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UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

GARNER RICKMAN, ZIWEN LI, and GARY REISING, individually and on behalf of all others similarly situated, Plaintiffs, v. BMW OF NORTH AMERICA LLC, a Delaware corporation; and BAYERISCHE MOTOREN WERKE AKTIENGESELLSCHAFT (BMW AG), a corporation organized under the laws of Germany, Defendants.	Civil Action No. **COMPLAINT and** **DEMAND FOR JURY TRIAL**

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Plaintiffs, individually and on behalf of all others similarly situated (the "Class"), allege the following based upon the investigation of counsel, and the proprietary investigation of experts.

I. INTRODUCTION

1. This is what the BMW Group promised when selling the popular BMW X5 xDrive35d ("X5") and 335d diesel vehicles: that the vehicles "met emissions standards in all 50 states", that "BMW Efficient Dynamics" meant "Less emissions," and that its engines "protect the environment every day," were "environmentally friendly," and turned nitric oxides "into environmentally compatible nitrogen and water vapor." BMW made these statements about the emissions of BMW diesel vehicles because BMW knew emissions and environmental mitigations were material to a reasonable purchaser of a diesel vehicle.

2. As explained in detail below, this is not what BMW delivered, and BMW's representations were misleading for failure to disclose its emissions manipulations, namely that while the vehicles may have passed emissions testing in a test environment, software in the vehicles senses when test conditions are not present, and reduces or turns off emissions controls in these circumstances. In contrast to BMW's promises, scientifically valid emissions testing has revealed that the 2009-2013 X5 and 2009-2011 335d vehicles ("Polluting BMW Vehicles") emit levels of NOx many times higher than (i) their gasoline counterparts; (ii) what a reasonable consumer would expect; (iii) what BMW had advertised; (iv) the Environmental Protection Agency's and certain states' maximum standards; and (v) the levels set for the vehicles to obtain a certificate of compliance, which allows them to be sold in the United States. The vehicles' promised power, fuel economy, and efficiency are obtained only by turning off or turning down emission controls when the software in these vehicles senses that they are not in an emissions testing environment. These software manipulations result in emissions that range from an

average of 3 times the standard in highway conditions and 8.5 times the standard in city driving conditions. Highway emissions can get as high as 20 times the standard, and city conditions as high as 27 times the standard.

3. In the last two years, there have been major scandals involving diesel vehicles made by all of the leading diesel manufacturers, including Volkswagen, Audi, Porsche, Mercedes, and Fiat Chrysler Automobiles (FCA). Volkswagen pled guilty to criminal violations of the Clean Air Act, Mercedes is under investigation by the Department of Justice, and FCA has been sued by the EPA for violating the Clean Air Act for improper emissions in tens of thousands of 2014–2016 Dodge Ram 1500 and Jeep Grand Cherokee EcoDiesels. General Motors is the subject of a lawsuit concerning the emissions in its Silverado and Sierra trucks, and in its Chevy Cruze. The diesel vehicles made by all these manufacturers all have a common flaw; they evade emissions standards with the help of certain software (all made by Bosch) that turns off or turns down emission controls when the vehicles sense that they are not in a test environment.

4. Emissions testing using accepted testing equipment and protocols conducted by engineering experts in emissions testing indicates that, unfortunately, BMW is no different than the above mentioned cheating manufacturers. BMW's top selling diesel vehicles often emit far more pollution on the road than in the emissions-certification testing environment. These vehicles exceed federal and state emission standards and employ "defeat devices" to turn down the emission controls when each vehicle senses that it is not in the certification test cycle. As used herein, a defeat device means an auxiliary emission control device 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. In modern vehicles with electronic engine

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controls, defeat devices are almost always activated by illegal software in the vehicle's engine control module (ECM)—the computer that controls the operation of the engine and emission control devices.

5. How and why did all of these manufacturers cheat? 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.

6. One byproduct of diesel combustion is NOx, which generally describes two primary compounds comprised of nitrogen and oxygen atoms, nitric oxide, and nitrogen dioxide. 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 U.S. government, through the EPA, has passed and enforced laws designed to protect U.S. citizens from these NOx and certain other chemicals and agents known to cause disease in humans. NO2, which is the pollutant that NOx is converted to in the atmosphere, is one of the seven criteria pollutants that the Clean Air Act establishes as "wide-spread pollutants that were considered harmful to the public and environment." The National Ambient Air Quality Standards, which form the backbone of the clean air regulations designed to protect human health and the environment from criteria pollutants, regulate these criteria pollutants. Regulation of NOx from diesel engines is one way that the EPA controls ambient concentrations of this harmful pollutant.

7. Automobile manufacturers must abide by these laws and must adhere to EPA rules and regulations. The state claims in this case are not based on these laws but on deception aimed at consumers.

8. The Energy Independence and Security Act (EISA) of 2007 mandated a 40% increase in fuel economy by 2020. Tougher fuel economy standards were set to start for model year 2011 vehicles. Likewise, in Europe new stricter standards were also looming. Automobile manufacturers began planning to meet these standards. Auto manufacturers saw that the stricter standards could be met through electric cars, hybrids, or diesels, and saw a market for tens of millions of cars that could be marketed as vehicles that met the new standards. In response to this enormous market, almost all of the major automobile manufacturers rushed to develop "clean diesel" vehicles and promoted these new diesel vehicles as environmentally friendly and clean. They all marketed the diesel vehicles as having better fuel economy than their gasoline counterparts. BMW, Volkswagen, Mercedes, Audi, General Motors, and FCA also began marketing diesel cars and trucks as more "powerful" than their gasoline counterparts, but also as an environmentally friendly alternative to gasoline vehicles. And the marketing worked, as over two million diesel vehicles were purchased between 2007 and 2016 in the United States and over ten million in Europe.

9. The green bubble with respect to diesel vehicles began to burst on September 18, 2015, when the EPA issued a Notice of Violation of the Clean Air Act (the "First NOV") to Volkswagen Group of America, Audi AG, and Volkswagen America for installing illegal "defeat devices" in 2009–2015 Volkswagen and Audi diesel vehicles equipped with 2.0-liter diesel engines. A defeat device, as defined by the EPA, is any apparatus that unduly reduces the effectiveness of emission control systems under conditions a vehicle may reasonably be expected

to experience on the road. The EPA found that the Volkswagen/Audi defeat devices 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 also announced that it had initiated an enforcement investigation of Volkswagen pertaining to the vehicles at issue in the First NOV.

10. On September 22, 2015, Volkswagen announced that 11 million diesel vehicles worldwide were installed with the same defeat device software that had evaded emissions testing by U.S. regulators. Volkswagen pled guilty to criminal charges, paid billions in fines, and settled civil class actions for over ten billion dollars.[1]

11. Volkswagen wasn't alone—soon, government agencies began to reveal that many manufacturers, both in the United States and in Europe, had produced dozens of models that were exceeding emissions standards. On December 2, 2016, certain of Plaintiffs' counsel in this case, based on the same type of expert testing and investigation conducted in this case, filed a class action alleging that FCA's Dodge Ram and Jeep Grand Cherokee EcoDiesels were exceeding emissions standards and producing emissions beyond that a reasonable consumer would expect to be produced by "Eco" vehicles. On January 12, 2017, essentially confirming the work of Plaintiffs' counsel and expert testing, the EPA issued a Notice of Violation to FCA because it had cheated on its emissions certificates with respect to its Dodge Ram and Jeep Grand Cherokee EcoDiesel vehicles. And on May 23, 2017, the United States filed a civil suit in the Eastern District of Michigan against FCA alleging violations of the Clean Air Act (*United States v. FCA US LLC*, No. 17-cv-11633 (E.D. Mich.)). Many of the defeat devices listed in the Notice of Violation were identified by Plaintiffs' counsel ahead of the notice. In Europe,

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

watchdog groups, NGOs, and government agencies have cited virtually every manufacturer, including BMW, for violating the lower European standards.

12. To appeal to environmentally conscious consumers, compete with rival and top selling vehicles sold by Volkswagen and Audi, and to comply with new emissions regulations that became effective in 2010, BMW marketed its diesel vehicles as having "low emissions," and "clean" diesel technology coupled with high fuel economy.

13. BMW's representations are deceptive and false, and BMW sold these vehicles while omitting information that would be material to a reasonable consumer, namely, BMW failed to disclose that BMW has programmed its Polluting BMW Vehicles to significantly reduce the effectiveness of the NOx reduction systems during common real-world driving conditions.

14. Plaintiffs' on-road testing has confirmed that BMW's diesel vehicles produce NOx emissions in an amount demonstrating that they are not the "cleanest X5 diesel" or vehicles that "meet emission standards"; rather, BMW has programmed the vehicles so that in a wide range of common driving conditions, the emissions systems are powered down, producing NOx far in excess of emissions standards. A reasonable consumer would not expect their BMW diesel vehicle to spew unmitigated NOx in this fashion while driving in the city or on the highway, nor would a reasonable consumer expect that fuel economy was achieved in part by turning off or derating the emission systems; nor would a reasonable consumer expect that if the emissions were as promised, the advertised fuel economy and performance could not be achieved.

15. In highway driving, emissions average three times the standard, and were observed to reach 20 times the standard. In city driving, emissions were 8.5 times the standard, with emissions reaching 27 times the standard. However, when the vehicle was tested on a

dynamometer, *i.e.*, in the same condition used for a certification test, the vehicle essentially passed. This means the vehicles are programmed to sense test conditions and to have the emissions controls turned fully on, but derated when not in a test environment.

16. BMW did not act alone. At the heart of the diesel scandal in the United States and Europe are Robert Bosch GmbH ("Bosch GmbH") and Robert Bosch LLC ("Bosch LLC") (sometimes referred together as "Bosch"). In the mid to late 2000s, like the vehicle manufacturers, the Bosch entities saw a huge market for diesel vehicles in Europe and the United States. Bosch became a critical player in the diesel market in its role as a supplier of emissions software for almost all diesel car manufacturers. Bosch GmbH and Bosch LLC were active and knowing participants in the scheme to evade U.S. emissions requirements. Bosch GmbH and Bosch LLC developed, manufactured, and tested the electronic diesel control (EDC) that allowed BMW (and Ford, GM, Volkswagen, Mercedes, and FCA) to implement defeat devices. The Bosch EDC17 is a perfect enabler for the used "defeat devices" as it enables the software to detect conditions when emission controls can be manipulated—*i.e.*, conditions outside of the emissions test cycle. Almost all of the vehicles found or alleged to have been manipulating emissions in the United States (including vehicles by Mercedes, FCA, Volkswagen, Audi, Porsche, and General Motors) use a Bosch EDC17 device. As part of its efforts to falsely promote "clean diesel," Bosch, as a member of the "Diesel Technology Forum," helped send out dozens of statements to the public and regulators about "clean diesel," and while secretly knowing all of its diesel manufacturing clients were not producing "clean diesel vehicles."

17. Plaintiffs bring this action individually and on behalf of all other current and former owners or lessees of the Polluting BMW Vehicles. Plaintiffs seek damages, injunctive

relief, and equitable relief for Defendants' misconduct related to the design, manufacture, marketing, sale, and lease of the Polluting BMW Vehicles, as alleged in this Complaint.

II. JURISDICTION

18. This Court has subject matter jurisdiction over this action under 28 U.S.C. § 1331 because Plaintiffs' claims arise under the RICO Act, 18 U.S.C. § 1962. The Court also has diversity jurisdiction because Plaintiffs and Defendants reside in different states. The Court has supplemental jurisdiction over Plaintiffs' state law claims under 28 U.S.C. § 1367.

19. This Court also has original jurisdiction over this lawsuit pursuant to 28 U.S.C. § 1332(a)(1), as modified by the Class Action Fairness Act of 2005, because Plaintiffs and Defendants are citizens of different states; there are more than 100 members of the Class (as defined herein); the aggregate amount in controversy exceeds $5 million, exclusive of attorneys' fees, interest, and costs; and Class members reside across the United States. The citizenship of each party is described further below in the "Parties" section.

20. This Court has personal jurisdiction over each Defendant pursuant to 18 U.S.C. § 1965(b) & (d). This Court has personal jurisdiction over Defendants because they have minimum contacts with the United States, this judicial district, and this State, and they intentionally availed themselves of the laws of the United States and this State by conducting a substantial amount of business throughout the State, including the design, manufacture, distribution, testing, sale, lease, and/or warranty of BMW vehicles in this State and District. At least in part because of Defendants' misconduct as alleged in this lawsuit, the Polluting BMW Vehicles ended up on this State's roads and in dozens of franchise dealerships.

III. VENUE

21. Venue is proper in this Court under 28 U.S.C. § 1391 because (i) Defendants conduct substantial business in this District and have intentionally availed themselves of the laws

and markets of the United States and this District; and/or (ii) many of the acts and transactions giving rise to this action occurred in this District, including, *inter alia*, BMW's promotion, marketing, distribution, and sale of the Polluting BMW Vehicles in this District. Defendant BMW sells a substantial number of automobiles in this District, has dealerships located throughout this District, and the misconduct occurred in part in this District. Venue is also proper under 18 U.S.C. § 1965(a) because Defendants are subject to personal jurisdiction in this District, as alleged in the preceding paragraph, and Defendants have agents located in this District.

IV. PARTIES

A. Plaintiffs

1. Colorado Plaintiff

a. Garner Rickman

22. Plaintiff Garner Rickman (for the purpose of this paragraph, "Plaintiff") is an individual residing in Hayden, Colorado. On or around May 20, 2015, Mr. Rickman purchased a used 2012 BMW X5 Diesel from Schomp BMW, an authorized BMW dealer in Highlands Ranch, Colorado. Mr. Rickman paid approximately $43,000 for the vehicle, and paid a diesel premium of at least $1,500. Mr. Rickman purchased and still owns this vehicle. Unknown to him at the time the vehicle was purchased, the vehicle only achieved its promised fuel economy and performance because it was equipped with an emissions system that, during normal driving conditions, exceeded the allowed level of pollutants such as NOx. BMW's unfair, unlawful, and deceptive conduct in designing, manufacturing, marketing, selling, and leasing the vehicle without proper emission controls has caused Mr. Rickman out-of-pocket loss in the form of overpayment at the time of purchase, and diminished value of his vehicle. BMW knew about, or recklessly disregarded, the inadequate emission controls during normal driving conditions, but

did not disclose such facts or their effects to Mr. Rickman, so Mr. Rickman purchased his vehicle on the reasonable but mistaken belief that his vehicle was a "clean diesel" and/or a "low emission diesel," complied with U.S. emissions standards, was properly EPA-certified, and would retain all of its promised fuel economy and performance throughout its useful life. Mr. Rickman selected and ultimately purchased his vehicle, in part, because of the diesel system, as represented through advertisements and representations made by BMW. Mr. Rickman recalls that before he purchased the vehicle, he reviewed advertisements on BMW's website and representations from BMW's authorized dealer touting the efficiency, fuel economy, and power and performance of the engine. Had BMW disclosed this design or the fact that the vehicle actually emitted unlawfully high levels of pollutants, Mr. Rickman would not have purchased the vehicle or would have paid less for it, by at least $1,500. Mr. Rickman and each Class member has suffered an ascertainable loss as a result of BMW's omissions and/or misrepresentations and Defendants' operation of a RICO enterprise associated with the BMW X5 Diesel engine system, including but not limited to a high premium for the BMW X5 Diesel engine compared to what they would have paid for a gas-powered engine, and out-of-pocket losses by overpaying for the vehicles at the time of purchase. Neither BMW nor any of its agents, dealers, or other representatives informed Mr. Rickman or Class members of the existence of the unlawfully high emissions and/or defective nature of the diesel engine system of the Polluting Vehicles prior to purchase.

2. Maryland Plaintiff

a. Ziwen Li

Plaintiff Ziwen Li (for the purpose of this paragraph, "Plaintiff") is an individual residing in Ocala, Florida. On or around April 27, 2015, Mr. Li purchased a used 2011 BMW X5 Diesel from Passport BMW, an authorized BMW dealer in Camp Springs, Maryland. Mr. Li paid

approximately $27,000 for the vehicle and paid a diesel premium. Mr. Li purchased and still owns this vehicle. Unknown to him at the time the vehicle was purchased, the vehicle only achieved its promised fuel economy and performance because it was equipped with an emissions system that, during normal driving conditions, exceeded the allowed level of pollutants such as NOx. BMW's unfair, unlawful, and deceptive conduct in designing, manufacturing, marketing, selling, and leasing the vehicle without proper emission controls has caused Mr. Li out-of-pocket loss in the form of overpayment at the time of purchase, and diminished value of his vehicle. BMW knew about, or recklessly disregarded, the inadequate emission controls during normal driving conditions, but did not disclose such facts or their effects to Mr. Li, so Mr. Li purchased his vehicle on the reasonable but mistaken belief that his vehicle was a "clean diesel" and/or a "low emission diesel," complied with U.S. emissions standards, was properly EPA-certified, and would retain all of its promised fuel economy and performance throughout its useful life. Mr. Li selected and ultimately purchased his vehicle, in part, because of the diesel system, as represented through advertisements and representations made by BMW. Mr. Li recalls that before he purchased the vehicle, he reviewed advertisements on BMW's website and representations from BMW's authorized dealer touting the efficiency, fuel economy, and power and performance of the engine. Had BMW disclosed this design or the fact that the vehicle actually emitted unlawfully high levels of pollutants, Mr. Li would not have purchased the vehicle or would have paid less for it. Mr. Li and each Class member has suffered an ascertainable loss as a result of BMW's omissions and/or misrepresentations and Defendants' operation of a RICO enterprise associated with the BMW X5 Diesel engine system, including but not limited to a high premium for the BMW X5 Diesel engine compared to what they would have paid for a gas-powered engine, out-of-pocket losses by overpaying for the vehicles at the

time of purchase, and future attempted repairs, future additional fuel costs, decreased performance of the vehicles, and diminished value of the vehicles. Neither BMW nor any of its agents, dealers, or other representatives informed Mr. Li or Class members of the existence of the unlawfully high emissions and/or defective nature of the diesel engine system of the Polluting Vehicles prior to purchase.

3. Pennsylvania Plaintiff

a. Gary Reising

23. Plaintiff Gary Reising (for the purpose of this paragraph, "Plaintiff") is an individual residing in Chalfont, Pennsylvania. On or around May 28, 2016, Mr. Reising purchased a used 2011 BMW 335d from Philly Auto in Philadelphia, Pennsylvania. Mr. Reising paid approximately $26,000 for the vehicle and paid a diesel premium. Mr. Reising purchased and still owns this vehicle. Unknown to him at the time the vehicle was purchased, the vehicle only achieved its promised fuel economy and performance because it was equipped with an emissions system that, during normal driving conditions, exceeded the allowed level of pollutants such as NOx. BMW's unfair, unlawful, and deceptive conduct in designing, manufacturing, marketing, selling, and leasing the vehicle without proper emission controls has caused Mr. Reising out-of-pocket loss in the form of overpayment at the time of purchase, and diminished value of his vehicle. BMW knew about, or recklessly disregarded, the inadequate emission controls during normal driving conditions, but did not disclose such facts or their effects to Mr. Reising, so Mr. Reising purchased his vehicle on the reasonable but mistaken belief that his vehicle was a "clean diesel" and/or a "low emission diesel," complied with U.S. emissions standards, was properly EPA-certified, and would retain all of its promised fuel economy and performance throughout its useful life. Mr. Reising selected and ultimately purchased his vehicle, in part, because of the diesel system, as represented through

advertisements and representations made by BMW. Mr. Reising recalls that before he purchased the vehicle, he reviewed advertisements on BMW's website and representations from BMW's authorized dealer touting the efficiency, fuel economy, and power and performance of the engine. Had BMW disclosed this design or the fact that the vehicle actually emitted unlawfully high levels of pollutants, Mr. Reising would not have purchased the vehicle or would have paid less for it. Mr. Reising and each Class member has suffered an ascertainable loss as a result of BMW's omissions and/or misrepresentations and Defendants' operation of a RICO enterprise associated with the BMW 335d engine system, including but not limited to a high premium for the BMW 335d engine compared to what they would have paid for a gas-powered engine, out-of-pocket losses by overpaying for the vehicles at the time of purchase, and future attempted repairs, future additional fuel costs, decreased performance of the vehicles, and diminished value of the vehicles. Neither BMW nor any of its agents, dealers, or other representatives informed Mr. Reising or Class members of the existence of the unlawfully high emissions and/or defective nature of the diesel engine system of the Polluting Vehicles prior to purchase.

A. Defendants

1. BMW North America LLC ("BMW USA")

24. BMW USA is a corporation doing business in all 50 states and the District of Columbia, and is organized under the laws of the State of Delaware, with its principal place of business in Woodcliff Lake, New Jersey.

25. At all times relevant to this action, BMW USA manufactured, sold, and warranted the Polluting BMW USA Vehicles throughout the United States. BMW USA and BMW AG and/or its agents, divisions, or subsidiaries designed, manufactured, and installed the diesel engine systems on the Polluting BMW Vehicles. BMW USA also developed and disseminated the owner's manuals, supplements, warranty booklets, advertisements, and other promotional

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materials relating to the Polluting BMW Vehicles. BMW USA, with the consent of BMW AG, provided these to its authorized dealers for the express purpose of having these dealers pass such materials to potential purchasers at the point of sale. BMW USA and BMW AG also created, designed, and disseminated information about the quality of the Polluting BMW Vehicles to various agents of various publications for the express purpose of having that information reach potential consumers.

2. Bayerische Motoren Werke Aktiengessellschaft

26. Bayerische Motoren Werke Aktiengessellschaft (BMW AG), based in Munich, Germany, is the parent company of the BMW Group. BMW AG is a German company with its principal place of business at Petuelring 130, 80809 Munich, Germany. The general purpose of BMW AG is the development, production and sale of engines, engine-equipped vehicles, related accessories and products of the machinery and metal-working industry as well as the rendering of services related to the aforementioned items. The BMW Group is sub-divided into the Automotive, Motorcycles, Financial Services and Other Entities segments (the latter primarily comprising holding companies and Group financing companies). The BMW Group operates on a global scale and is represented in more than 150 countries worldwide. BMW AG supervised the manufacturing and advertisements of BMW polluting vehicles in the USA.

3. The Bosch Defendants

27. From at least 2005 until 2015, Robert Bosch GmbH, Robert Bosch LLC, and currently unnamed Bosch employees (together, "Bosch") were knowing and active participants in the creation, development, marketing, and sale of illegal defeat devices specifically designed to evade U.S. emissions requirements in vehicles sold solely in the United States and Europe. These vehicles include the BMW vehicles in this case and the Dodge Ram 1500 EcoDiesel and

Jeep Grand Cherokee EcoDiesel, as well as models made by Volkswagen, Audi, Porsche, General Motors, and Mercedes.

28. The following is a list, excluding the Polluting BMW Vehicles in this case, of all diesel models in the United States with Bosch-supplied software whose emissions exceed federal and California emission standards and whose emissions are beyond what a reasonable consumer would expect from vehicles marketed as "clean" or "low emission":

AFFECTED VEHICLES

VOLKSWAGEN:

2.0-liter Class Vehicles	3.0-liter Class Vehicles
VW Jetta TDI 2009-15	VW Touareg TDI 2009-15
VW Jetta SportWagen TDI 2009-14	Porsche Cayenne Diesel 2013-16
VW Beetle TDI 2012-15	Audi A6 Quattro TDI 2014-16
VW Beetle Convertible TDI 2012-15	Audi A7 Quattro TDI 2014-16
Audi A3 TDI 2010-15	Audi A8 TDI 2014-16
VW Golf TDI 2010-15	Audi A8L TDI 2014-16
VW Golf SportWagen TDI 2015	Audi Q5 TDI 2014-16
VW Passat TDI 2012-15	Audi Q7 TDI 2009-16

FIAT CHRYSLER:

Jeep Grand Cherokee EcoDiesel 2014-16
Dodge Ram 1500 EcoDiesel 2014-16

GENERAL MOTORS:

GMC Sierra Duramax Diesel 2500 HD 2011-16
GMC Sierra Duramax Diesel 3500 HD 2011-16
Chevy Silverado Duramax Diesel 2500HD 2011-16
Chevy Silverado Duramax Diesel 3500HD 2011-16

MERCEDES:

ML 320 2007-16	RDO 2007-16	S Class 2007-16
ML 350 2007-16	E Class 2007-16	GLK Class 2007-16
GL 320 2007-16	CL Class 2007-16	GLE Class 2007-16
E320 2007-16	ML Class 2007-16	Sprinter 2007-16
S350 2007-16	R Class 2007-16	

FORD:

F-250 Super Duty 2011-17
F-350 Super Duty 2011-17

29. The Bosch entities participated not just in the development of the defeat device, but also in the scheme to prevent U.S. regulators from uncovering the device's true functionality. Moreover, each Bosch entities' participation was not limited to engineering the defeat device (in

a collaboration described as unusually close). Rather, Bosch GmbH and Bosch LLC marketed "clean diesel" in the United States and communicated itself or through trade organizations, with the public and U.S. regulators about the benefits of "clean diesel," another highly unusual activity for a mere supplier. This promotional activity helped create the demand for diesel vehicles and the premium sum vehicles commanded. These marketing efforts, taken together with evidence of each Bosch entities' actual knowledge that its software could be operated as a defeat device and participation in concealing the true functionality of the device from U.S. regulators, can be interpreted only one way under U.S. law: each Bosch entity was a knowing and active participant in a massive conspiracy with BMW, Volkswagen, Audi, Mercedes, Ford, General Motors, and others to defraud U.S. consumers, regulators, and diesel car purchasers or lessees. Bosch had a powerful motive in doing so. With new environmental regulations effective in 2009, Bosch saw the enormous potential of a Clean Diesel movement in the United States, and needed a tool to motivate as many manufacturers as possible to use Bosch as a supplier. Bosch was hugely successful. Bosch GmbH and Bosch LLC have enabled approximately two million polluting diesel vehicles to be on the road in the United States polluting at levels that exceed emissions standards and which use software that manipulate emission controls in a manner not expected by a reasonable consumer, and as many as 20 million cars in Europe. Bosch's complicity has contributed to respiratory illness and death.

30. Robert Bosch GmbH is a German multinational engineering and electronics company headquartered in Gerlingen, Germany. Robert Bosch GmbH is the parent company of Robert Bosch LLC. Robert Bosch GmbH, directly and/or through its North American subsidiary, Robert Bosch LLC, at all material times, designed, manufactured, and supplied elements of the defeat device to BMW for use in the Polluting BMW Vehicles. Bosch GmbH is subject to the

personal jurisdiction of this Court because it has availed itself of the laws of the United States through its management and control over Bosch LLC and over the design, development, manufacture, distribution, testing, and sale of hundreds of thousands of the defeat devices installed in the Polluting BMW Vehicles sold or leased in the United States. Employees of Bosch GmbH and Bosch LLC have collaborated in the emissions scheme with BMW in this judicial district and have been present in this district.

31. Robert Bosch LLC is a Delaware limited liability company with its principal place of business located at 38000 Hills Tech Drive, Farmington Hills, Michigan. Robert Bosch LLC is a wholly owned subsidiary of Robert Bosch GmbH. Robert Bosch LLC, directly and/or in conjunction with its parent Robert Bosch GmbH, at all material times, designed, manufactured, and supplied elements of the defeat device to BMW for use in the Polluting BMW Vehicles.

32. Both Bosch GmbH and Bosch LLC (collectively, "Bosch") operate under the umbrella of the Bosch Group, which encompasses some 340 subsidiaries and companies. The "Bosch Group" is divided into four business sectors: Mobility Solutions (formerly Automotive Technology), Industrial Technology, Consumer Goods, and Energy and Building Technology. The Mobility Solutions sector, which supplies parts to the automotive industry, and its Diesel Systems division, which develops, manufacturers and applies diesel systems, are particularly at issue here and include the relevant individuals at both Bosch GmbH and Bosch LLC. Bosch's sectors and divisions are grouped not by location, but by subject matter. Mobility Solutions includes the individuals involved in the RICO enterprise and conspiracy at both Bosch GmbH and Bosch LLC. Some individuals worked at both Bosch LLC and Bosch GmbH during the course of the RICO conspiracy. The acts of individuals described in this Complaint have been

associated with Bosch GmbH and Bosch LLC whenever possible. Regardless of whether an individual works for Bosch LLC in the United States or Bosch GmbH in Germany, the individuals often hold themselves out as working for "Bosch." This collective identity is captured by Bosch's mission statement: "We are Bosch," a unifying principle that links each entity and person within the Bosch Group.[2] Bosch documents and press releases often refer to the source of the document as "Bosch" without identifying any particular Bosch entity. Thus, the identity of which Bosch defendant was the author of such documents and press releases cannot be ascertained with certainty until Bosch GmbH and Bosch LLC respond to discovery requests in this matter.

33. Bosch holds itself out to the world as one entity: "the Bosch Group." The Diesel Systems division, which developed the EDC17, is described as part of the Bosch Group. In the case of the Mobility Solutions sector, which oversees the Diesel Systems Group, the Bosch Group competes with other large automotive suppliers.[3]

34. The Bosch publication *Bosch in North America* represents that "Bosch supplies . . . clean-diesel fuel technology for cars and trucks." Throughout the document describing its North American operations, the company refers to itself as "Bosch" or "the Bosch Group."[4]

35. The *Bosch in North America* document proclaims that Automotive Technology is "Bosch's largest business sector in North America." In this publication, Bosch never describes

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[2] Bosch 2014 Annual Report, available at http://www.bosch.com/en/com/bosch_group/bosch_figures/publications/archive/archive-cg12.php.

[3] Bosch's 2016 Annual Report at 23, available at https://assets.bosch.com/media/global/bosch_group/our_figures/pdf/bosch-annual-report-2016.pdf.

[4] *Bosch in North America* at 2 (May 2007), available at http://www.bosch.us/content/language1/downloads/BINA07.pdf.

the actions of any separate Bosch legal entity, like Bosch LLC, when describing its business, but always holds itself out as "the Bosch Group."[5]

36. German authorities are now investigating Bosch GmbH and the role in the emissions scandal and are focusing on certain Bosch employees:[6]

> **Three Bosch Managers Targeted as German Diesel Probe Expands**
>
> A German probe into whether Robert Bosch GmbH helped Volkswagen AG cheat on emissions tests intensified as Stuttgart prosecutors said they were focusing on three managers at the car-parts maker.
>
> While Stuttgart prosecutors didn't identify the employees, the step indicates that investigators may have found specific evidence in the probe. Previously, prosecutors have said they were looking into the role "unidentified" Bosch employees may have played in providing software that was used to cheat on emission tests.
>
> "We have opened a probe against all three on suspicions they aided fraud in connection to possible manipulation in emissions treatments in VW cars," Jan Holzner, a spokesman for the agency, said in an emailed statement. "All of them are managers with the highest in middle management."
>
> Bosch, which is also being investigated by the U.S. Department of Justice, has been caught up in the VW diesel scandal that emerged in 2015 over allegations its employees may have helped rig software that helped the carmaker to cheat emission tests. Earlier this year, Stuttgart prosecutors opened a similar probe into Bosch's role in connection with emission tests of Daimler cars.
>
> A spokesman for Bosch said that while he can't comment on individual employees, the company 'takes the overall allegations in diesel cases seriously and has been cooperating fully from the beginning of the probes."
>
> The Stuttgart probe is running parallel to the central criminal investigation in Braunschweig, closer to VW's headquarters. That investigation is targeting nearly 40 people on fraud allegations

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[5] *Id.* at 5.

[6] *Three Bosch Managers Targeted as German Diesel Probe Expands*, BLOOMBERG (June 29, 2007), https://www.bloomberg.com/news/articles/2017-06-29/three-bosch-managers-targeted-as-german-diesel-probe-expands.

> related to diesel-emission software, including former VW Chief Executive Officer Martin Winterkorn.
>
> Prosecutors' interest extends to multiple units in the VW family -- including luxury brands Audi and Porsche. In addition, Stuttgart prosecutors are also reviewing a third case related to Bosch's cooperation with Fiat Chrysler Automobiles NV on software for diesel engines.

37. As reported by Bloomberg on September 16, 2017, U.S. prosecutors are examining Bosch's role in supplying its EDC17 to manufacturers other than Bosch:

> U.S. prosecutors are investigating whether Germany's Robert Bosch GmbH, which provided software to Volkswagen AG, conspired with the automaker to engineer diesel cars that would cheat U.S. emissions testing, according to two people familiar with the matter.
>
> Among the questions the Justice Department is asking in the criminal probe, one of them said, is whether automakers in addition to VW used Bosch software to skirt environmental standards. Bosch, which is also under US. Civil probe and German inquiry, is cooperating in investigations and can't comment on them, said spokesman Rene Ziegler.
>
> The line of inquiry broadens what is already the costliest scandal in US. automaking history. Wolfsburg-based VW faces an industry-record $16.5 billion, and counting, in criminal and civil litigation fines after admitting last year that its diesel cars were outfitted with a "defeat device" that lowered emissions to legal levels only when it detected the vehicle was being tested.
>
> More than a half dozen big manufacturers sell diesel-powered vehicles in the U.S. The people familiar with the matter declined to say whether specific makers are under scrutiny.

38. Recently, researchers from Rohr-Universität in Bochum, Germany, and University of California-San Diego uncovered Bosch's role in connection with the manipulation of emission controls in certain Volkswagen and FCA vehicles. The researchers found no evidence that Volkswagen and FCA wrote the code that allowed the operation of defeat devices. All the code they analyzed was found in documents copyrighted by Robert Bosch GmbH. These researchers found that in the "function sheets" were copyrighted by Robert Bosch GmbH, the

code to cheat the emissions test was labeled as modifying the "acoustic condition" of the engine, a label that helped the cheat fly under the radar. Given that BMW vehicles have a Bosch EDC17, as did the cheating Volkswagen, General Motors, Mercedes, Ford, and FCA vehicles, and given testing by Plaintiffs' experts described below that reveals defeat devices in BMW vehicles, it is plausible to allege that Bosch was a participant in the scheme to hide the true emissions of BMW Polluting Vehicles, and supplied a similar "function sheet" to BMW to enable a similar emission deception.

V. FACTUAL ALLEGATIONS

B. The environmental challenges posed by diesel engines and the U.S. regulatory response thereto

39. The U.S. government, through the 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 laws and must adhere to EPA rules and regulations.

40. The 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.

41. There is a very good reason that these laws and regulations exist, particularly in 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.

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

43. 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 causes a more powerful compression of the pistons, which produces greater engine torque—*i.e.*, more power.

44. 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.

45. But this greater energy and fuel efficiency comes at a cost: diesel produces dirtier and more dangerous emissions. One byproduct of diesel combustion is a combination of nitric oxide and nitrogen dioxide, collectively called NOx, compounds that form at high temperature in the cylinder during combustion.

46. 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 illnesses 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 acute risk of health effects from these pollutants. As a ground level pollutant, NO2, a common byproduct of NOx reduction systems using an oxidation catalyst, is highly toxic in comparison to nitric oxide (NO). If overall NOx levels are not sufficiently controlled, then concentrations of NO2 levels at ground level can be quite high, where they have adverse acute health effects.

47. 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 differences in fuel combustion and how the resulting emissions are treated following combustion. NOx emissions can be reduced through exhaust gas recirculation (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. NOx and PM emissions can also be reduced through expensive exhaust gas after-treatment devices, primarily catalytic converters, which use catalyzed chemical reactions to transform the chemical composition of a vehicle's NOx and PM emissions into harmless inert gases, such as nitrogen gas (N_2), water (H_2O) and carbon dioxide (CO_2).

48. 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 emissions standards requiring all diesel models starting in 2007 to produce drastically less NOx and PM than years prior. Before introducing affected vehicles into the U.S. stream of commerce (or causing the same), BMW was required to first apply for, and obtain, an EPA-administered certificate of conformity (COC) certifying that the vehicle comported with the emissions standards for pollutants enumerated in 40 C.F.R. §§ 86.1811-04, 86.1811-09, and 86.1811-10. The Clean Air Act expressly prohibits automakers, like BMW, from introducing a new vehicle into the stream of commerce without a valid COC from the EPA. Moreover, vehicles must be accurately described in the COC application "in all material respects" to be deemed covered by a valid COC. California's

emission standards are even more stringent than those of the EPA. The California Air Resources Board (CARB), the State of California's regulator, 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.

49. The United States has two sets of parallel standards that affect fuel economy: (1) the corporate average fuel economy (CAFE) standards adopted by the National Highway Traffic Safety Administration (NHTSA), an agency within the Department of Transportation (DOT); and (2) greenhouse gas (GHG) emissions standards adopted by the EPA. The first CAFE standards were adopted in the 1970s in response to the Arab oil embargo. The first GHG emission standards became effective in model year 2012.

50. The Energy Policy Conservation Act of 1975 established the first CAFE standards for light-duty vehicles. Separate sets of standards were adopted for cars and for light trucks. For cars, the standards aimed to double the average fuel economy from 13.6 miles per gallon (mpg) in 1974 to 27.5 mpg by 1985. Vehicle manufacturers almost met this target, reaching 27.0 mpg by 1985. While the CAFE program remained in force for a number of years, its fuel economy target for cars stagnated at 27.5 mpg through 2010.

51. In 2007, the stage was set for more progressive fuel economy and GHG emission regulations. The Energy Independence and Security Act (EISA) of 2007 mandated a 40% increase in fuel economy by 2020. Tougher fuel economy standards were to be set starting with model year 2011, until the standards achieve a combined average fuel economy of 35 mpg for model year 2020.

52. In April 2010, NHTSA and EPA finalized new, harmonized CAFE and GHG emission rules for model year 2012–2016 light-duty vehicles. These rules have been designed to

result in an average CAFE fuel economy of 34.1 mpg (6.9 L/100 km) and CO_2 emissions of 250 mg/mile in model year 2016 vehicles.

53. These new model year 2011 rules presented manufacturing with obstacles and opportunity. The opportunity was capturing new markets by promoting technology that complied with new emission regulations. Manufacturers adopted several strategies, including the introduction of electric and diesel models.

C. Both the X5 and 335d share a common diesel engine.

54. To meet the EPA emissions requirements applicable to model year 2011 vehicles, BMW introduced a diesel X5 and 335D in 2009, an in-line 6-cylinder, 3.0-liter engine with an internal designation code "M57."

55. BMW announced the introduction of these vehicles with fanfare, claiming the vehicles would meet the "strict exhaust emissions requirements of the North American automobile market":

> **BMW X5 xDrive35d and BMW 335d to Make US Debut**
> Woodcliff Lake, N.J. – 01/02/2008
>
> **BMW Advanced Diesel with BluePerformance**
>
> Entering a new era in the company's mission to deliver ultimate driving machines that combine superior performance with exemplary fuel economy, the BMW Group will debut two vehicle models equipped with the BMW Advanced Diesel with BluePerformance at the 2008 North American International Auto Show (NAIAS) in Detroit – the X5 xDrive35d and the 335d.
>
> Successfully meeting the strict exhaust emissions requirements of the North American automobile market, BMW Advanced Diesel – slated to hit US roadways in late 2008 – will be available in all 50 states. The wide availability of these vehicles marks a significant milestone in the BMW EfficientDynamics strategy, which seeks to offer customers in automobile markets around the world maximum driving pleasure with minimum fuel consumption and emissions.

