_x emissions during DPF regeneration events for the LNT equipped *Vehicle A* was given earlier in Section 4.1.1. This distinct impact of DPF regenerations onto NO_x emissions was not observed for the other test vehicles.

In general for *Vehicle A*, 50% of NO_x emissions over all test routes were exceeding the US-EPA Tier2-Bin5 standard by a factor of 20 to 40 as seen from Figure 4.29, with none of the routes exhibiting NO_x emissions at levels below the regulatory standard. On the other hand, for *Vehicle B* 50% of the NO_x emissions were observed to exceed the US-EPA Tier2-Bin5 standard by 5 to 20 times for the majority of the test routes. One repeat of Route 1 exhibited lower NO_x emissions with 5% of total accumulated averaging window NO_x observed to fall below the standard.

Finally, as seen from Figure 4.32 and Figure 4.33 *Vehicle C* presents a vastly different averaging window NO_x emissions pattern compared to *Vehicles A* and *B*, with the majority of the highway and urban/suburban driving routes exhibiting 80 to 90% of NO_x emissions below the US-EPA Tier2-Bin5 standard. Figure 4.34 and Figure 4.35 provide a zoomed in view of the x-axis for Figure 4.32 and Figure 4.33, respectively. A significant variability in magnitude of NO_x emissions between repetitions of the urban routes (i.e. Routes 2 and 5) can be noticed from Figure 4.34. Possible explanations for the observed test-to-test variability include changing traffic patterns and driving style as test drivers were changed between repeats of a given test route. Indeed, one of the tests for Route 5 was ~16min shorter and encountered more aggressive vehicle accelerations, possibly partially causing the observed increase in NO_x emissions.

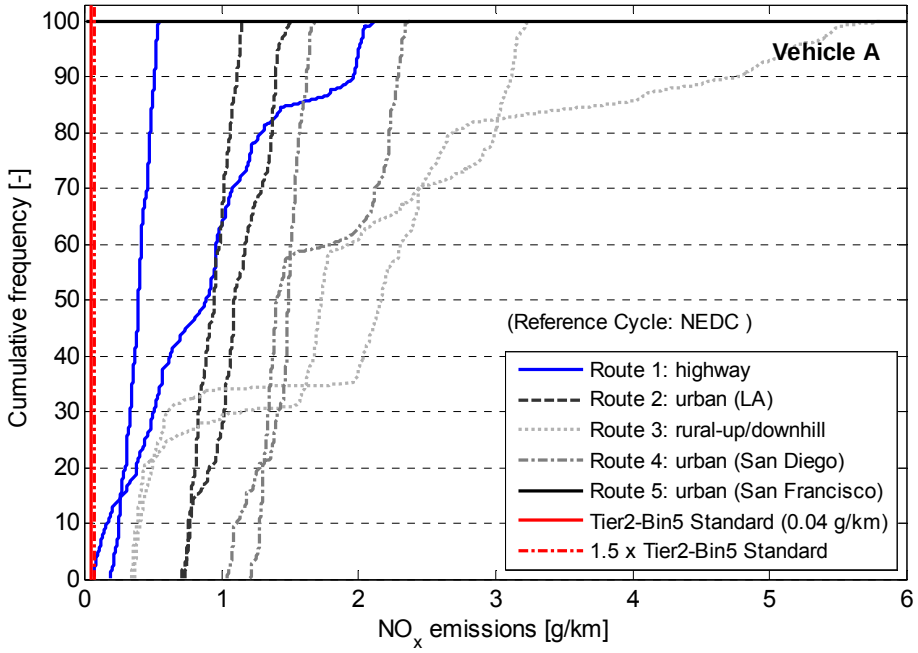

Figure 4.28: Averaging window NO_x emissions for Vehicle A over the five test routes compared to US-EPA Tier2-Bin5 emissions standard; AWM reference metric is CO_2 emissions over NEDC; Route 1 includes rush-hour/non rush-hour driving

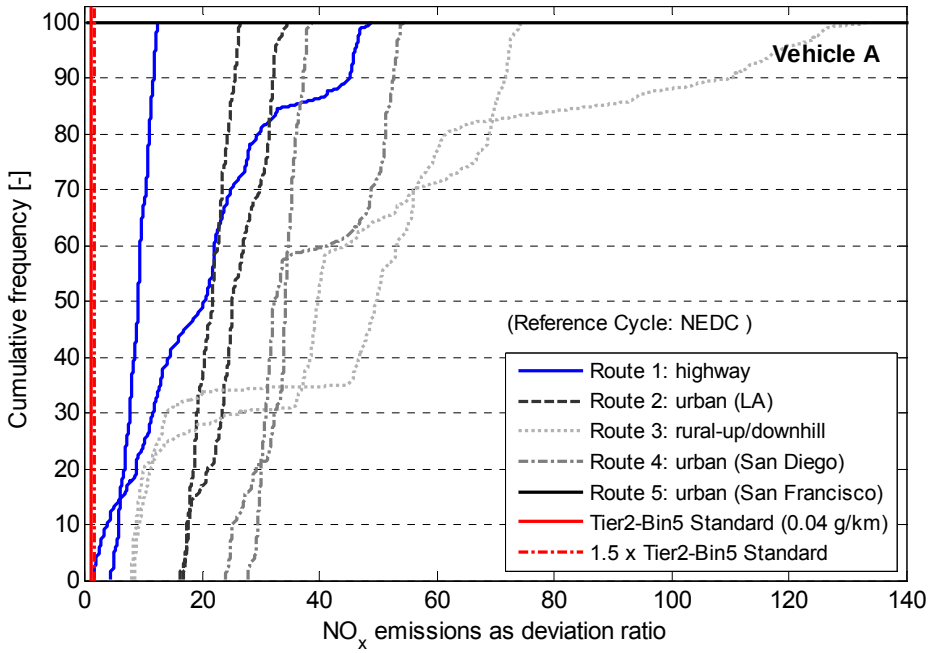

Figure 4.29: Averaging window NO_x emissions for Vehicle A over the five test routes expressed as deviation ratio; AWM reference metric is CO_2 emissions over NEDC; Route 1 includes rush-hour/non rush-hour driving

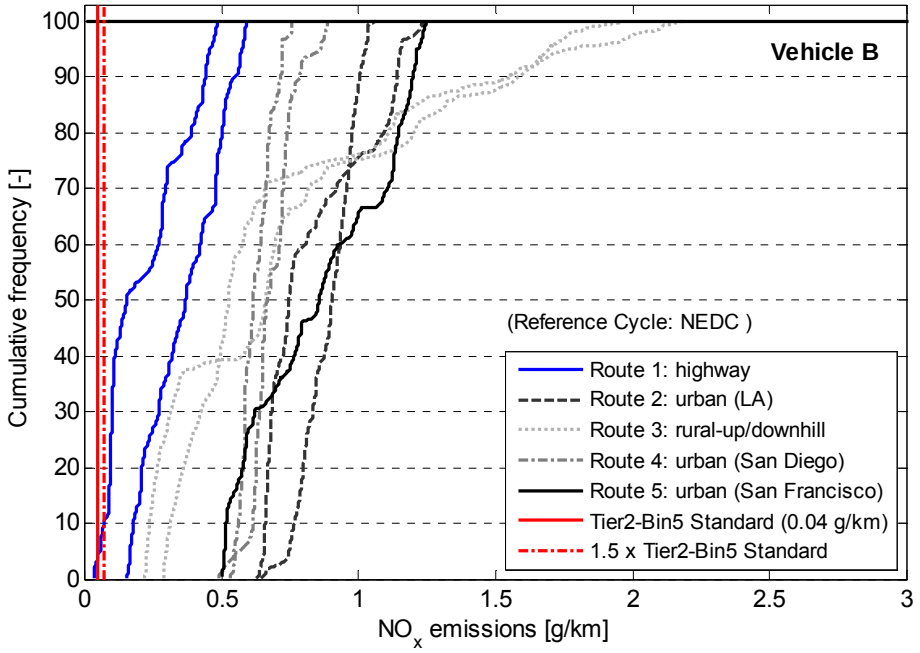

Figure 4.30: Averaging window NO_x emissions for Vehicle B over the five test routes compared to US-EPA Tier2-Bin5 emissions standard; AWM reference metric is CO_2 emissions over NEDC

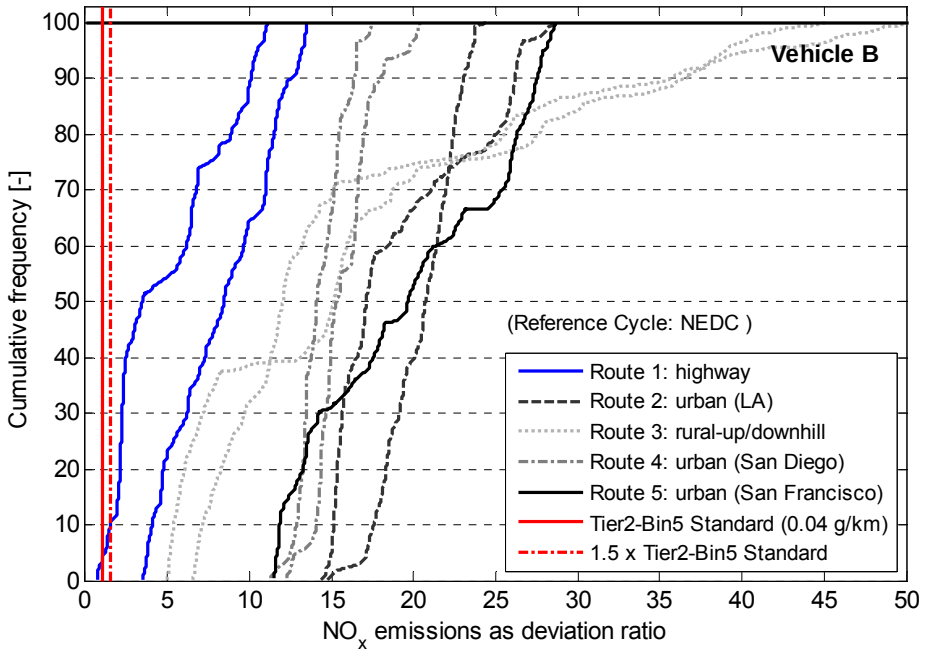

Figure 4.31: Averaging window NO_x emissions for Vehicle B over the five test routes expressed as deviation ratio; AWM reference metric is CO_2 emissions over NEDC

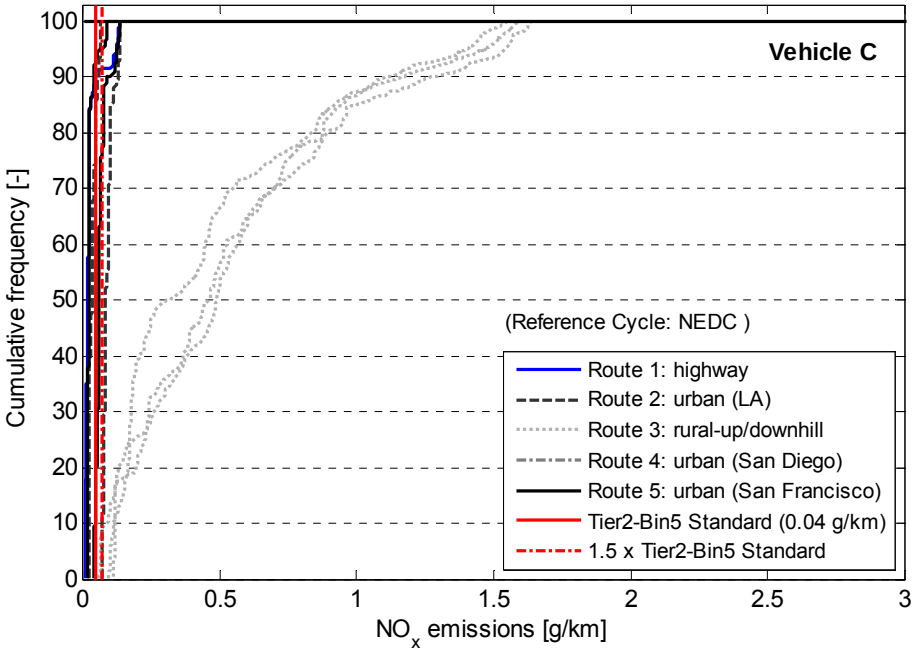

Figure 4.32: Averaging window NO_x emissions for Vehicle C over the five test routes compared to US-EPA Tier2-Bin5 emissions standard; AWM reference metric is CO_2 emissions over NEDC

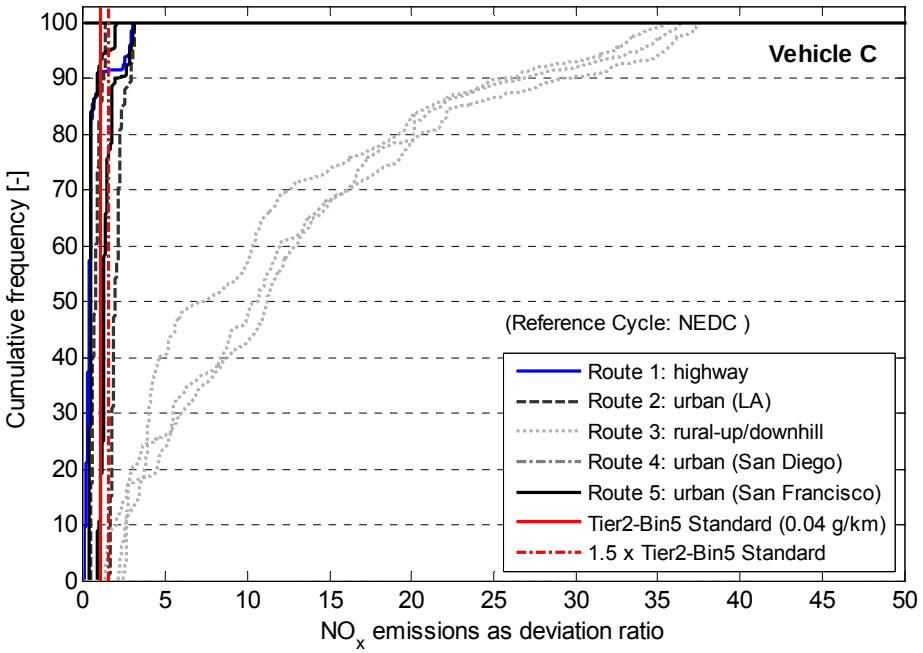

Figure 4.33: Averaging window NO_x emissions for Vehicle C over the five test routes expressed as deviation ratio; AWM reference metric is CO_2 emissions over NEDC

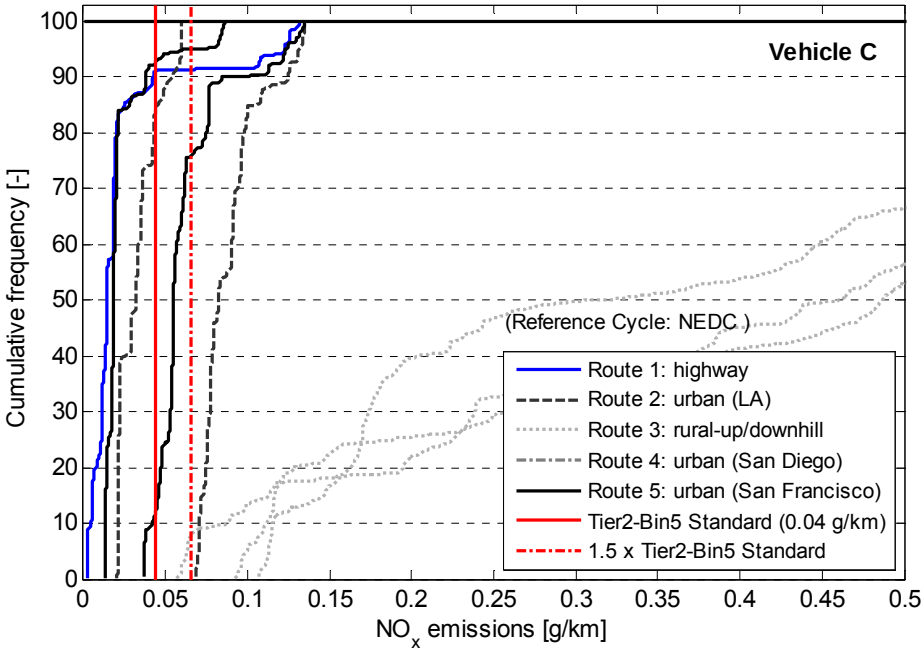

Figure 4.34: Zoomed x-axis of Figure 4.32 showing averaging window NO_x emissions for Vehicle C over the five test routes compared to US-EPA Tier2-Bin5 emissions standard

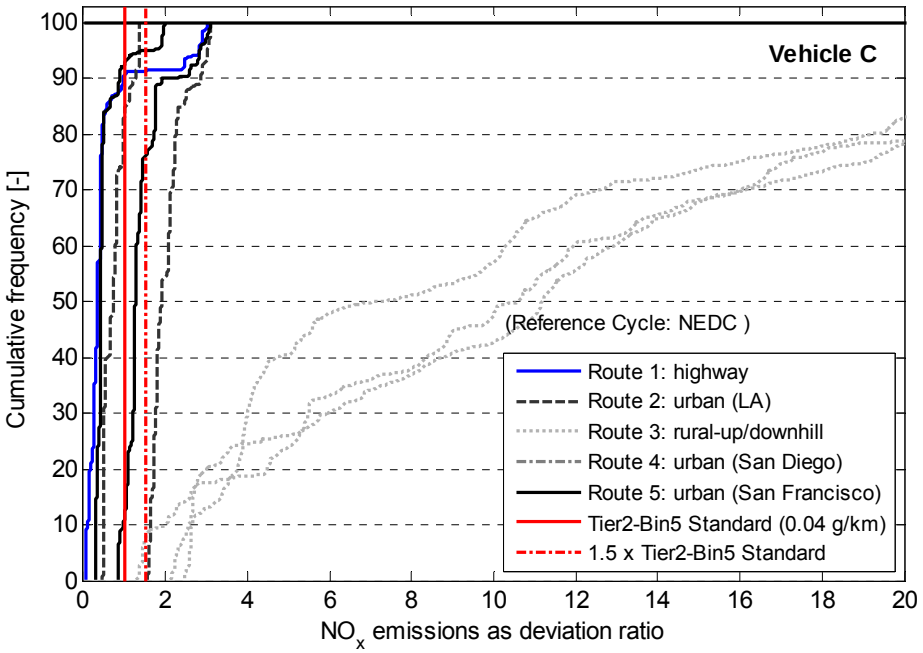

Figure 4.35: Zoomed x-axis of Figure 4.33 showing averaging window NO_x emissions for Vehicle C over the five test routes expressed as deviation ratio

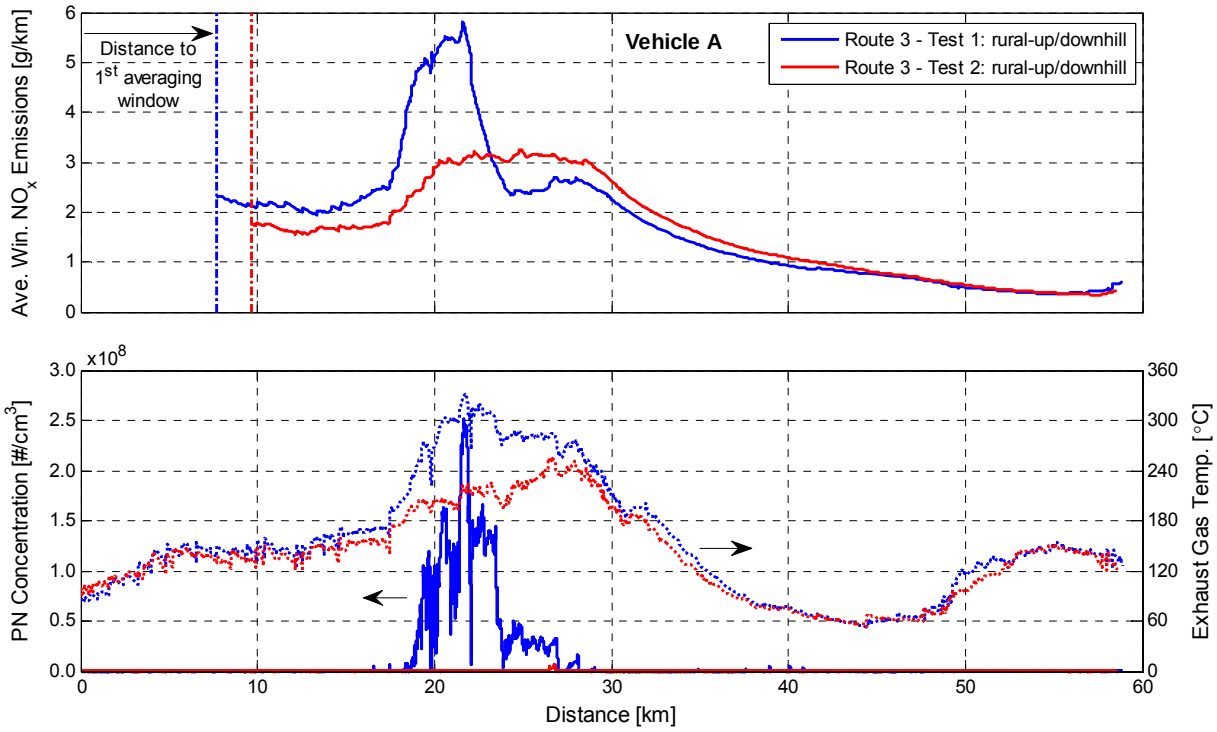

Figure 4.36: *a*) Continuous averaging window NO_x emissions, and *b*) particle number concentrations and exhaust gas temperatures (at exhaust tip) vs. distance for Route 3; test 1 with and test 2without DPF regeneration

Figure 4.37 through Figure 4.40 depict cumulative frequencies for averaging window NO_x emissions along with their deviation ratios from the US-EPA Tier2-Bin5 NO_x standard over the five pre-defined test routes, similarly to Figure 4.28 through Figure 4.35, however, with mass of CO_2 emitted over the FTP-75 cycle selected as window size threshold value (see Table 4.10).