> BMW Advanced Diesel technology is being introduced into the US market in the form of the 3.0-liter inline-six featuring Variable Twin Turbo Technology – an engine widely acknowledged as the unchallenged benchmark for sporting performance, motoring refinement and superior efficiency in other markets around the world. At the 2008 NAIAS, BMW is presenting this 265-hp highperformance diesel engine in both the BMW X5 xDrive35d and the BMW 335d. To ensure full compliance with the demanding emission standards in California and other US states, BMW uses SCR technology to reduce nitric oxides (NOX), enabling nationwide introduction of BMW Advanced Diesel with BluePerformance as a 50-state model (BIN5).
>
> **Leading the way: BMW diesel competence for the US.**
>
> The history of BMW diesel engines began in 1983 when the BMW 524td was introduced as the fastest diesel in the world. From that starting point, BMW has spent 25 years continuously developing diesel technology. Today's BMW Diesels are characterized by dramatically improved power and performance, fuel consumption and emissions levels – reflecting the principle of BMW EfficientDynamics in every respect.
>
> Through their superior motoring refinement alone, BMW diesel engines have helped to significantly eliminate any reservations regarding the acoustic properties of a diesel engine. Indeed, great demand for BMW diesel engines has helped BMW achieve increased market share not just in Europe, but in regions across the world. Today no less than 67 percent of all new BMWs delivered to customers in Europe are powered by a diesel engine.
>
> While diesel engines of today represent an impressive standard for fuel efficiency and emissions on the whole, BMW Advanced Diesel engines take this a step further, setting the standard for torque and pulling power that could never be achieved by a similar displacement gasoline engine – <u>while consuming 25 percent less fuel on average than an equally powerful gasoline engine.</u>

56. BMW in its announcement touted its SCR catalyst with AdBlue injection, a technology BMW claimed allowed a reduction of NOx into "environmentally compatible nitrogen and vapor":

> **Most advanced exhaust gas management: SCR catalyst with AdBlue injection.**

> To optimize emission management, Advanced Diesel with BluePerformance incorporates an oxidation catalyst placed just downstream of the exhaust manifold, a diesel particulates filter housed in the same unit and an SCR catalyst with the urea injection. In addition to filtering out even the smallest particles from the flow of exhaust gases, this combination ensures effective reduction of nitric oxides (NOX) by way of a chemical reaction within the exhaust system initiated by the injection of a small dose of urea referred to as AdBlue. The ammonia (NH3) generated in this process within the SCR catalyst subsequently converts the nitric oxides (NO and, respectively, NO2) in the exhaust gas into environmentally compatible nitrogen (N2) and vapor (H2O).

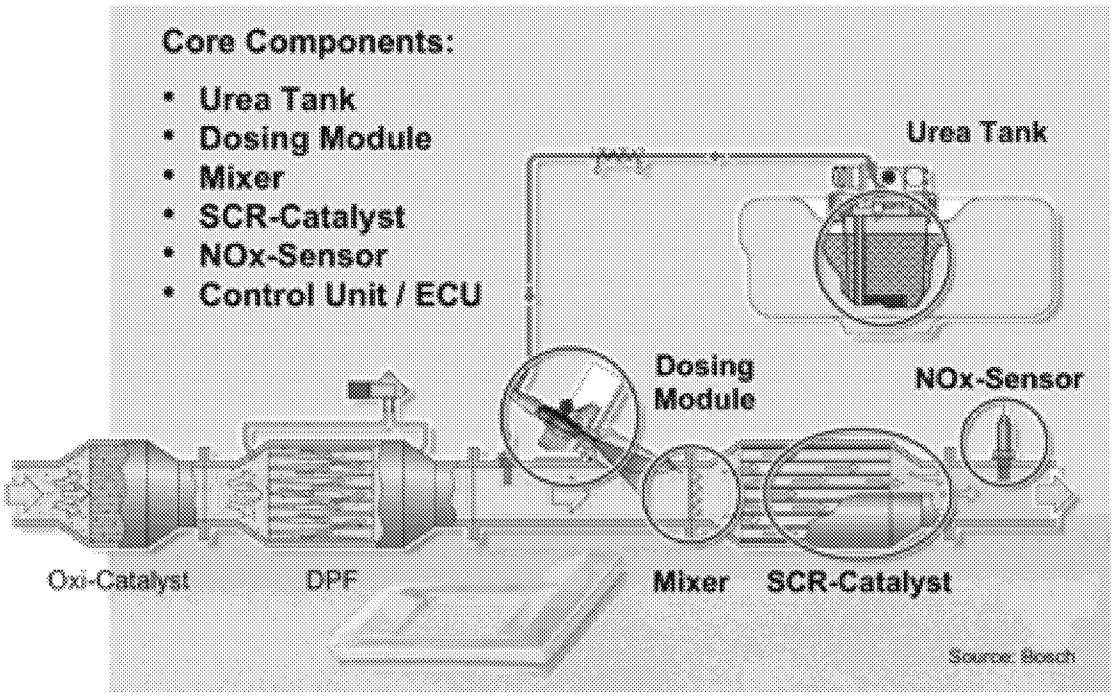
57. Both the X5 and 335d shared the use of a two-tank system to allegedly control dosing and ultimately emissions:

> To introduce AdBlue technology into the car, BMW has developed a two-tank system ensuring convenient use of this new technology with all the benefits and ease required by the customer. The amount of AdBlue required in each case is injected from the active tank (approximately 1.6 gallons in volume) by means of a dosage pump. And since the urea solution would freeze at a temperature of 12.2oF, this active tank, as well as the dosage pipes, are heated.
>
> The active tank is connected to a second reservoir, referred to as the passive tank. With its additional capacity of approximately 4.5 gallons, this passive tank offers a plentiful supply of the urea solution. The average range provided with this supply capacity is indeed sufficient to have the tank system replenished only when the driver needs to change the engine oil. Hence, the large amount of AdBlue stored in the reservoir enables the customer to enjoy continuous driving, without having to change his/her service intervals. The driver therefore benefits from the advantages of this environmentally friendly emission technology throughout the entire running life of the car, without any additional service or visits to the workshop. Since all BMWs sold in the US benefit from The BMW Maintenance Program, the refilling of the AdBlue tanks will be a no-charge service for 4 years or 50,000 miles.
>
> AdBlue from the active tank is delivered to the dosing valve and atomize into the exhaust system. Consistent distribution of AdBlue within the flow of exhaust is ensured by the SCR mixer. The ammonia generated in the hot exhaust flow subsequently acts as a reduction agent in the SCR catalyst and converts environmentally harmful nitric oxides into nitrogen and water vapor in a process

> referred to as a selective catalytic reaction (SCR). This process gives the special SCR catalyst its name.
>
> The control of the SCR system is masterminded by BMW's powerful engine management computer. A nitric oxide sensor downstream of the SCR catalyst provides feedback on the concentration of NOX in the exhaust emissions.

58. In the above quoted announcement, BMW called out the fact that its two-tank system allowed the driver to change the urea only when an engine oil change is needed. As discussed below, this is true only because as part of its deceptive conduct, BMW and Bosch programmed the use of less urea to allow for greater emissions outside test conditions.

59. The critical emission control components in the BMW engines are as follows:



1. Injection timing and in-cylinder controls

60. Fuel is metered into the engine during the power stroke using an injector with an electronic controller. Fuel can be delivered either before the piston reaches the top of its stroke (top dead center, or "TDC"), which is called "advanced timing" at the top of the stroke, or after

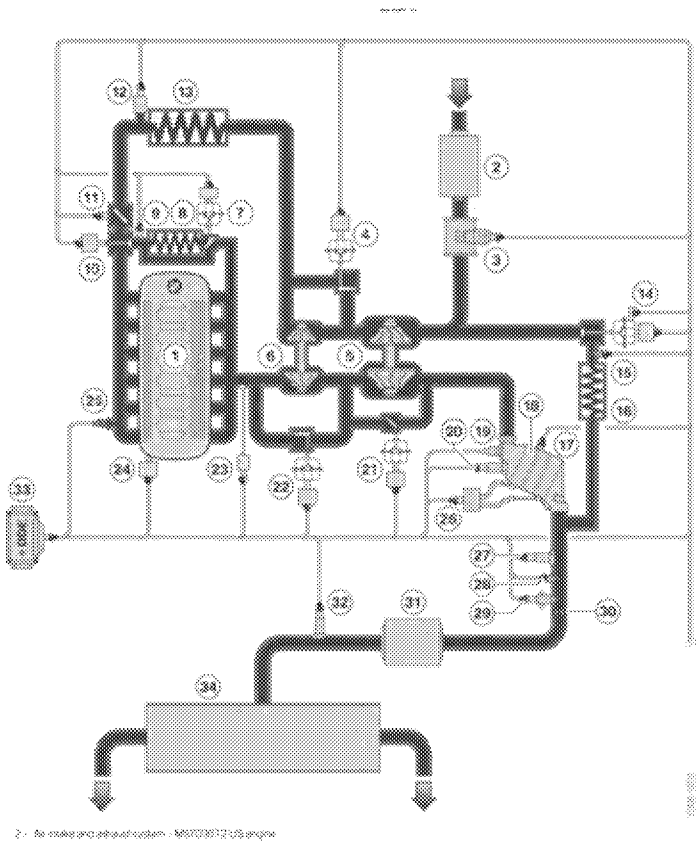
TDC, which is called "retarded timing." Furthermore, fuel delivered to the cylinder is often delivered in distinct pulses rather than a single pulse, with the goal being to reduce emissions and improve efficiency. Generally speaking, advanced timing will increase NOx emissions and reduce particulate matter (PM) emissions (but improve fuel economy), while retarded timing will reduce NOx emissions and increase PM emissions. In-cylinder controls like injection timing play a critical role in the overall NOx emissions performance of the engine, as the emissions coming out of the cylinder must be low enough that the other emission control systems aren't pushed beyond their technical limits. If engine-out emissions of NOx are too high, the EGR and SCR systems may not be able to reduce NOx sufficiently to meet the standard.

61. The fuel system is also capable of injecting fuel very late in the combustion cycle, up to 140 degrees after engine top dead center. This late cycle fuel injection allows fuel to leave the cylinder unburned so it can react over the DOC to provide hot exhaust for the purpose of regenerating the DPF.

2. EGR – Exhaust Gas Recirculation

62. Exhaust gas recirculation is used to reduce NOx emissions by introducing part of the exhaust exiting the engine back into the engine intake. Since oxides of nitrogen form in oxygen rich, high temperature environments, introducing exhaust gases back into the intake air charge reduces the amount of these compounds that form primarily by reducing the oxygen concentration and increasing the overall heat capacity of the combustion gas mixture. EGR results in lower peak temperatures during combustion and, in turn, lower NOx concentrations. Exhaust gas recirculation is not a new technology and has been regularly used on diesel and gasoline engines for many years. Generally, the higher the EGR rate the greater the reduction in NOx emissions, though PM emissions are also generally increased, which causes the DPF to "fill up" more frequently and complicates the overall emission control strategy.

63. The M57 engine employs both high and low pressure EGR strategies for the X5, pictured below. In high pressure EGR, exhaust from the manifold is routed through an EGR cooler and into the intake manifold. High pressure EGR rate is controlled by an EGR valve downstream of the cooler. Similarly, low pressure EGR is routed from the exit of the DPF through a cooler, and into the suction side of the turbo-charger. Low pressure EGR rate is also controlled by an EGR valve. The 335d does not use low pressure EGR because of its lower weight.



3. DOC – Diesel Oxidation Catalyst

64. The diesel oxidation catalyst converts hydrocarbons and carbon monoxide into water and carbon dioxide through an oxidization reaction. The DOC also converts nitric oxide to nitrogen dioxide to generate favorable conditions for the reduction of NOx in the SCR system

downstream of the DOC. The nitrogen dioxide generated by the DOC is also critical for proper function of the DPF, as nitrogen dioxide is used to remove captured PM from the DPF in a process called passive regeneration. If insufficient nitrogen dioxide is available for passive regeneration, the engine may be forced to perform an active regeneration, a process that negatively impacts fuel economy and performance. Higher nitrogen dioxide levels are also important in the SCR system for higher SCR conversion rate.

65. Also, the DOC is used to oxidize late cycle injected fuel in order to provide heat to assist in active DPF regeneration.

4. DPF – Diesel Particulate Filter

66. After exiting the DOC, the exhaust travels through the diesel particulate filter (DPF), where particulate matter (soot) is trapped and stored. The captured material is cleaned through a process known as regeneration, which is divided into two strategies. *First*, passive regeneration occurs any time the vehicle is being operated, provided nitrogen dioxide concentrations are relatively high and the exhaust gas temperature is high enough. If those two conditions are met, nitrogen dioxide (NO2) will react with captured PM and oxidize it to CO2, thus cleaning out the DPF. It is a continuously occurring process, meaning that it occurs any time the conditions are met under normal operation, but the rate of regeneration is limited by the exhaust temperature and the concentration of NO2. Ideal DPF operation relies almost entirely on passive regeneration. Very low NO2 concentrations or very low exhaust temperatures can prevent passive regeneration from occurring. *Second*, active regeneration occurs only when the engine senses that the DPF needs to be cleaned as the DPF is approaching maximum capacity and generating too much exhaust backpressure (usually as a result of insufficient passive regeneration). During this process, the primary injection timing is retarded, which causes higher temperature exhaust to leave the cylinder. These higher temperatures then pre-heat the DOC such

that the late cycle fuel will react and generate sufficient heat for regeneration, approximately 600°C. This process creates very high temperatures that allow captured PM to oxidize in the DPF without the use a catalyst or NO2, thus "cleaning out" the DPF. This process is called "active regeneration." Active regeneration dramatically reduces fuel economy since fuel is being used for purposes other than moving the vehicle. For this reason, it is generally desirable to reduce the need for active regeneration and create conditions that are favorable for passive regeneration. Higher exhaust temperatures are also detrimental to the SCR catalyst as they can cause hydrothermal degradation of the catalyst over time. Thus, it is desirable to have relatively high NO2 (and, as a result, high NOx) concentrations entering the DPF to maximize the amount of passive regeneration.

5. DEF Injector

67. Diesel exhaust fluid (DEF) is an integral part of the SCR system, as it provides the necessary reactant to allow the SCR system to reduce NOx. DEF is injected upstream of the SCR. DEF is composed of 32.5% urea, its active ingredient, distilled water, and a very small amount of additives. DEF is required for the selective catalytic reduction process to occur. The heat of the exhaust and reactions on the SCR catalyst convert the DEF into ammonia, which in turn reacts with NOx in the SCR system. Generally speaking, within the design limits of the SCR system, higher DEF injection rates lead to larger reductions in NOx over the SCR system.

6. SCR – Selective Catalytic Reduction

68. Once DEF is added to the exhaust, it travels through the selective catalytic reduction catalyst. Here, oxides of nitrogen (NOx) are converted to nitrogen gas (N_2) and water (H_2O) by means of a reduction reaction. The SCR system significantly reduces NOx emissions which allows for more freedom in the calibration of the engine. The drawback of SCR is its increased complexity and the need to carry and replenish the DEF.

69. Emission test cycles and emission standards.

7. U.S. NOx Emissions Standards

70. The purpose of the Clean Air Act and its implementing regulations was-to protect human health and the environment by, among other things, reducing emissions of pollutants from new motor vehicles, including nitrogen oxides ("NOx"),

71. The Clean Air Act requires the U.S. Environmental Protection Agency ("EPA") to promulgate emissions standards for new motor vehicles. The EPA established standards and test procedures for light-duty motor vehicles sold in the United States, including emission standards for NOx.

72. The Clean Air Act prohibits manufacturers of new motor vehicles from selling, offering for sale, introducing or delivering for introduction into U.S. commerce, or importing (or causing the foregoing with respect to) any new motor vehicle unless the vehicle complied with U.S. emissions standards, including NOx emissions standards, and was issued an. EPA certificate of conformity.

73. To obtain a certificate of conformity, a manufacturer is required to submit an application to the EPA for each model year and for each test group of vehicles that it intended to sell in the United States. The application is required to be in writing, to be signed by an authorized representative of the manufacturer, and to include, among other things, the results of testing done pursuant to the published Federal Test Procedures that measure NOx emissions, and a description of the engine, emissions control system, and fuel system components, including a detailed description of each Auxiliary Emission Control Device ("AECD") to be installed on the vehicle.

74. The EPA will not certify motor vehicles equipped with defeat devices. Manufacturers could not sell motor vehicles in the United States without a certificate of conformity from the EPA.

75. The California Air Resources Board ("CARB") (together with the EPA, "U.S. regulators") issued its own certificates, called executive orders, for the sale of motor vehicles in the State of California. To obtain such a certificate, the manufacturer is required to satisfy the standards set forth by the State of California, which were equal to or more stringent than those of the EPA.

76. As part of the application for a certification process, manufacturers often worked in parallel with the EPA and CARB. To obtain a certificate of conformity from the EPA, manufacturers are required to demonstrate that the light-duty vehicles were equipped with an on-board diagnostic ("OBD") system capable of monitoring all emissions-related systems or components.

77. Manufacturers could demonstrate compliance with California OBD standards in order to meet federal requirements. CARB reviews applications from manufacturers, including BMW, to determine whether their OBD systems were in compliance with California OBD standards, and CARB's conclusion would be included in the application the manufacturer submitted to the EPA.

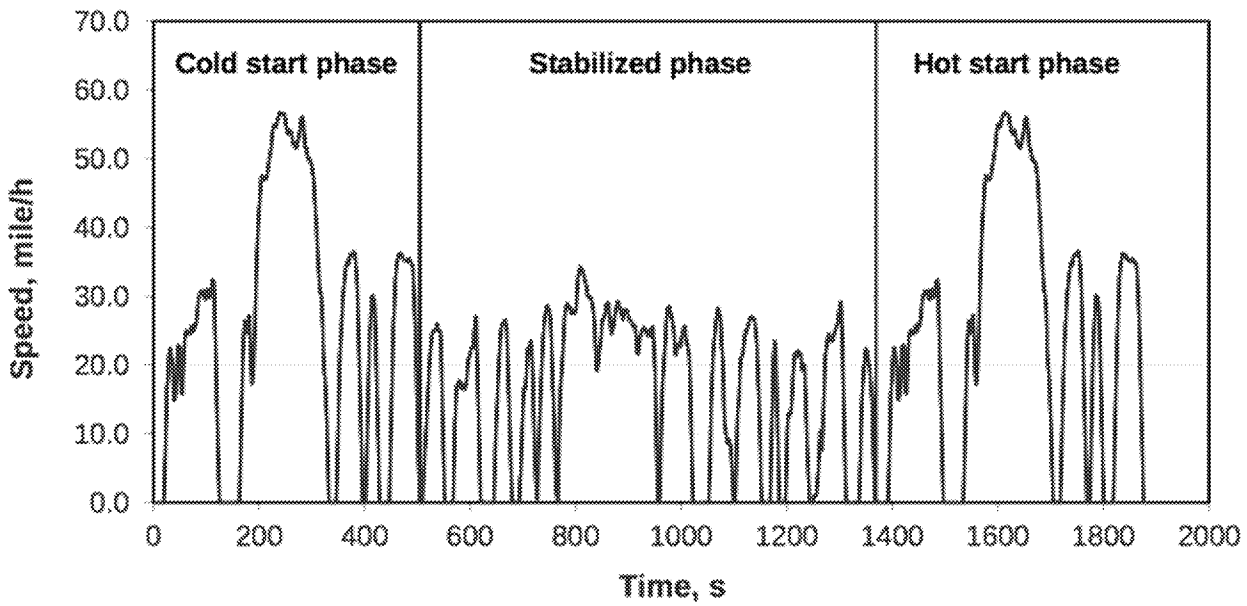
78. In 1998, the United States established new federal emissions standards that would be implemented in separate steps, or Tiers. Tier II emissions standards, including for NOx emissions, were significantly stricter than Tier I. For light-duty vehicles, the regulations required manufacturers to begin to phase in compliance with the new, stricter NOx emissions standards in 2004 and required manufacturers to fully comply with the stricter standards for model year 2007.

These strict U.S. NOx emissions standards were applicable specifically to vehicles in the United States.

8. Test Cycles

79. An emissions test cycle defines a protocol that enables repeatable and comparable measurements of exhaust emissions to evaluate compliance. The protocol specifies all conditions under which the engine is tested, including lab temperature and vehicle conditions. Most importantly, the test cycle defines the vehicle speed over time that is used to simulate a typical driving scenario. An example of a driving cycle is shown in Figure A. This graph represents the FTP-75 (Federal Test Procedure) cycle that has been created by the EPA and is used for emission certification and fuel economy testing of passenger vehicles in the United States. The cycle simulates an urban route with frequent stops, combined with both a cold- and a hot-start transient phase. The cycle lasts 1,877 seconds (about 31 minutes) and covers a distance of 11.04 miles (17.77 km) at an average speed of 21.2 mph (34.12 km/h).

Figure A



80. To assess conformance, these tests are carried out on a chassis dynamometer, a fixture that holds a car in place while allowing its driven wheels to turn with varying resistance meant to simulate the actual load on the engine during on-road driving. Emissions are measured during the test and compared to an emissions standard that defines the maximum pollutant levels that can be released during such a test. In the United States, emissions standards are managed on a national level by the EPA. In addition, California has its own emissions standards that are defined and enforced by CARB. California standards are also adopted by a number of other states ("Section 177" states).[7] Together with California, these states cover a significant fraction of the U.S. market, making them a de facto second national standard.

81. The FTP-75 is the primary dynamometer cycle used to certify light- and medium-duty passenger cars/trucks. This cycle is primarily a dynamic cycle, with rapid changes in speed and acceleration meant to reflect city driving along with some steadier higher speed sections meant to account for some highway driving.

82. One critically important thing to understand about the FTP-75 is that it's a "cold start" cycle. That means the vehicle starts the cycle with the engine having been off for at least eight hours and in a completely cold state. The "cold start" portion of the test is challenging for diesel engines like the BMW engine employing SCR because catalysts meant to control emissions are not yet at temperatures where they work (*i.e.*, above their "light-off" temperature). The FTP-75 also includes a "hot start" phase, which has similar issues resulting from cool down of catalysts before this phase begins.

[7] Those states are: Connecticut, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, Delaware, Georgia, and North Carolina.

D. BMW promoted the X5 and 355d vehicles as clean and environmentally friendly because BMW knew the environment and fuel economy are material to a reasonable consumer.

83. BMW understood that a vehicle's pollution footprint and fuel economy are factors in a reasonable consumer's decision to purchase a diesel vehicle. BMW, in press releases, owner's manuals, and brochures that it intended to reach the eyes of consumers, promoted the X5 and 335d engine as delivering reduced NOx or having "reduced NOx emissions," or as a "clean vehicle." These promotional materials were distributed to BMW dealers for distribution to prospective buyers or were disseminated directly to potential consumers.

84. BMW also understood that fuel economy was material to the average consumer and was a material feature for prospective diesel buyers because of claims that diesels obtain better mileage than gas cars.

85. In 2009, BMW announced the introduction of the BMW "Advanced Diesel Models" for the United States that included the 335d model and the X5 xDrive35d model. According to a 2009 BMW press release, the models would be "50 state emission compliant":

> **BMW Group Diesel in the U.S.**
> **Technology and Market situation**
>
> In 2009, the BMW Group presented more proof of its EfficientDynamics engineering philosophy with the introduction of two BMW Advanced Diesel models for the U.S. The 335d and the X5 xDrive35d models feature a 50 state emission complaint version of BMW's award winning sequential-turbo 3.0 liter diesel engine. This is the first performance-oriented Advanced Diesel engine in BMW's North American model line and is the basis for the most fuel efficient internal-combustion vehicle BMW has ever sold in the United States.

86. According to the BMW release, the "Advanced Diesels vehicles BluePerformance Technology" allowed for dramatically "improved fuel performance," "fuel consumption," and improved "emissions levels":

Leading the way:
BMW diesel competence for the US

Today's BMW Diesels are characterized by dramatically improved power and performance; fuel consumption and emissions levels – reflecting the principle of BMW EfficientDynamics in every respect.

Through their refinement alone, BMW diesel engines have helped to significantly eliminate reservations regarding the acoustic properties of a diesel engine. In fact, great demand for BMW diesel engines has helped BMW achieve increased market share not just in Europe, but in regions all around the world. In 2009 no less than 63 percent of all new BMWs delivered to customers in Europe are powered by a diesel engine.

BMW Advanced Diesel engines take this a step further, setting the standard for torque and pulling power that could never be achieved by a similar displacement gasoline engine – while consuming 25 percent less fuel on average than an equally powerful gasoline engine.

87. BMW also claimed its technology allowed for "minimum emissions" with an "environmentally compatible" byproduct:

New generation of diesel technology:
Maximum responsiveness, minimum emissions.

Maximum power, outstanding efficiency: The first BMW Advanced Diesel with BluePerformance is particularly well-suited to combine the driving dynamics and refinement of a premium automobile with the most current and demanding standards for preserving resources and reducing emissions. Featuring exceptional power and torque, the 3.0 liter inline-six diesel is one of the most fuel-efficient engines in its class.

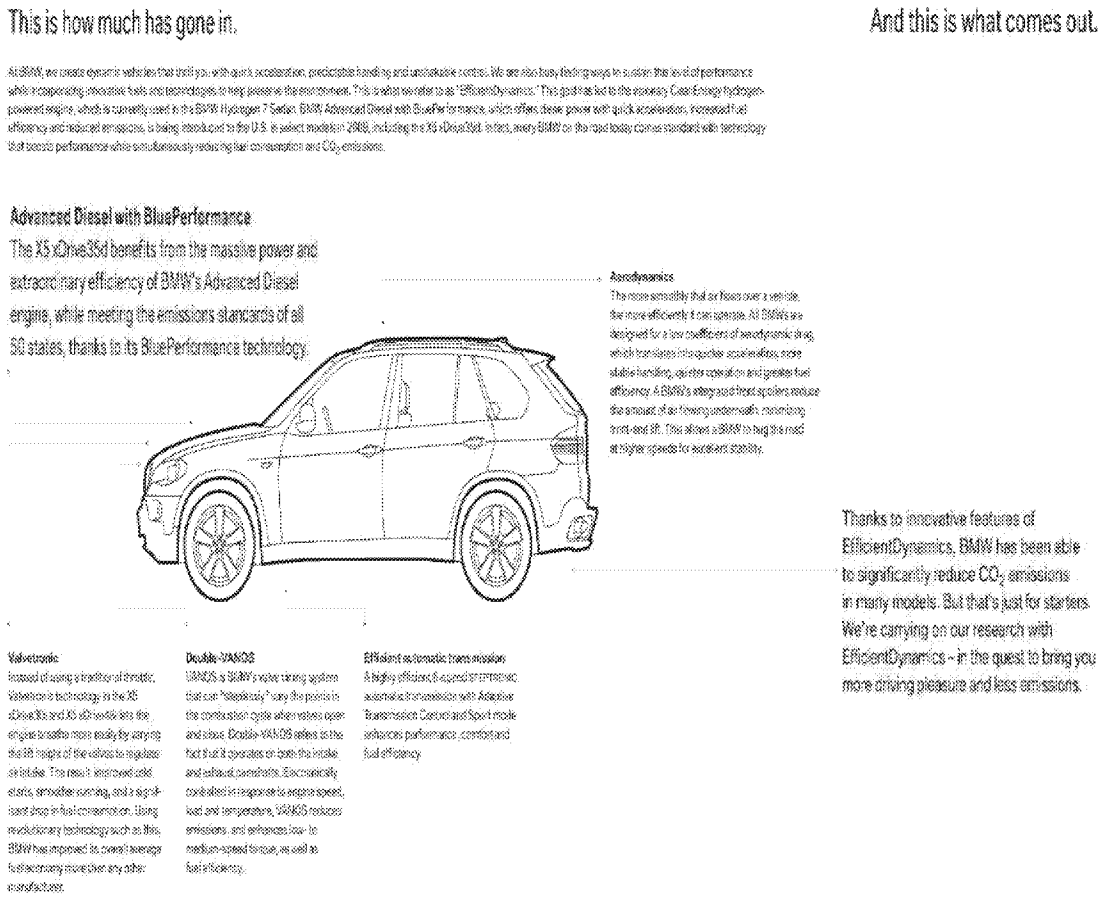
Most advanced exhaust gas management:
Selective Catalytic Reduction.

To optimize emission management, Advanced Diesel with BluePerformance incorporates an oxidation catalyst placed just downstream of the exhaust manifold with a diesel particulate filter housed in the same unit and a Selective Catalytic Reduction catalyst with urea injection. In addition to filtering out even the smallest particles from the flow of exhaust gases, this combination ensures effective reduction of nitric oxides (NOX) by way of a

> chemical reaction within the exhaust system initiated by the injection of a small dose of urea referred to as Diesel Exhaust Fluid. The ammonia (NH3) generated in this process within the SCR catalyst subsequently converts the nitric oxides (NO and, respectively, NO2) in the exhaust gas into environmentally compatible nitrogen (N2) and water vapor (H2O). (emphasis added.)

88. In sales literature directed to consumers through BMW dealers, BMW emphasized the emissions compliance and emissions characteristics of its diesel vehicles. BMW's promises regarding the emissions performance of BMW diesels is BMW's acknowledgement that low emissions are material to a reasonable consumer.

89. Thus, for example, in the brochure for the 2010 X5, BMW promised that the X5 meets "emissions requirements in all states" and provided more "driving pleasure and less emissions":



90. In the brochure for the 2011 BMW X5, recognizing the materiality of the emissions issue, the cover page promises "Less emissions":

THE BMW X5.

JOY BRINGS THE WHOLE CROWD ALONG.

BMW EfficientDynamics
Less emissions. More driving pleasure.

91. And BMW promised that its "Advanced Diesel" was "cleaner, quicker and far more efficient that previous generation diesels." "It's diesel reinvented."

THE BMW X5 SAV'S EFFICIENT DYNAMICS INITIATIVE AT A GLANCE.

High Precision direct fuel injection.
In this latest-generation direct fuel injection system, the piezo injectors are positioned very close to the spark plugs. They inject fuel at high pressure, with extreme precision, for very efficient combustion.

Valvetronic.
BMW's Valvetronic valve control system improves engine response and refinement, while also helping to reduce fuel consumption. The system helps the engine "breathe" better by providing fully variable lift adjustment of the inlet valves.

Brake Energy Regeneration.
In vehicles with Brake Energy Regeneration, the alternator generates electricity only when the driver takes his or her foot off the accelerator. Kinetic energy that was previously unharnessed is transformed into electrical energy, then fed into the battery. In this way, electricity is generated without consuming fuel.

BMW Advanced Diesel with BluePerformance Technology.
Cleaner, quicker and far more efficient than previous generation diesel, BMW Advanced Diesel with BluePerformance Technology vehicles achieve up to 36 mpg, for a range of 580 miles per tank. They emit 20% less CO_2 than conventional vehicles, while posting powerful 0-60 mph numbers. It's diesel reinvented.

Electric Power Steering.
Unlike conventional, hydraulic steering systems, electric power steering draws power only during actual steering movements. When the steering wheel position is constant, the electric motor is inactive.

8-speed Automatic transmission.
This transmission provides extremely fast shifting in both automatic and STEPTRONIC shift modes. By increasing the number of gears to eight, the transmission provides a more efficient shifting sequence and improved fuel economy.

92. In its brochures BMW further promised that its diesel was "Environmentally Friendly" such that it turned "nitric oxides in the exhaust gas into environmentally compatible nitrogen and water vapor," and that it met emissions requirements in all states.

BMW Advanced Diesel with BluePerformance Technology.
BMW's breed of diesel power is quiet and smooth-running. Environmentally friendly, too, thanks to its use of ultra-low sulfur diesel (ULSD) fuel and BMW's BluePerformance Technology. Using Diesel Exhaust Fluid and a diesel particulate filter, it turns the nitric oxides in the exhaust gas into environmentally compatible nitrogen and water vapor. As a result, this engine meets the emissions standards in all 50 states.

LOW CONSUMPTION.
HIGH PERFORMANCE.

93. Continuing on the theme of decreased emissions with better fuel economy BMW brochures stated:

Engines that power innovation. Year after year, numerous BMW engines have garnered accolades for their output, refinement and high-revving ability. All are designed to deliver on BMW's EfficientDynamics philosophy: increased power with decreased fuel consumption and emissions. Choose between two gasoline-powered TwinPower Turbocharged engines, or opt for BMW's Advanced Diesel with BluePerformance Technology. Whichever you select, you'll enjoy the thrill of BMW performance while helping to protect the environment every day.

94. The 2012 brochure on its cover page also promised "less emissions":

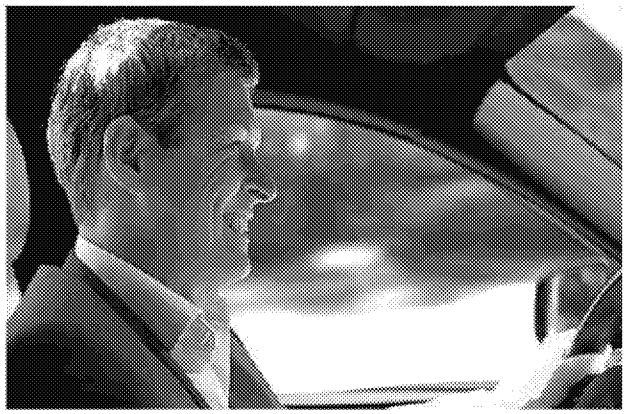
THE BMW X5.

PERFORMANCE HEAVEN FOR SEVEN.

BMW EfficientDynamics
Less emissions. More driving pleasure.

95. Again, BMW promised less emissions:

BMW EfficientDynamics
Less emissions. More driving pleasure.



Every road offers an opportunity for discovery. And no vehicle excels at discovering these pleasurable moments quite like the BMW X5. Brimming with the latest technologies, armed with precision handling, powered by a thrilling, highly refined engine, the X5 driving experience is inspiring, vigorous, and altogether breathtaking. It's also supremely controllable, thanks to exceptional directional stability from a chassis and double wishbone front suspension built for performance as well as practicality. BMW EfficientDynamics technologies give it an impressive power-to-efficiency ratio. The result is a vehicle of unsurpassed capabilities that offers best-in-class performance and efficiency – especially the BMW Advanced Diesel-powered X5 xDrive35d. The BMW X5. Discovery awaits at every turn.

96. BMW understood the environment was important to consumers and stressed its commitment to sustainability:

BMW EfficientDynamics
Less emissions. More driving pleasure.

BMW EFFICIENT DYNAMICS: VEHICLES THAT REQUIRE LITTLE AND GIVE A LOT.

BMW was one of the first automotive manufacturers to pursue efficient driving technologies – one part of our award-winning sustainability strategy. Our commitment to EfficientDynamics means we are continuously developing innovative systems that bring us closer to our long-term goal of emissions-free mobility. However, we remain equally committed to driving pleasure, which is being pursued in different ways. First, there is the continuing optimization of conventional diesel- and gasoline-powered models. Second, BMW hybrid vehicles are already on the road. Third, the first 100 percent electrically powered BMW – the BMW ActiveE – is being distributed in a field trial to customers. And fourth, the fleet of BMW Hydrogen 7 vehicles impressively demonstrated the potential for combining hydrogen drive with a combustion engine.

Since 1995 BMW has been able to reduce the CO_2 emissions of its entire fleet by approximately 30 percent. BMW has rolled out more than two million vehicles equipped with EfficientDynamics: 31 models already produce less than 225 g of CO_2 per mile, and BMW intends to achieve a further 25 percent reduction by 2020. BMW EfficientDynamics represents the most comprehensive package of innovative technologies currently in production, for reducing fuel consumption and emissions while simultaneously creating The Ultimate Driving Machine®.

Different paths to the same destination: unmistakable BMW driving pleasure.
Under the umbrella of the BMW EfficientDynamics project, BMW is continuously developing innovative systems that will bring us closer to the goal of emissions-free mobility in the long term. This BMW program for more driving pleasure is based on several pillars:

Eco-friendly technology.
The development of more efficient vehicles powered by conventional diesel and gasoline engines are continuing challenges. A comprehensive technology directive enables the reduction of fuel consumption and emissions, while at the same time increasing power output and driving enjoyment. These advances are based on innovations such as BMW TwinPower Turbo technology, Brake Energy Regeneration, air curtain front apron design, and many others.

BMW ActiveHybrid.
With the BMW ActiveHybrid 7, BMW ActiveHybrid X6 and the BMW ActiveHybrid 5, BMW has impressive hybrid production models in its line. Soon the BMW ActiveHybrid 3 will be joining the team. All these models combine outstanding efficiency with superlative dynamic ability.

BMW Electric Vehicles.
The BMW ActiveE is the first 100% electric – 100% BMW vehicle. A milestone for EfficientDynamics, the BMW ActiveE achieves emissions-free mobility without compromising the performance that is a BMW trademark. Based on the 1 Series Coupe, it launched in early 2012.

The BMW i brand will launch two completely new vehicle concepts for sustainable mobility in an urban environment. Key features of the BMW i3 and BMW i8 include the use of lightweight materials such as Carbon Fiber Reinforced Plastic (CFRP), electric drive systems, powerful battery technology and eco-friendly production methods. The BMW i3 launches in 2013 and the i8 in 2014; both are an important part of BMW EfficientDynamics technologies.

bmwactivatethefuture.com
bmw-i-usa.com

THE BMW X5 SAV'S EFFICIENT DYNAMICS INITIATIVE AT A GLANCE.

High Precision Direct Injection.
In this latest-generation direct fuel injection system, the piezo injectors are positioned very close to the spark plugs. They inject fuel at high pressure, with extreme precision, for very efficient combustion.

Valvetronic.
BMW's Valvetronic valve control system improves engine response and refinement, while also helping to reduce fuel consumption. The system helps the engine "breathe" better by providing fully variable lift adjustment of the inlet valves.

Brake Energy Regeneration.
In vehicles with Brake Energy Regeneration, the alternator generates electricity only when the driver takes his or her foot off the accelerator. Kinetic energy that was previously unharnessed is transformed into electrical energy, then fed into the battery. In this way, electricity is generated without consuming fuel.

BMW Advanced Diesel with BluePerformance Technology.
Cleaner, quicker and far more efficient than previous generation diesel, BMW Advanced Diesel with BluePerformance Technology vehicles achieve up to 36 mpg, for a range of 590 miles per tank. They emit 20 percent less CO_2 than conventional vehicles, while posting powerful 0-60 mph numbers. It's diesel reinvented.

Electric Power Steering.
Unlike conventional, hydraulic steering systems, electric power steering draws power only during actual steering movements. When the steering wheel position is constant, the electric motor is inactive.

8-speed automatic transmission.
This transmission provides extremely fast shifting in both automatic and STEPTRONIC shift modes. By increasing the number of gears to eight, the transmission provides a more efficient shifting sequence and improved fuel economy.