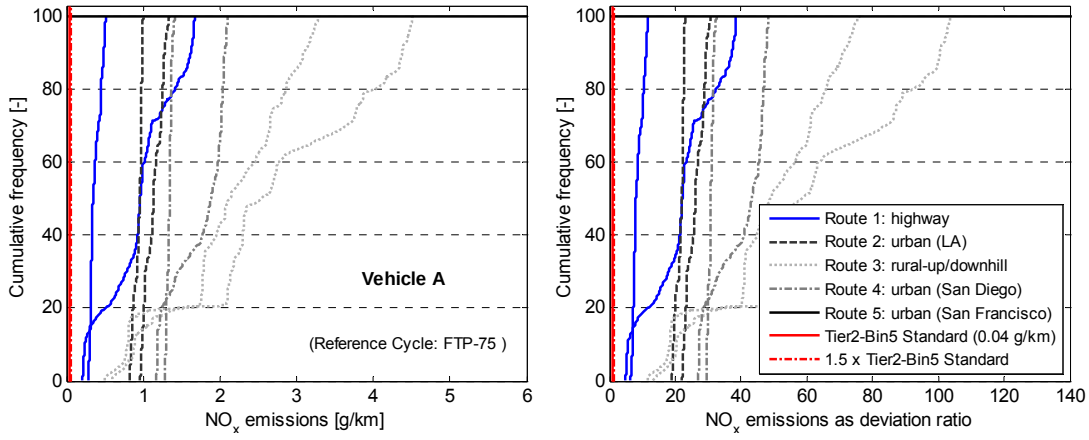

Figure 4.37: Averaging window NO_x emissions for Vehicle A over the five test routes compared to US-EPA Tier2-Bin5 emissions standard (*left*) and expressed as deviation ratio (*right*); AWM reference metric is CO_2 emissions over FTP-75; Route 1 includes rush-hour/non rush-hour driving

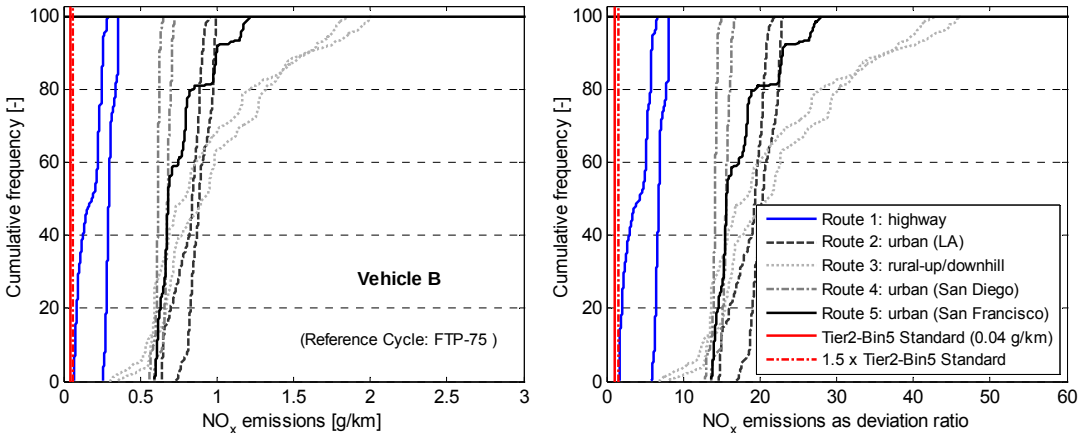

Figure 4.38: Averaging window NO_x emissions for Vehicle B over the five test routes compared to US-EPA Tier2-Bin5 emissions standard (*left*) and expressed as deviation ratio (*right*); AWM reference metric is CO_2 emissions over FTP-75

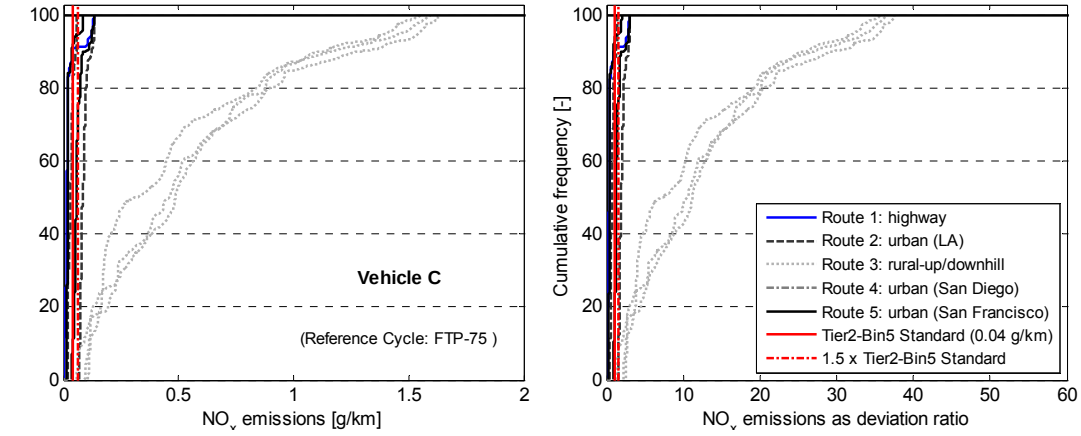

Figure 4.39: Averaging window NO_x emissions for Vehicle C over the five test routes compared to US-EPA Tier2-Bin5 emissions standard (*left*) and expressed as deviation ratio (*right*); AWM reference metric is CO_2 emissions over FTP-75

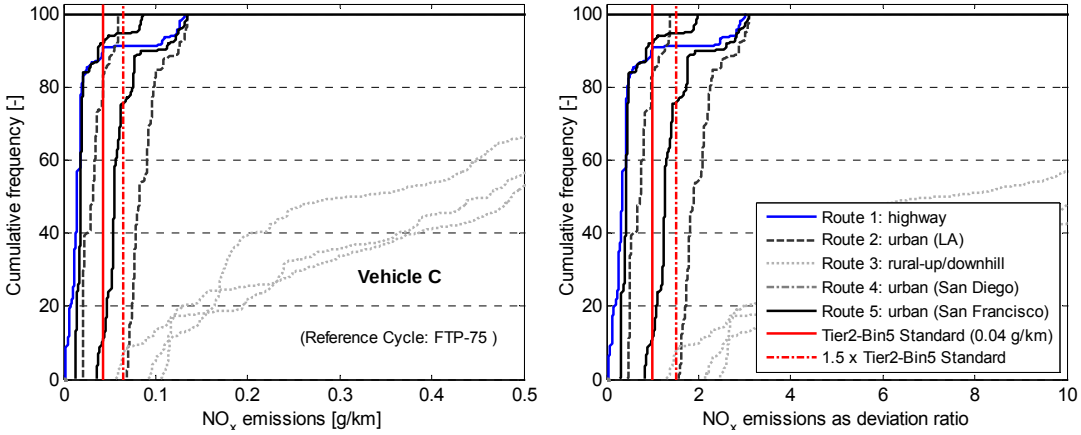

Figure 4.40: Zoomed x-axis of Figure 4.39 showing averaging window NO_x emissions for Vehicle C over the five test routes compared to US-EPA Tier2-Bin5 emissions standard (*left*) and expressed as deviation ratio (*right*)

Figure 4.41 presents frequency distributions of exhaust gas temperatures for *Vehicles A* and *B* over two repeats of test Routes 1 through 4. These temperature distributions reflect exhaust gas temperatures measured by vehicle sensors (broadcasted via ECU CAN) downstream the DPF and upstream the deNO_x after-treatment devices for *Vehicle A* and *B*, respectively.

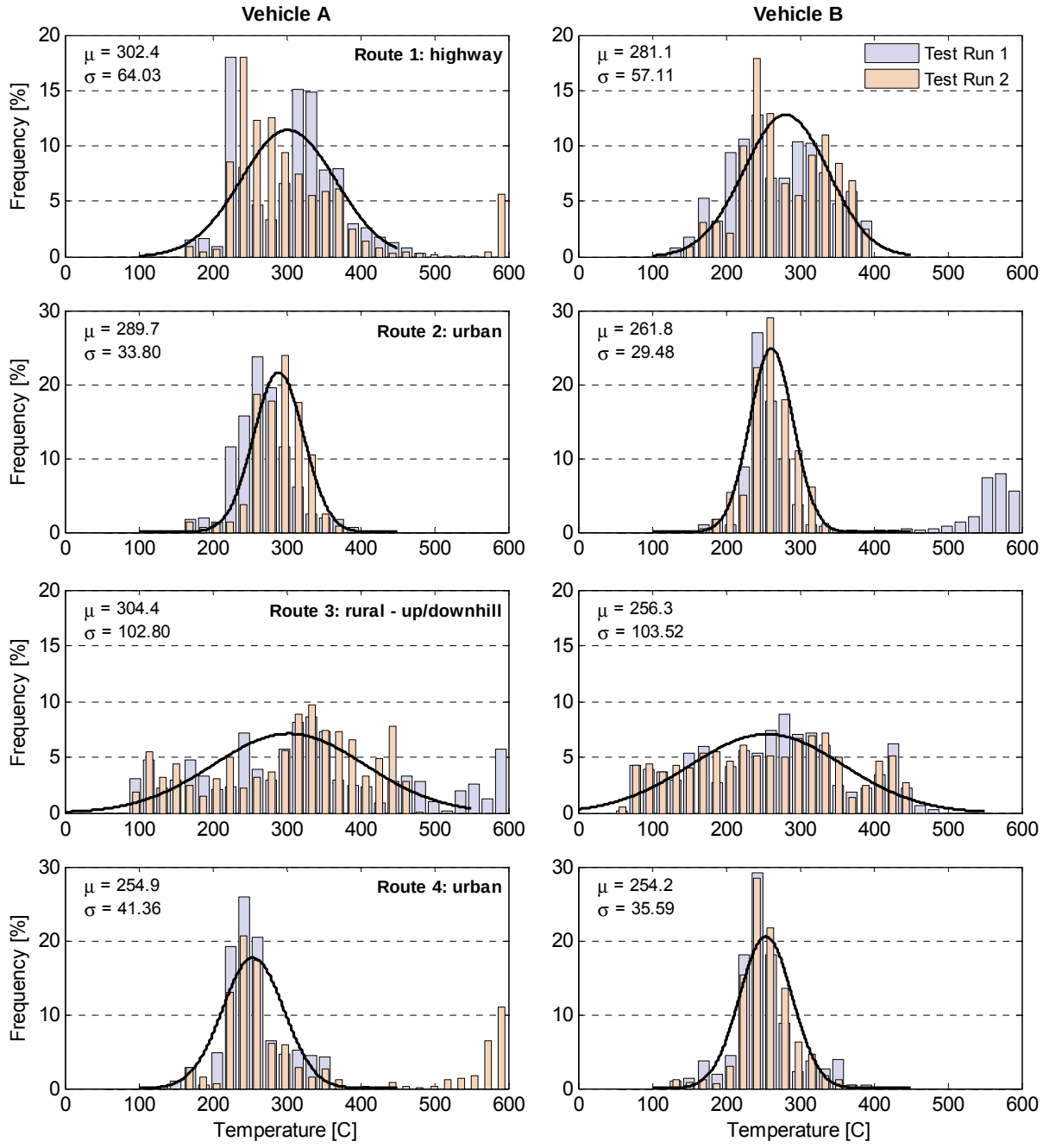

Figure 4.41: Frequency distributions of exhaust gas temperatures at downstream DPF location for Vehicle A and B over Routes 1 through 4 with two repeats; data fitted by normal distribution (not including data for high temperature excursions during DPF regeneration events)

Each temperature dataset is fitted by a normal distribution curve (bold dark line) which does not include any data points from the high temperature excursions observed for Vehicle A, Routes 1, 3, and 4 as well as for Vehicle B, Route 2 (see Figure 4.41). A distinct temperature distribution pattern can be noticed as a function of different driving conditions, namely, highway (i.e. Route 1), urban/suburban (i.e. Routes 2, 4), and rural-up/downhill (i.e. Route 3). Urban/suburban driving was found to exhibit narrow temperature distributions centered (μ) around 255 to 280°C with a spread (σ) of 30 to 40°C, whereas highway driving conditions led to increased mean exhaust temperatures (μ = 280 to 300°C) owing to the elevated engine loads associated with high-speed driving, as well as a distinctively wider spread of the temperature distribution (σ = 57 to 64°C). On the other hand, rural-up/downhill driving was observed to exhibit a relatively large range of varying exhaust gas temperatures with the majority of values falling between 100 and 500°C (μ = 255 to 300°C, $\sigma \approx$ 103°C). This is due to the particular characteristics of the test route (i.e. Route 3) that follows on the exact same street up and downhill to a turning point, leading to i) high exhaust temperature conditions during the uphill portion caused by increased engine load demand, and ii) low exhaust temperature conditions during the downhill portion where the vehicle predominantly coasts with fueling cut-off, thereby, effectively transforming the engine to an '*air-pump,*' pumping intake air at ambient temperatures through the engine and after-treatment system cooling its components (e.g. catalysts) down.

Route 1 - test 2, Route 3 - test 1, Route 4 - test 2 for *Vehicle A* as well as Route 2 - test 1 for *Vehicle B* show a distinct second mode in the upper temperature range centered around 600°C. The observed increase in exhaust gas temperature is due to DPF regeneration events occurring during some of the test runs, where elevated temperatures are required to initiate the periodic soot oxidation from the surface of the filter substrate.

4.2.2 NO_x Emissions over Cross-Multi-State Driving Route

This section presents cumulative frequency plots for averaging window NO_x emissions in Figure 4.42 (Zoom-in to x-axis shown in Figure 4.44) along with deviation ratios from the US-EPA Tier2-Bin5 standard for NO_x (at full useful life) in Figure 4.43 for *Vehicle B* over individual portions of the cross-multi state driving route with total CO_2 emitted over the NEDC (see Table 4.10) chosen as reference value for calculating averaging window size.

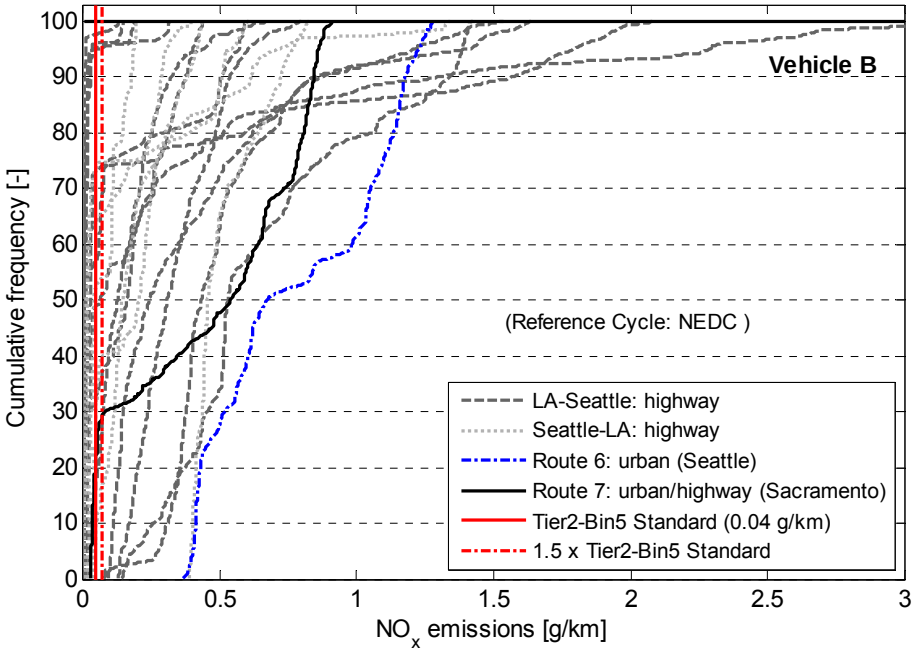

Figure 4.42: Averaging window NO_x emissions for Vehicle B over cross-multi-state driving route portions compared to US-EPA Tier2-Bin5 emissions standard; AWM reference metric is CO_2 emissions over NEDC

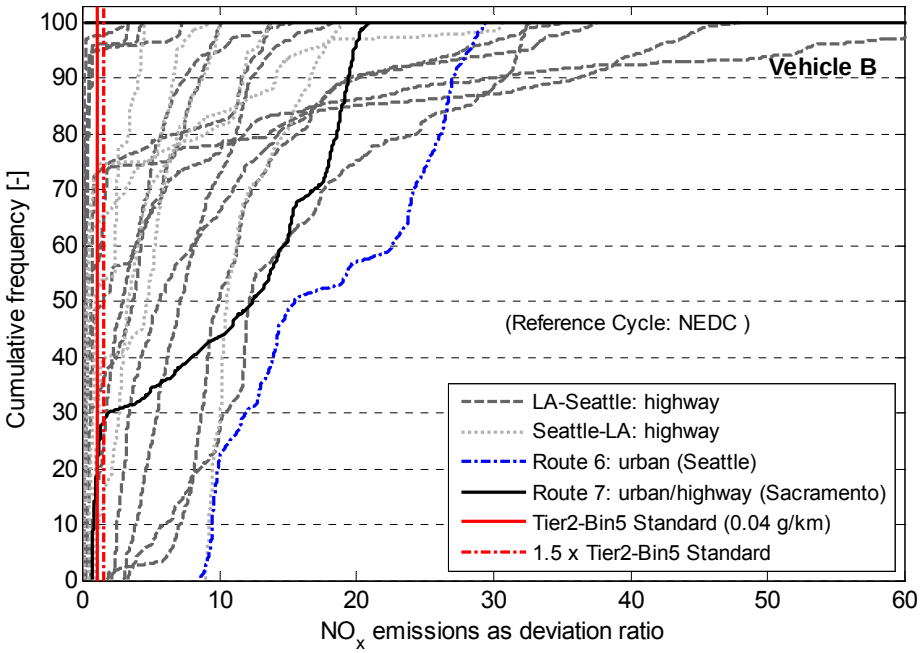

Figure 4.43: Averaging window NO_x emissions for Vehicle B over cross-multi-state driving route portions expressed as deviation ratio; AWM reference metric is CO_2 emissions over NEDC

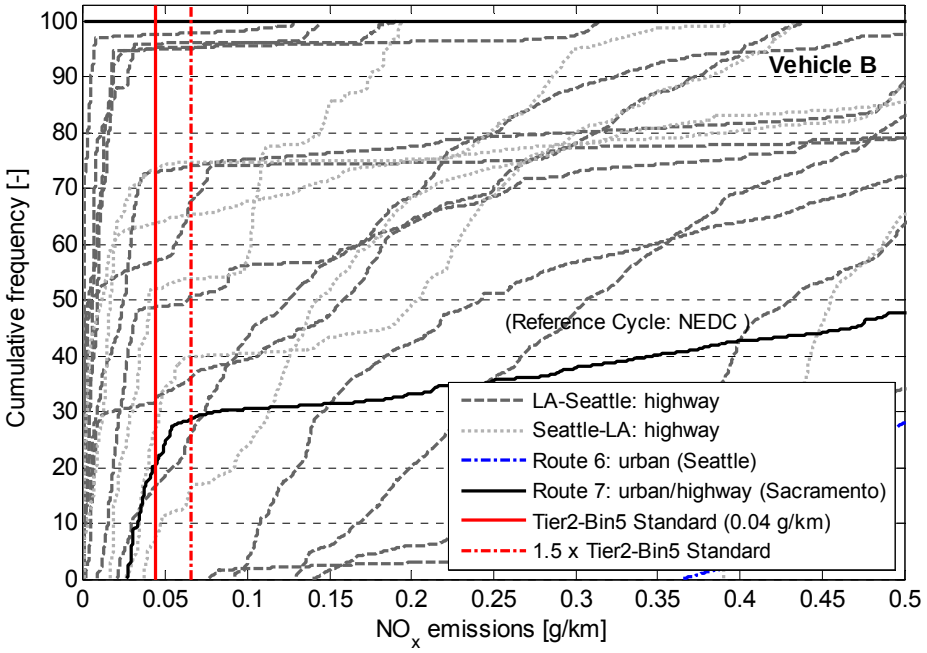

Figure 4.44: Zoomed x-axis of Figure 4.42 showing averaging window NO_x emissions for Vehicle B over cross-multi-state driving route portions compared to US-EPA Tier2-Bin5 emissions standard

Overall, cumulative frequencies of averaging window NO_x emissions over the majority of individual portions of the cross-multi state driving route agree with results seen from the pre-defined test routes (see Figure 4.30) for *Vehicle B*. It can be noticed that 50% of windowed NO_x emissions during urban/suburban driving conditions (i.e. Routes 6 and 7) exceed the applicable standard by more than a factor of 10, similar to what was observed over urban Routes 2, 4, and 5. Route 7 exhibits a distinct change in NO_x emissions as can be seen from Figure 4.44 (dark filled line). This is due to a significant portion of highway driving (> 60% by distance) contained in this route which accounts for ~20% of NO_x emissions to be below the US-EPA Tier2-Bin5 standard whereas the smaller portion of the route (< 40% by distance) accounts for significantly increased NO_x levels with 50% of the emissions deviating by 10 to 20 times from the standard.

On the other hand, Figure 4.44 also shows that under particular conditions, *Vehicle B* was observed to have NO_x emissions well below the US-EPA Tier2-Bin5 level, specifically with route portions 3, 4, 5, and 6 exhibiting ~95% of windowed NO_x emissions below the regulatory standard. It is worthy to mention that DPF regeneration events did not seem to noticeably affect NO_x emissions from the urea-SCR based *Vehicle B* in the same manner as they were observed to influence NO_x emissions rates from the LNT equipped *Vehicle A*.

4.3 On-Road Particle Number and Mass Emissions

This section will present and discuss particulate number and mass emissions concentrations over the pre-defined test routes for *Vehicles A* and *B* in Section 4.3.1 as well as over the cross-multi state driving route for *Vehicle B* in Section 4.3.2. It has to be noted that all PN and PM emissions concentrations presented herein are inferred from real-time particle measurements using a charge-type particle sensor (i.e. Pegasor particle sensor).

4.3.1 PN Emissions over Pre-Defined Test Routes

Figure 4.45 through Figure 4.52 present comparisons of raw particle number concentrations in units [#/cm^3] between two consecutive test runs for Routes 1 through 4 and *Vehicles A* and *B* plotted against driving distance. It has to be noted that for the purpose of this comparison PN concentrations reflect raw particle concentrations in the exhaust stream per unit volume (i.e. cm^3) and not total number of particles released from the engine which one could obtain by multiplying average PN concentration into total exhaust flow. Exhaust gas temperatures, as measured at the exhaust sample extraction point (i.e. at outlet of exhaust tip), are plotted along with PN concentrations to aid in identifying possible DPF regeneration events. To the right side of each continuous PN concentration and exhaust temperature graph is a bar chart providing PN emissions factors in [#/km] for each individual test (i.e. repetition of a given route) corresponding to PN results already presented in Figure 4.13 during Section 4.1.1.