97. In brochures for 2013 and later, BMW promised its emissions system reduce NOx to environmentally compatible elements:

BMW Advanced Diesel with BluePerformance Technology.
BMW's breed of diesel power is quiet and smooth-running. Environmentally friendly, too, thanks to its use of ultra-low sulfur diesel (ULSD) fuel and BMW's BluePerformance Technology. Using Diesel Exhaust Fluid and a diesel particulate filter, it turns the nitric oxides in the exhaust gas into environmentally compatible nitrogen and water vapor. As a result, this engine meets the emissions standards in all 50 states.

LOW CONSUMPTION.
HIGH PERFORMANCE.

98. BMW promised in its 2013 brochure that its engines helped protect the environment:

Engines that power innovation. Year after year, numerous BMW engines have garnered accolades for their output, refinement and high-revving ability. All are designed to deliver on BMW's EfficientDynamics philosophy: increased power with decreased fuel consumption and emissions. Choose between two gasoline-powered TwinPower Turbocharged engines, or opt for BMW's Advanced Diesel with BluePerformance Technology. Whichever you select, you'll enjoy the thrill of BMW performance while helping to protect the environment every day.

99. The same types of representations were on the 2014 brochure showing BMW's belief that environment, emissions, and fuel economy were material to consumers:

THE NEW BMW X5.

MAKE A MORE POWERFUL IMPRESSION.

BMW EfficientDynamics
Less emissions. More driving pleasure.

BMW EFFICIENT DYNAMICS: MAKING A LITTLE GO A LONG WAY.

BMW was one of the first automotive manufacturers to pursue efficient driving technologies – one part of our award-winning sustainability strategy. BMW EfficientDynamics represents the most comprehensive package of innovative technologies currently in production for reducing fuel consumption and emissions. Our commitment to EfficientDynamics means we are continuously developing innovative systems that bring us closer to our long-term goal of emissions-free mobility. Since 1995 BMW has been able to reduce the CO_2 emissions of its entire fleet by approximately 30 percent, and intends to achieve a further 25 percent reduction by 2020. However, we remain committed to driving pleasure, which is being pursued in different ways.

Eco-friendly technology. The development of more efficient vehicles powered by conventional gasoline and diesel engines are continuing challenges. A comprehensive technology directive enables the reduction of fuel consumption and emissions, while at the same time increasing power output and driving enjoyment. These advances are based on innovations such as BMW TwinPower Turbo technology, Brake Energy Regeneration, Air Curtain front apron design, and many others.

BMW ActiveHybrid. With the BMW ActiveHybrid 7, BMW ActiveHybrid 5 and BMW ActiveHybrid 3, BMW has impressive hybrid production models in its line. All combine outstanding efficiency with superlative dynamic ability.

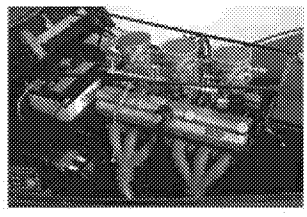
BMW i. The all-new BMW i brand is launching two completely new vehicle concepts for sustainable mobility in an urban environment, both are an important part of BMW EfficientDynamics technologies. Key features of the BMW i3 and BMW i8 include the use of lightweight materials such as carbon-fiber-reinforced plastic (CFRP), electric drive systems, powerful battery technology and eco-friendly production methods.

bmwusa.com/i
bmwusa.com/EfficientDynamics

BMW ENGINE TECHNOLOGY: A HERITAGE OF INNOVATION. A FUTURE OF SUSTAINABLE EXHILARATION.

From its inception almost a century ago as a manufacturer of aircraft engines, Bavarian Motor Works has been a world leader in engine design. In fact, the innovations shown below were so ahead of their time, BMW engineers still incorporate this technology into today's award-winning powerplants. Over the decades, BMW engines have led to countless wins at the racetrack. Even more important, their smooth, powerful and efficient performance has won over generations of driving enthusiasts. Today, adhering to the EfficientDynamics philosophy, BMW engineers are setting even higher goals: creating an engine template that can be scaled in size and adapted to new fuel sources – all while maintaining legendary BMW performance and efficiency. It's a revolutionary concept that is now becoming reality. Welcome to the exciting future of BMW power.

1936



SEMI-HEMISPHERICAL VALVE DESIGN.
A design so advanced it helped the BMW 328 Mille Miglia win races in 1936 – and it's still in use today.

1955

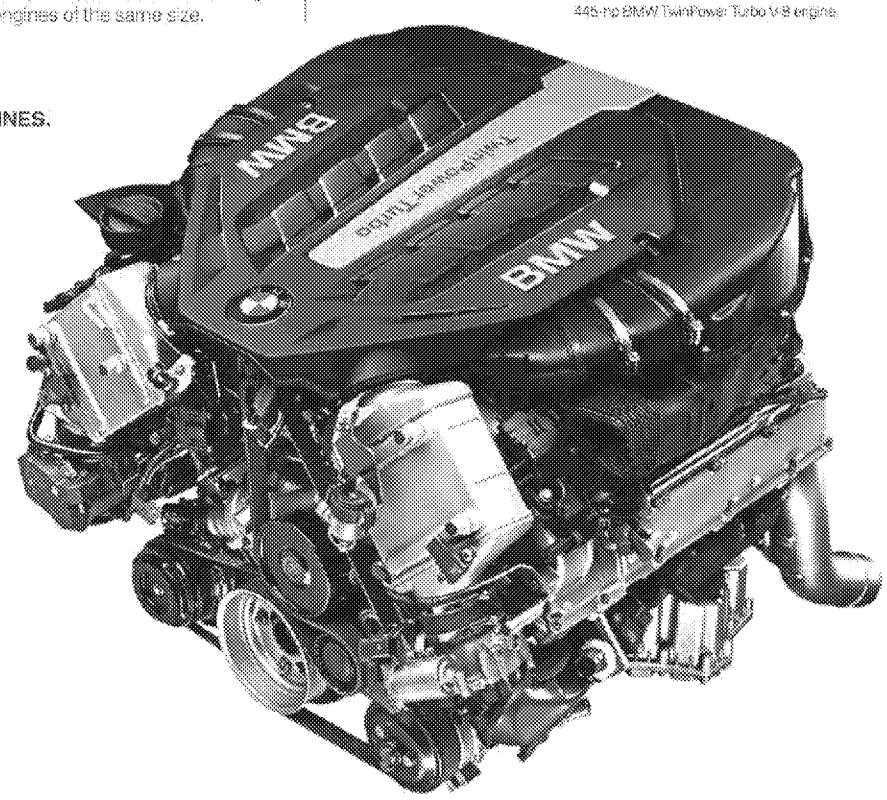
ALL-ALUMINUM V-8 ENGINE.
The BMW 502 applied what is now called "intelligent lightweight engineering" to its then-awesome 160-hp V-8 engine.

TODAY: THE BMW TWIN POWER TURBO ENGINE.
Introduced in 2007, TwinPower Turbo technology is incorporated into every new BMW engine, whether gasoline-, diesel- or hybrid-powered. Utilizing BMW high-precision direct injection, Double-VANOS continuously variable camshaft timing, and Valvetronic individual intake valve control, TwinPower Turbo technology delivers vastly increased power, torque and efficiency when compared to normally aspirated engines of the same size.

BMW GASOLINE-POWERED ENGINES.
Whether configured with four, six, eight or 12 cylinders, the latest BMW gasoline-combustion engines are designed to generate the highest ratio of power and thrilling performance to fuel consumption and emissions.

BMW ADVANCED DIESEL.
Powerful, fast, quiet and fuel-efficient: these are the traits of BMW Advanced Diesel engines. Thanks to BluePerformance Technology, BMW diesel engines meet emissions standards in all 50 states. Managed by a high-performance electronic engine control unit, the turbocharger develops boost and extra power in immediate response to the smallest tap of the accelerator pedal, and stays strong throughout the rev range where you do most of your driving.

445-hp BMW TwinPower Turbo V-8 engine.



100. BMW also offered a diesel option in its 3 Series Sedan, called the 335d. BMW promised that its "Advanced Diesel with BluePerformance" met the "emissions standards of all 50 states": [8]

[8] 2009 Brochure.

This is how much has gone in.

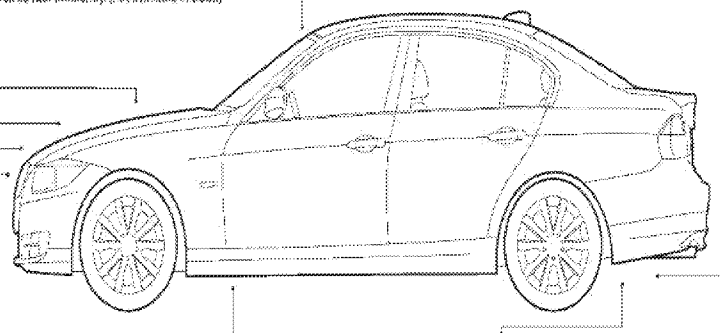
And this is what comes out.

At BMW, we create dynamic vehicles that thrill you with quick acceleration, predictable handling and unshakable control. We are also busy finding ways to sustain this level of performance while incorporating innovative fuels and technologies to help preserve the environment. This is what we refer to as "EfficientDynamics." This goal has led to the visionary CleanEnergy hydrogen-powered engine, which is currently used in the emission-free BMW Hydrogen 7 Sedan. BMW Advanced Diesel with BluePerformance, which offers diesel power with quick acceleration, increased fuel efficiency and reduced emissions, is being introduced to the U.S. in select models in 2008, including the 335d. In fact, every BMW on the road today comes standard with technology that boosts performance while simultaneously reducing fuel consumption and CO_2 emissions.

Valvetronic
Instead of using a traditional throttle, Valvetronic technology in the 328i and 328i xDrive lets the engine breathe more easily by varying the lift height of the valves to regulate air intake. The result: improved cold starts, smoother running, and a significant drop in fuel consumption. Using revolutionary technology such as this, BMW has improved its overall average fuel economy more than any other manufacturer.

Double-VANOS
VANOS is BMW's valve timing system that can "steplessly" vary the points in the combustion cycle when valves open and close. Double-VANOS refers to the fact that it operates on both the intake and exhaust camshafts. Electronically controlled in response to engine speed, load and temperature, VANOS reduces emissions, and enhances low- to medium-speed torque, as well as fuel efficiency. (not available in 335xi)

Aerodynamics
The more smoothly that air flows over a vehicle, the more efficiently it can operate. All BMWs are designed for a low coefficient of aerodynamic drag, which translates into quicker acceleration, more stable handling, quieter operation and greater fuel efficiency. A BMW's integrated front spoilers reduce the amount of air flowing underneath, minimizing front-end lift. This allows a BMW to hug the road at higher speeds for excellent stability.



Twin-turbocharged engines
Benefiting from BMW's twin-turbocharging technology, the 335i, 335 xDrive and 335d deliver quick acceleration without any "turbo-lag." Fuel economy is strong, as well, thanks to precise piezo direct fuel injection.

Advanced Diesel with BluePerformance
The 335d Sedan benefits from the massive power and extraordinary efficiency of BMW's Advanced Diesel engine, while meeting the emissions standards of all 50 states, thanks to its BluePerformance technology.

Efficient transmissions
The 2008 3 Series Sedans channel their power through one of two 6-speed transmissions: a smooth-shifting manual, and an equally fuel-efficient STEPTRONIC automatic. Recent refinements to the automatic transmission include a torque converter that slips less; quicker shifting; and finer adaptation to driving style and conditions. (335d: STEPTRONIC automatic transmission only)

Lightweight construction
Our engineers use lightweight aluminum throughout our vehicles – in the front section, for example, or for the suspension. BMW's inline six-cylinder twin-turbo engine is all aluminum; the naturally aspirated inline six is an aluminum/magnesium composite – the lightest in its class. Taken together, these weight savings lead to lower fuel consumption and better axle load distribution for more agility – especially in curves.

BMW models have low CO_2 emissions today. But that's just for starters. We're carrying on our research in the quest to bring you greater driving pleasure, with fewer emissions and decreased fuel consumption.

101. Like the X5, BMW knew that prospective buyers of the 335d were interested in environmental and emissions issues, hence, the 2011 3 Series brochure on its cover focused on "Less emissions":

THE BMW 3 SERIES SEDAN.

JOY HAS NO FINISH LINE.

BMW EfficientDynamics
Less emissions. More driving pleasure.

102. BMW again promised that its 335d met emissions requirements in all states:

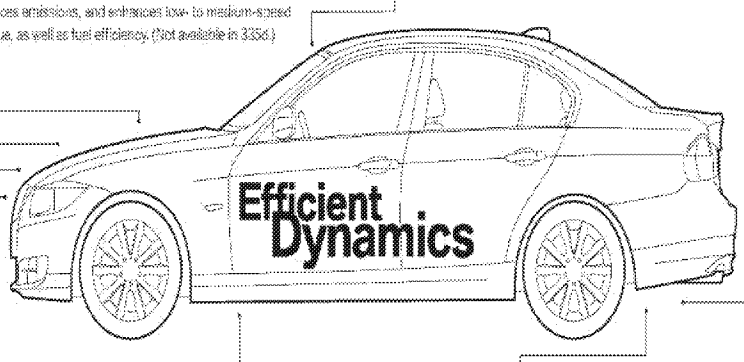
THIS IS HOW MUCH HAS GONE IN. **AND THIS IS WHAT COMES OUT.**

At BMW, we create dynamic vehicles that thrill you with quick acceleration, predictable handling and unshakable control. We are also busy finding innovative fuels and technologies that help preserve the environment while delivering legendary performance. This is what we refer to as "EfficientDynamics." This goal led to the visionary CleanEnergy hydrogen-powered engine in the BMW Hydrogen 7 Sedan. In 2009, BMW introduced Advanced Diesel with BluePerformance in the U.S., offering diesel power with quick acceleration, increased fuel efficiency and reduced emissions. And now, BMW's ActiveHybrid X6 and ActiveHybrid 7 vehicles combine combustion and electric power to boost performance while simultaneously reducing fuel consumption and CO_2 emissions. At BMW, we are driven to do much more with less.

Valvetronic
Instead of using a traditional throttle, Valvetronic technology in the 328i/328i xDrive and TwinPower Turbo 335i/335i xDrive lets the engine breathe more easily by varying the lift height of the valves to regulate air intake. The result: improved cold starts, smoother running, and a significant drop in fuel consumption. Using revolutionary technology such as this, BMW has improved its overall average fuel economy more than any other manufacturer.

Double-VANOS
VANOS is BMW's valve timing system that can "steplessly" vary the points in the combustion cycle when valves open and close. Double-VANOS refers to the fact that it operates on both the intake and exhaust camshafts. Electronically controlled in response to engine speed, load and temperature, VANOS reduces emissions, and enhances low- to medium-speed torque, as well as fuel efficiency. (Not available in 335d.)

Aerodynamics
The more smoothly that air flows over a vehicle, the more efficiently it can operate. All BMWs are designed for a low coefficient of aerodynamic drag, which translates into quicker acceleration, more stable handling, quieter operation and greater fuel efficiency. A BMW's integrated front spoilers reduce the amount of air flowing underneath, minimizing front-end lift. This allows a BMW to hug the road at higher speeds for excellent stability.



BMW models have low CO_2 emissions today. But that's just for starters. We're carrying on our research in the quest to bring you greater driving pleasure, with fewer emissions and decreased fuel consumption.

TwinPower Turbocharged engines
Benefiting from BMW's new TwinPower Turbo with Valvetronic technology, the 335i and 335i xDrive Sedans deliver quick acceleration while virtually eliminating turbo lag. Fuel economy is strong, as well, thanks to High Precision piezo direct fuel injection.

Efficient transmissions
The 3 Series Sedans channel their power through one of two 6-speed transmissions: a smooth-shifting manual, and an equally fuel-efficient STEPTRONIC automatic. Refinements to the automatic transmission include a torque converter that slips less; quicker shifting; and finer adaptation to driving style and conditions. (335d: STEPTRONIC automatic transmission only.)

Lightweight construction
Our engineers use lightweight aluminum throughout our vehicles – in the front section, for example, or for the suspension. BMW's inline six-cylinder TwinPower Turbo engine is all aluminum; the naturally aspirated inline six is an aluminum/magnesium composite – the lightest in its class. Taken together, these weight savings lead to lower fuel consumption and better axle load distribution for more agility – especially in curves.

Advanced Diesel with BluePerformance
In addition to the massive power of its TwinPower Turbo engine, the 335d Sedan benefits from the extraordinary efficiency of BMW's Advanced Diesel. Thanks to its BluePerformance technology, it also meets the emissions standards of all 50 states.

103. BMW proclaimed its diesels "have never been cleaner," comparing its new engines to those that "left a trail of toxic pollution":

BMW BLUE PERFORMANCE IS GREENING DIESEL POWER.

In 1983, BMW introduced the 524td, powered by the fastest diesel engine in the world at the time. In those days, the common perception of diesel engines was that they were noisy, ran erratically, and left a trail of toxic pollution in their wake. However, BMW engineers were already imagining the possibilities of a diesel-powered future.

With the start of the BMW EfficientDynamics program, and fueled by the desire to explore a new power source for its vehicles, BMW began its modern diesel program. Not content with the previously lower standards for diesel engines, BMW engineers pledged to pursue a cleaner, smoother, quieter, and more efficient diesel engine. As a result, many of their diesel-power solutions break new ground – not only for BMW, but for the entire auto industry, helping to shape the standards of diesel power for this century.

Today, BMW is not only renowned for its Advanced Diesel engines, we're winning awards with them. In 2005 and again in 2006, the 3.0-liter inline six-cylinder Advanced Diesel engine with twin-turbo technology won "International Engine of the Year" honors in the 2.5-liter to 3.0-liter category.[1] And BMW Advanced Diesel with BluePerformance is the same technology that helped us win "2006 World Green Car of the Year."[2]

With BMW diesel engines, there's no sacrificing performance – it's pure power, through and through. But not all benefits are merely performance-related. From an environmental standpoint, our diesel engines have never been cleaner. Take, for instance, our approach to emissions. Our advanced catalyst system uses Diesel Exhaust Fluid (DEF), a specially injected ammonia-based fluid, to convert the released nitric oxides into environmentally compatible nitrogen and vapor. An additional exhaust filter screens out other particles. To see just how clean a BMW Advanced Diesel vehicle is, hold a white handkerchief to the exhaust pipe. It will stay white – a far cry from the days of black diesel clouds waiting from the exhaust.

High Precision piezo direct-injection technology helps make BMW Advanced Diesel engines fuel-efficient, as well. In fact, one tank takes the 335d Sedan up to 585 miles before stopping to refuel.

Now it's time to imagine the possibilities of your own diesel-powered future in the BMW 335d Sedan.

[1] International Engine of the Year awards
[2] The same Advanced Diesel technology as the 118d, winner of the "2006 World Green Car of the Year" award.

bmwusa.com/EfficientDynamics

104. BMW promised efficiency and low emissions:

THE BMW ADVANCED DIESEL ENGINE WITH BLUE PERFORMANCE TECHNOLOGY. IT'S DIESEL, THROUGH THE LENS OF BMW EFFICIENT DYNAMICS.

Anyone can make a more powerful engine – but trust BMW to make a more powerful engine that is also more fuel efficient. By adhering to the principles of EfficientDynamics, BMW is crafting some of the world's most innovative powerplants that deliver maximum driving pleasure with minimum fuel consumption and emissions.

BMW is pleased to offer the 335d – featuring BMW's award-winning Advanced Diesel engine with BluePerformance. Named the "International Engine of the Year" in 2005 and 2006, this 265-hp engine incorporates the same technologies used in a BMW awarded the title "2008 World Green Car." A new breed of diesel power, it's quiet and smooth-running. Environmentally friendly, too. Thanks to BMW's BluePerformance Technology, it's 99 percent cleaner than previous diesels – while remaining 100 percent BMW. As a result, BMW Advanced Diesel engines meet the emissions standards in all 50 states. Simply put, it's the cleanest, most powerful diesel in America.[1]

BMW Advanced Diesel engines are also highly fuel efficient. Combining ultra-low sulfur diesel (ULSD) fuel and BMW's precise fuel injection technology, the 335d's fuel economy is estimated at 23 mpg city, 36 highway.[2] And while many other new diesel engines also offer efficiency and low emissions, BMW Advanced Diesel engines set the standard for torque and pulling power. The 335d inline six-cylinder engine delivers maximum torque that's worthy of a V-8: 425 lb-ft at 1750 through 2250 rpm. It's turbocharged, also, so it's quick off the mark, accelerating from 0 to 60 mph in just 6 seconds.[3] The TwinPower Turbocharger is controlled by a high-performance electronic engine control unit: the turbocharger develops boost and extra power in immediate response to the smallest tap of the accelerator pedal. As the engine speed increases up to the 1750 rpm range, the turbocharger develops maximum torque. Only one thing is more impressive: how the initial kick of acceleration is transformed into sheer driving pleasure.

[1] Claim based on 335d achieving the best CARB emission test results in more categories than the nearest competitor and published competitor horsepower ratings.
[2] EPA-estimated figures are for comparison purposes only. Your actual mileage will vary, depending on speed, driving habits, trip length and driving conditions; actual mileage may be lower.
[3] BMW AG test results. BMW urges you to obey all posted speed laws and always wear safety belts.

E. The BMW emission deception = emission manipulation.

1. The diesel test setup.

105. Both portable emission measurement system (PEMS) and chassis dynamometer testing were conducted on a model year 2012 BMW X5 xDrive35d with approximately 60,000 miles. This vehicle is representative of the entire population of vehicles presented above. The test vehicle underwent a rigorous inspection and check-in process. The vehicle was put on a hydraulic rack, the underbody cowlings were removed, and the emission control system was inspected to ensure the parts were intact and free from damage. The vehicle was also checked for engine faults and maintenance history to ensure the regular scheduled maintenance was performed, that the vehicle was free from accidents, and that there was no active malfunction indicator lamp indicating a problem with the engine or emission control components. The tire pressure was adjusted to the recommended specification prior to testing. The vehicle was also

outfitted with a data logger to log engine and emission control system data coming from the vehicle's computer (engine control module, or ECM).

2. PEMS testing is reliable and accurate.

106. The vehicle was tested over a variety of conditions using a portable emission measurement system (PEMS). PEMS is a collection of measurement devices that allow the measurement of gaseous vehicle emissions of oxides of nitrogen, total hydrocarbon, methane, carbon monoxide, and carbon dioxide as well as particulate matter (PM) emissions during on-road driving of light- and heavy-duty vehicles. The system is essentially a "portable laboratory" that allows measurement of emissions outside of a conventional chassis dynamometer-based laboratory setting of the type used for certification testing.

107. These systems are highly accurate when compared to conventional chassis dynamometer tests used for vehicle emissions certification. In fact, their accuracy is such that they are currently integrated into the European vehicle emission certification process to test RDE (real driving emissions). Both EPA and CARB employ PEMS as part of the heavy duty in-use compliance program to measure emissions against the not to exceed (NTE) standards, where procedures have been codified in the code of federal regulations. Furthermore, both CARB and EPA make wide use of PEMS to evaluate vehicles for the presence of defeat devices. One such study, published by the Center for Alternative Fuels Engines and Emissions (CAFEE) in collaboration with CARB, made heavy use of PEMS to discover the presence of defeat devices in Volkswagen diesels.[9]

108. PEMS has been used since the 1990s to measure real-world vehicle emissions performance. These systems are manufactured by highly respected and well-established

[9] Gregory J. Thompson, *et. al.*, "In-Use Emissions Testing of Light-Duty Diesel Vehicles in the United States," CAFEE publication (May 15, 2014).

emissions measurement equipment suppliers like AVL, Horiba, and Sensors Incorporated. All three of these companies are leading suppliers of emissions measurement systems used for vehicle and engine certification, and they bring their experience in conventional emissions analyzers to bear in designing PEMS. Conventional gas analysis systems are very large and complex. Since the years when chassis dynamometer testing was originally introduced, advances in analyzer technologies over the past three decades have allowed for the miniaturization of conventional laboratory analyzers, yielding major size and weight reductions. These technological advances made it possible for high-accuracy emissions analyzers to be deployed on vehicles while driving on the road outside of the laboratory setting.

109. Conventional emissions testing used for certification of vehicles is performed on a chassis dynamometer. The dynamometer is a "treadmill" for the driven wheels of a vehicle. The driven wheels are placed on rollers attached to one of more flywheels and an electric motor capable of simulating the forces on the vehicle during real-world driving on the road. The chassis dynamometer simulates inertial forces (*i.e.*, the resistance to acceleration or deceleration from the vehicle's weight), static friction, rolling resistance, and aerodynamic drag. When properly calibrated, the chassis dynamometer will simulate real-world driving with a high degree of accuracy. A "coastdown" procedure is used to verify that rolling resistance and drag are accurately simulated. However, the inertial load simulation requires very rapid and precise responses from the electric motor for high accuracy. Slow responding systems can under-load the vehicle during acceleration. By contrast, real-world inertial forces on the vehicle are inherent in PEMS testing since this testing is conducted on the road in normal driving.

110. The analyzers used to measure gaseous emissions in the chassis dynamometer setting are accurate to within 1% of the full measurement scale. These analyzers are calibrated

before and after each emissions test to ensure that they deliver a high level of accuracy and that the calibration does not appreciably change (or drift) during the emissions test. Furthermore, analyzers undergo monthly 10-point calibrations to ensure their response is accurate throughout the measurement range of each analyzer. These measurements are supplemented with high precision measurement of ambient temperature and relative humidity. NOx is adjusted for those values.

111. PEMS analyzers are subject to the same requirements. In fact, analyzers used by the experts have an accuracy of 0.3% of full scale, well within the 1% requirement used for chassis dynamometer analyzers. These analyzers are also subject to the same monthly 10-point calibration to ensure accuracy throughout the measurement range. The analyzers are also calibrated before and after each test to ensure that they are both accurate and free of excessive drift. Drift has been shown to be far less than 1%, even after several hours of testing. PEMS also employs high accuracy temperature and relative humidity measurements to adjust NOx.

112. Put simply, the analyzers used in chassis dynamometer testing and PEMS testing have virtually identical levels of accuracy and are subject to the same strict requirements for calibration and drift.

113. One primary difference between PEMS and chassis dynamometer emissions testing is that the latter mixes the raw exhaust with ambient air in a dilution tunnel to simulate the effects of vehicle exhaust mixing with ambient air immediately after emission from the tailpipe. In the case of PEMS, the raw exhaust emissions are measured. The dilution tunnel has the largest effect on particulate matter measurements, where sulfate and hydrocarbon aerosols may be formed during the dilution process, thereby increasing particulate matter emissions. In modern diesels using low-sulfur fuels, these effects are much less important than in the past,

where hydrocarbon and sulfate formation was much higher. The effect on gaseous pollutants, and in particular NOx, is negligible. Therefore, the raw gas measurement of NOx taken during PEMS testing will closely match the diluted exhaust measurement taken in a dilution tunnel.

114. A wide variety of studies have been performed over the years to validate the accuracy of PEMS. One such study, conducted by experts at Ricardo UK, one of the world's leading vehicle research and development companies, concluded that "NOx emissions agreed within ~10% across a wide range of values."[10] When considering that defeat devices result in emissions that are often several times, or even orders of magnitude, higher than the relevant emissions standards, this level of agreement with chassis dynamometer emissions measurement is more than sufficient to identify the presence of defeat devices and to quantify the effects.

115. That being said, test conditions are highly controlled in a chassis dynamometer laboratory setting. Ambient temperature, wind, and road quality are consistent from test to test. Although PEMS measures emissions with a high degree of accuracy, great care must be taken to ensure that the driving conditions are representative, consistent, and can be compared to the emission standards in a meaningful way. However, a well-designed PEMS test program can account for ambient temperature, traffic variability, relative positive acceleration (RPA—*i.e.*, the "hardness" or "softness" of the driver's driving style), road quality, and wind speed. The effect of wind speed, in particular, can be averaged out by conducting a large number of tests with variable wind conditions. Tests are typically repeated dozens of times, with careful attention paid to, among other things, the average cycle speed, ambient temperature, RPA, and road grade.

116. It is important to note that, in order to perform chassis dynamometer testing to certify a vehicle, on-road data must be collected for each vehicle that is tested to obtain a proper

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[10] Jon Anderson, *et. al.*, "On-Road and Chassis Dynamometer Evaluations of Emissions from Two Euro 6 Diesel Vehicles," SAE 2014-01-2826 (Oct. 2014).

model of the vehicle's rolling resistance and aerodynamic drag (called the vehicle's "road load model"). This procedure is conducted over the road and must be repeated multiple times to account for the effects of variable wind speeds and directions. This kind of repetition is no different than that required to average out the effects of wind speed during PEMS testing.

117. In order for the chassis dynamometer to simulate real-world driving accurately, the testing conducted over the road to create the road load model must be generated with great care, accounting for effects like tire pressure, drive train resistance, state of maintenance, vehicle inertial load, et cetera—the same issues that must be addressed when conducting PEMS tests.

118. Furthermore, it is possible to re-create virtually any chassis dynamometer certification cycle over the road using a PEMS by simply following the same vehicle speed cycle in a carefully controlled setting. Special test software has been developed by experts to allow these test cycles to be performed on the road.

119. High ambient temperatures can generally not be tested in a chassis dynamometer laboratory; the same is true of very low temperatures. During certification testing on the FTP-75 and HWFET, ambient temperature is controlled to a narrow window between 68°F and 86°F. PEMS testing can be conducted at a wide variety of temperatures, which is important because many defeat devices are triggered based on changes in ambient temperature.

120. Importantly, it is often not possible to test conditions on a chassis dynamometer that might be experienced in the real world. As was discovered during the Volkswagen diesel scandal, the vehicle's engine control module can often detect that the vehicle is being tested on a chassis dynamometer. In addition to being able to detect that a certification test cycle is being run, as with Volkswagen, vehicles can use various sensors to determine the vehicle is on a

chassis dynamometer. Types of algorithms used to detect a chassis dynamometer include, but are not limited to, the following:

a) driven wheels are moving but the front wheels are not turning, a condition only experienced on a chassis dynamometer;

b) on a 2-wheel drive vehicle, the driven wheels are moving but the non-driven wheels are not, a condition only experience on a chassis dynamometer; and

c) on a vehicle equipped with GPS, the vehicle's wheels are moving while the GPS position is not changing.

121. For this reason, while testing on a chassis dynamometer for defeat devices, it can never be ruled out that the vehicle can detect that it is being tested on a chassis dynamometer. Therefore, results from chassis dynamometer testing may be dramatically different than those measured in real-world driving. In contrast to chassis dynamometer testing, the vehicle cannot detect the presence of a PEMS. PEMS is not only accurate for detection and quantification of defeat devices. It is essential.

3. Testing results indicate higher than expected emissions.

122. Plaintiffs' experts created a special program that is specific to the BMW X5 to allow communication with the vehicle's computer (ECM) in order to extract important operational information like exhaust temperatures, EGR rates, NOx concentrations upstream of the SCR catalysts, and other information.

4. The test vehicle is representative of all BMW X5 and 335d vehicles.

123. Plaintiffs did not test each model year to derive plausible allegations that each Polluting Vehicle violates U.S. and CARB emissions standards and produces emissions beyond those that a reasonable consumer would have expected when he or she purchased their vehicle. Plaintiffs did not need to. The engine architecture is nearly identical for both the X5 and 335d with the only difference being that the X5 employs both high- and low-pressure EGR because of

its higher weight, while the 335d uses high pressure EGR only. All other aspects of the engine and aftertreatment architecture are nearly identical. Furthermore, because carry-over applications were used for model years subsequent to 2009, all other model years are identical to the 2009 model year from an emissions standpoint.

124. All variants of the X5 and 335d sold in the United States are well represented by both the Plaintiffs' list of vehicles and Plaintiffs' test vehicle since BMW did not change the engine in any significant way with respect to diesel emissions in these models; all vehicles employ the same diesel emissions technology according to BMWs own press release.

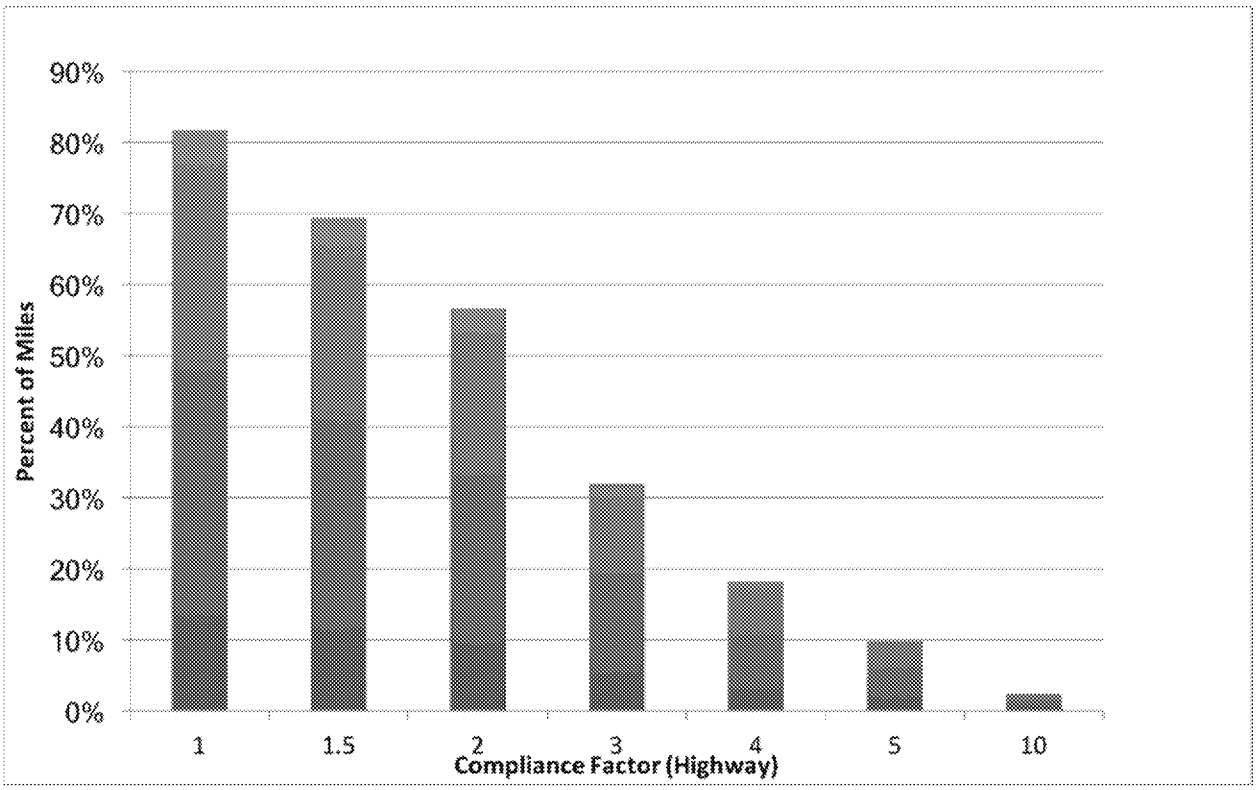
5. The Polluting BMW Vehicles emit more than expected and exceed emissions standards.

a. Highway Testing.

125. The vehicle was tested under a wide variety of steady highway conditions, with highway speeds ranging 45 to 70 mph, with the vast majority of the testing conducted at a conservative 60 mph. Over the course of 2,401 miles of testing, highway emissions were found to be 149 mg/mile, some 3 times the standard. Maximum emissions found during testing were found to be 984 mg/mile, or nearly 20 times the standard.

126. The "compliance factor" can be considered a multiple of the emission standard. It is the actual emission rate found during testing divided by the certification standard. A vehicle that meets the standard will have a compliance factor less than 1. A vehicle with a compliance factor of 1 meets the standard exactly. A compliance factor of 2 means the vehicle exceeds the standard by a factor of 2.

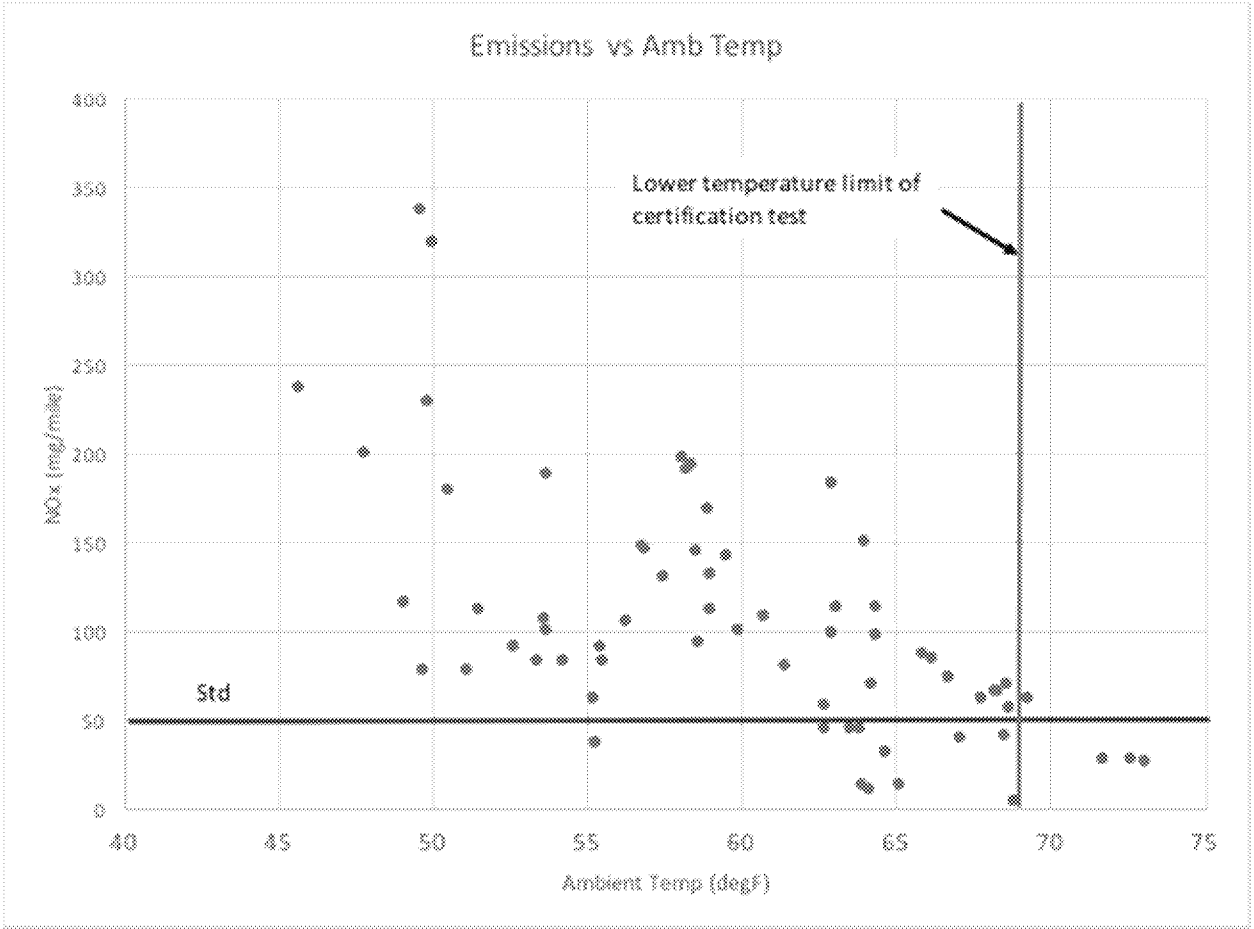
127. The compliance factor for the BMW for all highway conditions is plotted below.



128. The bar chart for a compliance factor of "1" represents the fraction of the total miles that are at or above the standard. The bar for a compliance factor of "2" represents the total miles that are twice the standard or more, and so on. What is notable is that the vehicle spends 82% of its miles traveled above the standard. That means only 18% of the miles traveled in steady highway conditions actually met the standard. The vehicle spends 32% of its time at or above 3 time the standard. Finally, we see that the vehicle spends 10% of its time at 5 times the standard or more.

129. Furthermore, testing found that NOx emission rate is highly dependent on ambient temperature. See the plot below. It is important to note that certification testing is conducted in a test cell with a controlled ambient temperature. According to the certification procedure in the code of federal regulations, the ambient temperature in the test lab must be controlled to between 68°F and 86°F in order for the test to meet the standard. The lower limit

for this temperature window is presented in the plot below as the vertical blue line. At temperatures near 72°F, which is within the certification test window, emissions meet the standard (represented by the red horizontal line) with an average emission rate of 27 mg/mile NOx.



130. When tested below the certification test window, however, emissions increased dramatically. In the temperature window between 50 and 60°F, emissions increase to 119 mg/mile, some 2.4 times the standard and 4.4 times the levels at ambient temperatures in the certification test window. Between 45 and 50°F, NOx emissions increase to 200 mg/mile, or 4 times the standard and 7.4 times the level measured in the certification test window.

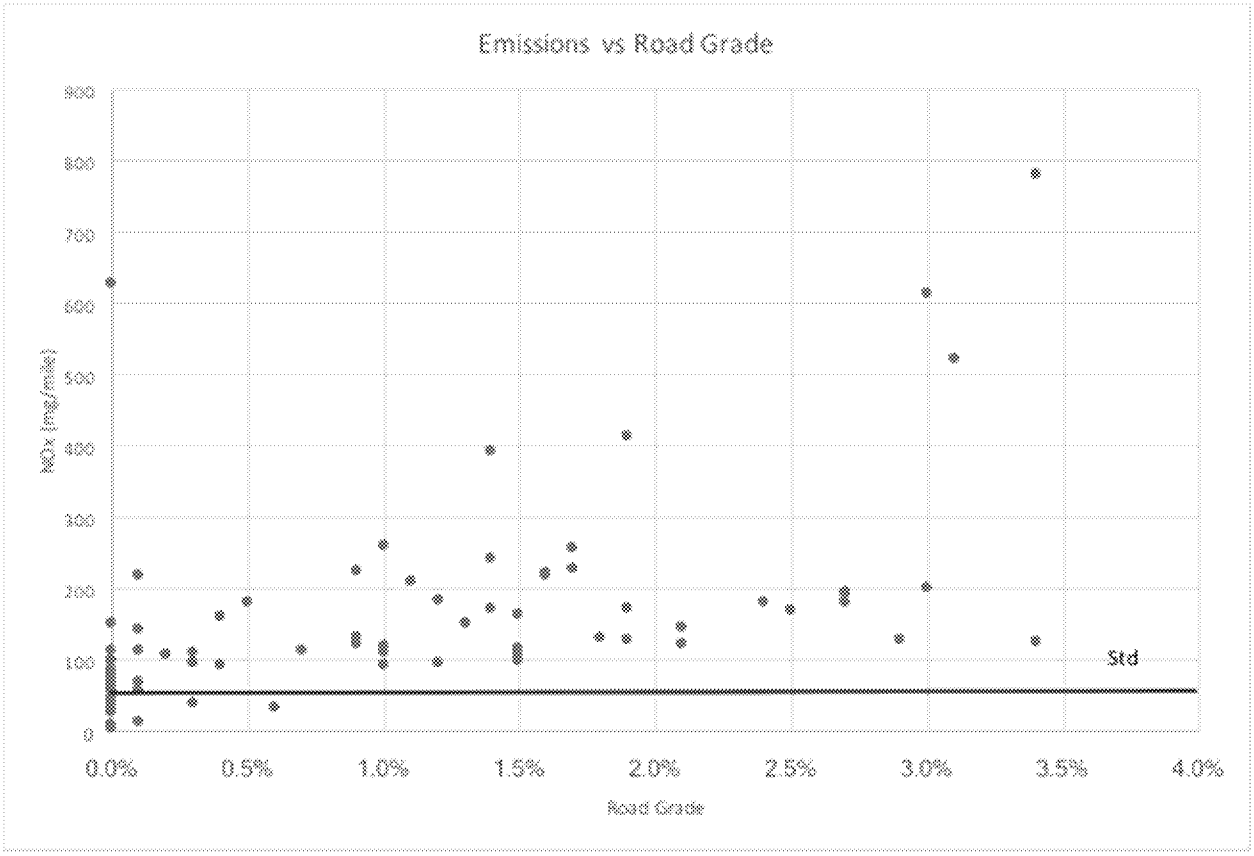
131. As can be seen in the table below, the effectiveness of the SCR system is reduced from the condition in the certification temperature window that meets the standard to lower ambient temperature conditions. For temperatures down to 50°F, the high pressure EGR rate is not changed, though the SCR performance is reduced. Below 50°F, both the high pressure EGR and SCR systems are de-rated (or reduced in effectiveness) compared to the condition that meets the standard. The low pressure EGR system goes from 78% at normal certification temperatures to 4.8% at temperatures between 50-60°F; low pressure EGR is turned off in the temperature window between 45-50°F.

132. Note, the data presented above only covers emissions on *flat* roads at steady speed and for distances greater than 5 miles in order to exclude high emissions that may occur over very short distances.

Condition	**Average HP EGR Rate**	**Average LP EGR Rate**	**Average SCR % Reduction**	**Average NOx Emissions (mg/mile)**
72°F	59.7%	78.0%	77%	27
50-60°F	58.6%	4.8%	63%	119
45-50°F	45.9%	0.1%	66%	200

b. Highway Testing on Hills.

133. The effect of road grade was also studied with PEMS. The results are plotted below. In general, emissions increase as the road grade increases, though only modest road grades below 4.0% were studied.



134. When the flat road taken above is presented as a whole, the average emission rate is 109 mg/mile. As the road grade increases, the emissions increase substantially. See the table below. It is clear that both the high and low pressure EGR and SCR systems are de-rated on hills. As the road grade increases, the EGR rate is steadily decreased, as is the effectiveness of the SCR system. The result is that emissions increase from 109 mg/mile on flat roads to 482 mg/mile for roads with, still quite modest, grades of 3.1% to 3.4% (the steepest grade tested). That's nearly a factor of 5 increase and nearly 10 times the standard. Under no circumstance does the vehicle meet the standard on a road grade greater than 0.7%. These very modest grades are commonly encountered in highway driving.

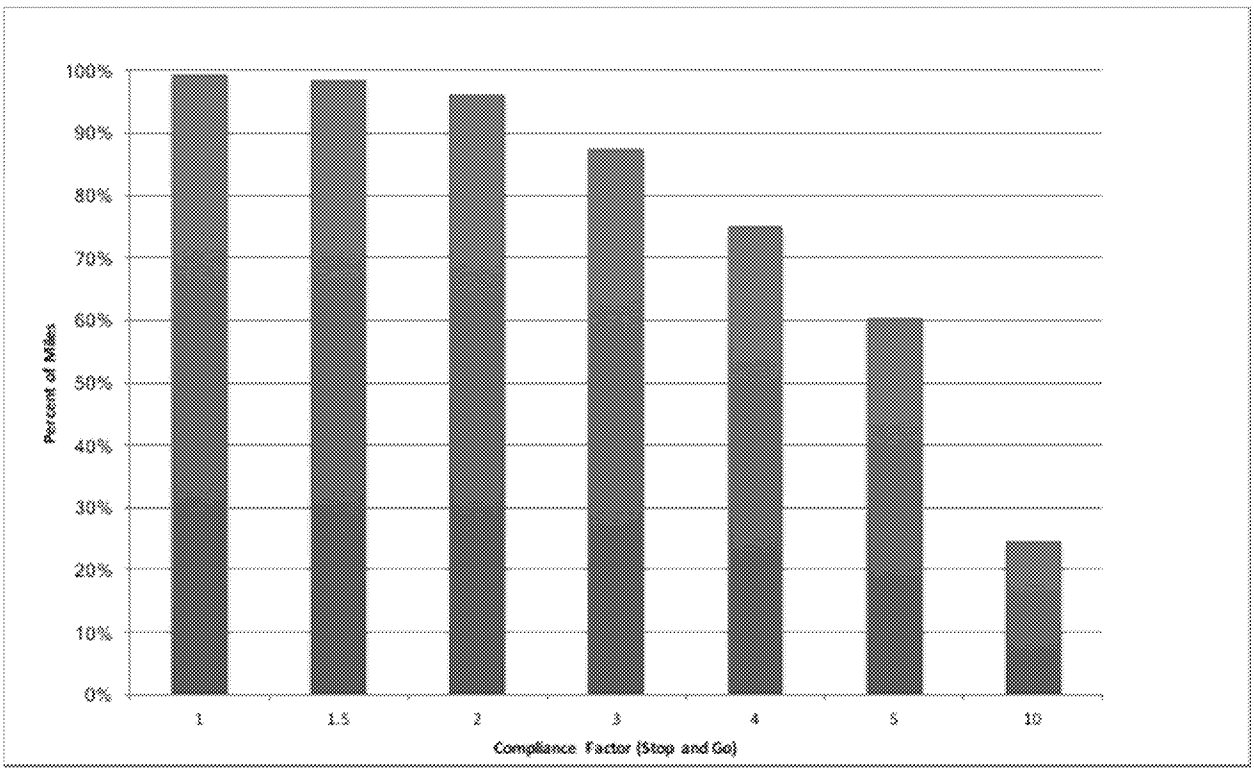
Road Grade	**Average HP EGR Rate**	**Average LP EGR Rate**	**Average SCR % Reduction**	**Average NOx Emissions (mg/mile)**
Flat Road	52.2%	47.2	73%	109

1.1-2.0%	21.9%	44.6	69%	185
2.1-3.0%	15.3%	38.3	74%	216
3.1%+	12.6%	28.7	59%	482

c. Stop and Go Testing.

135. A wide variety of PEMS testing was conducted over the course of 428 miles in conditions that closely approximate the certification test cycle, the FTP-75. The tests were carefully constructed such that average speed and relative positive acceleration (RPA), a measure of how aggressively the vehicle is being driven, were chosen to be closely comparable to the FTP-75. In general, the vehicle was driven with low RPA, representative of conservative driving with light accelerations.

136. Over the course of stop and go testing, emissions were found to be 427 mg/mile on average, or 8.5 times the standard. Maximum emissions of 1,365 mg/mile were observed, or 27.3 times the standard. Similar to the highway data presented above, the compliance factor is presented below.



137. The vehicle spends virtually all of its time above the standard, with 99.4% of the data with a compliance factor of 1 or more. Fully 75% of the vehicle miles traveled have a compliance factor of 4 or more. The vehicle spends 24.5% of the vehicle miles traveled with a compliance factor of 10 or more.

d. Dynamometer Testing.

138. In addition to PEMS testing, the vehicle was tested on a chassis dynamometer. Both the FTP-75 and HWFET certification tests were conducted in strict accordance with the code of federal regulations, as would be required for certification testing. It should be noted that the FTP-75 is comprised of three separate phases, as shown below.

139. Phase 1 is what's called a "cold start" phase, where the vehicle is started from a completely cold condition, having been left to "soak" at room temperature for 8 hours or more. This portion of the test is the most challenging for diesel engines, as the catalyst temperatures in the exhaust are not yet high enough to promote the necessary NOx reduction reaction required to achieve high rates of NOx reduction.

140. Phase 2 is started immediately after Phase 1 with no pause between the phases. During this "stabilized phase," the emission control system is up to temperature and emissions are relatively low.

141. Upon completion of Phase 2, the vehicle is stopped and turned off. After approximately 10 minutes with the engine off, the engine is re-started and phase 3 is begun. This so-called "hot start" test faces some of the same challenges as the cold start test, in that catalyst temperatures have been allowed to decrease with the car turned off. However, the effect is much less severe than the cold start, as most of the exhaust heat is retained during the 10- minute shut-off period.

142. Emissions are measured during each of the 3 phases and weighted roughly 0.43, 1.0, and 0.57 for Phases 1, 2, and 3, respectively.

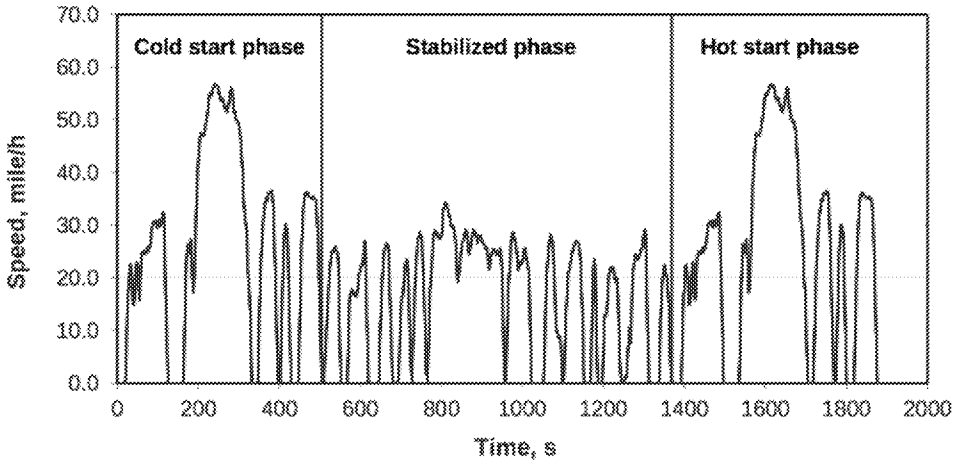


Figure 1. US EPA Urban Dynamometer Driving Schedule (FTP-75)

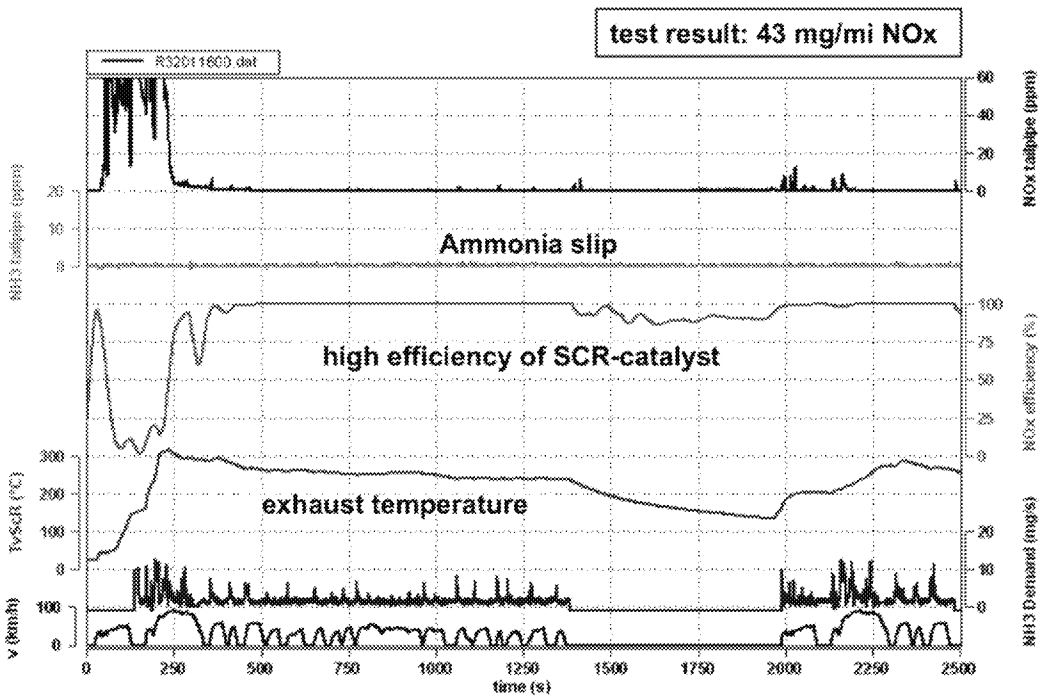
143. BMW presented the results of the FTP-75 for the X5 at the 2007 Diesel Engine Efficiency and Emissions Research Conference in Detroit.[11] The black and green curves are of particular interest here, as they present the concentration of NOx during the FTP-75 as well as the efficiency of the SCR system (*i.e.* the percent of the NOx that is reduced). As previously mentioned, NOx concentrations (the black line) are particularly high during the cold start, Phase 1. This is the first 505 seconds of the plot. During that time, because exhaust temperatures are relatively low and the SCR catalyst is not yet active, NOx emissions are high. Upon completion of Phase 1, the SCR efficiency (green line) is greater than 99%. This is the case all the way through Phase 2 to 1372 seconds, where Phase 2 ends. At about 2000 seconds, Phase 3 begins. Again, NOx concentrations temporarily increase while the exhaust catalysts warm up, but the effect is relatively minor. As can be seen on the test, once the exhaust system is heated up, the SCR system is capable of near 100% reduction in NOx. The vast majority of the NOx from the

[11] Wolfgang Mattes, "The BMW Approach to Tier 2 Bin 5," DEER Conference, Detroit, MI (2007).

test cycle comes from the cold start, as previously explained. The resulting weighted average NOx rate is 43 mg/mile, just under the 50 mg/mile standard.

144. In short, BMW's own technical presentations show that, once the SCR system is heated to operating temperature, the SCR system effectiveness is near 100%. In its own training documentation, BMW states:

145. "Selective catalytic reduction is currently the most effective system for reducing nitrogen oxides (NOx). During operation, it achieves an efficiency of almost 100 % and approx. 90 % over the entire vehicle operating range. The difference is attributed to the time the system requires until it is fully operative after a cold start."[12]



146. Plaintiff's BMW X5 was tested on the FTP-75 with the following results:

Phase	Average HP EGR Rate	Average LP EGR Rate	NOx Emissions (mg/mile)	Note
Phase 1	52.6	33.1	200	Cold start

[12] BMW AG, "Technical Training - Product Information. Advanced Diesel with BluePerformance, 335d, Xdrive35d" (June 2008).

Phase 2	63.7	56.2	23	Stabilized phase
Phase 3	63.3	3.1	87	Hot start
Composite Result			77	

147. As expected, emissions are highest during the cold start portion of the test, with 200 mg/mile. During the stabilized phase, emissions are quite low, as the SCR catalyst is working at a high efficiency and the resulting NOx rate is 23 mg/mile. Hot start emissions are 87 mg/mile. Again, the challenge is maintaining a hot exhaust temperature and high SCR efficiency. The composite FTP-75 result is 77 mg/mile, which is quite close to the standard.

148. The vehicle is certified to a standard of 50 mg/mile at 50,000 miles and 70 mg/mile at 120,000 miles (full useful life) to account for some degradation in the catalyst. However, certification is performed on a system aged to 4,000 miles. The test vehicle may have experienced some slight deterioration in emissions performance at 60,000 miles, but it's quite close to the performance expected at 120,000 miles. In any event, the emissions are quite low in circumstances where the catalyst is fully warmed and no hot or cold starts are being tested (*i.e.* phase 2).

149. The vehicle was also tested on the HWFET cycle, for which the standard is 70 mg/mile at 50,000 miles and 90 mg/mile at 120,000 miles. The result for testing over this cycle was 30 mg/mile, which meets the standard.

150. In short, this vehicle appears to be working as designed on the chassis dynamometer.

e. Comparison to On-Road FTP-75 – Phase 2.

151. Using proprietary software, plaintiffs' experts conducted the FTP-75 driving cycle on a perfectly flat and isolated road, with the emissions measured with PEMS. The vehicle was allowed to soak for 8 hours prior to the test, and testing was conducted at a temperature at or near 68°F. During the stabilized phase, Phase 2, emissions were found to be 9 and 38 mg/mile for the

two tests conducted, for an average of 24 mg/mile. This result corresponds closely with the result found on the dynamometer (23 mg/mile). This result suggests that the vehicle is capable of significant emission reductions both on the road and on the dynamometer.

152. Testing on the FTP-75 requires following a very specific "trace" of required speed for a given time. However, when testing is conducted under conditions that have the same average speed and RPA as Phase 2 of the FTP-75—but a different and arbitrary test trace—emissions increase dramatically.

153. For tests conducted *with the vehicle fully warmed up*, and average speeds between 16 and 20 mph (the average speed of Phase 2 is 16.1 mph), the emissions are 271 mg/mile on average. Note that test drive lengths were *at least* 4 miles, and up to 12.1 miles, to ensure statistical significance. Phase 2 is 3.86 miles. RPA values were maintained at or below those levels experienced on the FTP. In other words, when the test trace is arbitrarily changed to another trace with a similar profile, emissions increase from an average of 24 mg/mile to 298 mg/mile, or by a factor of 10.

154. The vehicle is therefore able to detect the certification test cycle and adjust the emissions performance when it "knows" the test cycle is not being run. When tests conducted at all stop and go speeds, ranging from 13.5 to 47.1 mph, emissions are approximately 284 mg/mile. Again, these results only include those tests for which the vehicle was fully warmed up, the road was perfectly flat, and the trip distance was greater than 4 miles.

155. In all cases, the high pressure EGR rates are relatively consistent from test condition to test condition. However, compared to the FTP Phase 2 test, where the SCR NOx reduction is 93%, the reduction on a comparable (but arbitrary) test cycle is 58%. The numbers are similar when all average cycle speeds are considered. BMW appears to detect the test trace

and reduce the effectiveness of the SCR system when it detects the FTP-75 test cycle is not being run. The amount of low pressure EGR is also reduced from the FTP Phase 2 test cycle from 53.2% to between 32% and 37% when the test cycle is changed to an arbitrary – but, again, parametrically similar – speed trace. Significantly, for cases where the arbitrary cycle was run, the SCR reduction is nowhere near the 90% claimed by BMW in its own technical literature and demonstrated on the FTP-75. There is no technical justification for this change in SCR performance on similar driving cycles.

Test Condition	NOx (mg/mile)	Average HP EGR Rate	Average LP EGR Rate	Average SCR % Reduction
FTP Phase 2	24	47.6%	53.2%	93%
16-20 mph, arbitrary cycle	294	49.8%	36.9%	58%
All speeds, arbitrary cycle	291	48.4%	32.1%	57%

f. Comparison to On-Road FTP-75 – Cold and Hot Starts.

156. Hot and cold start conditions were examined in addition to the stabilized emissions described above. A wide variety of cold and hot start conditions were tested, from immediate acceleration to highway speeds to normal city driving.

157. For cold starts that were followed by city driving, only those cold starts with a distance of 3.5 miles or more were considered (the length of the FTP-75 cold start). Only flat road tests were considered. Testing showed that, on average, cold start emissions were 667 mg/mile. That's 3.3 times the level found during the FTP-75 Phase 1 test on the dynamometer. SCR performance is not presented for hot and cold starts because the upstream NOx sensor is not active for the entire start-up phase. After engine ignition, there is usually a delay in the NOx sensor reading as the NOx sensor heats up to operating temperature and goes through a series of start-up checks.

Test Condition	NOx (mg/mile)	Average HP EGR Rate	Average LP EGR Rate
FTP Phase 1 (cold start)	200	52.6%	33.1%
PEMS Cold Starts (stop and go)	667	42.0%	12.0%

158. For hot starts that were followed by city driving, only those hot starts with a distance of 3.5 miles or more were considered (the length of the FTP-75 cold start). Only flat road tests were considered. Testing showed that, on average, hot start emissions were 468 mg/mile. That's 5.4 times the level found during the FTP-75 Phase 1 test on the dynamometer. In most cases, these hot starts were completed with only a few minutes of engine shut-off time. The SCR catalysts are well above the light-off temperature in the vast majority of cases, as demonstrated by the exhaust temperatures upstream and downstream of the SCR system during these events (*i.e.* greater than 200°C). The SCR systems should therefore be active very soon after the engine is started with 90-100% NOx reduction.

Test Condition	NOx (mg/mile)	Average HP EGR Rate	Average LP EGR Rate
FTP Phase 3 (hot start)	87	63.3%	3.1%
PEMS Hot Starts (stop and go)	468	36.4%	35.7%

159. For hot starts that were followed by steady highway driving, only those hot starts with a distance of 3.5 miles or more were considered (the length of the FTP-75 cold start). Only flat road tests were considered. Testing showed that, on average, hot start emissions were 366 mg/mile. That's 4.2 times the level found during the FTP-75 Phase 1 test on the dynamometer. In most cases, these hot starts were completed with only a few minutes of engine shut-off time. That's particularly remarkable, because the hot temperatures from operation at highway speeds should decrease the time to reach light-off temperature. In most cases, exhaust temperatures are

above or near the light-off temperature prior to testing, so a delay in the effectiveness of the SCR system would not be justified.

Test Condition	NOx (mg/mile)	Average HP EGR Rate	Average LP EGR Rate
FTP Phase 3 (hot start)	87	63.3%	3.1%
PEMS Hot Starts (highway)	366	50.4%	26.3%

160. These results show that BMW is employing an illegal software defeat strategy on both cold and hot start tests. Furthermore, these results are consistent with a 2016 study by the European group Transport and Environment in September 2016 titled, "Dieselgate: Who? What? How?

161. The group finds that BMW engines deploy both "thermal window" (*i.e.* adjustment of emission controls outside the certification ambient temperature window) and hot start defeat devices on their Euro 6 diesel cars (a European emission standard that requires similar emissions architecture as the US Tier 2 Bin 5 standard).

Full 'Dirty 50' list of Euro 6

Brand	Model	Engine	Country of approval	Most suspicious test(s)[13]	Possible defeat strategy to examine
Audi	A8	3.0 TDI	DE	7	Thermal window (TW) + Test recognition (TR)
BMW	2 Series GT	216d	DE	2 + 7	TW + Hot restart (HR)
	5 Series VI	530d		2	
	4 Series	420d		7	TW
	X3	xDrive20d			

F. The Bosch EDC17.

162. All modern engines are integrated with sophisticated computer components to manage the vehicle's operation, such as an electronic diesel control. Bosch GmbH tested, manufactured, and sold the EDC system used by Volkswagen, FCA, Mercedes, Ford, and General Motors. This system is more formally referred to as the Electronic Diesel Control Unit

17 ("EDC Unit 17" or "EDC17"). Upon its introduction, EDC Unit 17 was publicly touted by Bosch as follows:[13]

> EDC17 . . . controls every parameter that is important for effective, low-emission combustion.
>
> Because the computing power and functional scope of the new EDC17 can be adapted to match particular requirements, it can be used very flexibly in any vehicle segment on all the world's markets. In addition to controlling the precise timing and quantity of injection, exhaust gas recirculation, and manifold pressure regulation, it also offers a large number of options such as the control of particulate filters or systems for reducing nitrogen oxides. The Bosch EDC17 determines the injection parameters for each cylinder, making specific adaptations if necessary. This improves the precision of injection throughout the vehicle's entire service life. The system therefore makes an important contribution to observing future exhaust gas emission limits.

163. Bosch worked with each vehicle manufacturer that utilized EDC Unit 17 to create a unique set of specifications and software code to manage the vehicles' engine operation.

164. The software calibrations are an interactive process between Bosch and BMW. Bosch employees using email regularly communicated with BMW employees over various changes to various code functions such as "T-Eng", sensor faults, online dosing, and other software parameters. Bosch employees regularly communicated with BMW employees concerning dosing rates into the SCR catalyst and the impact of such on NOx emissions.

165. Bosch employees regularly communicated with BMW employees about presentations to the EPA and CARB and about BMW's ability to meet emissions standards.

166. Bosch's EDC Unit 17 controls emissions by periodically reading sensor values, evaluating a control function, and controlling actuators based on the control signal.[14] Sensor

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[13] Bosch Press Release, *The brain of diesel injection: New Bosch EDC17 engine management system* (Feb. 28, 2006), http://www.bosch-presse.de/presseforum/details.htm?txtID=2603&locale=en.

readings include crankshaft position, air pressure, air temperature, air mass, fuel temperature, oil temperature, coolant temperature, vehicle speed, exhaust oxygen content, as well as driver inputs such as accelerator pedal position, brake pedal position, cruise control setting, and selected gear. Based on sensor input, EDC17 controls and influences the fuel combustion process including, in particular, fuel injection timing, which affects engine power, fuel consumption, and the composition of the exhaust gas.[15]

167. All Bosch ECUs, including the EDC17, run on complex, highly proprietary engine management software over which Bosch exerts near-total control. In fact, the software is typically locked to prevent customers, like BMW, from making significant changes on their own. Accordingly, both the design and implementation are interactive processes, requiring Bosch's close collaboration with the automaker from beginning to end.

168. With respect to the Polluting BMW Vehicles, the EDC 17 was used surreptitiously to evade emissions regulations. Bosch and BMW worked together to develop and implement a specific set of software algorithms for implementation in the Polluting BMW Vehicles, including algorithms to adjust fuel levels, exhaust gas recirculation, air pressure levels, and urea injection rates in vehicles equipped with SCR systems.[16]

169. When carmakers test their vehicles against EPA emission standards, they place their vehicles on dynamometers (large rollers) and then perform a series of specific maneuvers prescribed by federal regulations. Bosch's EDC Unit 17 gave BMW, Volkswagen, General

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[14] Moritz Contag *et al.*, How They Did It: An Analysis of Emission Defeat Devices in Modern Automobiles, p.4 (2017).

[15] *Id.*

[16] *Engine management*, Bosch Auto Parts, http://de.bosch-automotive.com/en/parts_and_accessories/motor_and_sytems/diesel/engine_management_2/engine_control_unit_1.

Motors, BMW and other manufacturers the power to detect test scenarios by monitoring vehicle speed, acceleration, engine operation, air pressure, and even the position of the steering wheel. When the EDC Unit 17's detection algorithm detected that the vehicle was on a dynamometer (and undergoing an emission test), additional software code within the EDC Unit 17 downgraded the engine's power and performance and upgraded the emission control systems' performance by switching to a "dyno calibration" to cause a subsequent reduction in emissions to legal levels. Once the EDC Unit 17 detected that the emission test was complete, the EDC Unit would then enable a different "road calibration" that caused the engine to return to full power while reducing the emission control systems' performance, and consequently caused the vehicle to spew the full amount of illegal NOx emissions out on the road in certain conditions.[17] This process is illustrated in the following diagram, applicable to BMW as well:

[17] Russell Hotten, *Volkswagen: The scandal explained*, BBC (Dec. 10, 2015), http://www.bbc.com/news/business-34324772.

170. This workaround was illegal. The Clean Air Act expressly prohibits defeat devices, defined as any auxiliary emission control device "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." 40 C.F.R. § 86.1803-01; *see also id.* § 86.1809-10 ("No new light-duty vehicle, light-duty truck, medium-duty passenger vehicle, or complete heavy-duty vehicle shall be equipped with a defeat device."). Moreover, the Clean Air Act prohibits the sale of components used as defeat devices "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." 42 U.S.C. § 7522(a)(3). Finally, in order to obtain a certificate of compliance (COC), automakers must submit an application that lists all auxiliary emission control devices installed in the vehicle, a justification for each, and an explanation of why the control device is not a defeat device.

171. Thus, in order to obtain the COCs necessary to sell their vehicles, BMW did not disclose, and affirmatively concealed from government regulators, the presence of the test-detecting and performance-altering software code that it developed with Bosch, thus making that software an illegal defeat device. In other words, BMW, working closely with Bosch, lied to the government, its customers, its dealers, and the public at large.

172. Because the COCs were fraudulently obtained, and because the Polluting BMW Vehicles did not conform "in all material respects" to the specifications provided in the COC applications, the Polluting BMW Vehicles were never covered by a valid COC, and thus were never legal for sale, nor were they EPA- and/or CARB-compliant as represented. BMW and Bosch hid these facts from the EPA, CARB and other regulators, its dealers, and consumers, and it continued to sell and lease the Polluting BMW Vehicles to the driving public despite their illegality and with the complicity of Bosch.

173. BMW's illegal workaround was enabled by its close partnership with Bosch, which enjoyed a sizable portion of its annual revenue from manufacturing parts used in BMW's and other manufacturers' diesel vehicles.[18] Bosch was well aware that BMW was using its emission control components as a defeat device and, in fact, worked with BMW to develop the software algorithm specifically tailored for the Polluting BMW Vehicles.

174. Because the COCs were fraudulently obtained, the Polluting BMW Vehicles were never covered by valid COCs and thus were never offered legally for sale. BMW and Bosch jointly hid these facts from the EPA, CARB and other state regulators, and consumers, and it

[18] Approximately 50,000 of Bosch's 375,000 employees worked in the diesel technology operations branch of Bosch, and Volkswagen was the biggest diesel manufacturer in the world. *Bosch probes whether its staff helped VW's emissions rigging*, AUTOMOTIVE NEWS (Jan. 27, 2016), http://www.autonews.com/article/20160127/COPY01/301279955/bosch-probes-whether-its-staff-helped-vws-emissions-rigging.

continued to sell and lease the Polluting BMW Vehicles despite their illegality and with the complicity of Bosch.

G. Bosch played a critical role in the defeat device scheme in many diesel vehicles in the United States, giving rise to a strong inference that Bosch played a key role in implementing the BMW emission strategy.

175. Although this case is not about Volkswagen, Bosch's history with Volkswagen provides background and support for the plausibility of its participation in the RICO enterprise alleged herein, of which Bosch and BMW were participants. On information and belief, Plaintiffs allege that the same level of coordination between Bosch and Volkswagen also occurred between Bosch and BMW.

1. Volkswagen and Bosch conspire to develop the illegal defeat device.

176. Bosch introduced a new generation of diesel ECUs for Volkswagen.

177. A February 28, 2006 Bosch press release introduced the "New Bosch EDC17 engine management system" as the "brain of diesel injection" which "controls every parameter that is important for effective, low-emission combustion." The EDC17 offered "[e]ffective control of combustion" and a "[c]oncept tailored for all vehicle classes and markets." In the press release, Bosch touted the EDC17 as follows:[19]

> **EDC17: Ready for future demands**
>
> Because the computing power and functional scope of the new EDC17 can be adapted to match particular requirements, it can be used very flexibly in any vehicle segment on all the world's markets. In addition to controlling the precise timing and quantity of injection, exhaust gas recirculation, and manifold pressure regulation, it also offers a large number of options such as the control of particulate filters or systems for reducing nitrogen oxides. The Bosch EDC17 determines the injection parameters for

[19] Bosch press release, *The brain of diesel injection: New Bosch EDC17 engine management system* (Feb. 28, 2006), http://www.bosch-presse.de/presseforum/details.htm?txtID=2603&locale=en.

> each cylinder, making specific adaptations if necessary. This improves the precision of injection throughout the vehicle's entire service life. The system therefore makes an important contribution to observing future exhaust gas emission limits.

178. Bosch and Volkswagen worked together closely to modify the software and to create specifications for each Volkswagen vehicle model. Indeed, customizing a road-ready ECU is an intensive three- to five-year endeavor involving a full-time Bosch presence at an automaker's facility. Such was the case with BMW as well.

179. All Bosch ECUs, including the EDC17, run on complex, highly proprietary engine management software over which Bosch exerts nearly total control. In fact, the software is typically locked to prevent customers, like Volkswagen and BMW, from making significant changes on their own.

180. Bosch's security measures further confirm that its customers cannot make significant changes to Bosch software without Bosch involvement. Bosch boasts that its security modules protect vehicle systems against unauthorized access in every operating phase, meaning that no alteration could have been made without either a breach of that security—and no such claims have been advanced—or Bosch's knowing participation.[20]

181. Unsurprisingly, then, at least one car company engineer has confirmed that Bosch maintains absolute control over its software as part of its regular business practices:[21]

> I've had many arguments with Bosch, and they certainly own the dataset software and let their customers tune the curves. Before each dataset is released it goes back to Bosch for its own validation.

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[20] *Reliable Protection for ECUs*, ESCRYPT (May 12, 2016), https://www.escrypt.com/en/news-events/protection-for-ecus.

[21] Michael Taylor, *EPA Investigating Bosch over VW Diesel Cheater Software*, CAR AND DRIVER (Nov. 23, 2015), http://blog.caranddriver.com/epa-investigating-bosch-over-vw-diesel-cheater-software/.

> Bosch is involved in all the development we ever do. They insist on being present at all our physical tests and they log all their own data, so someone somewhere at Bosch will have known what was going on.
>
> All software routines have to go through the software verification of Bosch, and they have hundreds of milestones of verification, that's the structure . . . .
>
> The car company is *never* entitled by Bosch to do something on their own.

182. Thus, Bosch GmbH and Bosch LLC cannot convincingly argue that the development of the Volkswagen defeat device was the work of a small group of rogue engineers.

183. In fact, Volkswagen's and Bosch's work on the EDC17 reflected a highly unusual degree of coordination. It was a massive project that required the work of numerous Bosch coders for a period of more than ten years, or perhaps more.[22] Although Bosch publicly introduced the EDC17 in 2006, it had started to develop the engine management system years before.[23]

184. In fact, Bosch was in on the secret and knew that Volkswagen was using Bosch's software algorithm as an "on/off" switch for emission controls when the vehicles were undergoing testing. As noted above, it has been said the decision to cheat was an "open secret" at Volkswagen.[24] It was an "open secret" at Bosch as well.

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[22] Approximately 50,000 of Bosch's 375,000 employees worked in the diesel technology operations branch of Bosch, and Volkswagen was the biggest diesel manufacturer in the world. *Bosch Probes Whether Its Staff Helped VW's Emissions Rigging*, AUTOMOTIVE NEWS (Jan. 27, 2016), http://www.autonews.com/article/20160127/COPY01/301279955/bosch-probes-whether-its-staff-helped-vws-emissions-rigging.

[23] Bosch press release, *The brain of diesel injection: New Bosch EDC17 engine management system* (Feb. 28, 2006), http://www.bosch-presse.de/presseforum/details.htm?txtID=2603&locale=en.

[24] Georgina Prodham, *Volkswagen probe finds manipulation was open secret in department*, REUTERS (Jan. 23, 2016), http://www.reuters.com/article/us-volkswagen-emissions-investigation-idUSKCN0V02E7. *See also* Jay Ramey, *VW chairman Poetsch: Company*

185. Volkswagen and Bosch personnel employed code language for the defeat device, referring to it as the "acoustic function" (in German, "akustikfunktion"). As described above, the roots of the "akustikfunktion"—and likely the cheating—can be traced back to the late 1990s when Audi devised software called the "akustikfunktion" that could switch off certain functions when the vehicle was in a test mode.[25] The "akustik" term is derived from the function's ability to modify the noise and vibration produced by the engine. News articles report that, in 2006, Volkswagen further developed this "akustikfunktion" for the affected vehicles.[26]

186. In sum, Bosch GmbH worked hand-in-glove with Volkswagen to develop and maintain the akustikfunktion/defeat device. On information and belief, it did so with BMW as well.

2. Volkswagen and Bosch conspire to conceal the illegal "akustikfunktion."

187. By 2007, and likely earlier, Bosch GmbH was critical not only in developing the "akustikfunktion" but also in concealing it.