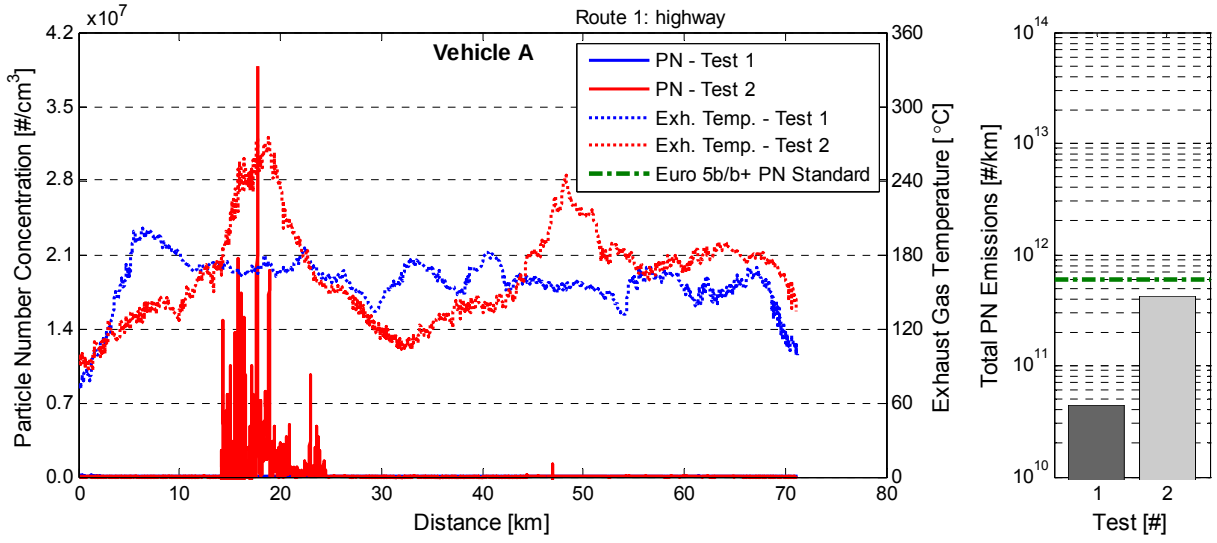

Figure 4.45: Comparison of particle number concentrations between two tests of Route 1 for Vehicle A, DPF regeneration event during test 2

Figure 4.45 and Figure 4.46 present PN emissions concentrations during highway driving (i.e. Route 1) for *Vehicles A* and *B*, respectively. *Vehicle A* can be noticed to have experienced a moderate DPF regeneration event between 15 and 25km into the test route leading to an order of magnitude increase in PN emissions factor for test 2 as compared to test 1. However, the observed regeneration event did not cause PN emission to exceed the Euro 5b/b+ PN standard. No DPF regeneration event is seen for *Vehicle B* during highway operation over Route 1.

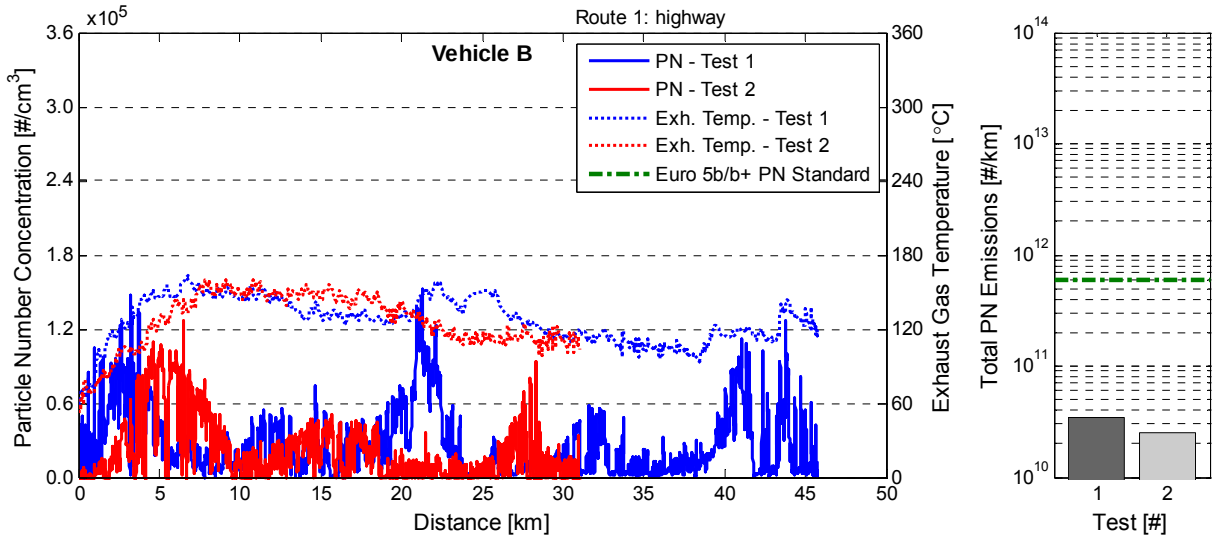

Figure 4.46: Comparison of particle number concentrations between two tests of Route 1 for Vehicle B, No DPF regeneration event observed

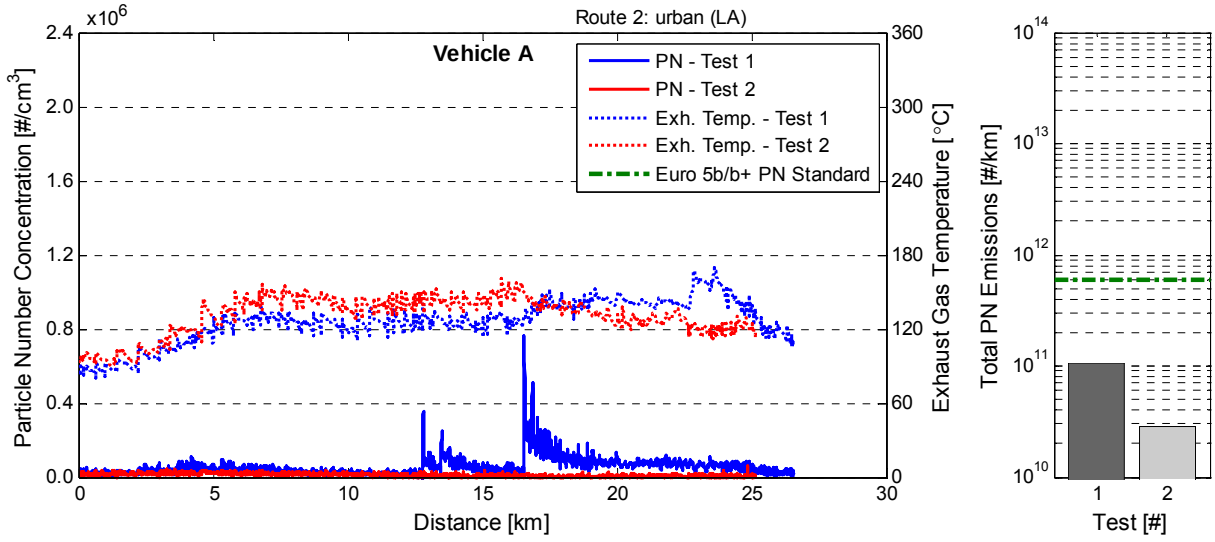

Figure 4.47: Comparison of particle number concentrations between two tests of Route 2 for Vehicle A, No DPF regeneration event observed

Figure 4.47 and Figure 4.48 show PN emissions concentrations during Route 2 for *Vehicles A* and *B*, respectively. Contrary to Route 1, during Route 2 driving *Vehicle B* exhibits a DPF regeneration event during the second half of the first test run as recognizable from either the significantly increased PN concentrations (> 2 orders of magnitude) or the increase in exhaust gas temperature by a factor of 2 when compared to test run 2 which lacks a regeneration event. Furthermore, the DPF regeneration event resulted in the PN emissions factor exceeding the applicable PN standard by an order of magnitude (i.e. 5.51×10^{12}#/km vs. 6.0×10^{11}#/km).

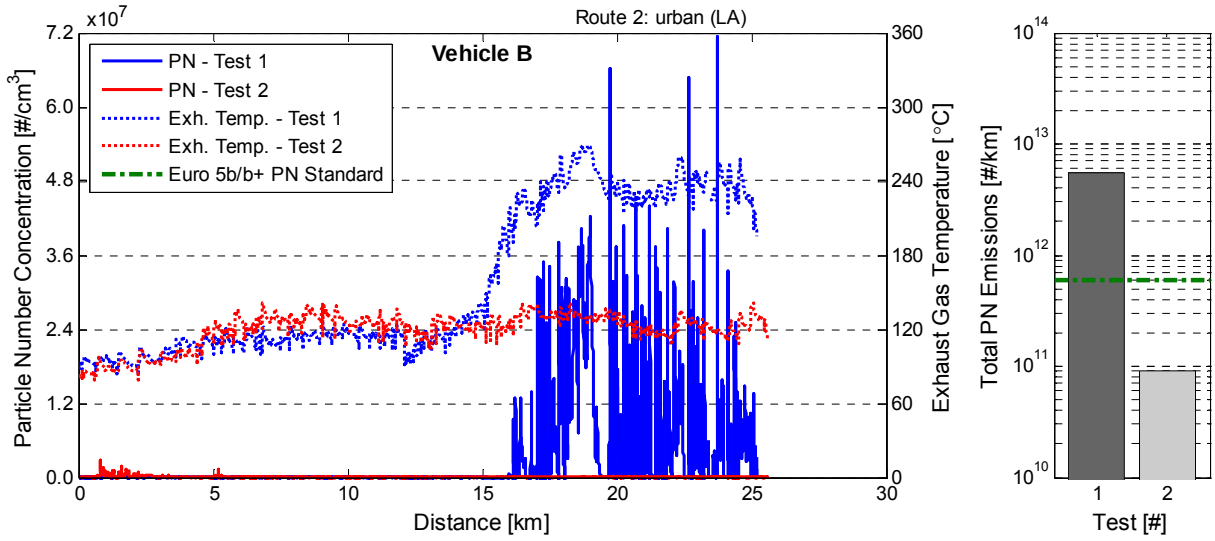

Figure 4.48: Comparison of particle number concentrations between two tests of Route 2 for Vehicle B, DPF regeneration event during test 1

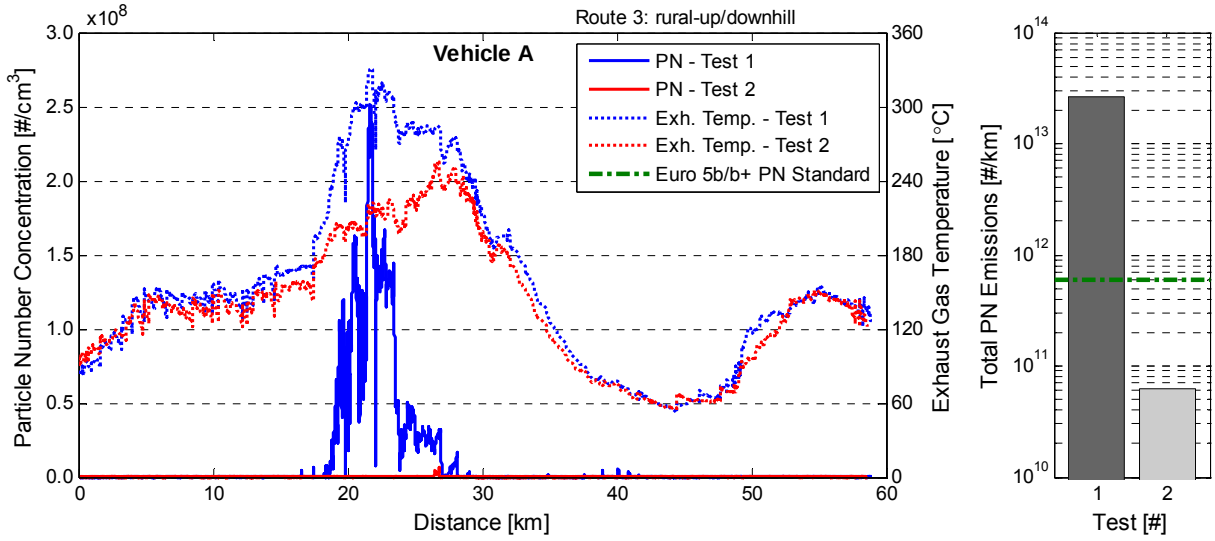

Figure 4.49: Comparison of particle number concentrations between two tests of Route 3 for Vehicle A, DPF regeneration event during test 1

Figure 4.49 and Figure 4.50 show PN emissions concentrations during Route 3 for *Vehicles A* and *B*, respectively, with DPF regenerations noticed for both vehicles. *Vehicle A* exhibited a regeneration event during the uphill portion of the first test run (at 18 to 27km) with the PN standard being exceeded by two orders of magnitude (2.61×10^{13}#/km), whereas *Vehicle B* showed repeatable signs of moderate regeneration events at the same location for both test runs. Also, PN emissions factors for *Vehicle B* are exceeding the Euro 5b/b+ PN standard during both consecutive test runs of Route 3.

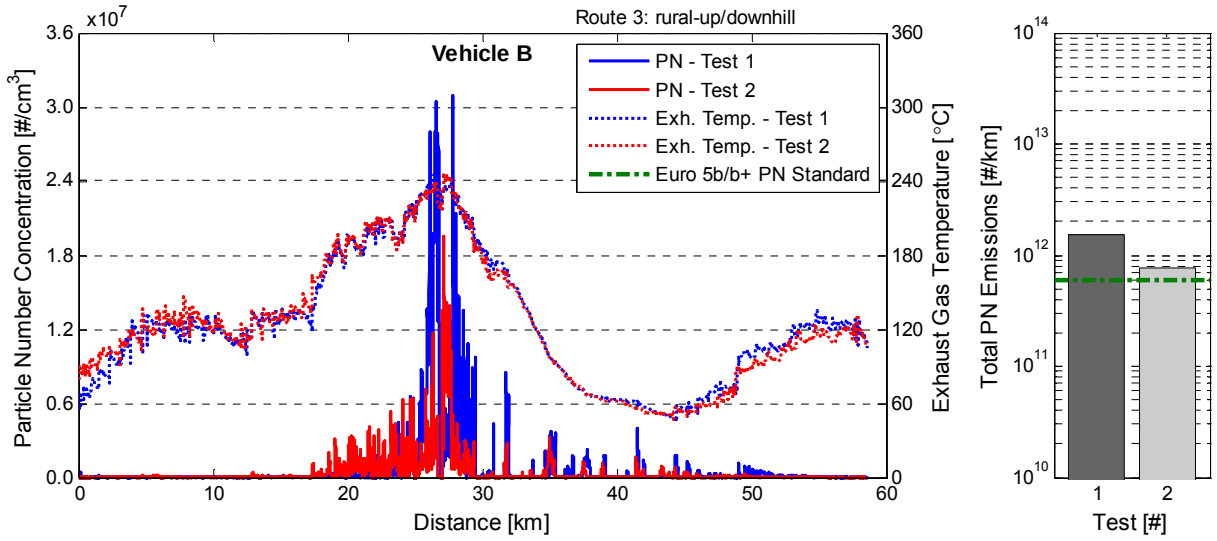

Figure 4.50: Comparison of particle number concentrations between two tests of Route 3 for Vehicle B, DPF regeneration event during both tests

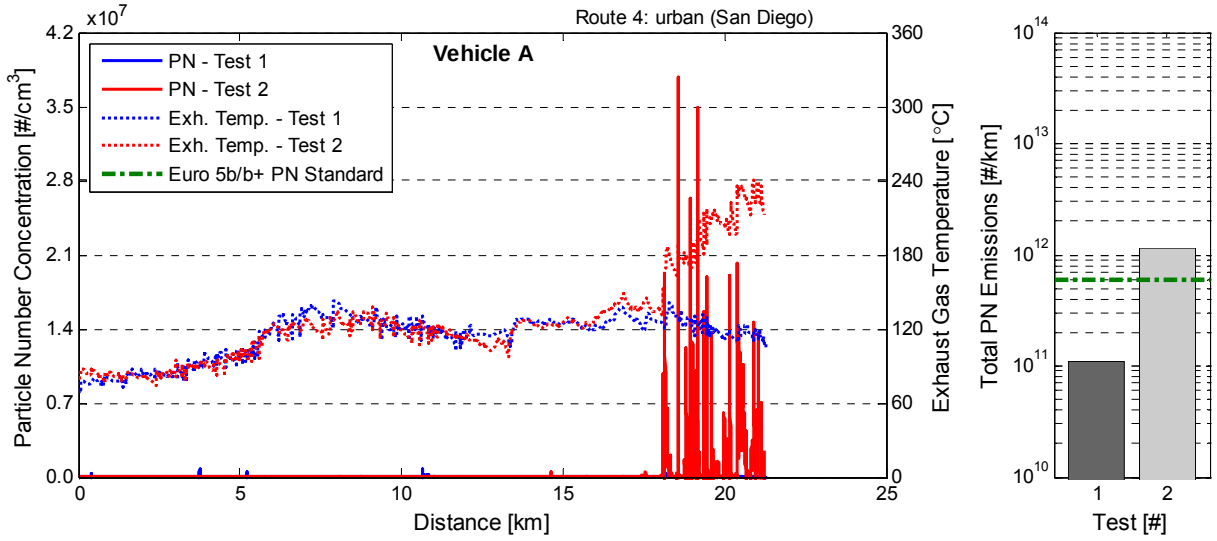

Figure 4.51: Comparison of particle number concentrations between two tests of Route 4 for Vehicle A, DPF regeneration event during test 2

Finally, Figure 4.51 and Figure 4.52 show PN emissions concentrations during Route 4 for *Vehicles A* and *B*, respectively. While *Vehicle B* does not experience any DPF regeneration event with PN emissions factors remaining well below the regulatory standard, *Vehicle A* exhibits the onset of a regeneration event towards the end of the second repetition leading to PN emissions one order of magnitude greater than observed for the test run without event.

Additionally, it is interesting to notice that while there was no DPF regeneration event occurring exhaust gas temperatures for both vehicles show a strong similarity. This can be explained by the fact that both *Vehicles A* and *B* are equipped with an identical engine that most likely is programmed with same or at least nearly same base calibration parameters. Also, the actual vehicle test weight only differed by 29kg between *Vehicle A* and *B* leading to similar load conditions for both engines during testing.

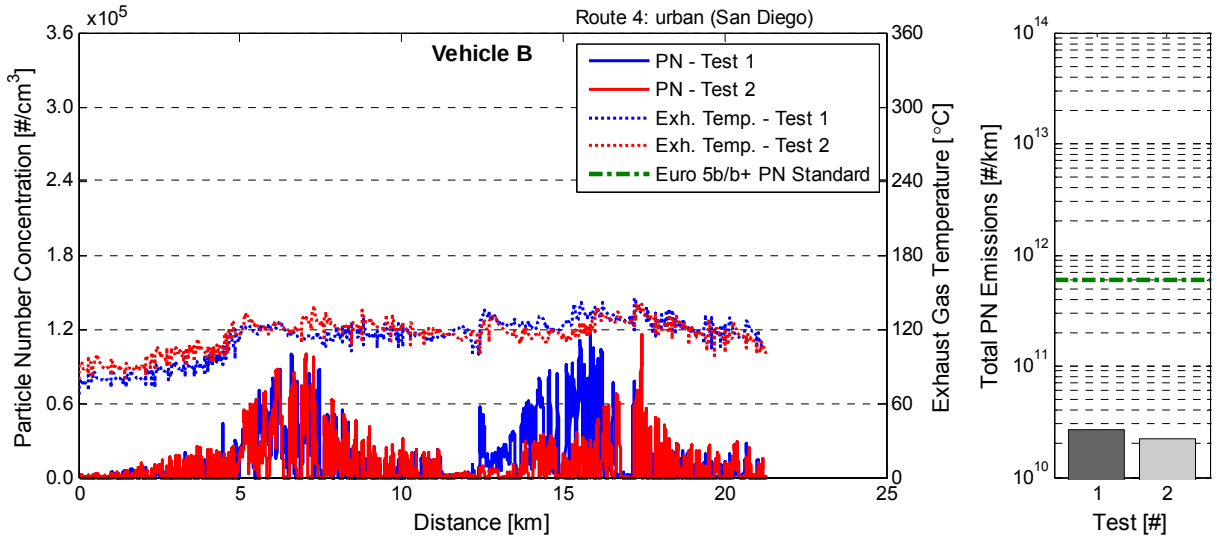

Figure 4.52: Comparison of particle number concentrations between two tests of Route 4 for Vehicle B, No DPF regeneration event observed

4.3.2 PM and PN Emissions over Cross-Multi-State Driving Route

This section presents raw particulate number and mass emissions concentrations in the exhaust stream in Figure 4.53 and Figure 4.54, respectively, for *Vehicle B* over the entire cross-multi state driving route. Four distinct DPF regeneration events can be noticed in Figure 4.53 from predominant particulate number concentration (blue line) spikes that increase by four orders of magnitude to 1.4×10^8 #/cm^3 over the typical concentration level of 2×10^4 #/cm^3. These events of drastic increase in particulate number concentrations are accompanied, as expected, by

excursions in exhaust gas temperatures as thermal conditions of after-treatment and exhaust stream are increased in order to initiate soot oxidation on the DPF substrate. Exhaust gas temperatures were observed to increase from typical levels throughout the route of ~320°C to ~560°C during the DPF regeneration events. It has to be noted that temperatures depicted in Figure 4.53 and Figure 4.54 were measured at post SCR location by an on-board temperature sensor, acquired via ECU CAN interrogation.