'tolerated breaches of rules', AUTOWEEK (Dec. 10, 2015), http://autoweek.com/article/vw-diesel-scandal/vw-chairman-poetsch-company-tolerated-breaches-rules (it was necessary for the "EA 189 engine to pass U.S. diesel emissions limits within the budget and time frame allotted").

[25] Martin Murphy, *Dieselgate's Roots Stretch Back to Audi*, HANDELSBLATT GLOBAL (Apr. 19, 2016), https://global.handelsblatt.com/edition/413/ressort/companies-markets/article/dieselgates-roots-stretch-back-to-audi?ref=MTI5ODU1.

[26] Georgina Prodham, *Volkswagen probe finds manipulation was open secret in department*, REUTERS (Jan. 23, 2016), http://www.reuters.com/article/us-volkswagen-emissions-investigation-idUSKCN0V02E7. Volkswagen Group Chairman Hans Dieter Poetsch explained that a small group of engineers and managers was involved in the creation of the manipulating software. Jay Ramey, *VW chairman Poetsch: Company 'tolerated breaches of rules'*, Autoweek (Dec. 10, 2015), http://autoweek.com/article/vw-diesel-scandal/vw-chairman-poetsch-company-tolerated-breaches-rules. Russell Hotten, *Volkswagen: The scandal explained*, BBC (Dec. 10, 2015), http://www.bbc.com/news/business-34324772; Matt Burt, *VW emissions scandal: how Volkswagen's 'defeat device' works*, Autocar (Sept. 23, 2015), http://www.autocar.co.uk/car-news/industry/vw-emissions-scandal-how-volkswagens-defeat-device-works.

188. Bosch GmbH was concerned about getting caught participating in the defeat device fraud. As reported in a German newspaper, *Bild am Sonntag*, and a French publication, a Volkswagen internal inquiry found that in 2007, Bosch GmbH warned Volkswagen by letter that using the emissions-altering software in production vehicles would constitute an "offense."[27]

3. Volkswagen and Bosch conspire in the United States and Germany to elude U.S. regulators who regulated not just Volkswagen diesels but all diesels.

189. The purpose of the defeat device was to evade stringent U.S. emissions standards. Once Bosch GmbH, Bosch LLC, and Volkswagen perfected the defeat device, therefore, their attention turned to deceiving U.S. regulators not just for the benefit of Volkswagen but also for the benefit of BMW, Mercedes, General Motors, and FCA.

190. Bosch's North American subsidiary, Defendant Robert Bosch LLC, was also part of and essential to the fraud. Bosch LLC worked closely with Bosch GmbH and Volkswagen in the United States and in Germany to ensure that the non-compliant affected vehicles passed U.S. emissions tests. Bosch LLC employees frequently communicated with U.S. regulators and actively worked to ensure the affected vehicles were approved by regulators.

191. Employees of Bosch LLC, Bosch GmbH, and IAV provided specific information to U.S. regulators about how Volkswagen's vehicles functioned and unambiguously stated that the vehicles met emissions standards. Bosch LLC regularly communicated to its colleagues and clients in Germany about ways to deflect and diffuse questions from U.S. regulators about the affected vehicles—particularly CARB.

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[27] *Bosch warned VW about illegal software use in diesel cars, report says*, AUTOMOTIVE NEWS (Sept. 27, 2015), http://www.autonews.com/article/20150927/COPY01/309279989/bosch-warned-vw-about-illegal-software-use-in-diesel-cars-report-says; *VW Scandal: Company Warned over Test Cheating Years Ago*, BBC (Sept. 27, 2015), http://www.bbc.com/news/business-34373637.

4. Bosch keeps BMW's secret safe and pushes "clean" diesel in the United States as a concept applicable to all diesel car manufacturers.

192. During the time of its efforts to promote "clean diesel," Bosch LLC and Bosch GmbH were each aware that BMW, General Motors, Volkswagen, Audi, Porsche, FCA, Ford and Mercedes could not meet emissions requirements without turning down or derating emission controls. Bosch not only kept this dirty secret safe, it went a step further and actively promoted "clean diesel" in the United States, including making affected vehicles available for regulators to drive.

193. As early as 2004, Bosch announced a push to convince U.S. automakers that its diesel technology could meet tougher 2007 U.S. emission standards.[28] Its efforts ended up being a multi-year, multi-million dollar effort involving key players from both Robert Bosch GmbH in Germany and Bosch LLC in the United States.

194. Bosch's promotion of diesel technology specifically targeted the United States. For example, Bosch put on "California Diesel Days"[29] and "SAE World Congress in Detroit."[30] In 2008, Bosch LLC and Volkswagen America co-sponsored the "Future Motion Made in Germany-Second Symposium on Modern Drive Technologies" at the German Embassy in Washington, D.C., with the aim of providing a venue for "stakeholders to gain insight into the

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[28] Edmund Chew, *Bosch boosts US diesel lobbying*, AUTONEWS (Mar. 8, 2004), http://www.autonews.com/article/20040308/SUB/403080876/bosch-boosts-us-diesel-lobbying.

[29] *Bosch drives clean diesel in California*, Bosch, http://www.bosch.us/content/language1/html/734_4066.htm?section=28799C0E86C147799E02226E942307F2.

[30] *Bosch Brings Innovation, Green Technology to SAE 2009 World Congress*, Bosch, http://www.bosch.us/content/language1/html/734_7432.htm?section=CDAF31A468D9483198ED8577060384B3.

latest technology trends and engage in a vital dialogue with industry leaders and policymakers."[31]

195. Bosch LLC hosted multi-day conferences open to many regulators and legislators and held private meetings with regulators in which it proclaimed extensive knowledge of the specifics of Volkswagen technology, including calibrations necessary for the affected vehicles to comply with emissions regulations.

196. On October 28, 2008 Bosch North America issued a release entitled:

Bosch Powers Audi Clean Diesel Across the U.S. and Around the World

197. The October release was much broader than the promotion of Audi. It was a promotion of Bosch and its role in "clean diesel" in a broad sense to further the diesel conspiracies and Bosch's objective in falsely promoting "clean diesel." The irony is glaring because Bosch knew the Audi was not clean. Bosch, thus made the following pronouncements:

> Bosch, the worldwide leader in powertrain development, was selected by Audi to supply the common rail system that includes the electronic control unit (ECU), rail, pump and injectors, the dosing module and control unit for the Denoxtronic system, as well as various sensors for powertrain and exhaust gas aftertreatment in the Q7 3.0 TDI. The Denoxtronic reduction-agent metering system from Bosch permits further reductions in the emissions of diesel engines. It is a central component of the SCR system (Selective Catalytic Reduction).
>
> "The Audi Mileage Marathon provides opportunity for people to experience torque, fuel economy and other benefits of today's clean diesel technology in action," said Bernd Boisten, regional president, diesel systems North America, Robert Bosch LLC. "We call today's diesel Good, Clean, Fun. We wish all participants safe

[31] *Bosch: Clean Diesel is Key Part of Future Technology Mix*, Bosch, http://us.bosch-press.com/tbwebdb/bosch-usa/en-US/PressText.cfm?CFID=60452038&CFTOKEN=9c778a2564be2c9b-56CC21B6-96AB-5F79-32445B13EC121DBE&nh=00&Search=0&id=364.

> journeys and look forward to their reactions to clean diesel's fuel efficiency, low emissions and exceptional performance."
>
> Clean diesel technology combines clean diesel fuel, advanced engines and effective exhaust control technology into a complete package that is more efficient, environmentally friendly and fun to drive. Today, a clean diesel engine is one of the "greenest" powertrain options on the market.
>
> Bosch has been promoting the benefits of clean diesel in anticipation of the new 50-state compliant diesel powered vehicles, such as the Audi Q7 3.0 TDI, coming to market in the U.S.

198. In April 2009, Bosch LLC organized and hosted a two-day "California Diesel Days" event in Sacramento, California. Bosch invited a roster of lawmakers, journalists, executives, regulators, and NGOs[32] with the aim of changing perceptions of diesel from "dirty" to "clean." The event featured affected vehicles as ambassadors of "clean diesel" technology, including a 2009 Volkswagen Jetta "green car." The stated goals were to "build support for light-duty diesel as a viable solution for achieving California's petroleum and emission reduction objectives."

199. In 2009, Bosch also became a founding member of the U.S. Coalition for Advanced Diesel Cars.[33] One of this advocacy group's purposes included "promoting the energy efficiency and environmental benefits of advanced clean diesel technology for passenger

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[32] *Bosch drives clean diesel in California*, Bosch, http://www.bosch.us/content/language1/html/734_4066.htm?section=28799C0E86C147799E02226E942307F2; *California Diesel Days*, The U.S. Coalition for Advanced Diesel Cars, http://www.californiadieseldays.com/.

[33] Chrissie Thompson, *New Coalition Aims To Promote Diesel Cars*, AUTOMOTIVE NEWS (Feb. 2, 2009), http://www.autonews.com/article/20090202/OEM06/302029728/new-coalition-aims-to-promote-diesel-cars.

vehicles in the U.S. marketplace."[34] This group lobbies Congress, U.S. regulators, and CARB in connection with rules affecting "clean diesel" technology.[35]

200. In 2010, Bosch sponsored the Virginia International Raceway with the support of the 2010 Volkswagen Jetta TDI Cup Series. This event included TDI vehicles featuring Bosch technology.[36]

201. In 2012, Audi, BMW, Bosch, Daimler, Porsche, and Volkswagen joined to form The Clearly Better Diesel initiative.[37] The initiative was announced in Berlin by the German Association of the Automotive Industry. Its stated goal was to promote the sale of clean diesel vehicles in the United States. The initiative's slogan was "Clean Diesel. Clearly Better."

202. In its efforts to promote "clean diesel," including the affected vehicles, Bosch GmbH acted on behalf of its global group.

5. Bosch is a recidivist cheater: Bosch also made the EDC17 found in FCA vehicles that pollute excessively.

203. To appeal to environmentally conscious consumers, FCA *vigorously* markets its "EcoDiesel" vehicles as "clean diesel" with ultra-low emissions, high fuel economy, and powerful torque and towing capacity. FCA calls its EcoDiesel "ultra clean," "emissions compliant," and claims that "***no NOx***" exits the tailpipe. FCA charges a premium for EcoDiesel-

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[34] *About the Coalition*, The U.S. Coalition for Advanced Diesel Cars, http://cleandieseldelivers.com/about/.

[35] *Id.* Letter to Chairman Mary Nichols and CARB concerning a statement made about diesel technology (Jan. 8, 2016), available at http://cleandieseldelivers.com/media/Mary-Nichols-Letter-01082016.pdf.

[36] *Volkswagen Jetta TDI Cup Drivers Take to the Track for the First Time in 2010 at VIR*, Volkswagen of America, Inc. (April 23, 2010), available at http://www.prnewswire.com/news-releases/volkswagen-jetta-tdi-cup-drivers-take-to-the-track-for-the-first-time-in-2010-at-vir-91985604.html.

[37] *"Clean Diesel Clearly Better" Campaign for Clean Diesel Cars Welcomed*, Diesel Technology Forum (Dec. 12, 2012), available at http://www.prnewswire.com/news-releases/clean-diesel-clearly-better-campaign-for-clean-diesel-cars-welcomed-183261432.html.

equipped vehicles. For example, selecting the 3.0-liter EcoDiesel engine for the 2016 Dodge Ram 1500 Laramie adds $4,770 to the purchase price. And the 2016 Jeep Grand Cherokee Overland EcoDiesel costs $4,500 more than its gasoline counterpart.

204. These representations are deceptive and false. FCA programmed its EcoDiesel vehicles to significantly reduce the effectiveness of the NOx reduction systems during real-world driving conditions. The EPA has determined that the affected vehicles contain defeat devices. After a lawsuit had already been filed by Plaintiffs' counsel in this case, on January 12, 2017, the EPA issued a Notice of Violation against FCA because FCA "failed to disclose Auxiliary Emission Control Devices (AECDs)" in the affected vehicles.[38] The EPA identified eight specific devices that cause the vehicle to perform effectively when being tested for compliance and then reduce the effectiveness of the emission control system during normal operation and use.

205. "Once again," said CARB Chair Mary D. Nichols about FCA's cheating, "a major automaker made the business decision to skirt the rules and got caught."[39]

206. The same experts that tested the X5's performance did on-road testing of the FCA vehicles and confirmed that FCA's so-called EcoDiesel vehicles produced NOx emissions at an average of 222 mg/mile in city driving (four times the FTP standard of 50 mg/mile) and 353 mg/mile in highway driving (five times higher than the U.S. highway standard of 70 mg/mile). In many instances, NOx values were in excess of 1,600 mg/mile, more than 20 times the standards. This testing uncovered many of the defeat devices listed in the EPA notice of violation ahead of EPA's announcement.

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[38] EPA's January 12, 2017 Notice of Violation to FCA, available at https://www.epa.gov/sites/production/files/2017-01/documents/fca-caa-nov-2017-01-12.pdf.

[39] EPA News Release, *EPA Notifies Fiat Chrysler of Clean Air Act Violations* (Jan.12, 2017), available at https://www.epa.gov/newsreleases/epa-notifies-fiat-chrysler-clean-air-act-violations.

207. Bosch made the EDC17 for the polluting FCA vehicles.

6. Bosch is a recidivist cheater: Bosch GmbH also made the EDC17 found in polluting Mercedes diesels.

208. Plaintiffs' experts in this case tested the Mercedes diesel vehicles and made the first public disclosure of Mercedes' unlawful conduct through certain of the counsel in this case in a civil suit filed in the District of New Jersey. Reportedly as a result of that lawsuit, Mercedes is under investigation by the Department of Justice and German authorities with respect to its BlueTEC diesel vehicles. Over 14 Mercedes diesel models are alleged to produce emissions 8.1 to 19.7 times relevant standards. Bosch GmbH supplied the EDC17 in the polluting Mercedes vehicles.

7. Bosch is a recidivist cheater: Bosch GmbH and Bosch LLC also made the EDC17 found in 700,000 polluting General Motors trucks.

209. Bosch made the EDC17 found in the 2011–2016 General Motors Sierra 2500 and 3500 HD trucks and Chevrolet Silverado HD trucks. These trucks are competitors with BMW's X5 trucks.

210. Bosch supplied the software and function sheets for these vehicles and enabled the vehicles to have three different cheat devices.

211. GM Defeat Device No. 1 reduces or derates the emissions system when temperatures are above the emissions certification test range (86°F). GM Defeat Device No. 2 operates to reduce emission control when temperatures are below the emissions certification low temperature range (68°F). Testing reveals that at temperatures below 68°F (the lower limit of the certification test temperature), stop-and-go emissions are 2.1 times the emissions standard at 428 mg/mile (the standard is 200 mg/mile). At temperatures above 86°F, stop-and-go emissions are an average of 2.4 times the standard, with some emissions as high as 5.8 times the standard. Based on temperatures in the top 30 metropolitan areas, these vehicles are operating with the

emissions systems derated a material amount of their vehicle miles travelled. But the emission scheme is a step more nefarious: enter GM Defeat Device No. 3, which reduces the level of emission controls after 200–500 seconds of steady speed operation in all temperature windows, causing emissions to increase on average of a factor of 4.5. Based on a study of temperatures in 30 major metropolitan areas as well as the demographics of Silverado and Sierra sales, Plaintiffs' experts estimate that due to just the temperature-triggered defeat devices, the vehicles operate at 65–70% of their miles driven with emissions that are 2.1 to 5.8 times the standard.

212. Increased sales and thus increased profits drove General Motors to use at least these three defeat devices in its Duramax diesel engines. By reversing the traditional order of the exhaust treatment components and putting the Selective Catalytic Reduction (SCR) in front of the Diesel Particulate Filter (DPF), General Motors could obtain and market higher power and fuel efficiency from its engines while still passing the cold-start emissions certification tests. This made the trucks more appealing and competitive in the marketplace, driving up sales and profits. But the reordering would have also drastically increased the need to employ Active Regeneration (*i.e.*, burning off collected soot at a high temperature) and other power- and efficiency-sapping exhaust treatment measures, reversing the very advantage gained. General Motors' solution, with the participation of Defendants Robert Bosch GmbH and Robert Bosch LLC, was to install defeat devices to purposefully reduce SCR dosing, increase NOx emissions, and thus decrease Active Regeneration. The defeat devices allowed General Motors to have its cake and it eat too. It could gain the advantage of hot exhaust going into the SCR system needed to pass cold-start tests, while avoiding the fuel- and power-robbing Active Regeneration procedure that the DPF filter requires when the SCR treatment comes first. General Motors

turned a blind eye to the twofold to fivefold increase in deadly NOx emissions its scheme caused—all to drive up its sales and profits.

8. Bosch is a recidivist cheater: Bosch also made the EDC17 found in 500,000 polluting Ford Trucks.

213. Bosch made the EDC17 found in Ford's top selling F-250 and 350 "Super Duty" Diesel Trucks.

214. Bosch supplied the software and function sheets for these vehicles and enabled the vehicles to use defeat devices to turn down or off emissions controls.

215. Plaintiffs' on-road testing has confirmed that Ford's Super Duty vehicles produce NOx emissions in an amount demonstrating that they are not the "cleanest Super Duty diesel" vehicles that meet emission standards; rather, Ford has programmed the vehicles so that in a wide range of common driving conditions, the emissions systems are powered down, producing NOx far in excess of emissions standards. A reasonable consumer would not expect their Super Duty vehicle to spew unmitigated NOx in this fashion while driving in the city or on the highway, nor would a reasonable consumer expect that fuel economy was achieved in part by turning off or derating the emission systems; nor would a reasonable consumer expect that if the emissions were as-promised, the advertised fuel economy and performance could not be achieved.

216. In stop-and-go conditions, including those identical to the FTP-75 certification cycle, emissions are routinely as high as five times the standard. In certain common driving conditions, such as modest uphill road grades, or with the use of a trailer that adds weight, emissions exceed the standard by 30 to 50 times. Ford advertised these vehicles as having "best-in-class towing capabilities" and expected Super Duty trucks to pull significant loads. Ford failed to disclose that "best-in-class towing" came with a byproduct of high NOx emissions, sometimes

exceeding legal standards by 30 to 50 times. In stop-and-go driving, testing reveals that the vehicles operate 69% of the time above the emissions standard, 45% of the time at twice the standard, and 9% of the time at five times the standard. These vehicles should more properly have been called "Super Dirty."

H. Bosch has previously violated U.S. law.

217. On March 31, 2015, Robert Bosch GmbH pled guilty and agreed to pay a $57.8 million criminal fine for its role in a conspiracy to fix prices and rig bids for spark plugs, oxygen sensors and starter motors sold to automobile and internal engine combustion manufacturers in the United States.

I. Bosch also played a critical role in falsely promoting clean diesel technology via the "Diesel Technology Forum."

218. It's not unheard of for manufacturers of dangerous products to use trade associations to cover up the danger of their products. Tobacco companies created several trade associations to promote phony science claiming tobacco use was neither harmful nor addictive. The opioid manufacturers did the same as did Bosch with respect to promotion of clean diesel. Bosch was a member of the Diesel Technology Forum ("DTF") a "non-profit" dedicated "to raising awareness about the importance of diesel engines." The DTF was formed in 2000, and its members include Bosch, Daimler, GM, and FCA. Bosch was aware that cars made by BMW, GM, FCA, and Mercedes used cheat devices to meet emissions requirements and were not the "clean diesel" as claimed. Despite this knowledge, Bosch, as a member of the DTF, and as part of its complicit conduct in promoting illegal diesels, authorized a steady stream of announcements about "clean diesel technology", as described below.

219. So for example, the DTF on December 12, 2012, issued a press release proclaiming "Clean Diesel. Clearly Better" and highlighted new diesel models coming to the

U.S. The release noted that the new "Clean Diesel" campaign was announced jointly by Audi, BMW, Bosch, Daimler, Porsche, and Volkswagen.

December 12, 2012 | Diesel Technology Forum

DIESEL TECHNOLOGY FORUM

PRESS RELEASE

"CLEAN DIESEL. CLEARLY BETTER." CAMPAIGN FOR CLEAN DIESEL CARS WELCOMED

Contact: Steve Hansen (301) 668-7230 shansen@dieselforum.org

New Effort by German Automakers to Promote Diesel Cars in U.S.

Washington, D.C. – The first ever joint promotion campaign by German automakers to promote clean diesel vehicles in the U.S. was welcomed today with the hope that it can accelerate current market successes for domestic clean diesel vehicle sales, according to Allen Schaeffer, the Executive Director of the Diesel Technology Forum (/).

The new promotional diesel campaign was announced today in Berlin by the German Association of the Automotive Industry (http://www.vda.de/en/index.html) (VDA) and member companies – Audi, BMW, Bosch, Daimler, Porsche and Volkswagen.

"We welcome this new effort to raise awareness of American car buyers to all of the benefits of the new generation of clean diesel technology," Schaeffer said. "People who know about the new clean diesel technology are extremely impressed by the improved fuel efficiency, power and lower emissions over gasoline and hybrid autos."

The slogan "Clean Diesel. Clearly Better." was unveiled along with the promotional effort's new website – www.clearlybetterdiesel.org (http://www.clearlybetterdiesel.org/) – which includes information highlighting the advantages of modern clean diesel passenger cars over gasoline engines "in terms of cleanliness, consumption and performance," according to VDA.

"The success of diesel technology is well documented in Western Europe where 55 percent of all new auto sales are clean diesels. Even though diesels represent a more modest three percent of all new vehicle sales in the U.S., we're in the midst of a resurgence of diesel in America and can easily see this percentage doubling and tripling in the next five to 10 years," said Schaeffer.

"Today's clean diesels are fast, efficient, and clean - a far cry from previous diesels in the 1970s and 1980s. Consumers are taking to new clean diesels for their long-term green value as evidenced by diesel sales increases of 24.5 percent through November 2012 compared to 2011, according to Hybrid Cars.com and Baum and Associates. Diesel sales have increased in 27 of the past 28 months in year-over-year sales, with 24 of these months showing double-digit increases. In addition, sales increased by 20 percent or better in 20 of the past 28 months.

"The growing role that clean diesel technology will play here in the U.S. meeting federal fuel economy goals is evident by the anticipated major increase in the number of diesel offerings that will be available in the U.S. in the next 12 to 18 months," Schaeffer said.

"With higher and fluctuating fuel prices, Americans are seeking more fuel efficient cars (/index.cfm?objectid=1CDF6110-0A50-11E0-8228000C296BA163)," Schaeffer said. "The new U.S. federal fuel efficiency standards that will required a 54.5 mpg average by 2025 will significantly boost clean diesel auto sales because diesel cars (/index.cfm?objectid=7BCD5900-B1BF-11E0-8DA1000C296BA163) are 20 to 40 percent more fuel efficient than gasoline versions."

Schaeffer said the U.S. Energy Information Administration (EIA) forecasts that compared to 2012 the price of diesel fuel will decline by about 3 percent in 2013 to $3.83/gallon.

New Clean Diesels Coming To the U.S. Market

Schaeffer said a number of additional diesels will be available soon in the U.S. including:

- Audi A6, A7, A8 and Q5 TDI diesels will be available in 2013 joining the Q7 and A3 TDI to bring Audi's diesel offerings to a total of six. A TDI clean diesel A4 version is also expected in 2014 or early as 2013.

- BMW announced that the U.S. market will see a 2.0-liter four cylinder diesel and 3.0-liter inline six diesel engine in the next 12 months.

- Chrysler will introduce its new Jeep Grand Cherokee Ecodiesel in 2013.

- Ford will offer a new diesel Transit full-size commercial van in 2013.

- General Motors will offer a Cadillac ATS diesel and a diesel version of the Chevrolet Cruze in 2013.

- Mazda will become the only Asian car manufacturer to sell diesel cars in the U.S. when it introduces its SKYACTIV-D 2.2-liter clean diesel engine.

- The Mercedes S350 BlueTEC marks the return of the diesel-powered Mercedes-Benz S-Class to the United States in 2012. Mercedes also plans to bring a diesel in the GLK and C-class for a total of eight diesel models by 2014.

ABOUT THE DIESEL TECHNOLOGY FORUM

The Diesel Technology Forum is a non-profit national organization dedicated to raising awareness about the importance of diesel engines, fuel and technology. Forum members are leaders in clean diesel technology and represent the three key elements of the modern clean-diesel system: advanced engines, vehicles and equipment, cleaner diesel fuel and emissions-control systems. For more information visit www.dieselforum.org (/).

https://www.dieselforum.org/news/clean-diesel-clearly-better-campaign-for-clean-diesel-cars-welcomed

220. As part of the continuing and false clean diesel promise, DTF posted on its website after the VW scandal that the new diesel technology enables emissions control systems that met "near zero" emissions standards.

ABOUT CLEAN DIESEL

WHY DIESEL ISN'T DIRTY

With a higher degree of certainty than ever before, we can say that diesel is a clean technology.

The Clean Diesel Journey

Diesel is a technology of continuous improvement and that goes for the fuel as well. Ultra-low sulfur diesel fuel has been the standard for both on-highway and off-highway diesel engines nationwide since 2007. By cutting sulfur levels in diesel fuel by 97 percent, immediate clean air benefits accrued - through lower soot emissions from all diesel vehicles and equipment using the fuel (both old and new) by 10 percent. Reducing the sulfur content of diesel fuel is similar to removing lead from gasoline during the 1970s.

Cleaner diesel fuel is the foundation that enabled the development and introduction of a new generation of advanced engines and emission control devices to meet strict "near zero" emissions standards.

221. The DTF posted on its website information about "Clean Diesel" proclaiming "near zero emissions."

DIESEL TECHNOLOGY FORUM

ABOUT CLEAN DIESEL

WHAT IS CLEAN DIESEL?

Cleaner diesel fuel, advanced engines and effective emissions control technology make up a new generation of diesel. It's clean diesel.

What is clean diesel?

What makes it different from regular diesel?

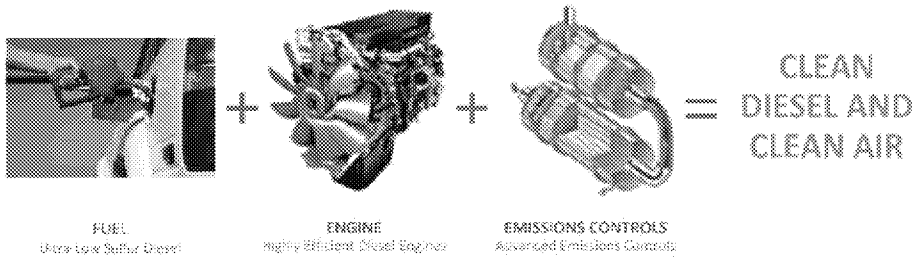
Clean diesel is the new generation of diesel technology.

Today's ultra-low sulfur diesel fuel, advanced engines and effective emissions control combine to achieve near zero emissions that is smoke free. Clean diesel has proven energy efficiency, and ability to use a wide range of renewable fuels that position diesel as a key technology for growing economies to achieve cleaner air, lower greenhouse gas emissions and a sustainable environment around the world.

Cleaner diesel fuel, advanced engines and effective emissions control make up a new generation of diesel. It's clean diesel.

222. The DTF website claimed the clean diesels resulted in "Clean Diesel and Clean Air," and that the manufacturers had "Effective Emissions Controls":

NEW CLEAN DIESEL TECHNOLOGY



Cleaner Diesel Fuel

Clean diesel fuel - containing 97 percent less sulfur - is now the standard for both on-highway and off-highway diesel engines nationwide. Using this ultra-low sulfur diesel (ULSD) immediately cuts soot emissions from diesel vehicles and equipment by 10 percent. Reducing the sulfur content of diesel fuel is similar to removing lead from gasoline during the 1970s.

Cleaner diesel fuel enables the development of a new generation of advanced engines and emission control devices that can't operate effectively with higher sulfur content in diesel fuel.

Why is diesel technology so fuel efficient?

A combination of the energy-rich properties of the fuel, and the efficiency and completeness of the combustion of fuel to create useful mechanical energy. Diesel is a petroleum-based fuel with the highest energy density among transportation fuels - that's more energy per gallon than other alternatives. The U.S. Energy Information Administration states that few transportation fuels surpass the energy density of diesel (http://www.eia.gov/todayinenergy/detail.cfm?id=9991).

Read DTF's Diesel Fuel Study - Diesel: Fueling the Future in a Green Economy (/index.cfm?objectid=346E8C1F-A348-11E0-830D000C296BA163).

Advanced Engines

Diesel is the world's most efficient internal combustion engine. It provides more power and more fuel efficiency than alternatives such as gasoline, compressed natural gas or liquefied natural gas. Read more about the history of the diesel engine (/files/dmfile/DieselHistory.pdf).

Fuel combustion is the primary difference between gasoline and diesel engines. Gasoline engines ignite fuel with spark plugs, whereas diesels ignite fuel with compression. Inside the engine, the combustion of air and fuel takes place under pressure and heat created by compressing the air-fuel mixture so intensely that it combusts spontaneously, releasing energy, that is transmitted to powering the wheels on a vehicle, the piston's motion and creating mechanical energy.

Advanced new technologies such as electronic controls, common rail fuel injection, variable injection timing, improved combustion chamber configuration and turbocharging have made diesel engines cleaner, quieter and more powerful than past vehicles.

Effective Emissions Control

Manufactures have been very innovative with the methods used to meet emission standards using a variety of aftertreatment technologies and advanced engine systems that do not involve the use of additional emissions control technology, particularly in the off-road sector.

Introduction of ultra-low sulfur diesel fuels for both on- and off-road applications is a central part of the clean diesel system designed to meet near zero emissions standards. With the introduction of lower sulfur diesel fuel came the ability to use a number of exhaust aftertreatment options such as diesel particulate filters (DPF), exhaust gas recirculation (EGR), diesel oxidation catalysts (DOC), and selective catalyst reduction (SCR) with the use of diesel exhaust fluid (DEF) that can be sensitive to the sulfur levels in the fuel.

The installation of various emission control technologies may also improve emissions from older diesel engines through retrofit capabilities. Read more about retrofit capabilities to reduce emissions from older vehicles and equipment (/retrofit).

223. A document entitled "Diesel: Fueling the Future in a Green Economy," by Hart Energy Consulting, prepared for the Diesel Technology Forum, October 13, 2010,[40] was posted on the DTF website and proclaimed that:

[40] http://www.dieselforum.org/files/dmfile/Diesel-FuelingtheFutureinaGreenEconomy.pdf

P. 3 - "**Introduction of advanced diesel technology in 2007 that relied on ultra low sulfur clean diesel fuel has today reduced emissions of particulate matter and nitrogen oxides**—an ozone precursor— by more than 98% in heavy-duty truck applications compared to 2000 models. It has enabled introduction of high performance diesel cars, trucks and SUVs that are cleaner, quieter and safer than ever."

P. 9 - "**Fuel economy advantages of 20% to 35% for diesel fuel/engines over gasoline vehicles will also provide options for meeting low carbon fuel objectives and reducing GHG emissions**. California has initiated a low carbon fuel initiative and the U.S. EPA has promulgated its first GHG control requirements in the form of vehicle CO2 reduction regulations. Congress continues to debate on climate change and related GHG initiatives."

P. 10 - "**These new levels of near-zero emissions are being met through advancements in the engine fuel and air management systems that dramatically improve combustion efficiency, and the use of ultra-low sulfur diesel fuel that enables the use of high efficiency exhaust control**. As a result, new trucks and buses are more than 98% cleaner than 2000-era models (Figure 3). In fact, results from the first phases of joint government and industry research (Advanced Collaborative Emissions Study, ACES) have demonstrated that the emissions reductions from these technologies have actually exceeded requirements, providing substantially greater performance and benefits than anticipated."

P. 11 - "While new engines are now on a path to near-zero emissions, **the widespread availability of cleaner diesel fuel has created new and substantial efforts to modernize and upgrade emissions performance of existing engines and equipment**. A 2009 Report to Congress by U.S. EPA on results of the first year of a federal program to fund diesel retrofits (Diesel Emissions Reduction Program) found it to be among the most cost effective clean air programs, yielding over $13 in environmental and public health benefits for each $1 invested."

P. 27 - "**The diesel industry is in the midst of implementing advanced engine and emissions control technology that will lower emissions from on-road vehicles and non-road machines and equipment by more than 98% relative to 2000 era technology. Continued investments and research to further increase fuel efficiency while lowering emissions will keep diesel engines for light duty vehicles competitive with other technologies.**"

J. The damage from excessive NOx.

1. Environmental harm.

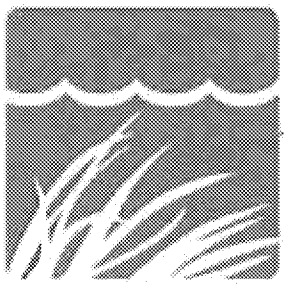
224. Plaintiffs do not seek damage for the harm to the environment they have unwittingly caused. However, it is important to understand why (1) NOx is regulated and (2) why a reasonable consumer would not want his or her vehicle to dump NOx into the air.

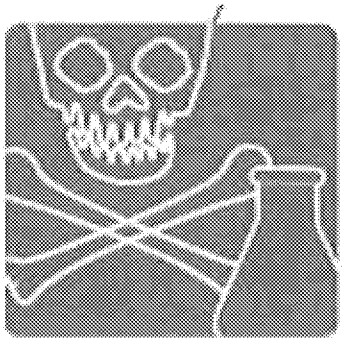
225. NOx contributes to ground-level ozone and fine particulate matter. According to the EPA, "[e]xposure to these pollutants has been linked with a range of serious health effects, including increased asthma attacks and other respiratory illnesses that can be serious enough to send people to the hospital. Exposure to ozone and particulate matter has also been associated with premature death due to respiratory-related or cardiovascular-related effects. Children, the elderly, and people with pre-existing respiratory disease are particularly at risk for health effects of these pollutants."

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

Acid Rain - NO_x and sulfur dioxide react with other substances in the air to form acids which fall to earth as rain, fog, snow, or dry particles. Some may be carried by the wind for hundreds of miles. Acid rain damages forests; causes deterioration of cars, buildings, and historical monuments; and causes lakes and streams to become acidic and unsuitable for many fish.

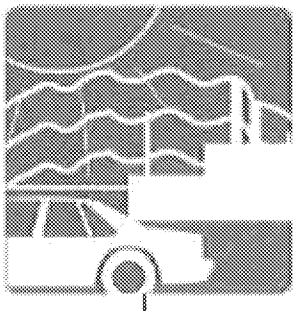
Water Quality Deterioration - Increased nitrogen loading in water bodies, particularly coastal estuaries, upsets the chemical balance of nutrients used by aquatic plants and animals. Additional nitrogen accelerates "eutrophication," which leads to oxygen depletion and reduces fish and shellfish populations. NO_x emissions in the air are one of the largest sources of nitrogen pollution to the Chesapeake Bay.

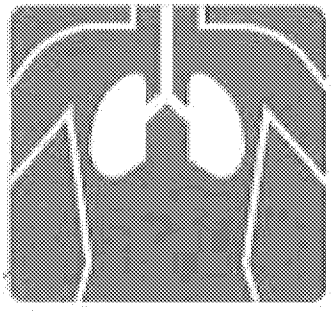




Toxic Chemicals - In the air, NO_x reacts readily with common organic chemicals, and even ozone, to form a wide variety of toxic products, some of which may cause biological mutations. Examples of these chemicals include the nitrate radical, nitroarenes, and nitrosamines.

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.

227. A recent study published in NATURE estimates that there are 38,000 deaths worldwide due to excess NOx emissions. And recently a study commissioned by the Federal Office for the Environment (Germany) concluded that 6,000 people died prematurely in 2014 from illnesses known to be caused or aggravated by NOx exposure. Plaintiffs here do not seek damages to the injury to the environment, but plaintiffs did not intend to drive cars whose emissions manipulation would deliberately injure the environment.

2. Economic harm specifically alleged here.

228. As a result of BMW's unfair, deceptive, and/or fraudulent business practices, and its failure to disclose that under normal operating conditions the Polluting BMW Vehicles are not "clean" diesels, emit more pollutants than do gasoline-powered vehicles, and emit more pollutants than permitted under federal and state laws, owners and/or lessees of the Polluting BMW 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 Polluting BMW Vehicles, or had they known of the effects on fuel economy if the emissions were not manipulated, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did. Plaintiffs and members of the Class paid a premium of at least $1,500, as BMW charged more for its diesel engine than a comparable gas engine based on features that were falsely advertised including the cleanliness of the emissions; fuel performance; and durability. Further, without improvements in fuel economy and emissions over gasoline vehicles, there is no reason for a consumer to purchase a diesel car over a gas powered car. Thus, Plaintiffs would not have purchased their vehicles if Defendants had told the truth. In addition, Plaintiffs could not have lawfully purchased these vehicles because without the scheme these vehicles could not have been sold. Hence, alternately for the RICO claim Plaintiffs' damage is the entire purchase price less some amount for use of the vehicle.

229. Plaintiffs have also been harmed and injured by the fact that they unwittingly drove vehicles that were not legally on the road and unwittingly drove vehicles that were polluting in volumes and manners a reasonable consumer would not expect. This harm can be measured and precisely monetized through conjoint and economic analysis.

K. The BMW scheme is just the latest in a worldwide diesel emissions cheating scandal that adds plausibility to the allegations here as virtually all diesel manufacturers are falsely advertising their vehicles.

230. As noted, the world was shocked to learn that Volkswagen had manufactured over 11 million vehicles 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 Volkswagen was not the only manufacturer of vehicles that exceeded emissions standards.

231. In the wake of the major scandal involving Volkswagen and Audi diesel vehicles evading emissions standards with the help of certain software that manipulates emission controls (called "defeat devices"),[41] scientific literature and reports and testing indicate that most of the diesel vehicle 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 BlueTEC diesels and FCA's Jeep Cherokees and Dodge Rams. The results of the studies enhance the plausibility of the allegations here as it is unlikely only BMW would have been capable of emissions technology that did not cheat.

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[41] EPA's Sept. 18, 2015 Notice of Violation to Volkswagen Group of America, Inc., available at https://www.epa.gov/sites/production/files/2015-10/documents/vw-nov-caa-09-18-15.pdf. As detailed in the Notice of Violation, 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 at the state testing station, but during normal operation they emit NOx at up to 40 times the standard allowed under U.S. laws and regulations. Volkswagen has admitted to installing a defeat device in its diesel vehicles.

232. In May 2015, a study conducted on behalf of the Dutch Ministry of Infrastructure and the Environment 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."[42]

233. The report further remarked:[43]

> 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***.

The lack of any "effective reduction of NOx emissions" is a complete contradiction of BMW's claim that its vehicles are clean.

234. Other organizations reached similar conclusions. 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.[44]

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[42] *Detailed investigations and real-world emission performance of Euro 6 diesel passenger cars*, TNO (May 18, 2015), http://publications.tno.nl/publication/34616868/a1Ug1a/TNO-2015-R10702.pdf.

[43] *Id.* at 6 (emphasis added).

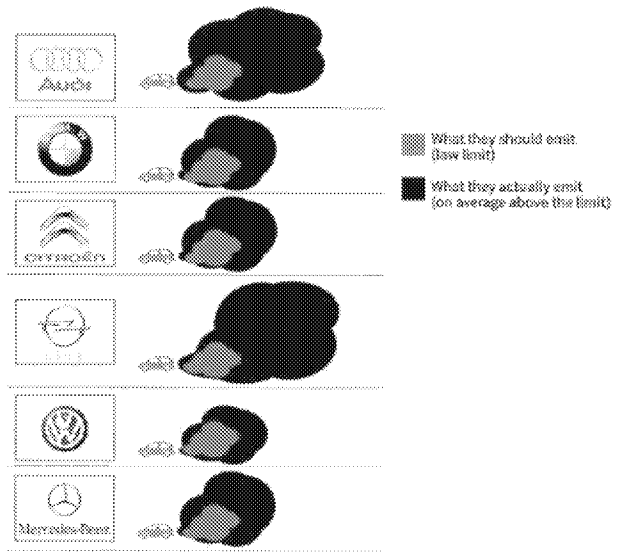
[44] *VW's cheating is just the tip of the iceberg*, Transport & Environment (Sept. 21, 2015), http://www.transportenvironment.org/publications/vw%E2%80%99s-cheating-just-tip-iceberg.

235. In a summary report, T&E graphically depicted the widespread failure of most manufacturers including BMW:[45]

2. The problem is endemic across the car industry – but the performance of individual models and manufacturers varies widely

In tests by the ICCT[1] 12 out of 13 modern diesel cars failed to achieve the Euro 6 limit in on the road. The worst vehicle, an Audi, emitted 22 times the allowed limit. Emissions are highest in urban areas where most people are exposed to the pollution. On average a new diesel car emits **over** 800mg/km of nitrogen oxides driving in town compared to the limit of 80mg/km. Data obtained on around 20 modern diesel cars by T&E shows every major manufacturer is selling cars that fail to meet Euro 6 limits on the road. A minority of vehicles do meet the limits – but most don't. This is because the industry uses cheaper less effective exhaust treatment systems or fails to configure the best systems in a way that minimizes emissions. The cost of a modern diesel after treatment system is just €300.

Above and beyond the safe limit



Source: T&E

Transport & Environment

236. The T&E report found that the current system for testing vehicles in a laboratory produces "meaningless results."[46]

237. 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:[47]

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[45] *Five facts about diesel the car industry would rather not tell you*, Transport & Environment (Sept. 2015), http://www.transportenvironment.org/sites/te/files/publications/2015_09_Five_facts_about_diesel_FINAL.pdf.

[46] *Id.*

> [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.

238. In June 2016, T&E issued a new report identifying the thirty most polluting vehicles in Europe, comparing road testing to the Euro 6 Standard (lower than the United States). The T&E "Dirty 30" included two BMW models, which exceed the lower than the U.S. Euro 6 Standard. These BMW models employed a thermal window and hot restart defect devices.

VI. TOLLING OF THE STATUTE OF LIMITATIONS

A. Discovery rule tolling

239. Class members had no way of knowing about BMW's deception with respect to the comparatively and unlawfully high emissions of its BMW clean diesel engine system in the Polluting BMW Vehicles. To be sure, BMW continues to market the Polluting BMW Vehicles as "clean" diesels that have lower emissions than gasoline vehicles and also continues to claim that the Polluting BMW Vehicles comply with EPA emissions standards.

240. Within the 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 BMW was concealing the conduct complained of herein and misrepresenting the company's true position with respect to the emission qualities of the Polluting BMW Vehicles.

241. 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 BMW did not report information within its knowledge to federal and state authorities, its dealerships, or consumers;

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[47] Emissions Analytics Press Release (Sept. 28, 2015), available at http://www.abvwc.com/home/emissions-analytics.

nor would a reasonable and diligent investigation have disclosed that BMW had concealed information about the true emissions of the Polluting BMW 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 BMW valued profits over truthful marketing and compliance with the law.

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

B. Fraudulent concealment tolling.

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

244. Instead of disclosing its emissions scheme, or that the quality and quantity of emissions from the Polluting BMW Vehicles were far worse than represented, and of its disregard of the law, BMW falsely represented that the Polluting BMW Vehicles had emissions cleaner than their gasoline-powered counterparts, complied with federal and state emissions standards, that the diesel engines were "clean," and that it was a reputable manufacturer whose representations could be trusted. Further, BMW and Bosch have continued to conceal the emissions manipulation in the face of questions being raised by authorities on the issue of who else besides Volkswagen was cheating.

C. Estoppel.

245. BMW was under a continuous duty to disclose to Plaintiffs and the other Class members the true character, quality, and nature of emissions from the Polluting BMW Vehicles and of those vehicles' emissions systems.

246. BMW knowingly, affirmatively, and actively concealed or recklessly disregarded the true nature, quality, and character of the emissions systems, and the emissions, of the Polluting BMW Vehicles, and continues to do so. For example, in its 2016 Annual Report, BMW acknowledges the Volkswagen emissions scandal but makes no disclosure of the emissions irregularities in its Polluting BMW Vehicles.

247. Based on the foregoing, BMW and Bosch are estopped from relying on any statutes of limitations in defense of this action.

VII. CLASS ALLEGATIONS

248. 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 (collectively, the "Class"):

> All persons who purchased or leased a model year 2009–2013 BMW X5 or 2009–2011 BMW 335d vehicles.

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

250. Certification of Plaintiffs' claims for class-wide treatment is appropriate because Plaintiffs can prove the elements of their claims on a class-wide basis using the same evidence as would be used to prove those elements in individual actions alleging the same claim.

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

252. **Numerosity**. Federal Rule of Civil Procedure 23(a)(1): The members of the Class are so numerous and geographically dispersed that individual joinder of all Class members is impracticable. For purposes of this complaint, Plaintiffs allege that there are in excess of an estimated 100,000 or more vehicles in the Class. The precise number of Class members is unknown to Plaintiffs but may be ascertained from BMW's 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.

253. **Commonality and Predominance**: Federal Rule of Civil Procedure 23(a)(2) and 23(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 BMW and Bosch engaged in the conduct alleged herein;

b) Whether BMW designed, advertised, marketed, distributed, leased, sold, or otherwise placed Polluting BMW Vehicles into the stream of commerce in the United States;

c) Whether the BMW engine system in the Polluting BMW Vehicles emits pollutants at levels that do not make them "clean" diesels;

d) Whether BMW and Bosch omitted material facts about emissions, fuel economy, and towing capacity;

e) Whether BMW and Bosch knew about the comparatively high emissions and, if so, how long BMW and Bosch have known;

f) Whether BMW and Bosch designed, manufactured, marketed, and distributed Polluting BMW Vehicles with defective or otherwise inadequate emission controls;

g) Whether BMW and Bosch's conduct violates RICO and consumer protection statutes, and constitutes breach of contract and fraudulent concealment, as asserted herein;

h) Whether there is an Enterprise;

i) Whether Bosch participated in the Enterprise;

j) Whether BMW omitted and failed to disclose material facts;

k) Whether Plaintiffs and the other Class members overpaid for their vehicles at the point of sale; and

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

254. **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 BMW's wrongful conduct as described above.

255. **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. Plaintiffs' counsel have been pioneers in uncovering emissions misconduct, including doing so in the Mercedes, General Motors, and FCA emissions cases. Plaintiffs' counsel conducted a pioneering investigation in this case spanning over eight months. The Classes' interests will be fairly and adequately protected by Plaintiffs and their counsel.

256. **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 BMW, so it would be impracticable for the members of the Classes to individually seek redress for BMW's 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.

VIII. CLAIMS

A. Claims brought on behalf of the Nationwide RICO Class.

COUNT 1
VIOLATIONS OF RACKETEER INFLUENCED AND CORRUPT ORGANIZATIONS ACT (RICO)
VIOLATION OF 18 U.S.C. § 1962(C), (D)

257. Plaintiffs incorporate by reference each preceding and succeeding paragraph as though fully set forth herein.

258. Plaintiffs bring this Count individually and on behalf of the Nationwide RICO Class against Defendants BMW USA and BMW AG, Robert Bosch GmbH, and Robert Bosch LLC (collectively, "RICO Defendants").

259. The RICO Defendants are all "persons" under 18 U.S.C. § 1961(3) because they are capable of holding, and do hold, "a legal or beneficial interest in property."

260. Section 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." Section 1962(d), in turn, makes it unlawful for "any person to conspire to violate."

261. For many years now, the RICO Defendants have aggressively sought to increase the sales of Polluting BMW Vehicles in an effort to bolster revenue, augment profits, and

increase BMW's share of the diesel truck market. Finding it impossible to achieve their goals lawfully, however, the RICO Defendants resorted instead to orchestrating a fraudulent scheme and conspiracy. In particular, the RICO Defendants, along with other entities and individuals, created and/or participated in the affairs of an illegal enterprise ("BMW Diesel Fraud Enterprise") whose direct purpose was to deceive the regulators and the public into believing the Polluting BMW Vehicles were "clean" and "environmentally friendly." As explained in greater detail below, the RICO Defendants' acts in furtherance of the BMW Diesel Fraud Enterprise violate Sections 1962(c) and (d).

1. The members of the BMW Diesel Fraud Enterprise

262. Upon information and belief, the BMW Diesel Fraud Enterprise consisted of at least the following entities and individuals: BMW USA, BMW AG, Robert Bosch GmbH, and Robert Bosch LLC.

263. Robert Bosch GmbH and Robert Bosch LLC tested, manufactured, and sold the electronic control module (ECM) that managed the emission control system used by BMW in the Polluting BMW Vehicles. This particular ECM is more formally referred to as the Electronic Diesel Control (EDC) Unit 17.

264. Defendant Bosch GmbH is a multinational engineering and electronics company headquartered in Gerlingen, Germany, which has hundreds of subsidiaries and companies. It wholly owns defendant Bosch LLC, a Delaware limited liability company headquartered in Farmington Hills, Michigan. As explained above, Bosch's sectors and divisions are grouped by subject matter, not location. Mobility Solutions (formerly Automotive Technology) is the Bosch sector at issue, particularly its Diesel Services division, and it encompasses employees of Bosch GmbH and Bosch LLC. These individuals were responsible for the design, manufacture,

development, customization, and supply of the defeat device to BMW for use in the Polluting BMW Vehicles.

265. Bosch worked with BMW, Volkswagen, Mercedes, Ford, General Motors, and FCA to develop and implement a specific and unique set of software algorithms to surreptitiously evade emissions regulations. Bosch customized their EDC Unit 17s for installation in the Polluting BMW Vehicles with unique software code to detect when it was undergoing emissions testing, as described above, and did so for other vehicles with defeat devices in BMW, Volkswagen, Mercedes, FCA, and GM vehicles.[48]

266. Bosch's conduct with respect to Volkswagen and the other manufacturers adds plausibility to its participation in the enterprise described herein. For example, Bosch was well aware that the EDC Unit 17 would be used by automobile manufacturers, including BMW, to cheat on emissions testing. Bosch was also critical to the concealment of the defeat device in communications with U.S. regulators, and went even further to actively lobby U.S. lawmakers on behalf of diesel manufacturers and to market "clean diesel" vehicles. Bosch used the Diesel Technology forum as a means to further falsely promote "clean diesel."

267. EDC Unit 17 could not effectively lower NOx emissions to legal levels during normal operating conditions. In order to pass the emissions test, then, EDC Unit 17 is equipped with a "defeat device," which is software that allows the vehicle to determine whether it is being operated under normal conditions or testing conditions.

268. The EDC Unit 17 ECU was manufactured by Bosch GmbH and sold to BMW. Bosch built the ECU hardware and developed the software running in the ECU. Bosch developed

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[48] Michael Taylor, *EPA Investigating Bosch over VW Diesel Cheater Software*, CAR AND DRIVER (Nov. 23, 2015), http://blog.caranddriver.com/epa-investigating-bosch-over-vw-diesel-cheater-software/.

a "function sheet" that documents the functional behavior of a particular release of the ECU firmware. All function sheets used in the BMW EDC, on information and belief, bear a "Robert Bosch GmbH" copyright.

269. As was publicly reported, the Bosch defendants, seeking to conceal their involvement in the unlawful Volkswagen Diesels, sent a letter to Volkswagen AG in 2007 stating that Volkswagen Diesels *could not be lawfully operated* if the LNT or SCR after-treatment system was disabled.[49] The same logic applies to the BMW Polluting BMW Vehicles—*i.e.*, they could not be lawfully operated with the defeat device.

270. Indeed, notwithstanding their knowledge that the Volkswagen Diesels *could not be lawfully operated* if the emissions system was disabled, the Bosch defendants, driven to cement their position as a leading supplier of diesel emissions equipment, went on to sell approximately *eleven million* EDC Unit 17s to Volkswagen over an eight-year period, and sold hundreds of thousands of EDC units to BMW for use in Polluting BMW Vehicles, as well as hundreds of thousands of units to Mercedes and FCA.[50]

271. The persons and entities described in the preceding section are members of and constitute an "association-in-fact" enterprise.

272. At all relevant times, the BMW Diesel 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 BMW, the Bosch defendants, and other entities and

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[49] Stef Shrader, *Feds Are Now Investigating Volkswagen Supplier Bosch Over Dieselgate*, JALOPNIK (Nov. 19, 2015), http://jalopnik.com/feds-are-now-investigating-volkswagen-supplier-bosch-ov-1743624448.

[50] Michael Taylor, *EPA Investigating Bosch over VW Diesel Cheater Software*, CAR AND DRIVER (Nov. 23, 2015), http://blog.caranddriver.com/epa-investigating-bosch-over-vw-diesel-cheater-software/.

individuals associated for the common purpose of designing, manufacturing, distributing, testing, and selling the Polluting BMW 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 BMW Diesel 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.

273. The BMW Diesel 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 and software capable of allowing the engine to manipulate the software such that the emissions system is turned on or off at certain times. However, the RICO Defendants and their co-conspirators, through their illegal 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 Polluting BMW Vehicles.

274. The BMW Diesel 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 Polluting BMW Vehicles throughout the country and the receipt of monies from the sale of the same.

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

276. Each participant in the BMW Diesel Fraud Enterprise had a systematic linkage to each of the other participants through corporate ties, contractual relationships, financial ties, and continuing coordination of activities. Through the BMW Diesel 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.

277. The RICO Defendants participated in the operation and management of the BMW Diesel 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.

278. BMW USA and BMW AG exerted substantial control and participated in the affairs of the BMW Diesel Fraud Enterprise by:

a. Designing, in conjunction with Robert Bosch GmbH, the Polluting BMW Vehicles with defeat devices;

b. Failing to correct or disable the defeat devices;

c. Manufacturing, distributing, and selling the Polluting BMW Vehicles that emitted greater pollution than allowable under the applicable regulations;

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

e. Introducing the Polluting BMW Vehicles into the stream of U.S. commerce without a valid COC and/or EO;

f. Concealing the existence of the defeat devices and the unlawfully high emissions from regulators and the public;

g. Misleading government regulators as to the nature of the defeat devices and the defects in the Polluting BMW Vehicles;

h. Misleading the driving public as to the nature of the defeat devices and the defects in the Polluting BMW Vehicles;

i. Designing and distributing marketing materials that misrepresented and concealed the defects in the vehicles;

j. Otherwise misrepresenting or concealing the defective nature of the Polluting BMW Vehicles from the public and regulators; and

k. Illegally selling and/or distributing the Polluting BMW Vehicles; collecting revenues and profits from the sale of such products; and ensuring that the other RICO Defendants and unnamed co-conspirators complied with the fraudulent scheme.

279. Bosch also participated in, operated, and/or directed the BMW Diesel Fraud Enterprise. Bosch participated in the fraudulent scheme by manufacturing, installing, testing, modifying, and supplying the EDC Unit 17 which operated as a "defeat device" in the Polluting BMW Vehicles. Bosch exercised tight control over the coding and other aspects of the defeat device software and closely collaborated with BMW to develop, customize, and calibrate the defeat devices. Additionally, Bosch continuously cooperated with BMW to ensure that the EDC Unit 17 was fully integrated into the Polluting BMW Vehicles. Bosch also participated in the affairs of the Enterprise by concealing the defeat devices in documentation and in communications with U.S. regulators. Bosch collected tens of millions of dollars in revenues and profits from the hidden defeat devices installed in the Polluting BMW Vehicles.

280. Without the RICO Defendants' willing participation, including Bosch's active involvement in developing and supplying the critical defeat devices for the Polluting BMW Vehicles, the BMW Diesel Fraud Enterprise's scheme and common course of conduct would not have been successful.

281. The RICO Defendants directed and controlled the ongoing organization necessary to implement the scheme at meetings and through communications of which Plaintiffs cannot fully know at present because such information lies in the Defendants' and others' hands.

282. The members of the BMW Diesel Fraud Enterprise all served a common purpose; namely, to promote the market for diesel vehicles and to increase their revenues through the sale of as many Polluting BMW Vehicles (including the emissions components made and sold by Bosch) as possible. Each member of the BMW Diesel Fraud Enterprise shared the bounty generated by the enterprise—*i.e.*, by sharing the benefit derived from increased sales revenue generated by the scheme to defraud. BMW sold more Polluting BMW Vehicles by utilizing an emission control system that was cheaper to install and allowed for generous performance and efficiency tuning, all while charging consumers a premium for purportedly "clean" and "fuel efficient" Polluting BMW Vehicles. The Bosch defendants, in turn, sold more EDC Units because BMW manufactured and sold more Polluting BMW Vehicles. The RICO Defendants achieved their common purpose by repeatedly misrepresenting and concealing the nature of the Polluting BMW Vehicles and the ability of the emission control systems (including the Bosch-supplied parts) to effectively reduce toxic emissions during normal operating conditions.

283. The RICO Defendants continued their enterprise even after the Volkswagen scandal became public in September 2015. Assuming top executives at BMW did not know of the defeat devices in its vehicles (an assumption not true of Volkswagen or Bosch), a responsible chief executive would have inquired: Do we have a diesel problem? Either top executives at BMW failed to ask questions or they agreed to continue a cover-up because BMW did not stop selling Polluting BMW Vehicles and has continued to conceal the truth.

284. In fact, BMW acknowledged in its 2016 Annual Report the U.S. enforcement action against Volkswagen and that "The emergence of this issue has led to increased scrutiny of automaker emission testing by regulators around the world."[51] BMW, despite this acknowledgement, continues to conceal the emissions issue with respect to the Polluting BMW Vehicles.

2. The predicate acts

285. To carry out, or attempt to carry out, the scheme to defraud, the RICO Defendants conducted or participated in the conduct of the affairs of the BMW Diesel Fraud Enterprise through a pattern of racketeering activity that employed the use of mail and wire facilities, in violation of 18 U.S.C. §§ 1341 (mail fraud) and 1343 (wire fraud).

286. Specifically, the RICO Defendants participated in the scheme to defraud by using mail, telephone, and the Internet to transmit writings travelling in interstate or foreign commerce.

287. The RICO Defendants' use of the mails and wires include but are not limited to the transmission, delivery, or 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;

b. The Polluting BMW Vehicles themselves;

c. Component parts for the defeat devices;

d. Essential hardware for the Polluting BMW Vehicles;

e. Falsified emission tests;

f. Fraudulently-obtained COCs and EOs;

g. Vehicle registrations and plates as a result of the fraudulently-obtained COCs and EOs;

[51] BMW 2016 Annual Report at p. 14.

h. Documents and communications that facilitated the falsified emission tests;

i. False or misleading communications intended to lull the public and regulators from discovering the defeat devices and/or other auxiliary devices;

j. Sales and marketing materials, including advertising, websites, product packaging, brochures, and labeling, which misrepresented and concealed the true nature of the Polluting BMW Vehicles;

k. Emails between Bosch and BMW regarding emissions testing and software modification;

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

m. Documents to process and receive payment for the Polluting BMW Vehicles by unsuspecting franchise dealers, including invoices and receipts;

n. Payments to Bosch;

o. Deposits of proceeds;

p. SEC filings where BMW has failed to disclose the scheme and has continued to do so post the Volkswagen scandal; and

q. Other documents and things, including electronic communications.

288. The RICO Defendants, in furtherance of their scheme, used the wires and mails to apply for, or submit revisions to, certificates of compliance with the Clean Air Act of 1990. The RICO Defendants used the mails on at least the following dates for this purpose on at least August 31, 2009, September 25, 2009, March 8, 2011, August 27, 2009, September 11, 2009, June 30, 2009, July 3, 2009, June 30, 2009, July 3, 2009, June 30, 2009, July 3, 2009, March 1, 2011, March 16, 2011, March 28, 2011, September 6, 2011, March 8, 2012, and March 23, 2012.

289. As part of the operation of the Enterprise, BMW received from the EPA through the U.S. Mail, Certificates of Conformity with the Clean Air Act of 1990.

290. Although many of the documents described in the two paragraphs above were sent by BMW, not Bosch, Bosch was aware that such documentation was required for the BMW diesels to receive certificates of compliance on information and belief. Bosch personnel obtained copies of many of these documents, including applications for certificates and COCs.

291. The RICO Defendants utilized the interstate and international mail and wires for the purpose of obtaining money or property by means of the omissions, false pretense, and misrepresentations described therein.

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

293. 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.

294. The mail and wire transmissions described herein were made in furtherance of the RICO Defendants' scheme and common course of conduct to deceive regulators and consumers and lure consumers into purchasing the Polluting BMW Vehicles, which the RICO Defendants knew or recklessly disregarded as emitting illegal amounts of pollution, despite their advertising campaign that the Polluting BMW Vehicles were "clean" diesel vehicles or vehicles with a "remarkable reduction in emission."

295. Many of the precise dates of the fraudulent uses of U.S. Mail and interstate wire facilities have been deliberately hidden and cannot be alleged without access to the RICO Defendants' books and records. However, Plaintiffs have described the types of, and in some instances, occasions on which the predicate acts of mail and/or wire fraud occurred. They include thousands of communications to perpetuate and maintain the scheme, including the things and documents described in the preceding paragraphs.

296. 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 RICO Defendants and their unnamed co-conspirators throughout the illegal scheme and common course of conduct.

297. 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 and 1343 offenses.

298. To achieve their common goals, the RICO Defendants hid from the general public the unlawfulness and emission dangers of the Polluting BMW 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 Polluting BMW Vehicles.

299. 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 Polluting BMW Vehicles (and the defeat devices contained therein).

300. Indeed, for the conspiracy to succeed, each of the RICO Defendants and their co-conspirators had to agree to implement and use the similar devices and fraudulent tactics—specifically, complete secrecy about the defeat devices in the Polluting BMW Vehicles.

301. 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 Polluting BMW Vehicles. The RICO Defendants knew and intended that Plaintiffs and the Class would incur costs and damages as a result. As fully alleged herein, Plaintiffs and the Class relied upon Defendants' representations and omissions that were made or caused by them. Plaintiffs' reliance is made obvious by the fact that: (1) they purchased tens of thousands of vehicles that never should have been introduced into the U.S. stream of commerce and whose worth is far less than what was paid. 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, BMW could not have obtained valid COCs and EOs to sell the Polluting BMW Vehicles.

302. The RICO Defendants' conduct in furtherance of this scheme was intentional. Plaintiffs and the Class were harmed as a result of the RICO Defendants' intentional conduct. Plaintiffs, the Class, regulators, and consumers, among others, relied on the RICO Defendants' material misrepresentations and omissions.

303. As described herein, the RICO Defendants engaged in a pattern of related and continuous predicate acts for many years. The predicate acts constituted a variety of unlawful activities, each conducted with the common purpose of defrauding Plaintiffs and other Class members and obtaining significant monies and revenues from them and through them while providing Polluting BMW Vehicles worth significantly less than the invoice 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.

304. The predicate acts all had the purpose of generating significant revenue and profits for the RICO Defendants at the expense of Plaintiffs, the Class, and consumers. The predicate acts were committed or caused to be committed by the RICO Defendants through their participation in the BMW Diesel Fraud Enterprise and in furtherance of its fraudulent scheme, and were interrelated in that they involved obtaining Plaintiffs' and Class members' funds, artificially inflating the brand and dealership goodwill values, and avoiding the expenses associated with remediating the Polluting BMW Vehicles.

305. During the design, manufacture, testing, marketing, and sale of the Polluting BMW Vehicles, the RICO Defendants shared technical, marketing, and financial information that plainly revealed the emission control systems in the Polluting BMW Vehicles as the ineffective, illegal, and fraudulent piece of technology they were and are. Nevertheless, the RICO Defendants shared and disseminated information that deliberately represented Polluting BMW Vehicles as "environmentally friendly" and emissions compliant in "all 50 states."

306. By reason of and as a result of the conduct of the RICO Defendants, and in particular its pattern of racketeering activity, Plaintiffs and the Class have been injured in multiple ways, including but not limited to:

a. Overpayment for Polluting BMW Vehicles, in that Plaintiffs and the Class at the time of purchase overpaid for their vehicles. Plaintiffs would not have purchased their vehicles because they would not have done so if BMW truthfully disclosed the vehicles were unlawfully on the road and/or did not deliver improved emissions and fuel performance over gas powered vehicles. Alternately, Plaintiffs would not have paid a diesel premium of up to $1,500 or more if proper disclosures had been made. Plaintiffs have also been injured because they have been unwittingly driving cars whose emissions systems from the outset are not what a reasonable consumer would expect. This form of injury can be monetized by expert testimony using a conjoint analysis.

b. Plaintiffs have been wrongfully deprived of their property in that the price for their vehicles was artificially inflated by deliberate acts of false statements, omissions, and concealment and by the RICO Defendants' acts of racketeering.

307. The RICO Defendants' violations of 18 U.S.C. § 1962(c) and (d) have directly and proximately caused injuries and damages to Plaintiffs and the Class, and Plaintiffs and the Class 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). Each of the RICO Defendants knew, understood, and intended for members of the Class to purchase the Polluting BMW Vehicles, and knew, understood, and foresaw that revelation of the truth would injure members of the Class.

B. State law claims.

COUNT 2
VIOLATION OF THE COLORADO CONSUMER PROTECTION ACT (COLO. REV. STAT. § 6-1-101 *ET SEQ.*)

308. Plaintiff hereby incorporates by reference the allegations contained in the preceding paragraphs of this complaint.

309. Plaintiff Garner Rickman (for the purposes of this section, "Plaintiff") brings this action on behalf of himself and Colorado purchasers who are members of the Class.

310. The Colorado Consumer Protection Act (Colorado CPA) prohibits deceptive practices in the course of a person's business, including but not limited to "fail[ing] to disclose material information concerning goods, services, or property which information was known at the time of an advertisement or sale if such failure to disclose such information was intended to induce the consumer to enter into a transaction." COLO. REV. STAT. § 6-1-105.

311. BMW USA, BMW AG, and Bosch are "persons" under COLO. REV. STAT. § 6-1-102(6).

312. Plaintiff and Colorado Class members are "consumers" for purposes of COL. REV. STAT § 6-1-113(1)(a).

313. Defendants' conduct, as set forth above, occurred in the conduct of trade or commerce. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

314. Defendants' scheme and concealment of the true characteristics of the diesel X5 and 335d emission control system were material to Plaintiff and the Colorado Class, as

Defendants intended. Had they known the truth, Plaintiff and the Colorado Class would not have purchased or leased the Polluting BMW Vehicles, or—if the Polluting BMW Vehicles' true nature had been disclosed and mitigated, and the vehicles rendered legal to sell—would have paid significantly less for them.

315. Plaintiff and Colorado Class members had no way of discerning that Defendants' representations were false and misleading, or otherwise learning the facts that Defendants had concealed or failed to disclose, because Defendants' emission control software was extremely sophisticated technology. Plaintiff and Colorado Class members did not and could not unravel Defendants' deception on their own.

316. Defendants had an ongoing duty to Plaintiff and the Colorado Class to refrain from unfair and deceptive practices under the Colorado CPA in the course of their business. Specifically, Defendants owed Plaintiff and the Colorado Class members a duty to disclose all the material facts concerning the diesel X5 and 335d emission control system because they possessed exclusive knowledge, they intentionally concealed it from Plaintiff and the Colorado Class, and/or they made misrepresentations that were rendered misleading because they were contradicted by withheld facts.

317. Plaintiff and the Colorado Class suffered ascertainable loss and actual damages as a direct and proximate result of Defendants' concealment, misrepresentations, and/or failure to disclose material information.

318. Defendants' violations present a continuing risk to Plaintiff and the Colorado Class, as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

319. Pursuant to COLO. REV. STAT. § 6-1-113, Plaintiff and the Colorado Class seek monetary relief against Defendants measured as the greater of (a) actual damages in an amount to be determined at trial and discretionary trebling of such damages, or (b) statutory damages in the amount of $500 for each plaintiff or class member.

320. Plaintiff and the Colorado Class also seek an order enjoining Defendants' unfair, unlawful, or deceptive practices, declaratory relief, attorneys' fees, and any other just and proper remedy under the Colorado CPA.

COUNT 3
FRAUDULENT CONCEALMENT
(BASED ON COLORADO LAW)

321. Plaintiff incorporates by reference all paragraphs as though fully set forth herein.

322. This claim is brought by Plaintiff on behalf of Colorado purchasers who are members of the Class.

323. Defendants intentionally concealed that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, that the Polluting BMW Vehicles had defective emission controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of BMW's advertising campaign and the premium paid for the car, emitted 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 Plaintiff and the other Class members information that is highly relevant to their purchasing decision.

324. BMW further affirmatively misrepresented to Plaintiff in advertising and other forms of communication, including standard and uniform material provided with each car, that the Polluting BMW Vehicles it was selling had no significant defects, were low emission

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

325. BMW knew these representations were false when made.

326. The Polluting BMW Vehicles purchased or leased by Plaintiff and the other Class 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 BMW's advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions.

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

328. As alleged in this Complaint, at all relevant times, BMW has held out the Class Vehicles to be reduced emissions and EPA-compliant. BMW disclosed certain details about the BMW Clean Diesel engine, but nonetheless, BMW intentionally failed to disclose the important facts that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions and that the Polluting BMW Vehicles had defective emission controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable

consumer, emitted high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

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

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

331. BMW also concealed and suppressed material facts concerning what is evidently the true culture of BMW—one characterized by an emphasis on profits and sales above compliance with federal and state clean air laws and emissions regulations that are meant to protect the public and consumers. It also emphasized profits and sales above the trust that Plaintiff and Class members placed in its representations. Consumers buy diesel vehicles from BMW because they feel they are clean diesel vehicles. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Polluting BMW Vehicles are doing.

332. BMW's false representations were material to consumers, because they concerned the quality of the Polluting BMW 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 BMW well knew, its

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

333. Defendants had a duty to disclose the emissions defect, defective design of the emission controls, and violations with respect to the Polluting BMW 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 Plaintiff or Class members. BMW also had a duty to disclose because it made general affirmative representations about the qualities of its vehicles with respect to emissions, starting with references to them as *reduced emissions* diesel vehicles and as compliant with all laws in each state, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of its vehicles, its actual philosophy with respect to compliance with federal and state clean air laws and emissions regulations, and its actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiff and Class members, BMW 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 Polluting BMW Vehicles purchased or leased by Plaintiff and Class members. Whether a manufacturer's products pollute, comply with federal and state clean air laws 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. BMW represented to Plaintiff and Class members that they were purchasing or leasing *reduced*

emission diesel vehicles, when in fact, they were purchasing or leasing defective, high emission vehicles.

334. BMW actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect its profits and to avoid the perception that its 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 BMW money, and it did so at the expense of Plaintiff and Class members.

335. BMW has still not made full and adequate disclosures, and continues to defraud Plaintiffs and Class members by concealing material information regarding the emissions qualities of its referenced vehicles.

336. Plaintiff and Class 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 vehicles manufactured by BMW, 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. Plaintiff's and Class members' actions were justified. Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiff, or Class members.

337. Because of the concealment and/or suppression of the facts, Plaintiff and Class 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 BMW Clean Diesel engine system, the actual emissions qualities and quantities of BMW-branded vehicles,

and the serious issues engendered by BMW's corporate policies. Had Plaintiff and Class members been aware of the true emissions facts with regard to the Polluting BMW Vehicles, and Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiff and Class 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.

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

339. Accordingly, Defendants are liable to Plaintiff and Class members for damages in an amount to be proven at trial.

340. Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiff's and Class members' rights and the representations that BMW 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.

COUNT 4
VIOLATION OF THE MARYLAND CONSUMER PROTECTION ACT (MD. CODE ANN., COM. LAW § 13-101 *ET SEQ.*)

341. Plaintiff hereby incorporates by reference the allegations contained in the preceding paragraphs of this complaint.

342. Plaintiff Ziwen Li (for purposes of this section, "Plaintiff") brings this action on behalf of himself and Maryland purchasers who are members of the Class.

343. The Maryland Consumer Protection Act (Maryland CPA) provides that a person may not engage in any unfair or deceptive trade practice in the sale or lease of any consumer good, including "failure to state a material fact if the failure deceives or tends to deceive" and "[d]eception, 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," MD. CODE ANN., COM. LAW § 13-301, regardless of whether the consumer is actually deceived or damaged, MD. CODE ANN., COM. LAW § 13-302.

344. BMW USA, BMW AG, Bosch, Plaintiff, and Maryland Class members are "persons" within the meaning of MD. CODE ANN., COM. LAW § 13-101(h).

345. The Maryland Consumer Protection Act ("Maryland CPA") provides that a person may not engage in any unfair or deceptive trade practice in that sale of any consume good. MD. CODE ANN., COM. LAW § 13-303.

346. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

347. Defendants' scheme and concealment of the true characteristics of the diesel X5 and 335d emission control system were material to Plaintiff and the Maryland Class, as Defendants intended. Had they known the truth, Plaintiff and the Maryland Class would not have purchased or leased the Polluting BMW Vehicles, or—if the Polluting BMW Vehicles' true nature had been disclosed and mitigated, and the vehicles rendered legal to sell—would have paid significantly less for them.

348. Plaintiff and Maryland Class members had no way of discerning that Defendants' representations were false and misleading, or otherwise learning the facts that Defendants had concealed or failed to disclose, because Defendants' emission control software was extremely sophisticated technology. Plaintiff and Maryland Class members did not and could not unravel Defendants' deception on their own.

349. Defendants had an ongoing duty to Plaintiff and the Maryland Class to refrain from unfair and deceptive practices under the Maryland CPA in the course of their business. Specifically, Defendants owed Plaintiff and the Maryland Class members a duty to disclose all the material facts concerning the diesel X5 and 335d emission control system because they possessed exclusive knowledge, they intentionally concealed it from Plaintiff and the Maryland Class, and/or they made misrepresentations that were rendered misleading because they were contradicted by withheld facts.

350. Plaintiff and the Maryland Class suffered ascertainable loss and actual damages as a direct and proximate result of Defendants' concealment, misrepresentations, and/or failure to disclose material information.

351. Defendants' violations present a continuing risk to Plaintiff and the Maryland Class, as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

352. Pursuant to MD. CODE ANN., COM. LAW § 13-408, Plaintiff and the Maryland Class seek an order enjoining Defendants' unfair and/or deceptive acts or practices, and awarding damages, punitive damages, attorneys' fees, and any other just and proper relief available under the Maryland CPA.

COUNT 5
FRAUDULENT CONCEALMENT
(BASED ON MARYLAND LAW)

353. Plaintiff incorporates by reference all paragraphs as though fully set forth herein.

354. This claim is brought by Plaintiff on behalf of Maryland purchasers who are members of the Class.

355. Defendants intentionally concealed that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, that the Polluting BMW Vehicles had defective emission controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of BMW's advertising campaign and the premium paid for the car, emitted 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 Plaintiff and the other Class members information that is highly relevant to their purchasing decision.

356. BMW further affirmatively misrepresented to Plaintiff in advertising and other forms of communication, including standard and uniform material provided with each car, that the Polluting BMW Vehicles it was selling had no significant defects, were low emission

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

357. BMW knew these representations were false when made.

358. The Polluting BMW Vehicles purchased or leased by Plaintiff and the other Class 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 BMW's advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions.

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

360. As alleged in this Complaint, at all relevant times, BMW has held out the Polluting BMW Vehicles to be reduced emissions, EPA-compliant vehicles. BMW disclosed certain details about the BMW Clean Diesel engine, but nonetheless, BMW intentionally failed to disclose the important facts that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, and that the Polluting BMW Vehicles had defective emission 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.

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

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

363. BMW also concealed and suppressed material facts concerning what is evidently the true culture of BMW—one characterized by an emphasis on profits and sales above compliance with federal and state clean air laws and emissions regulations that are meant to protect the public and consumers. It also emphasized profits and sales above the trust that Plaintiff and Class members placed in its representations. Consumers buy diesel vehicles from BMW because they feel they are clean diesel vehicles. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Polluting BMW Vehicles are doing.

364. BMW's false representations were material to consumers, because they concerned the quality of the Polluting BMW 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 BMW well knew, its

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

365. Defendants had a duty to disclose the emissions defect, defective design of the emission controls, and violations with respect to the Polluting BMW 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 Plaintiff or Class members. BMW also had a duty to disclose because it made general affirmative representations about the qualities of its vehicles with respect to emissions, starting with references to them as *reduced emissions* diesel vehicles and as compliant with all laws in each state, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of its vehicles, its actual philosophy with respect to compliance with federal and state clean air laws and emissions regulations, and its actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiff and Class members, BMW 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 Polluting BMW Vehicles purchased or leased by Plaintiff and Class members. Whether a manufacturer's products pollute, comply with federal and state clean air laws 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. BMW represented to Plaintiff and Class members that they were purchasing or leasing *reduced*

emission diesel vehicles, when in fact, they were purchasing or leasing defective, high emission vehicles.

366. BMW actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect its profits and to avoid the perception that its 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 BMW money, and it did so at the expense of Plaintiff and Class members.

367. BMW has still not made full and adequate disclosures, and continues to defraud Plaintiff and Class members by concealing material information regarding the emissions qualities of its referenced vehicles.

368. Plaintiff and Class 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 vehicles manufactured by BMW, 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. Plaintiff's and Class members' actions were justified. Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiff, or Class members.

369. Because of the concealment and/or suppression of the facts, Plaintiff and Class 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 BMW Clean Diesel engine system, the actual emissions qualities and quantities of BMW-branded vehicles,

and the serious issues engendered by BMW's corporate policies. Had Plaintiff and Class members been aware of the true emissions facts with regard to the Polluting BMW Vehicles, and Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiff and Class 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.

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

371. Accordingly, Defendants are liable to Plaintiff and Class members for damages in an amount to be proven at trial.

372. Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiff's and Class members' rights and the representations that BMW 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.

COUNT 6
VIOLATION OF THE PENNSYLVANIA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION LAW (73 PA. CONS. STAT. § 201-1 *ET SEQ.*)

373. Plaintiff hereby incorporates by reference the allegations contained in the preceding paragraphs of this complaint.

374. Plaintiff Gary Reising (for the purposes of this section, "Plaintiff") brings this action on behalf of himself and Pennsylvania purchasers who are members of the Class.

375. The Pennsylvania Unfair Trade Practices Act (Pennsylvania UTPA) prohibits unfair or deceptive acts or practices, including representing that goods or services have characteristics, benefits or qualities 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 fraudulent or deceptive conduct which creates a likelihood of confusion or misunderstanding. 73 PA. CONS. STAT. § 201-2.