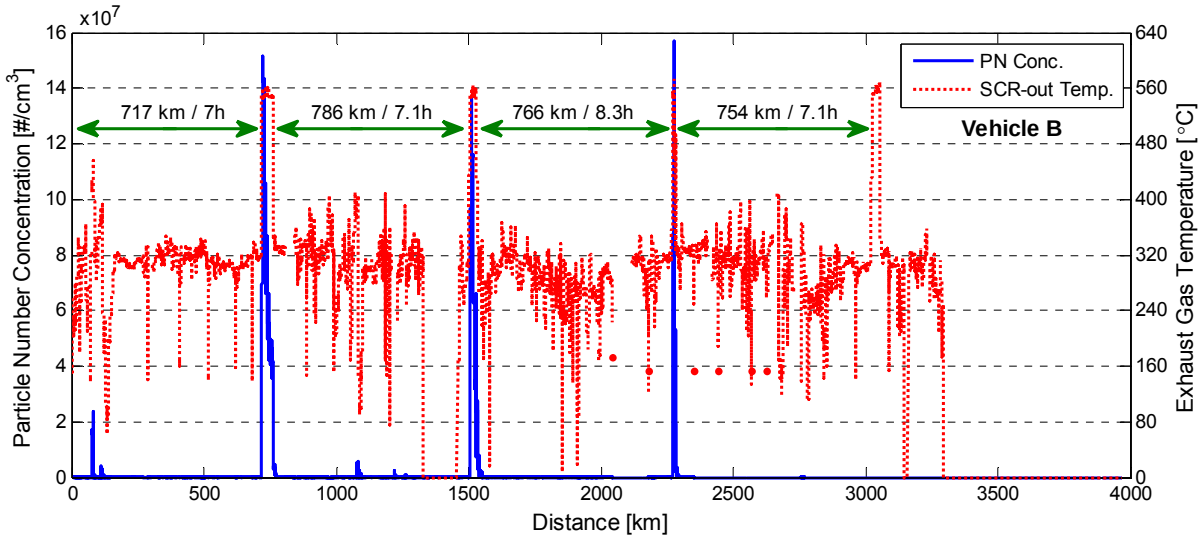

Figure 4.53: Particle number concentration and exhaust gas temperature at SCR outlet location of test vehicle over cross-multi-state driving route; Note: PN concentration spikes indicate DPF regeneration events

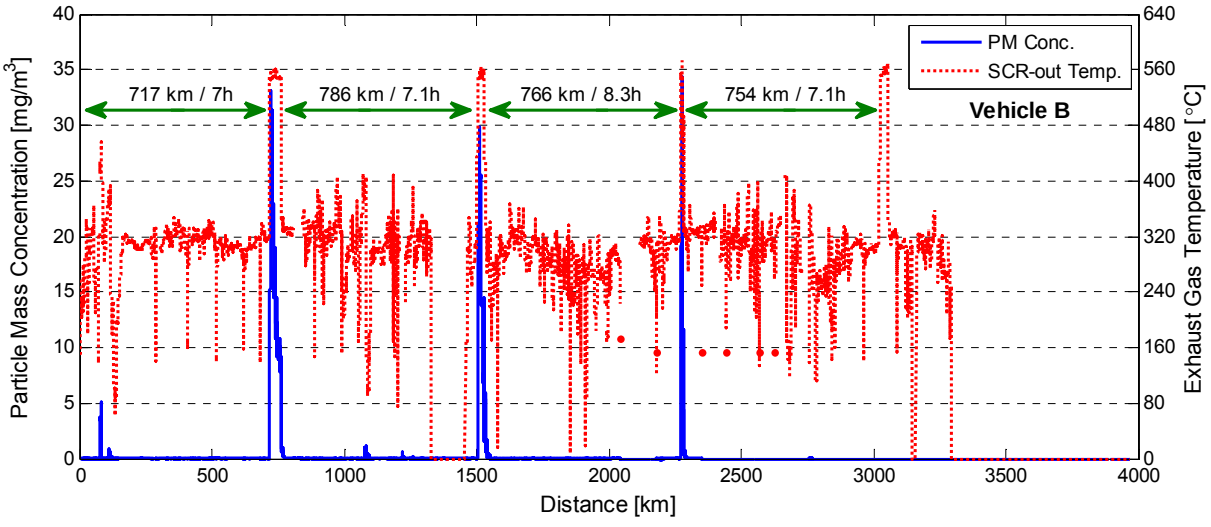

Figure 4.54: Particle mass concentration and exhaust gas temperature at SCR outlet location of test vehicle over cross-multi-state driving route; Note: PN concentration spikes indicate DPF regeneration events

Even though four distinct exhaust gas temperature excursions can be noticed from Figure 4.53, thus indicating four DPF regeneration events throughout the entire route, only three particulate number concentration spikes are observed. This is due to the fact that the real-time particle sensor was not operational after ~2600km as the electrical air compressor providing pressurized air to the sensor had failed. However, even though lacking actual particle measurements, but solely based on the preceding data it can be concluded with the necessary confidence that the temperature excursion around 3023km is indicative of a DPF regeneration event.

It is interesting to notice from Figure 4.53 that DPF regeneration events are nearly equally spaced both on a spatial (i.e. distance traveled) and temporal (i.e. duration between event) basis as can be seen from Table 4.11. On average the vehicle traveled approximately 756km ±29km (±1σ) between individual regeneration events which was observed to correspond to ~7.07hours ±0.06hours (±1σ, not including third event) on a temporal basis. Even though the distance traveled between events 2 and 3 is of similar length than for other events, the time required was observed to be ~17% longer (7.07hours vs. 8.3hours). A possible explanation for this difference is that the route between regeneration events 2 and 3 included low vehicle speed urban/suburban driving in and around Seattle, WA, leading to increased travel time to accumulate ~756km. Overall, these results ultimately lead to conclude that DPF regeneration intervals are predominantly distance based which agrees with descriptions given for after-treatment control strategies for Vehicle A in [31] (see from Figure 12 in [31]) which are most likely similar to *Vehicle B* as well as the same engine and DPF configurations are used in both vehicles. Furthermore, the observed average duration of a DPF regeneration event was 15min ±6min (±1σ) as seen from Table 4.11, thereby in agreement with system descriptions provided in [31].

Table 4.11: Distance and time based DPF regeneration frequencies and duration for Vehicle B over cross-multi state driving route

Event [#]	Distance to event [km]	Distance based f_{regen} [km]	Time to event [hr]	Time based f_{regen} [hr]	Duration [min]
1	717	*717*	7.0	*7.0*	22.4
2	1,503	*786*	14.1	*7.1*	15.2
3	2,269	*766*	22.3	*8.3*	7.5
4	3,023	*754*	29.5	*7.1*	15.8

5 CONCLUSIONS

Three light-duty diesel vehicles equipped with two different NO_x abatement technologies, namely lean-NO_x trap and urea-based selective catalytic reduction system, and certified to US-EPA Tier2-Bin5 and CARB LEV-II ULEV (CA) emissions standards were operated over a variety of pre-defined test routes exhibiting diverse driving conditions pertinent to major US population centers located in the state of California. Additionally, one vehicle, specifically *Vehicle B*, was driven over an extended distance of nearly 4000km predominantly composed of highway driving conditions between California and Washington State. Gaseous emissions of NO_x, CO, THC and CO_2 were measured using the OBS-2200 PEMS from Horiba Ltd., while particulate number and mass concentrations were inferred from real-time particle charge measurements employing a Pegasor particle sensor.

In summary, real-world NO_x emissions were found to exceed the US-EPA Tier2-Bin5 standard (at full useful life) by a factor of 15 to 35 for the LNT equipped *Vehicle A*, by a factor of 5 to 20 for the urea-SCR fitted *Vehicle B* (same engine as *Vehicle A*) and at or below the standard for *Vehicle C* with exception of rural-up/downhill driving conditions, over five pre-defined test routes. Generally, distance-specific NO_x emissions were observed to be highest for rural-up/downhill and lowest for high-speed highway driving conditions with relatively flat terrain. Interestingly, NO_x emissions factors for *Vehicles A* and *B* were below the US-EPA Tier2-Bin5 standard for the weighted average over the FTP-75 cycle during chassis dynamometer testing at CARB's El Monte facility, with 0.022g/km ±0.006g/km (±1σ, 2 repeats) and 0.016g/km ±0.002g/km (±1σ, 3 repeats), respectively. Additionally, increased variability between consecutive test runs was observed for *Vehicle A* coinciding with DPF regeneration events, leading to an increase in NO_x emissions by 97% (0.41 g/km to 0.81g/km), 19% (1.38g/km to 1.63g/km), and 38% (1.24g/km to 1.72g/km) for Routes 1, 3, and 4, respectively, between test runs with and without DPF regeneration events. This was speculated to be due to an extended duration of lean exhaust conditions and a lack of frequent enrichment of the exhaust gas ($\lambda < 1$) while DPF regeneration was ongoing, leading to an inhibition of necessary LNT regeneration (D_eNOx), and thus, causing the NO_x storage catalyst to become saturated with NO_x emissions that ultimately started to break through. The probability of this explanation is additionally supported by a detailed description of the after-treatment control strategy for *Vehicle A* presented elsewhere [31].

NO_x emissions of *Vehicle B* over the cross-multi state driving route, comprising predominantly highway driving, were observed to be on average 0.26g/km ±0.21g/km (±1σ) or approximately 6 times exceeding the US-EPA Tier2-Bin5 standard. However, most interestingly NO_x emissions were found to be below the regulatory standard for portions of the route characterized by low or negligible changes in altitude (i.e. near zero road grade), and with the vehicle operated in cruise-control mode at approximately 120km/h while traveling northbound on Interstate 5 through the San Joaquin Valley (see route portions 3 through 6 in Figure 4.17).

In general, CO and THC emissions were observed to be well below the regulatory level for all three test vehicles and driving conditions, with exception of Routes 1 and 2 for *Vehicle A* where THC emissions were seen to exceed the regulatory level by a small margin (< factor 1.25). Highest THC emissions for *Vehicle A* coincided with lowest NO_x emissions however, no conclusive explanation can be presented herein for why this behavior was observed.

Highway driving showed lowest CO_2, whereas urban/suburban driving conditions lead to highest CO_2 emissions factors for all vehicles. Since both *Vehicles A* and *B* were equipped with the same engine and similar test weights (i.e. 1855kg vs. 1884kg), comparable CO_2 consumption patterns were observed in agreement with results obtained during chassis dynamometer testing over the NEDC for urban/suburban and highway driving portions. It has to be noted that the equivalent vehicle test weight during chassis dynamometer testing was 1701kg for both *Vehicles A* and *B*, or ~8% lower compared to vehicle weights during on-road PEMS testing. The equivalent test weight for *Vehicle C* for CO_2 emissions evaluation as per EPA procedure is 2495kg, or ~14% lower compared to the actual vehicle weight during on-road PEMS testing (i.e. 2903kg). Average fuel economy for highway driving with *Vehicles A* and *B* was 45.3 mpg ±8.6mpg (±σ1) and 43.7mpg ±5.7mpg (±σ1), respectively, and 27.3 mpg (no repetition) for *Vehicle C* which is ~39% lower compared to *Vehicles A* and *B*. On the other hand, urban/suburban driving results in average fuel economies of 30.0mpg ±2.9mpg (±σ1) and 26.6 mpg ±1.4mpg (±σ1) for *Vehicles A* and *B*, respectively, and 18.5mpg ±4.0mpg (±σ1) for *Vehicle C* which is 35% lower compared to *Vehicles A* and *B*. Overall, urban/suburban driving leads to a 32-39% reduction in fuel economy over highway driving.

Particulate matter mass emissions, inferred from PPS measurements, were observed below the US-EPA Tier2-Bin5 standard for *Vehicles A* and *B*. On the other hand, particulate number

emissions were found to exceed the Euro 5b/b+ PN standard during DPF regeneration events increasing by 2 to 3 orders of magnitude over emissions levels measured during none-regeneration events. It is noted that PN is not regulated in the United States. During the multi-state driving route, DPF regeneration frequency for *Vehicle B* was established to be predominantly based on distance traveled, occurring after every 756km ±29km (±1σ), corresponding to ~7.07hours ±0.06hours for highway driving conditions.

It is noted that only three vehicles were tested as part of this measurement campaign with each vehicle being a different after-treatment technology or vehicle manufacturer; conclusions drawn from the data presented herein are confined to these three vehicles. The limited data set does not necessarily permit drawing more generalized conclusions for a specific vehicle category or after-treatment technology.