376. BMW USA, BMW AG, Bosch, Plaintiff, and Pennsylvania Class members are "persons" within the meaning of 73 PA. CONS. STAT. § 201-2(2).

377. All of the acts complained of herein were perpetrated by BMW USA, BMW AG, and Bosch in the course of trade or commerce within the meaning of 73 PA. CONS. STAT. § 201-2(3).

378. Defendants' conduct, as set forth above, occurred in the conduct of trade or commerce. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

379. Defendants' scheme and concealment of the true characteristics of the diesel X5 and 335d emission control system were material to Plaintiff and the Pennsylvania Class, as Defendants intended. Had they known the truth, Plaintiff and the Pennsylvania Class would not have purchased or leased the Polluting BMW Vehicles, or—if the Polluting BMW Vehicles' true nature had been disclosed and mitigated, and the vehicles rendered legal to sell—would have paid significantly less for them.

380. Plaintiff and Pennsylvania Class members had no way of discerning that Defendants' representations were false and misleading, or otherwise learning the facts that Defendants had concealed or failed to disclose, because Defendants' emission control software was extremely sophisticated technology. Plaintiff and Pennsylvania Class members did not and could not unravel Defendants' deception on their own.

381. Defendants had an ongoing duty to Plaintiff and the Pennsylvania Class to refrain from unfair and deceptive practices under the Pennsylvania UTPA CPA in the course of their business. Specifically, Defendants owed Plaintiff and the Pennsylvania Class members a duty to disclose all the material facts concerning the diesel X5 and 335d emission control system because they possessed exclusive knowledge, they intentionally concealed it from Plaintiff and the Pennsylvania Class, and/or they made misrepresentations that were rendered misleading because they were contradicted by withheld facts.

382. Plaintiff and the Pennsylvania Class suffered ascertainable loss and actual damages as a direct and proximate result of Defendants' concealment, misrepresentations, and/or failure to disclose material information.

383. Defendants' violations present a continuing risk to Plaintiff and the Pennsylvania Class, as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

384. BMW is liable to Plaintiffs for treble their actual damages or $100, whichever is greater, and attorneys' fees and costs. 73 PA. CONS. STAT. § 201-9.2(a). Plaintiff and the Pennsylvania Class also seek an order enjoining Defendants' unfair and/or deceptive acts or practices, and awarding punitive damages given that BMW's conduct was malicious, wanton, willful, oppressive, or exhibited a reckless indifference to the rights of others.

COUNT 7
FRAUDULENT CONCEALMENT
(BASED ON PENNSYLVANIA LAW)

385. Plaintiff incorporates by reference all paragraphs as though fully set forth herein.

386. This claim is brought by Plaintiff on behalf of Pennsylvania purchasers who are members of the Class.

387. Defendants intentionally concealed that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, that the Polluting BMW Vehicles had defective emission controls, emitted pollutants at a higher level than gasoline-powered vehicles, emitted pollutants higher than a reasonable consumer would expect in light of BMW's advertising campaign and the premium paid for the car, emitted 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 Plaintiff and the other Class members information that is highly relevant to their purchasing decision.

388. BMW further affirmatively misrepresented to Plaintiff in advertising and other forms of communication, including standard and uniform material provided with each car, that the Polluting BMW Vehicles it was selling had no significant defects, were low emission

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

389. BMW knew these representations were false when made.

390. The Polluting BMW Vehicles purchased or leased by Plaintiff and the other Class 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 BMW's advertising campaign, non-EPA-compliant, and unreliable because the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions.

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

392. As alleged in this Complaint, at all relevant times, BMW has held out the Class Vehicles to be reduced emissions and EPA-compliant. BMW disclosed certain details about the BMW Clean Diesel engine, but nonetheless, BMW intentionally failed to disclose the important facts that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions and that the Polluting BMW Vehicles had defective emission controls, deploy a "Defeat Device," emitted higher levels of pollutants than expected by a reasonable

consumer, emitted high levels of pollutants, and were non-compliant with EPA emissions requirements, making other disclosures about the emission system deceptive.

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

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

395. BMW also concealed and suppressed material facts concerning what is evidently the true culture of BMW—one characterized by an emphasis on profits and sales above compliance with federal and state clean air laws and emissions regulations that are meant to protect the public and consumers. It also emphasized profits and sales above the trust that Plaintiff and Class members placed in its representations. Consumers buy diesel vehicles from BMW because they feel they are clean diesel vehicles. They do not want to be spewing noxious gases into the environment. And yet, that is precisely what the Polluting BMW Vehicles are doing.

396. BMW's false representations were material to consumers, because they concerned the quality of the Polluting BMW 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 BMW well knew, its

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

397. Defendants had a duty to disclose the emissions defect, defective design of the emission controls, and violations with respect to the Polluting BMW 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 Plaintiff or Class members. BMW also had a duty to disclose because it made general affirmative representations about the qualities of its vehicles with respect to emissions, starting with references to them as *reduced emissions* diesel vehicles and as compliant with all laws in each state, which were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth above regarding the actual emissions of its vehicles, its actual philosophy with respect to compliance with federal and state clean air laws and emissions regulations, and its actual practices with respect to the vehicles at issue. Having volunteered to provide information to Plaintiffs and Class members, BMW 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 Polluting BMW Vehicles purchased or leased by Plaintiff and Class members. Whether a manufacturer's products pollute, comply with federal and state clean air laws 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. BMW represented to Plaintiff and Class members that they were purchasing or leasing *reduced*

emission diesel vehicles, when in fact, they were purchasing or leasing defective, high emission vehicles.

398. BMW actively concealed and/or suppressed these material facts, in whole or in part, to pad and protect its profits and to avoid the perception that its 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 BMW money, and it did so at the expense of Plaintiff and Class members.

399. BMW has still not made full and adequate disclosures, and continues to defraud Plaintiffs and Class members by concealing material information regarding the emissions qualities of its referenced vehicles.

400. Plaintiff and Class 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 vehicles manufactured by BMW, 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. Plaintiff's and Class members' actions were justified. Defendants were in exclusive control of the material facts, and such facts were not generally known to the public, Plaintiff, or Class members.

401. Because of the concealment and/or suppression of the facts, Plaintiff and Class 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 BMW Clean Diesel engine system, the actual emissions qualities and quantities of BMW-branded vehicles,

and the serious issues engendered by BMW's corporate policies. Had Plaintiff and Class members been aware of the true emissions facts with regard to the Polluting BMW Vehicles, and Defendants' disregard for the truth and compliance with applicable federal and state law and regulations, Plaintiff and Class 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.

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

403. Accordingly, Defendants are liable to Plaintiff and Class members for damages in an amount to be proven at trial.

404. Defendants' acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiff's and Class members' rights and the representations that BMW 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.

C. Claims brought on behalf of the other state classes by the named Plaintiffs.

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

405. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

406. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of Alabama purchasers who are members of the Class.

407. The Alabama Deceptive Trade Practices Act (Alabama DTPA) declares several specific actions to be unlawful, including: "engaging in any other unconscionable, false, misleading, or deceptive act or practice in the conduct of trade or commerce." ALA. CODE § 8-19-5.

408. Plaintiffs and Alabama Class members are "consumers" within the meaning of ALA. CODE. § 8-19-3(2).

409. Plaintiffs, Alabama Class members, BMW USA, BMW AG, and Bosch are "persons" within the meaning of ALA. CODE § 8-19-3(3).

410. Defendants were and are engaged in "trade or commerce" within the meaning of ALA. CODE § 8-19-3(8). In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

411. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had

Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

412. Pursuant to ALABAMA CODE § 8-19-10, Plaintiffs will amend to seek monetary relief against 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 $100 for each plaintiff.

413. Plaintiffs also will amend to seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, attorneys' fees, and any other just and proper relief available under ALA. CODE. § 8-19-1 *et seq.*

414. On March 21, 2018, Plaintiffs sent a letter complying with ALA. CODE § 8-19-10(e) to Defendants. Should Defendants fail to remedy their unlawful conduct within the requisite period, Plaintiffs will amend to seek all damages and relief to which they are entitled.

COUNT 2
VIOLATION OF THE ALASKA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION ACT (ALASKA STAT. ANN. § 45.50.471 *ET SEQ.*)

415. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

416. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of Alaska purchasers who are members of the Class.

417. The Alaska Unfair Trade Practices and Consumer Protection Act (Alaska CPA) declared unfair methods of competition and unfair or deceptive acts or practices in the conduct of trade or commerce unlawful, including "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.

418. Pursuant to ALASKA STAT. ANN. § 45.50.531, Plaintiffs will amend their Complaint to seek monetary relief against Defendants measured as the greater of (a) three times the actual damages in an amount to be determined at trial or (b) $500 for each plaintiff.

419. Plaintiffs also will amend to seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices pursuant to ALASKA STAT. ANN. § 45.50.535(b)(1), attorneys' fees, and any other just and proper relief available under the Alaska CPA.

420. On March 21, 2018, Plaintiffs sent a letter complying with ALASKA STAT. ANN. § 45.50.535(b)(1) to Defendants.

COUNT 3
VIOLATION OF THE ARIZONA CONSUMER FRAUD ACT
(ARIZ. REV. STAT. § 44-1521 *ET SEQ.*)

421. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

422. This claim is brought by Plaintiffs on behalf of Arizona purchasers who are members of the Class.

423. 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). Defendants failed to disclose (1) that the X5 vehicles turn off or down emissions systems during common

driving decisions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

424. BMW USA, BMW AG, Bosch, Plaintiffs, and Class members are "persons" within the meaning of the Arizona CFA, ARIZ. REV. STAT. § 44-1521(6).

425. Each Polluting BMW Vehicle at issue is "merchandise" within the meaning of ARIZ. REV. STAT. § 44-1521(5).

426. Defendants' conduct, as set forth above, occurred in the conduct of trade or commerce. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

427. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

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

429. Plaintiffs also seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, attorneys' fees, and any other just and proper relief available under the Arizona CFA.

COUNT 4
VIOLATION OF THE ARKANSAS DECEPTIVE TRADE PRACTICES ACT
(ARK. CODE ANN. § 4-88-101 *ET SEQ.*)

430. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

431. This claim is brought by Plaintiffs on behalf of Arkansas purchasers who are members of the class.

432. The Arkansas Deceptive Trade Practices Act (Arkansas DTPA) prohibits "[d]eceptive and unconscionable trade practices," which include but are not limited to "[e]ngaging in any . . . 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, in connection with the sale or advertisement of any goods, "(1) the act, use, or employment by any person of any deception, fraud, or pretense; or (2) the concealment, suppression, or omission of any material fact with intent that other rely upon the concealment, suppression, or omission." ARK. CODE ANN. § 4-88-108. Defendants failed to disclose (1) that the X5 vehicles turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel economy

were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

433. BMW USA, BMW AG, Bosch, Plaintiffs, and Class members are "persons" within the meaning of ARK. CODE ANN. § 4-88-102(5).

434. Each Polluting BMW Vehicle at issue constitutes "goods" within the meaning of ARK. CODE ANN. § 4-88-102(4).

435. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

436. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

437. Plaintiffs seek monetary relief against Defendants in an amount to be determined at trial. Plaintiffs also seek punitive damages because Defendants acted wantonly in causing Plaintiffs' and Class members' injuries, or with such a conscious indifference to the consequences that malice may be inferred.

438. Plaintiffs also seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, attorneys' fees, and any other just and proper relief available under the Arkansas DTPA.

COUNT 5
VIOLATIONS OF THE CALIFORNIA UNFAIR COMPETITION LAW (CAL. BUS. & PROF. CODE § 17200 *ET SEQ.*)

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

440. This claim is brought by Plaintiffs on behalf of California purchasers who are members of the Class.

441. 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."

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

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

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

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

iv. By failing to disclose that fuel economy and towing capacity are achieved with manipulation of the emissions system;

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

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

443. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with an intent to mislead Plaintiffs and the Class.

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

445. Plaintiffs were also deceived in that Defendants failed to disclose (1) that the X5 vehicles turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

446. Plaintiffs and Class 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 Class members did not, and could not, unravel Defendants' deception on their own.

447. Defendants knew or should have known their conduct violated the UCL.

448. Defendants owed Plaintiffs and the Class a duty to disclose the truth about its emissions systems manipulation because Defendants:

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

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

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

449. Defendants had a duty to disclose that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, emits pollutants at a much higher rate than gasoline-powered vehicles, and that the emissions far exceeded those expected by a reasonable consumer. Plaintiffs and the other Class members relied on Defendants' material representations and/or omissions that the Polluting BMW Vehicles they were purchasing were reduced emission vehicles, efficient, and free from defects.

450. Defendants' conduct proximately caused injuries to Plaintiffs and the other Class members.

451. Plaintiffs and the other Class 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 Class members overpaid for their Polluting BMW Vehicles, and/or their

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

452. 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.

453. Defendants' misrepresentations and omissions alleged herein caused Plaintiffs and the other Class members to make their purchases or leases of their Polluting BMW Vehicles. Absent those misrepresentations and omissions, Plaintiffs and the other Class members would not have purchased or leased these vehicles, would not have purchased or leased these Polluting BMW Vehicles at the prices they paid, and/or would have purchased or leased less expensive alternative vehicles that did not contain defective BMW Clean Diesel engine systems that failed to comply with EPA and California emissions standards.

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

455. Plaintiffs request that this Court enter such orders or judgments as may be necessary to restore to Plaintiffs and members of the Class 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 6
VIOLATIONS OF THE CALIFORNIA FALSE ADVERTISING LAW (CAL. BUS. & PROF. CODE § 17500 *ET SEQ.*)

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

457. This claim is brought by Plaintiffs on behalf of California purchasers who are members of the Class.

458. CAL. 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." Defendants failed to disclose (1) that the X5 vehicles turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

459. 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 Defendants, to be untrue and misleading to consumers, including Plaintiffs and the other Class members.

460. Defendants have violated § 17500 because the misrepresentations and omissions regarding the functionality, reliability, environmental-friendliness, and lawfulness of Polluting BMW Vehicles as set forth in this Complaint were material and likely to deceive a reasonable consumer.

461. Plaintiffs and the other Class members have suffered an injury in fact, including the loss of money or property, as a result of Defendants' unfair, unlawful, and/or deceptive practices. In purchasing or leasing their Polluting BMW Vehicles, Plaintiffs and the other Class members relied on the misrepresentations and/or omissions of Defendants with respect to the functionality, reliability, environmental-friendliness, and lawfulness of the Polluting BMW Vehicles. Defendants' representations turned out not to be true because the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions and the Polluting BMW Vehicles are distributed with BMW Clean Diesel engine systems that include defective emission controls and a "Defeat Device." Had Plaintiffs and the other Class members known this, they would not have purchased or leased their Polluting BMW Vehicles and/or paid as much for them. Accordingly, Plaintiffs and the other Class members overpaid for their Polluting BMW Vehicles.

462. All of the wrongful conduct alleged herein occurred, and continues to occur, in the conduct of Defendants' business. 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.

463. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

464. Plaintiffs' and the other Class members' injuries were proximately caused by BMW's fraudulent and deceptive business practices.

465. Therefore, Plaintiffs and the other Class members are entitled to equitable and monetary relief under the CLRA.

466. Plaintiffs have provided BMW with notice of its violations of the CLRA pursuant to CAL. CIV. CODE § 1782(a). The notice was transmitted to BMW on March 21, 2018.

467. Plaintiffs and the other Class members seek an order enjoining Defendants' unfair and/or deceptive acts or practices, and will amend to seek an order awarding damages, punitive damages, and any other just and proper relief available under the CLRA.

COUNT 7
VIOLATION OF THE CONNECTICUT UNFAIR TRADE PRACTICES ACT
(CONN. GEN. STAT. § 42-110A *ET SEQ.*)

468. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

469. This claim is brought by Plaintiffs on behalf of Connecticut purchasers who are members of the Class.

470. The Connecticut Unfair Trade Practices Act (Connecticut UTPA) provides: "No 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. § 42-110b(a).

471. Plaintiffs, Connecticut Class members, BMW USA, BMW AG, and Bosch are each a "person" within the meaning of CONN. GEN. STAT. § 42-110a(3).

472. Defendants' challenged conduct, as set forth above, occurred in the conduct of "trade" or "commerce" within the meaning of CONN. GEN. STAT. § 42-110a(4). In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting

BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

473. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

474. Plaintiffs and Connecticut Class members are entitled to recover their actual damages, punitive damages, and attorneys' fees pursuant to CONN. GEN. STAT. § 42-110g.

475. Defendants acted with reckless indifference to another's rights, or wanton or intentional violation of another's rights, and otherwise engaged in conduct amounting to a particularly aggravated, deliberate disregard for the rights of others. Therefore, punitive damages are warranted.

COUNT 8
VIOLATION OF THE DELAWARE CONSUMER FRAUD ACT
(DEL. CODE TIT. 6, § 2513 *ET SEQ.*)

476. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

477. This claim is brought by Plaintiffs on behalf of Delaware purchasers who are members of the Class.

478. 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 nor any person has in fact been misled, deceived, or damaged thereby." DEL. CODE TIT. 6, § 2513(a).

479. BMW USA, BMW AG, and Bosch are "persons" within the meaning of DEL. CODE TIT. 6, § 2511(7).

480. Defendants' actions, as set forth above, occurred in the conduct of trade or commerce. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

481. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

482. 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. 1980). Plaintiffs also seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, declaratory relief, attorneys' fees, and any other just and proper relief available under the Delaware CFA.

483. Defendant engaged in gross, oppressive, or aggravated conduct justifying the imposition of punitive damages.

COUNT 9
VIOLATION OF FLORIDA UNFAIR AND DECEPTIVE TRADE PRACTICES ACT
(FLA. STAT. § 501.201 *ET SEQ.*)

484. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

485. This claim is brought by Plaintiffs on behalf of Florida purchasers who are members of the Class.

486. Plaintiffs and other Class members are "consumers" within the meaning of Florida Unfair and Deceptive Trade Practices Act ("Florida UDTPA"), FLA. STAT. § 501.203(7).

487. Defendants engaged in "trade or commerce" within the meaning of FLA. STAT. § 501.203(8).

488. 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). Defendant participated in unfair and deceptive trade practices that violated the Florida UDTPA as described herein. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

489. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

490. Plaintiffs and the other Class 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 Class members overpaid for their Polluting BMW Vehicles and did not receive the benefit of their bargain, and their Polluting BMW Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

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

492. Accordingly, Defendants are liable to Plaintiffs and other Class members for damages in an amount to be proven at trial.

COUNT 10
VIOLATION OF THE GEORGIA FAIR BUSINESS PRACTICES ACT
(GA. CODE ANN. § 10-1-390 *ET SEQ.*)

493. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

494. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of Georgia purchasers who are members of the Class.

495. 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. § 101-393(b), 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).

496. Plaintiffs and Georgia Class members are "consumers" within the meaning of GA. CODE ANN. § 10-1-393(b).

497. BMW USA, BMW AG, and Bosch engaged in "trade or commerce" within the meaning of GA. CODE. ANN. § 10-1-393(b).

498. Once the statutory notice period has expired, Plaintiffs will amend to seek damages and exemplary damages (for intentional violations) per GA. CODE ANN. § 10-1-399(a).

499. Plaintiffs will also amend to seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, attorneys' fees, and any other just and proper relief available under the Georgia FBPA per GA. CODE ANN. § 10-1-399.

500. On March 21, 2018, Plaintiffs sent a letter complying with GA. CODE ANN. § 10-1-399(b) to BMW.

COUNT 11
VIOLATION OF THE GEORGIA UNIFORM DECEPTIVE TRADE PRACTICES ACT (GA. CODE ANN § 10-1-370 *ET SEQ.*)

501. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

502. This claim is brought by Plaintiffs on behalf of Georgia purchasers who are members of the Class.

503. Georgia's Uniform Deceptive Trade Practices Act (Georgia UDTPA) prohibits "deceptive trade practices," which include "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).

504. BMW USA, BMW AG, Bosch, Plaintiffs, and Georgia Class members are "persons" within the meaning of GA. CODE ANN. § 10-1-371(5).

505. The Plaintiffs seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, attorneys' fees, and any other just and proper relief available under GA. CODE ANN. § 10-1-373.

COUNT 12
VIOLATION OF THE HAWAII ACT § 480-2(A)
(HAW. REV. STAT. § 480 *ET SEQ.*)

506. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

507. This claim is brought by Plaintiffs on behalf of Hawaii purchasers who are members of the Class.

508. 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."

509. BMW USA, BMW AG, and Bosch are "persons" under HAW. REV. STAT. § 480-1.

510. Plaintiffs and Hawaii Class members are "consumer[s]" as defined by HAW. REV. STAT. § 480-1, who purchased or leased the Polluting BMW Vehicles at issue.

511. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

512. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

513. Pursuant to HAW. REV. STAT. § 480-13, Plaintiffs seek monetary relief against Defendants measured as the greater of (a) $1,000 and (b) threefold actual damages in an amount to be determined at trial.

514. Under HAW. REV. STAT. § 480-13.5, Plaintiffs seek an additional award against Defendants of up to $10,000 for each violation directed at a Hawaii elder. Defendants knew or should have known that its conduct was directed to one or more Plaintiffs who are elders. 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. Plaintiffs who are elders are substantially more vulnerable to Defendants' conduct because of age, poor health or infirmity, impaired understanding, restricted mobility, or disability, and each of them suffered a substantial physical, emotional, or economic damage resulting from Defendants' conduct.

COUNT 13
VIOLATION OF THE IDAHO CONSUMER PROTECTION ACT
(IDAHO CODE ANN. § 48-601 *ET SEQ.*)

515. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

516. This claim is brought by Plaintiffs on behalf of Idaho purchasers who are members of the Class.

517. The Idaho Consumer Protection Act (Idaho CPA) prohibits deceptive business practices, including but not limited to (1) representing that the Polluting BMW Vehicles have characteristics, uses, and benefits which they do not have; (2) representing that the Polluting BMW Vehicles are of a particular standard, quality, and grade when they are not; (3) advertising the Polluting BMW Vehicles with the intent not to sell them as advertised; (4) engaging in acts or practices which are otherwise misleading, false, or deceptive to the consumer; and (5) engaging in any unconscionable method, act or practice in the conduct of trade or commerce. *See* IDAHO CODE ANN. § 48-603.

518. BMW USA, BMW AG, and Bosch are "persons" under IDAHO CODE ANN. § 48-602(1).

519. Defendants' acts or practices as set forth above occurred in the conduct of "trade" or "commerce" under IDAHO CODE ANN. § 48-602(2).

520. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

521. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

522. Pursuant to IDAHO CODE ANN. § 48-608, Plaintiffs seek monetary relief against 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 $1,000 for each plaintiff.

523. Plaintiffs also seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, attorneys' fees, and any other just and proper relief available under the Idaho CPA.

524. Plaintiffs also seek punitive damages against Defendants because Defendants' conduct evidences an extreme deviation from reasonable standards. Defendants' unlawful conduct constitutes malice, oppression, and fraud warranting punitive damages.

COUNT 14
VIOLATION OF THE ILLINOIS CONSUMER FRAUD AND DECEPTIVE BUSINESS PRACTICES ACT (815 ILCS 505/1, *ET SEQ.* AND 720 ILCS 295/1A)

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

526. This claim is brought on behalf of the Illinois Class members.

527. BMW USA, BMW AG, and Bosch are "persons" as that term is defined in 815 ILCS 505/1(c).

528. Plaintiffs and the Class members are "consumers" as that term is defined in 815 ILCS 505/1(e).

529. 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 ILCS 505/2.

530. In the course of Defendants' business, Defendants willfully failed to disclose and actively concealed that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, that the Polluting BMW Vehicles emitted far more pollutants than gasoline powered vehicles, that the Polluting BMW Vehicles emit far more pollution than a reasonable consumer would expect in light of BMW's advertising campaign, and that the Polluting BMW Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in 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 as prohibited by the Illinois CFA.

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

532. Plaintiffs and Class 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 Class members did not, and could not, unravel Defendants' deception on their own.

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

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

535. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with an intent to mislead Plaintiffs and the Class.

536. Defendants knew or should have known that its conduct violated the Illinois CFA.

537. Defendants owed Plaintiffs and the Class a duty to disclose the truth about its emissions systems manipulation because Defendants:

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

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

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

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

539. Defendants' conduct proximately caused injuries to Plaintiffs and the other Class members.

540. Plaintiffs and the other Class 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 Class members overpaid for their Polluting BMW Vehicles and did not receive the benefit of their bargain, and their Polluting BMW Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

541. 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.

542. Pursuant to 815 ILCS 505/10a(a), Plaintiffs and the Class members seek monetary relief against Defendants in the amount of actual damages, as well as punitive damages because Defendants acted with fraud and/or malice and/or were grossly negligent.

543. Plaintiffs also seek punitive damages, attorneys' fees, and any other just and proper relief available under 815 ILCS § 505/1, *et seq*. A copy of this Complaint has been mailed to the Attorney General of the State of Illinois in accordance with 815 ILCS 505/10a(d).

COUNT 15
VIOLATION OF THE INDIANA DECEPTIVE CONSUMER SALES ACT (IND. CODE § 24-5-0.5-3)

544. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

545. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of Indiana purchasers who are members of the Class.

546. Indiana's Deceptive Consumer Sales Act (Indiana DCSA) prohibits a person from engaging in a "deceptive business practice[s]" or acts, including but not limited to "(1) That such subject of a consumer transaction has sponsorship, approval, performance, characteristics, accessories, uses, or benefits that they do not have, or that a person has a sponsorship, approval, status, affiliation, or connection it does not have; (2) That such subject of a consumer transaction is of a particular standard, quality, grade, style or model, if it is not and if the supplier knows or should reasonably know that it is not; . . . (7) That the supplier has a sponsorship, approval or affiliation in such consumer transaction that the supplier does not have, and which the supplier knows or should reasonably know that the supplier does not have; . . . (b) Any representations on or within a product or its packaging or in advertising or promotional materials which would constitute a deceptive act shall be the deceptive act both of the supplier who places such a representation thereon or therein, or who authored such materials, and such suppliers who shall state orally or in writing that such representation is true if such other supplier shall know or have reason to know that such representation was false."

547. BMW USA, BMW AG, and Bosch are "persons" within the meaning of IND. CODE § 25-5-0.5-2(a)(2) and "suppliers" within the meaning of IND. CODE § 24-5-0.5-2(a)(3).

548. Plaintiffs' vehicle purchases are "consumer transactions" within the meaning of IND. CODE § 24-5-0.5-2(a)(3).

549. Pursuant to IND. CODE § 24-5-0.5-4, once the statutory notice period has expired, Plaintiffs will seek monetary relief against 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, including treble damages up to $1,000 for Defendants' willfully deceptive acts.

550. Plaintiffs will also amend to seek punitive damages based on the outrageousness and recklessness of Defendants' conduct.

551. On March 21, 2018, Plaintiffs sent a letter complying with IND. CODE § 24-5-0.5-5(a) to Defendants.

COUNT 16
VIOLATION OF THE IOWA PRIVATE RIGHT OF ACTION FOR CONSUMER FRAUDS ACT (IOWA CODE § 714H.1 *ET SEQ.*)

552. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

553. This claim is brought by Plaintiffs on behalf of Iowa purchasers who are members of the Class.

554. The Iowa Private Right of Action for Consumer Frauds Act (Iowa CFA) prohibits any "practice or act the person knows or reasonably should know is an unfair practice, deception, fraud, false pretense, or false promise, or the misrepresentation, concealment, suppression, or omission of a material fact, with the intent that others rely upon the unfair practice, deception, fraud, false pretense, false promise, misrepresentation, concealment, suppression or omission in connection with the advertisement, sale, or lease of consumer merchandise." IOWA CODE § 714H.3.

555. BMW USA, BMW AG, and Bosch are "persons" under IOWA CODE § 714H.2(7).

556. Plaintiffs and Iowa Class members are "consumers" as defined by IOWA CODE § 714H.2(3) who purchased or leased one or more Polluting BMW Vehicles.

557. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing

emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

558. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

559. Pursuant to IOWA CODE § 714H.5, Plaintiffs seek an order enjoining BMW's unfair and/or deceptive acts or practices, actual damages, statutory damages up to three times the amount of actual damages awarded as a result of BMW's willful and wanton disregard for the rights of others, attorneys' fees, and other such equitable relief as the court deems necessary to protect the public from further violations of the Iowa CFA.

COUNT 17
VIOLATION OF THE KANSAS CONSUMER PROTECTION ACT
(KAN. STAT. ANN. § 50-623 *ET SEQ.*)

560. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

561. This claim is brought by Plaintiffs on behalf of Kansas purchasers who are members of the Class.

562. The Kansas Consumer Protection Act (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). Deceptive acts or practices include but are not limited to "the willful use, in any oral or written representation, of exaggeration, falsehood, innuendo or ambiguity as to a

material fact" and "the willful failure to state a material fact, or the willful concealment, suppression or omission of a material fact." KAN. STAT. ANN. § 50-626.

563. Plaintiffs and Kansas Class members are "consumers" within the meaning of KAN. STAT. ANN. § 50-624(b) who purchased or leased one or more Polluting BMW Vehicles.

564. Each sale or lease of a Polluting Vehicle to Plaintiffs was a "consumer transaction" within the meaning of KAN. STAT. ANN. § 50-624(c).

565. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

566. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

567. Pursuant to KAN. STAT. ANN. § 50-634, Plaintiffs seek monetary relief against 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.

568. Plaintiffs also seek an order enjoining 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 18
VIOLATIONS OF THE KENTUCKY CONSUMER PROTECTION ACT (KY. REV. STAT. § 367.110 *ET SEQ.*).

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

570. Plaintiffs bring this Count on behalf of the Kentucky Class members.

571. BMW USA, BMW AG, Bosch, Plaintiffs, and the Kentucky Class are "persons" within the meaning of the KY. REV. STAT. § 367.110(1).

572. Defendants engaged in "trade" or "commerce" within the meaning of KY. REV. STAT. § 367.110(2).

573. 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. § 367.170(1). In the course of their business, Defendants willfully failed to disclose and actively concealed that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, that the Polluting BMW Vehicles emitted far more pollutants than gasoline powered vehicles, that the Polluting BMW Vehicles emit far more pollution than a reasonable consumer would expect in light of BMW's advertising campaign, and that the Polluting BMW Vehicles emitted unlawfully high levels of pollutants, including NOx, as described above. Accordingly, Defendants engaged in deceptive business practices prohibited by the Kentucky CPA.

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

575. Plaintiffs and Class 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 Class members did not, and could not, unravel Defendants' deception on their own.

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

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

578. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with an intent to mislead Plaintiffs and the Class.

579. Defendants knew or should have known that its conduct violated the Kentucky CPA.

580. Defendants owed Plaintiffs and the Class a duty to disclose the truth about its emissions systems manipulation because Defendants:

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

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

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

581. Defendants had a duty to disclose that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, that these Polluting BMW Vehicles were defective, employed a "Defeat Device," and emitted pollutants at a much

higher rate than gasoline powered vehicles, and that the emissions far exceeded those expected by a reasonable consumer, were non-EPA-compliant and unreliable, because Plaintiffs and the other Class members relied on BMW's material representations that the Polluting BMW Vehicles they were purchasing were reduced emission vehicles, efficient, and free from defects.

582. Defendants' conduct proximately caused injuries to Plaintiffs and the other Class members.

583. Plaintiffs and the other Class 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 Class members overpaid for their Polluting BMW Vehicles and did not receive the benefit of their bargain, and their Polluting BMW Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

584. 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.

585. Pursuant to KY. REV. STAT. ANN. § 367.220, Plaintiffs and the Class seek an order enjoining Defendants' unfair and/or deceptive acts or practices; awarding damages; declaratory relief; attorneys' fees; and any other just and proper relief available under KY. REV. STAT. ANN. § 367.220.

COUNT 19
VIOLATION OF THE LOUISIANA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION LAW (LA. REV. STAT. § 51:1401 *ET SEQ.*)

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

587. This claim is brought by Plaintiffs on behalf of Louisiana purchasers who are members of the Class

588. BMW USA, BMW AG, Bosch, Plaintiffs, and the Louisiana Class members are "persons" within the meaning of LA. REV. STAT. § 51:1402(8).

589. Plaintiffs and Louisiana Class members are "consumers" within the meaning of LA. REV. STAT. § 51:1402(1).

590. Defendants engaged in "trade" or "commerce" within the meaning of LA. REV. STAT. § 51:1402(9).

591. 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. REV. STAT. § 51:1405(A). Defendants participated in misleading, false, or deceptive acts that violated the Louisiana CPL.

592. Defendants also 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 Polluting BMW Vehicles.

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

594. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with intent to mislead Plaintiffs and the Louisiana Class.

595. Defendants knew or should have known that its conduct violated the Louisiana CPL.

596. Defendants owed Plaintiffs a duty to disclose the emissions in the Polluting BMW Vehicles, because Defendants:

a. Possessed exclusive knowledge;

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

c. Made incomplete representations about the emissions and performance of the Polluting BMW Vehicles, while purposefully withholding material facts from Plaintiffs that contradicted these representations.

597. Plaintiffs and the Louisiana Class suffered ascertainable loss caused by Defendants' misrepresentations and its concealment of and failure to disclose material information.

598. As a direct and proximate result of Defendants' violations of the Louisiana CPL, Plaintiffs and the Louisiana Class have suffered injury-in-fact and/or actual damage.

599. Pursuant to LA. REV. STAT. § 51:1409, Plaintiffs and the Louisiana Class seek to recover actual damages in an amount to be determined at trial; treble damages for Defendants' knowing violations of the Louisiana CPL; an order enjoining Defendants' unfair, unlawful, and/or deceptive practices; declaratory relief; attorneys' fees; and any other just and proper relief available under LA. REV. STAT. § 51:1409.

COUNT 20
VIOLATION OF THE MAINE UNFAIR TRADE PRACTICES ACT
(ME. REV. STAT. ANN. TIT. 5, § 205-A *ET SEQ.*)

600. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

601. This claim is brought by Plaintiffs on behalf of Maine purchasers who are members of the Class.

602. The Maine Unfair Trade Practices Act (Maine UTPA) 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.

603. BMW USA, BMW AG, Bosch, Plaintiffs, and Maine Class members are "persons" within the meaning of ME. REV. STAT. ANN. TIT. § 5, 206(2).

604. Defendants are engaged in "trade" or "commerce" within the meaning of ME. REV. STAT. ANN. TIT. § 5, 206(3).

605. Pursuant to ME. REV. STAT. ANN. TIT. 5, § 213, Plaintiffs seek an order enjoining Defendants' unfair and/or deceptive acts or practices.

606. On March 21, 2018, Plaintiffs sent a letter complying with ME. REV. STAT. ANN. TIT. 5, § 213(1-A) to Defendants. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of Maine purchasers who are members of the Class.

COUNT 21
VIOLATION OF THE MASSACHUSETTS GENERAL LAW CHAPTER 93(A)
(MASS. GEN. LAWS CH. 93A, § 1 *ET SEQ.*)

607. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

608. On March 21, 2018, Plaintiffs sent a letter complying with MASS. GEN. LAWS CH. 93A, § 9(3) to Defendants.

COUNT 22
VIOLATION OF THE MICHIGAN
CONSUMER PROTECTION ACT
(MICH. COMP. LAWS § 445.903 *ET SEQ.*)

609. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

610. This claim is brought by Plaintiffs on behalf of Michigan purchasers who are members of the Class.

611. 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 "[f]ailing 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"; "[m]aking 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"; or "[f]ailing 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). Defendants failed to disclose (1) that the X5 vehicles turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

612. Plaintiffs and Michigan Class members are "person[s]" within the meaning of the MICH. COMP. LAWS § 445.902(1)(d).

613. BMW USA, BMW AG, and Bosch are "person[s]" engaged in "trade or commerce" within the meaning of the MICH. COMP. LAWS § 445.902(1)(d) and (g).

614. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing

emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

615. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

616. Plaintiffs seek injunctive relief to enjoin Defendants from continuing their unfair and deceptive acts; monetary relief against 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 $250 for each plaintiff; reasonable attorneys' fees; and any other just and proper relief available under MICH. COMP. LAWS § 445.911.

617. Plaintiffs also seek punitive damages because Defendants carried out despicable conduct with willful and conscious disregard of the rights of others. Defendants' conduct constitutes malice, oppression, and fraud warranting punitive damages.

COUNT 23
VIOLATION OF THE MINNESOTA PREVENTION OF CONSUMER FRAUD ACT
(MINN. STAT. § 325F.68 *ET SEQ.*)

618. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

619. This claim is brought by Plaintiffs on behalf of Minnesota purchasers who are members of the Class.

620. 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).

621. Each purchase or lease of a Polluting Vehicle constitutes "merchandise" within the meaning of MINN. STAT. § 325F.68(2).

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

623. Plaintiffs and Class 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 Class members did not, and could not, unravel Defendants' deception on their own.

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

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

626. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with an intent to mislead Plaintiffs and the Class.

627. Defendants knew or should have known that its conduct violated the Minnesota CFA.

628. Defendants owed Plaintiffs and the Class a duty to disclose the truth about its emissions systems manipulation because Defendants:

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

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

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

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

630. Defendants' conduct proximately caused injuries to Plaintiffs and the other Class members.

631. Plaintiffs and the other Class 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 Class members overpaid for their Polluting BMW Vehicles and did not receive the benefit of their bargain, and their Polluting BMW Vehicles have suffered a

diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

632. 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.

633. Pursuant to MINN. STAT. § 8.31(3a), Plaintiffs seek an order enjoining Defendants' unfair and/or deceptive acts or practices, awarding damages, attorneys' fees, and any other just and proper relief available under the Minnesota CFA.

634. 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 24
VIOLATION OF THE MINNESOTA DECEPTIVE TRADE PRACTICES ACT
(MINN. STAT. § 325D.43-48 *ET SEQ.*)

635. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

636. This claim is brought by Plaintiffs on behalf of Minnesota purchasers who are members of the Class.

637. The Minnesota Deceptive Trade Practices Act (Minnesota DTPA) prohibits deceptive trade practices, which include "[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).

638. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

639. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

640. Pursuant to MINN. STAT. § 8.31(3a), Plaintiffs seek an order enjoining Defendants' unfair and/or deceptive acts or practices, awarding damages, attorneys' fees, and any other just and proper relief available under the Minnesota CFA.

641. 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 25
VIOLATION OF THE MISSISSIPPI CONSUMER PROTECTION ACT (MISS. CODE ANN. § 75-24-1 *ET SEQ.*)

642. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

643. This claim is brought by Plaintiffs on behalf of Mississippi purchasers who are members of the Class.

644. The Mississippi Consumer Protection Act (Mississippi CPA) prohibits "unfair or deceptive trade practices in or affecting commerce." MISS. CODE ANN. § 75-24-5(1). Unfair or deceptive practices include but are not limited to "(e) 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 he does not have"; "(g) 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 "(i) Advertising goods or services with intent not to sell them as advertised." MISS. CODE ANN. § 75-24-5(2).

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

646. Plaintiffs and Class 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 Class members did not, and could not, unravel Defendants' deception on their own.

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

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

649. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with an intent to mislead Plaintiffs and the Class.

650. Defendants knew or should have known that its conduct violated the Minnesota CFA.

651. Defendants owed Plaintiffs and the Class a duty to disclose the truth about its emissions systems manipulation because Defendants:

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

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

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

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

653. Defendants' conduct proximately caused injuries to Plaintiffs and the other Class members.

654. Plaintiffs and the other Class 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 Class members overpaid for their Polluting BMW Vehicles and did not

receive the benefit of their bargain, and their Polluting BMW Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

655. Plaintiffs seek an order enjoining Defendants' unfair and/or deceptive acts or practices and awarding damages, including restitution, and any other just and proper relief available under the Mississippi CPA.

COUNT 26
VIOLATION OF THE MISSOURI MERCHANDISING PRACTICES ACT (MO. REV. STAT. §§ 407.010, *ET SEQ.*)

656. Plaintiffs (for purposes of all Missouri Class Counts) incorporate by reference all paragraphs as though fully set forth herein.

657. Plaintiffs bring this Count on behalf of the Missouri Class members.

658. Defendants, Plaintiffs and the Missouri Class are "persons" within the meaning of Mo. Rev. Stat. § 407.010(5).

659. Defendants engaged in "trade" or "commerce" in the State of Missouri within the meaning of Mo. Rev. Stat. § 407.010(7).

660. 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, 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 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.

661. In purchasing or leasing the Affected Vehicles, Plaintiffs and the other Class 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.

662. Plaintiffs and Class 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 Class members did not, and could not, unravel Defendants' deception on their own.

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

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

665. Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles with an intent to mislead Plaintiffs and the Class.

666. Defendants knew or should have known that its conduct violated the Missouri MPA.

667. Defendants owed Plaintiffs and the Class a duty to disclose the truth about its emissions systems manipulation because Defendants:

a. Possessed exclusive knowledge that it 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 Class; and/or

c. Made incomplete representations that it 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 Class that contradicted these representations.

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

669. Defendants' conduct proximately caused injuries to Plaintiffs and the other Class members.

670. Plaintiffs and the other Class 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 Class 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.

671. 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.

672. Defendants are liable to Plaintiffs and the Missouri Class 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 27
VIOLATION OF THE MONTANA UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION ACT OF 1973 (MONT. CODE ANN. § 30-14-101 *ET SEQ.*)

673. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

674. This claim is brought by Plaintiffs on behalf of Montana purchasers who are members of the Class.

675. 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.

676. BMW USA, BMW AG, Bosch, Plaintiffs, and Montana Class members are "persons" within the meaning of MONT. CODE ANN. § 30-14-102(6).

677. Plaintiffs and Montana Class members are "consumer[s]" under MONT. CODE ANN. § 30-14-102(1).

678. The sale or lease of each Polluting Vehicle at issue 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.

679. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

680. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

681. Because Defendants' unlawful methods, acts, and practices have caused Plaintiffs to suffer an ascertainable loss of money and property, Plaintiffs seek from Defendants: the greater of actual damages or $500; discretionary treble damages; and reasonable attorneys' fees.

682. Plaintiffs additionally seek an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, and any other relief the Court considers necessary or proper, under MONT. CODE ANN. § 30-14-133.

COUNT 28
VIOLATION OF THE NEBRASKA CONSUMER PROTECTION ACT
(NEB. REV. STAT. § 59-1601 *ET SEQ.*)

683. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

684. This claim is brought by Plaintiffs on behalf of Nebraska purchasers who are members of the Class.

685. The Nebraska Consumer Protection Act (Nebraska CPA) prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce." NEB. REV. STAT. § 59-1602.

686. BMW USA, BMW AG, Bosch, Plaintiffs, and Nebraska Class members are "person[s]" under NEB. REV. STAT. § 59-1601(1).

687. Defendants actions as set forth herein occurred in the conduct of trade or commerce as defined under NEB. REV. STAT. § 59-1601(2).

688. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

689. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

690. Because Defendants' conduct caused injury to Plaintiffs' property through violations of the Nebraska CPA, Plaintiffs seek recovery of actual damages as well as enhanced damages up to $1,000, an order enjoining Defendants' unfair or deceptive acts and practices,

costs of Court, reasonable attorneys' fees, and any other just and proper relief available under NEB. REV. STAT. § 59-1609.

COUNT 29
VIOLATION OF THE NEVADA DECEPTIVE TRADE PRACTICES ACT
(NEV. REV. STAT. § 598.0903 *ET SEQ.*)

691. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

692. This claim is brought by Plaintiffs on behalf of Nevada purchasers who are members of the Class.

693. The Nevada Deceptive Trade Practices Act (Nevada DTPA) 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 "[k]nowingly 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"; "[r]epresents 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"; "[a]dvertises goods or services with intent not to sell or lease them as advertised"; or "[k]nowingly makes any other false representation in a transaction." NEV. REV. STAT. §§ 598.0915–598.0925. Defendants failed to disclose that the Polluting BMW Vehicles (1) turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel

economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

694. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

695. Accordingly, Plaintiffs seek their actual damages, punitive damages, an order enjoining Defendants' deceptive acts or practices, costs of Court, attorney's fees, and all other appropriate and available remedies under the Nevada DTPA. NEV. REV. STAT. § 41.600.

COUNT 30
VIOLATION OF THE NEW HAMPSHIRE CONSUMER PROTECTION ACT (N.H. REV. STAT. ANN. § 358-A:1 *ET SEQ.*)

696. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

697. This claim is brought by Plaintiffs on behalf of New Hampshire purchasers who are members of the Class.

698. The New Hampshire Consumer Protection Act (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: . . . [r]epresenting that goods or services have . . . characteristics, . . . 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." N.H. REV. STAT. ANN. § 358-A:2.

699. BMW USA, BMW AG, Bosch, Plaintiffs, and New Hampshire Class members are "persons" under N.H. REV. STAT. ANN. § 358-A:1.

700. Defendants' actions as set forth herein occurred in the conduct of trade or commerce as defined under N.H. REV. STAT. ANN. § 358-A:1. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

701. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

702. Because Defendants' willful conduct caused injury to Plaintiffs' property through violations of the New Hampshire CPA, Plaintiffs seek recovery of actual damages or $1,000, whichever is greater; treble damages; costs and reasonable attorneys' fees; an order enjoining Defendants' unfair and/or deceptive acts and practices; and any other just and proper relief under N.H. REV. STAT. ANN. § 358-A:10.

COUNT 31
VIOLATION OF THE NEW JERSEY CONSUMER FRAUD ACT
(N.J. STAT. ANN. § 56:8-1 *ET SEQ.*)

703. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

704. This claim is brought by Plaintiffs on behalf of New Jersey purchasers who are members of the Class.

705. The New Jersey Consumer Fraud Act (New Jersey CFA) makes unlawful "[t]he act, use or employment by any person of any unconscionable commercial practice, deception, fraud, false pretense, false promise, misrepresentation, or the knowing concealment, suppression or omission of any material fact with the intent that others rely upon such concealment, suppression or omission, in connection with the sale or advertisement of any merchandise or real estate, or with the subsequent performance of such person as aforesaid, whether or not any person has in fact been misled, deceived or damaged thereby." N.J. STAT. ANN. § 56:8-2. Defendants failed to disclose that the Polluting BMW Vehicles (1) turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

706. BMW USA, BMW AG, Bosch, Plaintiffs, and New Jersey Class members are "persons" within the meaning of N.J. STAT. ANN. § 56:8-1(d).

707. Defendants engaged in "sales" of "merchandise" within the meaning of N.J. STAT. ANN. § 56:8-1(c), (d).

708. Plaintiffs are entitled to recover legal and/or equitable relief, including an order enjoining Defendants' unlawful conduct, treble damages, costs, and reasonable attorneys' fees pursuant to N.J. STAT. ANN. § 56:8-19, and any other just and appropriate relief.

COUNT 32
VIOLATION OF THE NEW MEXICO UNFAIR TRADE PRACTICES ACT
(N.M. STAT. ANN. § 57-12-1 *ET SEQ.*)

709. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

710. This claim is brought by Plaintiffs on behalf of New Mexico purchasers who are members of the Class.

711. The New Mexico Unfair Trade Practices Act (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). Defendants failed to disclose that the Polluting BMW Vehicles (1) turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4) that emissions and fuel economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

712. BMW USA, BMW AG, Bosch, Plaintiffs, and New Mexico Class members are "person[s]" under N.M. STAT. ANN. § 57-12-2.

713. Defendants' actions as set forth herein occurred in the conduct of trade or commerce as defined under N.M. STAT. ANN. § 57-12-2.

714. Plaintiffs also seek an order enjoining Defendants' unfair and/or deceptive acts or practices.

715. Because Defendants' unconscionable, willful conduct caused actual harm to Plaintiffs, Plaintiffs 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 33
VIOLATION OF THE NEW YORK GENERAL BUSINESS LAW
(N.Y. GEN. BUS. LAW §§ 349–350)

716. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

717. This claim is brought by Plaintiffs on behalf of New York purchasers who are members of the Class.

718. The New York General Business Law (New York GBL) makes unlawful "[d]eceptive acts or practices in the conduct of any business, trade or commerce." N.Y. GEN. BUS. LAW § 349.

719. Plaintiffs and New York Class members are "persons" within the meaning of N.Y. GEN. BUS. LAW § 349(h).

720. BMW USA, BMW AG, and Bosch are a "person," "firm," "corporation," or "association" within the meaning of N.Y. GEN. BUS. LAW § 349.

721. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

722. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

723. Defendants' deceptive acts and practices, which were intended to mislead consumers who purchased or leased a Polluting BMW Vehicle, was conduct directed at consumers.

724. Because Defendants' willful and knowing conduct caused injury to Plaintiffs, Plaintiffs seek recovery of actual damages or $50, whichever is greater; discretionary treble damages up to $1,000; punitive damages; reasonable attorneys' fees and costs; an order enjoining Defendants' deceptive conduct; and any other just and proper relief available under N.Y. GEN. BUS. LAW § 349.

COUNT 34
VIOLATION OF THE NORTH CAROLINA UNFAIR AND DECEPTIVE ACTS AND PRACTICES ACT
(N.C. GEN. STAT. § 75-1.1 *ET SEQ.*)

725. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

726. This claim is brought by Plaintiffs on behalf of North Carolina purchasers who are members of the Class.

727. North Carolina's Unfair and Deceptive Acts and Practices Act (the North Carolina Act) broadly prohibits "unfair or deceptive acts or practices in or affecting commerce." N.C. GEN. STAT. § 75-1.1(a).

728. BMW USA, BMW AG, and Bosch engaged in "commerce" within the meaning of N.C. GEN. STAT. § 75-1.1(b).

729. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

730. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

731. Plaintiffs seek an order for treble their actual damages, an order enjoining Defendants' unlawful acts, costs of Court, attorney's fees, and any other just and proper relief available under the North Carolina Act, N.C. GEN. STAT. § 75-16.

COUNT 35
VIOLATION OF THE NORTH DAKOTA CONSUMER FRAUD ACT
(N.D. CENT. CODE § 51-15-02)

732. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

733. This claim is brought by Plaintiffs on behalf of North Dakota purchasers who are members of the Class.

734. 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.

735. BMW USA, BMW AG, Bosch, Plaintiffs, and North Dakota Class members are "persons" within the meaning of N.D. CENT. CODE § 51-15-02(4).

736. BMW USA, BMW AG, and Bosch engaged in the "sale" of "merchandise" within the meaning of N.D. CENT. CODE § 51-15-02(3), (5).

737. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

738. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

739. Defendants knowingly committed the conduct described above and therefore, under N.D. CENT. CODE § 51-15-09, Defendants are liable to Plaintiffs for treble damages in amounts to be proven at trial, as well as attorneys' fees, costs, and disbursements. Plaintiffs further seek an order enjoining Defendants' unfair and/or deceptive acts or practices, and other just and proper available relief under the North Dakota CFA.

COUNT 36
VIOLATION OF THE OHIO CONSUMER SALES PRACTICES ACT
(OHIO REV. CODE ANN. § 1345.01 *ET SEQ.*)

740. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

741. This claim is brought by Plaintiffs on behalf of Ohio purchasers who are members of the Class.

742. Ohio Consumer Sales Practices Act (Ohio CSPA), OHIO REV. CODE ANN. § 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 (1) representing that Polluting BMW Vehicles have characteristics, uses, benefits, and qualities which they do not have, (2) representing that Polluting BMW Vehicles are of a particular standard, quality, and grade when they are not, (3) advertising Polluting BMW Vehicles with the intent not to sell them as advertised, and (4) engaging in acts or practices which are otherwise unfair, misleading, false, or deceptive to the consumer. OHIO REV. CODE ANN. § 1345.02.

743. The Ohio Attorney General has made available for public inspection prior state court decisions which have held that the acts and omissions of Defendants in this Complaint, including but not limited to the failure to honor both implied warranties and express warranties, the making and distribution of false, deceptive, and/or misleading representations, and the concealment and/or non-disclosure of a dangerous defect, constitute deceptive sales practices in violation of the OCSPA. These cases include, but are not limited to, the following:

a. *Mason v. Mercedes Benz USA, LLC* (OPIF #10002382);

b. *State ex rel. Betty D. Montgomery v. Volkswagen Motor Co.* (OPIF #10002123);

c. *State ex rel. Betty D. Montgomery v. Bridgestone/Firestone, Inc.* (OPIF #10002025);

d. *Bellinger v. Hewlett-Packard Co.*, No. 20744, 2002 Ohio App. LEXIS 1573 (Ohio Ct. App. Apr. 10, 2002) (OPIF #10002077);

e. *Borror v. MarineMax of Ohio*, No. OT-06-010, 2007 Ohio App. LEXIS 525 (Ohio Ct. App. Feb. 9, 2007) (OPIF #10002388);

f. *State ex rel. Jim Petro v. Craftmatic Organization, Inc.* (OPIF #10002347);

g. *Mark J. Craw Volkswagen, et al. v. Joseph Airport Toyota, Inc.* (OPIF #10001586);

h. *State ex rel. William J. Brown v. Harold Lyons, et al.* (OPIF #10000304);

i. *Brinkman v. Mazda Motor of America, Inc.* (OPIF #10001427);

j. *Khouri v. Don Lewis* (OPIF #100001995);

k. *Mosley v. Performance Mitsubishi aka Automanage* (OPIF #10001326);

l. *Walls v. Harry Williams dba Butch's Auto Sales* (OPIF #10001524); and

m. *Brown v. Spears* (OPIF #10000403).

744. BMW USA, BMW AG, and Bosch are "suppliers" as that term is defined in OHIO REV. CODE ANN. § 1345.01(C).

745. Plaintiffs and Ohio Class members are "consumers" as that term is defined in OHIO REV. CODE ANN. § 1345.01(D), and their purchase or lease of one or more Polluting BMW Vehicles is a "consumer transaction" within the meaning of OHIO REV. CODE ANN. § 1345.01(A).

746. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

747. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

748. As a result of the foregoing wrongful conduct, Plaintiffs have been damaged in an amount to be proven at trial and seek all just and proper remedies, including but not limited to actual and statutory damages, an order enjoining Defendants' deceptive and unfair conduct, treble damages, court costs, and reasonable attorneys' fees, pursuant to OHIO REV. CODE ANN. § 1345.09 *et seq.*

COUNT 37
VIOLATION OF THE OKLAHOMA CONSUMER PROTECTION ACT
(OKLA. STAT. TIT. 15, § 751 *ET SEQ.*)

749. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

750. This claim is brought by Plaintiffs on behalf of Oklahoma purchasers who are members of the Class.

751. The Oklahoma Consumer Protection Act (Oklahoma CPA) declares unlawful, *inter alia*, the following acts or practices when committed in the course of business: making a "misrepresentation, omission or other practice that has deceived or could reasonably be expected to deceive or mislead a person to the detriment of that person" and "any practice which offends established public policy or if the practice is immoral, unethical, oppressive, unscrupulous or substantially injurious to consumers." OKLA. STAT. TIT. 15, §§ 752–753.

752. Plaintiffs and Oklahoma Class members are "persons" under OKLA. STAT. TIT. 15, § 752.

753. BMW USA, BMW AG, and Bosch are a "person," "corporation," or "association" within the meaning of OKLA. STAT. TIT. 15, § 15-751(1).

754. The sale or lease of a Polluting Vehicle to Plaintiffs was a "consumer transaction" within the meaning of OKLA. STAT. TIT. 15, § 752 and Defendants' actions as set forth herein occurred in the conduct of trade or commerce.

755. Defendants' acts were made knowingly, intentionally, and with malice. Defendants demonstrated a complete lack of care and were in reckless disregard for the rights of Plaintiffs and the other Class members. Plaintiffs and the other Class members are therefore entitled to an award of punitive damages to the extent permitted under applicable law.

756. Defendants' conduct as alleged herein was unconscionable because (1) Defendants, knowingly or having reason to know, took advantage of consumers reasonably unable to protect their interests because of their ignorance of Defendants' fraudulent omissions and representations; (2) at the time the consumer transaction was entered into, BMW knew or had reason to know that price the consumers were charged grossly exceeded the price at which they would have paid if they had known of the Defendants' scheme; and (3) BMW knew or had reason to know that the transaction it induced the consumers to enter into was excessively one-sided in favor of BMW.

757. Because Defendants' unconscionable conduct caused injury to Plaintiffs, Plaintiffs seek recovery of actual damages, discretionary penalties up to $2,000 per violation, and reasonable attorneys' fees, under OKLA. STAT. TIT. 15, § 761.1. Plaintiffs further seek an order

enjoining Defendants' unfair and/or deceptive acts or practices, and any other just and proper relief available under the Oklahoma CPA.

COUNT 38
VIOLATION OF THE OREGON UNLAWFUL TRADE PRACTICES ACT
(OR. REV. STAT. § 646.605 *ET SEQ.*)

758. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

759. This claim is brought by Plaintiffs on behalf of Oregon purchasers who are members of the Class.

760. The Oregon Unfair Trade Practices Act (Oregon UTPA) prohibits a person from, in the course of the person's business, doing any of the following: representing that goods have characteristics uses, benefits, or qualities that they do not have; representing that goods are of a particular standard or quality if they are of another; advertising goods or services with intent not to provide them as advertised; and engaging in any other unfair or deceptive conduct in trade or commerce. OR. REV. STAT. § 646.608(1).

761. BMW USA, BMW AG, and Bosch are persons within the meaning of OR. REV. STAT. § 646.605(4).

762. Each Polluting BMW Vehicle is a "good" obtained primarily for personal family or household purposes within the meaning of OR. REV. STAT. § 646.605(6).

763. In the course of their business, Defendants failed to disclose that the Polluting BMW Vehicles (1) turn off or down emissions systems during common driving conditions resulting in massive amounts of NOx as compared to federal and state standards, (2) that absent the emissions manipulation these vehicles would not have passed emissions tests, (3) that fuel economy and towing capacity was achieved by turning down or off emissions systems; and (4)

that emissions and fuel economy were far worse than a reasonable consumer would expect given the premium paid for these vehicles over a comparable gas powered vehicle.

764. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

765. Plaintiffs seek an order enjoining Defendants' unfair and/or deceptive acts or practices, and awarding damages. Plaintiffs are entitled to recover the greater of actual damages or $200 pursuant to OR. REV. STAT. § 646.638(1). Plaintiffs are also entitled to punitive damages because Defendants engaged in conduct amounting to a particularly aggravated, deliberate disregard of the rights of others.

COUNT 39
VIOLATION OF THE RHODE ISLAND UNFAIR TRADE PRACTICES AND CONSUMER PROTECTION ACT (R.I. GEN. LAWS § 6-13.1 *ET SEQ.*)

766. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

767. This claim is brought by Plaintiffs on behalf of Rhode Island purchasers who are members of the Class.

768. 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 "[e]ngaging in any act or practice that is unfair or deceptive to the

consumer" and "[u]sing 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).

769. BMW USA, BMW AG, Bosch, Plaintiffs, and Rhode Island Class members are "persons" within the meaning of R.I. GEN. LAWS § 6-13.1-1(3).

770. BMW USA, BMW AG, and Bosch were engaged in "trade" and "commerce" within the meaning of R.I. GEN. LAWS § 6-13.1-1(5).

771. Plaintiffs purchased or leased Polluting BMW Vehicles primarily for personal, family, or household purposes within the meaning of R.I. GEN. LAWS § 6-13.1-5.2(a).

772. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

773. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

774. Plaintiffs seek an order enjoining Defendants' unfair and/or deceptive acts or practices, and awarding damages. Plaintiffs 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 at the discretion of the Court.

COUNT 40
VIOLATION OF THE SOUTH CAROLINA UNFAIR TRADE PRACTICES ACT
(S.C. CODE ANN. § 39-5-10 *ET SEQ.*)

775. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

776. This claim is brought by Plaintiffs on behalf of South Carolina purchasers who are members of the Class.

777. 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).

778. BMW USA, BMW AG, and Bosch are "persons" under S.C. CODE ANN. § 39-5-10.

779. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

780. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

781. Plaintiffs further allege that Defendants' malicious and deliberate conduct warrants an assessment of punitive damages because it carried out despicable conduct with

willful and conscious disregard of the rights of others. Defendants' unlawful conduct constitutes malice, oppression, and fraud warranting punitive damages.

782. Pursuant to S.C. CODE ANN. § 39-5-140(a), Plaintiffs seek monetary relief to recover their economic losses. Because Defendants' actions were willful and knowing, Plaintiffs' damages should be trebled. Plaintiffs further seek an order enjoining Defendants' unfair or deceptive acts or practices.

COUNT 41
VIOLATION OF THE SOUTH DAKOTA DECEPTIVE TRADE PRACTICES AND CONSUMER PROTECTION LAW (S.D. CODIFIED LAWS § 37-24-6)

783. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

784. This claim is brought by Plaintiffs on behalf of South Dakota purchasers who are members of the Class.

785. The South Dakota Deceptive Trade Practices and Consumer Protection Law (South Dakota CPL) prohibits deceptive acts or practices, which include "[k]nowingly act[ing], us[ing], or employ[ing] any deceptive act or practice, fraud, false pretense, false promises, or misrepresentation or to conceal, suppress, or omit any material fact in connection with the sale or advertisement of any merchandise, regardless of whether any person has in fact been misled, deceived, or damaged thereby." S.D. CODIFIED LAWS §§ 37-24-6(1), 37-24-31.

786. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

787. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

788. Pursuant to S.D. CODIFIED LAWS § 37-24-31, Plaintiffs seek an order enjoining Defendants' unfair and/or deceptive acts or practices, and awarding damages, punitive damages, and any other just and proper relief available under the South Dakota CPA.

COUNT 42
VIOLATION OF THE TENNESSEE CONSUMER PROTECTION ACT
(TENN. CODE ANN. § 47-18-101 *ET SEQ.*)

789. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

790. This claim is brought by Plaintiffs on behalf of Tennessee purchasers who are members of the Class.

791. Defendants are "persons" within the meaning of TENN. CODE ANN. § 47-18-103(2).

792. Defendants' conduct complained of herein affected "trade," "commerce" or "consumer transactions" within the meaning of TENN. CODE ANN. § 47-18-103(19).

793. 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, Defendants willfully failed to disclose and actively concealed that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions, that the Polluting BMW Vehicles emitted far more pollutants than gasoline-powered vehicles, that the Polluting BMW Vehicles emit far more pollution than a reasonable consumer would expect in light of Defendants' advertising campaign, and that the Polluting BMW 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 the Polluting BMW Vehicles have characteristics or benefits that they did not have; representing that the Polluting BMW Vehicles are of a particular standard, quality, or grade when they are of another; advertising the Polluting BMW Vehicles with intent not to sell them as advertised; and engaging in acts or practices that are deceptive to consumers.

794. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with intent to mislead Plaintiffs and the other Class members.

795. Defendants knew or should have known that their conduct violated the Tennessee CPA.

796. Defendants owed Plaintiff and the other Class members a duty to disclose the truth about its emissions systems manipulation because Defendants:

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

b. Intentionally concealed the foregoing from Plaintiffs and the other Class members; and/or

c. Made incomplete representations that it manipulated the emissions system in the Polluting BMW Vehicles to turn off or limit effectiveness in normal driving conditions, while purposefully withholding material facts from Plaintiffs and the other Class members that contradicted these representations.

797. Defendant had a duty to disclose that the NOx reduction system in the Polluting BMW Vehicles turns off or is limited during normal driving conditions and that the Polluting BMW 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 Class members relied on Defendants' material representations that the Polluting BMW Vehicles they were purchasing were reduced-emission vehicles, efficient, and free from defects.

798. Defendants' conduct proximately caused injuries to Plaintiffs and the other Class members.

799. Plaintiff and the other Class 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 Class members overpaid for their Polluting BMW Vehicles and did not receive the benefit of their bargain, and their Polluting BMW Vehicles have suffered a diminution in value. These injuries are the direct and natural consequence of Defendants' misrepresentations and omissions.

800. 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.

801. Pursuant to TENN. CODE ANN. § 47-18-109(a), Plaintiffs and the Tennessee Class seek monetary relief against Defendants measured as actual damages in an amount to be determined at trial, treble damages as a result of Defendants' willful or knowing violations, and any other just and proper relief available under the Tennessee CPA.

COUNT 43
VIOLATIONS OF THE TEXAS DECEPTIVE TRADE PRACTICES AND CONSUMER PROTECTION ACT (TEX. BUS. & COM. CODE § 17.4 *ET SEQ.*)

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

803. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of Texas purchasers who are members of the Class.

804. Plaintiffs and the Texas Class members are individuals with assets of less than $25 million (or are controlled by corporations or entities with less than $25 million in assets). *See* TEX. BUS. & COM. CODE § 17.41.

805. The Texas Deceptive Trade Practices-Consumer Protection Act ("Texas DTPA") provides a private right of action to a consumer where the consumer suffers economic damage as the result of either (i) the use of false, misleading, or deceptive act or practice specifically enumerated in TEX. BUS. & COM. CODE § 17.46(b); or (ii) "an unconscionable action or course of action by any person." TEX. BUS. & COM. CODE § 17.50(a)(2) & (3). The Texas 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 "(9) advertising goods or services with intent not to sell them as advertised." An "unconscionable action or course of action" means "an act or practice which, to a consumer's detriment, takes advantage of the lack of knowledge, ability, experience, or capacity of the consumer to a grossly unfair degree." TEX. BUS. & COM. CODE § 17.45(5). As detailed herein, Defendants have engaged in an unconscionable action or course of action and thereby caused economic damages to the Texas Class.

806. In the course of business, Defendants willfully failed to disclose and actively concealed the conduct discussed herein and otherwise engaged in activities with a tendency or capacity to deceive. Defendants also 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 Polluting BMW Vehicles.

807. Defendants' unfair or deceptive acts or practices were likely to and did in fact deceive reasonable consumers, including Plaintiffs and the other Texas Class members, about the true performance of the Polluting BMW Vehicles, the devaluing of the environmental impacts of its vehicles at BMW, and the true value of the Polluting BMW Vehicles.

808. Defendants intentionally and knowingly misrepresented material facts regarding the Polluting BMW Vehicles with intent to mislead Plaintiffs and the Texas Class.

809. Defendants knew or should have known that their conduct violated the Texas DTPA.

810. Defendants owed Plaintiffs and Texas Class members a duty to disclose the true environmental impact, performance, fuel mileage, and reliability of the Polluting BMW Vehicles, because Defendants:

a. Possessed exclusive knowledge that they were selling and distributing Polluting BMW Vehicles throughout the United States that did not perform as advertised;

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

c. Made incomplete representations about the environmental friendliness, fuel mileage, towing capacity, and performance of the Polluting BMW Vehicles while purposefully withholding material facts from Plaintiffs and the Texas Class that contradicted these representations.

811. Because BMW fraudulently concealed the defective emissions treatment system, the value of the Polluting BMW Vehicles has greatly diminished. In light of the stigma attached to the Polluting BMW Vehicles by Defendants' conduct, they are now worth significantly less than they otherwise would be.

812. Defendants' omissions and/or misrepresentations about the emissions treatment system of the Polluting BMW Vehicles were material to Plaintiffs and the Texas Class.

813. Plaintiffs and the Texas Class suffered ascertainable loss caused by Defendants' misrepresentations and their concealment of and failure to disclose material information. Class members who purchased the Polluting BMW Vehicles either would have paid less for their vehicles or would not have purchased or leased them at all but for Defendants' violations of the Texas DTPA.

814. Defendants had an ongoing duty to all BMW customers to refrain from unfair and deceptive practices under the Texas DTPA. All owners of Polluting BMW Vehicles suffered

ascertainable loss in the form of the diminished value of their vehicle as a result of Defendants' deceptive and unfair acts and practices made in the course of Defendants' business.

815. 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.

816. As a direct and proximate result of Defendants' violations of the Texas DTPA, Plaintiffs and the Texas Class have suffered injury-in-fact and/or actual damage.

817. On March 21, 2018, Plaintiffs sent a letter complying with TEX. BUS. & COM. CODE ANN. § 17.505 to Defendants.

818. Once the statutory notice period has expired, Plaintiffs will amend to seek monetary relief against BMW measured as actual damages in an amount to be determined at trial, treble damages for BMW's knowing violations of the Texas DTPA, and any other just and proper relief available under the Texas DTPA.

COUNT 44
VIOLATION OF THE UTAH CONSUMER SALE PRACTICES ACT
(UTAH CODE ANN. § 13-11-1 *ET SEQ.*)

819. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

820. This claim is brought by Plaintiffs on behalf of Utah purchasers who are members of the Class.

821. The Utah Consumer Sales Practices Act (Utah CSPA) makes unlawful any "deceptive act or practice by a supplier in connection with a consumer transaction," including but not limited to indicating that the subject of a consumer transaction has sponsorship, approval, performance characteristics, accessories, uses, or benefits, if it has not; indicating that the subject of a consumer transaction is of a particular standard, quality, grade, style, or model, if it is not;

and "indicat[ing] that a specific price advantage exists, if it does not." UTAH CODE ANN. § 13-11-4.

822. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

823. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

824. Defendants knew, or had reason to know, that consumers would rely on their failure to disclose the defects in its emissions system. Defendants therefore engaged in an unconscionable act within the meaning of UTAH CODE ANN. § 13-11-5.

825. Pursuant to UTAH CODE ANN. § 13-11-4, 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 $2,000 for each Plaintiff; reasonable attorneys' fees; and any other just and proper relief available under the Utah CSPA.

COUNT 45
VIOLATION OF THE VERMONT CONSUMER FRAUD ACT
(VT. STAT. ANN. TIT. 9, § 2451 *ET SEQ.*)

826. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

827. This claim is brought by Plaintiffs on behalf of Vermont purchasers who are members of the Class.

828. 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).

829. BMW USA, BMW AG, and Bosch were sellers within the meaning of VT. STAT. ANN. TIT. 9, § 2451(a)(c).

830. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

831. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

832. Plaintiffs 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 46
VIOLATION OF THE VIRGINIA CONSUMER PROTECTION ACT
(VA. CODE ANN. § 59.1-196 *ET SEQ.*)

833. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

834. This claim is brought by Plaintiffs on behalf of Virginia purchasers who are members of the Class.

835. The Virginia Consumer Protection Act (Virginia CPA) lists prohibited "practices," which include "[u]sing any other deception, fraud, false pretense, false promise, or misrepresentation in connection with a consumer transaction." VA. CODE ANN. § 59.1-200.

836. BMW USA, BMW AG, and Bosch are "suppliers" under VA. CODE ANN. § 59.1-198.

837. Each sale and lease of a Polluting Vehicle was a "consumer transaction" within the meaning of VA. CODE ANN. § 59.1-198.

838. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

839. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

840. Pursuant to VA. CODE ANN. § 59.1-204, Plaintiffs seek monetary relief against 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. Because Defendants' conduct was committed willfully and knowingly, Plaintiffs are entitled to recover, for each plaintiff, the greater of (a) three times actual damages or (b) $1,000.

841. Plaintiffs also seek an order enjoining Defendants' unfair and/or deceptive acts or practices, punitive damages, and attorneys' fees, and any other just and proper relief available under VA. CODE ANN. § 59.1-204 *et seq.*

COUNT 47
VIOLATION OF THE WASHINGTON CONSUMER PROTECTION ACT (WASH. REV. CODE ANN. § 19.86.010 *ET SEQ.*)

842. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

843. This claim is brought by Plaintiffs on behalf of Washington purchasers who are members of the Class.

844. 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. ANN. § 19.96.010.

845. Defendants committed the acts complained of herein in the course of "trade" or "commerce" within the meaning of WASH. REV. CODE. ANN. § 19.96.010.

846. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

847. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

848. Defendants are liable to Plaintiffs 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 48
VIOLATION OF THE WEST VIRGINIA CONSUMER CREDIT AND PROTECTION ACT
(W. VA. CODE § 46A-1-101 *ET SEQ.*)

849. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

850. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of West Virginia purchasers who are members of the Class.

851. BMW USA, BMW AG, and Bosch are "persons" under W. VA. CODE § 46A-1-102(31).

852. Plaintiffs and West Virginia Class members are "consumers" as defined by W. VA. CODE §§ 46A-1-102(12) and 46A-6-102(2), who purchased or leased one or more Polluting BMW Vehicles.

853. Defendants engaged in trade or commerce as defined by W. VA. CODE § 46A-6-102(6).

854. The West Virginia Consumer Credit and Protection Act (West Virginia CCPA) prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce." W. VA. CODE § 46A-6-104. Without limitation, "unfair or deceptive" acts or practices include:

> (I) Advertising goods or services with intent not to sell them as advertised; . . .
>
> (L) Engaging in any other conduct which similarly creates a likelihood of confusion or of misunderstanding;
>
> (M) The act, use or employment by any person of any deception, fraud, false pretense, false promise or 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 or advertisement of any goods or services, whether or not any person has in fact been misled, deceived or damaged thereby; [and]
>
> (N) Advertising, printing, displaying, publishing, distributing or broadcasting, or causing to be advertised, printed, displayed, published, distributed or broadcast in any manner, any statement or representation with regard to the sale of goods or the extension of consumer credit including the rates, terms or conditions for the sale of such goods or the extension of such credit, which is false, misleading or deceptive or which omits to state material information which is necessary to make the statements therein not false, misleading or deceptive.

W. VA. CODE § 46A-6-102(7).

855. Pursuant to W. VA. CODE § 46A-6-106, once the statutory notice period has expired, Plaintiffs will amend to seek monetary relief against 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 $200 per violation of the West Virginia CCPA for each Plaintiff.

856. Plaintiffs will also amend to seek punitive damages against Defendants because it carried out despicable conduct with willful and conscious disregard of the rights of others, subjecting Plaintiffs to cruel and unjust hardship as a result.

857. Plaintiffs further seek an order enjoining Defendants' unfair or deceptive acts or practices, restitution, punitive damages, costs of Court, attorney's fees under W. VA. CODE § 46A-5-101 *et seq.*, and any other just and proper relief available under the West Virginia CCPA.

858. On March 21, 2018, Plaintiffs sent a letter complying with W. VA. CODE § 46A-6-106(b) to Defendants. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of West Virginia purchasers who are members of the Class.

COUNT 49
VIOLATION OF THE WISCONSIN DECEPTIVE TRADE PRACTICES ACT (WIS. STAT. § 110.18)

859. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

860. This claim is brought by Plaintiffs on behalf of Wisconsin purchasers who are members of the Class.

861. 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).

862. BMW USA, BMW AG, and Bosch are each a "person, firm, corporation or association" within the meaning of WIS. STAT. § 100.18(1).

863. Plaintiffs and Wisconsin Class members are members of "the public" within the meaning of WIS. STAT. § 100.18(1). Plaintiffs purchased or leased one or more Polluting BMW Vehicles.

864. In the course of their business, Defendants concealed and suppressed material facts concerning the Polluting BMW Vehicles. Defendants accomplished this by installing

emission control devices in the Polluting BMW Vehicles that were concealed from regulators and consumers alike.

865. The facts concealed and omitted by Defendants from Plaintiffs and the other Class members are material in that a reasonable consumer would have considered them to be important in deciding whether to purchase or lease the Polluting BMW Vehicles or pay a lower price. Had Plaintiffs and the other Class members known of the higher emissions at the time they purchased or leased their Polluting BMW Vehicles, they would not have purchased or leased those vehicles, or would have paid substantially less for the vehicles than they did.

866. Plaintiffs are entitled to damages and other relief provided for under WIS. STAT. § 100.18(11)(b)(2). Because Defendants' conduct was committed knowingly and/or intentionally, Plaintiffs are entitled to treble damages.

867. Plaintiffs also seek court costs and attorneys' fees under WIS. STAT. § 110.18(11)(b)(2).

COUNT 50
VIOLATION OF THE WYOMING CONSUMER PROTECTION ACT
(WYO. STAT. § 40-12-105 *ET SEQ.*)

868. Plaintiffs hereby incorporate by reference the allegations contained in the preceding paragraphs of this complaint.

869. This claim is included here for notice purposes only. Once the statutory notice period has expired, Plaintiffs will amend their complaint to bring this claim on behalf of Wyoming purchasers who are members of the Class.

870. Pursuant to WYO. STAT. § 40-12-108(a), once the statutory notice period has expired, Plaintiffs will amend to seek monetary relief against Defendants measured as actual damages in an amount to be determined at trial, in addition to any other just and proper relief available under the Wyoming CPA.

871. On March 21, 2018, Plaintiffs sent a letter complying with WYO. STAT. § 45-12-109 to Defendants. If Defendants fail to remedy their unlawful conduct, Plaintiffs will seek all damages and relief to which Plaintiffs are entitled.

872. Notice pursuant to: Alabama Code § 8-19-10(e); Alaska Statutes § 45.50.535; California Civil Code § 1782; Georgia Code § 10-1-399; Indiana Code § 24-5-0.5-5(a); Maine Revised Statutes, Title 5, § 50-634(g); Massachusetts General Laws Chapter 93A, § 9(3); Texas Business & Commercial Code § 17.505; West Virginia Code § 46A-6-106(b); and Wyoming Statutes § 40-12-109 was sent to BMW on March 21, 2018.

REQUEST FOR RELIEF

WHEREFORE, Plaintiffs, individually and on behalf of members of the Nationwide RICO Class and State Classes, respectfully request that the Court enter judgment in their favor and against Defendants, as follows:

A. Certification of the proposed Nationwide RICO Class and State Classes, including appointment of Plaintiffs' counsel as Class Counsel;

B. An order temporarily and permanently enjoining BMW USA, BMW AG, and Bosch from continuing the unlawful, deceptive, fraudulent, and unfair business practices alleged in this Complaint;

C. Injunctive relief in the form of a recall or free replacement program;

D. Restitution, including at the election of Class members, recovery of the purchase price of their Polluting BMW Vehicles, or the overpayment or diminution in value of their Polluting BMW Vehicles;

E. 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;

F. An order requiring Defendants to pay both pre- and post-judgment interest on any amounts awarded;

G. An award of costs and attorneys' fees; and

H. Such other or further relief as may be appropriate.

DEMAND FOR JURY TRIAL

Plaintiffs hereby demand a jury trial for all claims so triable.

DATED: March 27, 2018

Respectfully Submitted,

By */s/ James E. Cecchi*

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