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7 APPENDIX

7.1 Exhaust Emissions Calculations with Horiba OBS-2200

7.1.1 Time alignment of real-time emissions concentrations

The individual emissions concentrations are shifted to account for transport delays from the sampling plane (reference point) to the analyzer cells through the heated transfer line, heated filter and internal plumbing of the OBS. This is done in order to time-align the concentration values with the respective exhaust flow rates for calculation of time-specific mass emissions rates. Exhaust concentration alignment is automatically performed by the OBS software, hence; the emissions concentrations reported in the data sets (csv-files) are already time-aligned. Transport delay times (T_{50}) are calculated from spike-recovery tests during the calibration and initial setup of the OBS instrument. The csv-files report the delay times in column '*E*' in the file header.

7.1.2 Drift correction of real-time emissions concentrations

Drift corrections of the emissions concentrations are performed in order to account for possible analyzer drift over the measurement period. Prior to data collection over a test route, '*pre-zero*' and '*pre-span*' adjustments are performed for each analyzer. Upon completion of a test route, '*post-zero*' and '*post-span*' values are automatically collected by the OBS software for each analyzer. If the duration of a test route exceeds one hour (i.e. 3600 seconds), the OBS will automatically interrupt data collection for a period of 30 seconds to perform a '*post-zero*' and '*post-span*' check as well as make zero/span adjustments for each analyzer before continuing with data collection. Zero-drift and span-drift values are reported in columns '*I*' and '*J*', respectively of the csv-file. Using these values, the OBS software automatically performs a drift correction of the real-time emissions concentration values upon completion of data collection (e.g. end of test route) using Equation (1).

7.1.3 Averaging Window Method (AWM)

In this method emission rates are integrated along with one of the listed criteria from time $t = 0.0\ sec$ until the chosen criteria has reached a target value. The target values are normally derived from standardized test cycles used in certifying engine families in test cell. The time interval between $t_{start} = 0.0\ sec$ to $t_{end} = x.x\ sec$ where the integrated value of the chosen criteria

is equal to its target is called a window, and for a moving window method the process is repeated with a new starting time being $t_{start} = 0.0 + 1.0\ sec$ until a new window is achieved. Emissions rates of regulated pollutants are integrated for the above criteria windows, and have to meet the set in-use emissions standards. The criteria windows are valid only if the average engine power for each window is greater than or equal to 20% of maximum engine power. Similarly for an in-use test to be valid there should be at least 50% of criteria windows should be valid. If there are no 50% valid criteria windows in an in-use test then the window validity condition is reduced as low as 15% of maximum engine power in increments of 1% of average power. However, it has to be noted that averaging window emissions factors presented in this report are based on total emissions emitted over a given test route and are not corrected for any exclusion conditions such as exhaust temperature limits, altitude, DPF regeneration events or similar. Also, all averaging windows were considered for calculation and none were invalidated based on the 20% minimum power condition as outlined in the European Regulations No. 582/2011 [3]

7.2 Particle Number Measurement with European PMP Method

Streamlined with the introduction of PN limits (i.e. Euro 5b/b+ [4]), the European Union adopted a new methodology aimed at standardizing the measurement of total particle number concentrations by only counting solid particles having a diameter between 23nm and 2.5µm and that are thermally treated in order to reduce the volatile fraction, thus reducing measurement artifacts and variability [27]. This method has been previously developed under the Particle Measurement Program (PMP) of the United Nation's Economic Commissions for Europe - Group of Experts on Pollution and Energy (UN-ECE-GRPE) [34, 35, and 36] leading to the following operational definition of particle numbers: '*measurement of solid particles having a diameter between 23nm and 2.5µm and are of sufficiently low volatility to survive a residence time of 0.2sec at 300°C*' [37].

The sampling system comprises a volatile particle remover (VPR) and an ultrafine particle counter optimized for a 50% counting efficiency for 23nm size particles. The VPR is designed to remove the volatile and semi-volatile fractions in the exhaust sample, thereby aiming at suppressing particle nucleation and the formation of artifacts in the sample stream. A first stage hot dilution (at 150 to 400°C and dilution ratio of 10) is used to reduce particle concentration in

the sample before being directed into the evaporation tube (operated at 300 to 400°C) where the volatile and semi-volatile components are being transferred to a gaseous state. It follows a second cold dilution stage (dilution ratio between 10 to 15) to i) rapidly lowering the partial pressures of the gaseous components aimed at preventing their re-condensation, and ii) lowering the sample temperature to below 35°C prior to entering the particle counting device. The Pegasor particle sensor for example has the advantage of not having a very limited range requirement for sample inlet temperatures (up to ~800°C), thus allowing for direct measurement of raw exhaust gases and thereby ultimately reducing the magnitude of size dependent particle losses as occurring in the VPR.

However, the PMP approach for particle number measurements has come under scrutiny as recent studies have on one hand observed significant semi-volatile particles downstream the VPR [38, 39], and on the other hand measured increased concentrations of particles below the size of 23nm being emitted from DPF equipped vehicles. These ultrafine particles are believed to comprise sulfuric acid and assumed to be emitted from catalytic oxidation of sulfur from lubrication oil [40, 41, and 42]. Johnson et al. [37] evaluated the European PMP methodology during on-road vehicle testing and observed a significant portion of particles in the size range below 20nm even though the sample stream was thermally treated according to PMP requirements, thus questioning the applicability of the 23nm lower cut-point for particle measurements, as mandated by the European PMP regulation.

7.3 PEMS Comparison with CVS System for Gaseous Emissions

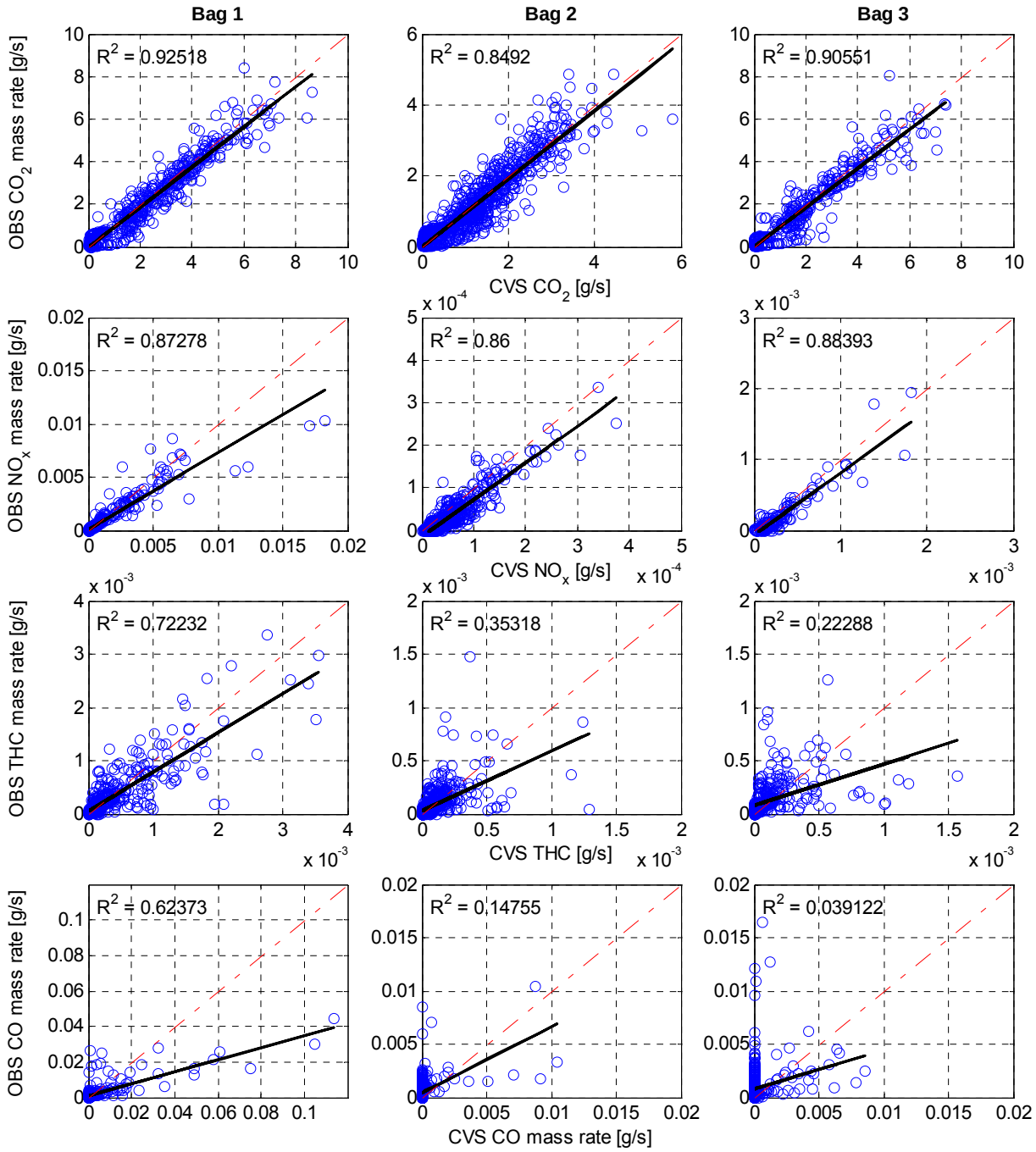

Figure 7.1: Linear regression analysis between CVS laboratory (CARB, El Monte CA) and Horiba OBS-2200 PEMS measurements over the FTP-75 standard chassis dynamometer test cycle

7.4 ULSD Fuel Analysis for Vehicles A and B

SGS HERGUTH LABORATORIES

Certificate of Analysis
Lab Number V7012631A

Francisco Posada Sanchez
The International Council
on Clean Transportation
1225 "I" Street NW, Suite 900
Arlington VA 20005

03/12/13

Page 1

Client Code : THEICF Sample Date : 02/25/13 P.O. Number : POSTED CASH
Herguth ID : LABV7012631
Description : Commercial Grade Diesel Fuel
Oil Type : Diesel Fuel (GN_130)
Unit Type : Diesel Fuel (GN_DF001)

Test Performed	Proc-Rev	Result	
Sulfur by Microcoulometry ASTM D3120	3120-3.1	5	mg/kg
Density @ 15C ASTM D4052	4052-1.7	0.8355	g/mL
Biodiesel Blend as FAME by FTIR HL-1141A	1141A-1.1	0.32	vol. %
Aromatic Content & PAH by SFC ASTM D5186	5186-1.0		
Mono-Aromatics ASTM D5186		13.9	% wt
Polynuclear Aromatic Hydrocarbons, PAH ASTM D5186		1.7	% wt
Total Aromatics ASTM D5186		15.6	% wt
Ultimate Analysis	5291-1.0		
Carbon ASTM D5291		86.16	mass %
Hydrogen ASTM D5291		13.67	mass %

REVISED REPORT supersedes lab # V7012631 and includes additional test results.
Data is reported per client specified testing request.
Fourier Transform Infrared Analysis (FTIR) of the fuel sample submitted shows the percent of Fatty Acid Methyl Ester (FAME) component in the ~1750 cm-1 wavenumber region. FAME is the major indicator for Biodiesel. The FTIR was calibrated based on standards prepared by blending Diesel with B100 Soy Biodiesel.
Aromatic Content & PAH by SFC and Ultimate Analysis was subbed out.

Respectfully Submitted,
SGS Herguth Laboratories, Inc.

cc: Francisco Posada Sanchez

Bobby R Licu, Evaluations Manager

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