

WON'T GET FOOLED AGAIN: WHY VW'S EMISSIONS DECEPTION IS ILLEGAL IN EUROPE AND HOW TO IMPROVE THE EU'S AUTO REGULATORY SYSTEM

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Abstract: Replete with greed, hubris, and deceit, the Volkswagen emissions scandal is not your typical case of corporate wrongdoing. With a price tag of \$20 million in the United States, it is already one of the most expensive corporate scandals in history and has caused significant damage to the environment, public health, and the global economy. Dieselgate has had a majorly disproportionate impact on Europe, where nearly nine million of the eleven million affected cars are located. The financial cost of the scandal, however, has been confined almost entirely to the United States, due to a European Union (EU) regulation that allows automakers to change their cars' performance settings before emissions tests. This Note argues that this regulation, though considered a loophole by some, is not an escape hatch for European car manufacturers. Thus, it argues that Volkswagen's use of defeat-device software violates EU law. With an eye toward preventing similar scandals in the future, it also recommends ways in which the EU can improve its auto regulatory system, and identifies the costs of allowing Volkswagen's misconduct to go unpunished in Europe.

INTRODUCTION

In a 2011 meeting in Geneva, Switzerland, British auto regulators noticed an apparent loophole in European Union (EU) emissions test regulations that allowed car manufacturers to alter engine performance settings before pollution tests.¹ The regulators warned that leaving the loophole in place could eviscerate vehicle emissions tests because it allowed carmakers to select a special setting usually not used on the roads.² To fix this problem, British regulators proposed that emissions tests be performed on the default setting or the setting that produced the most pollution.³ Although most of the national regulators

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¹ Danny Hakim & Claire Barthelemy, *VW's Emissions-Test Trickery May Not Be Illegal in Europe*, N.Y. TIMES (Nov. 11, 2015), <http://www.nytimes.com/2015/11/12/business/international/vw-scandal-eu-emissions-tests.html> [<https://perma.cc/585G-Z7WQ>].

² See *id.*

³ See *id.*

initially supported the proposal, they dropped it from their agenda by 2014.⁴ Consequently, the loophole was left in place.⁵

About a year later, in September 2015, the U.S. Environmental Protection Agency (EPA) accused Volkswagen (VW) of cheating emissions tests with “defeat device” software in about half a million U.S. cars.⁶ Around eleven million diesel vehicles worldwide contain the software.⁷ The software turned on emissions controls during government tests but deactivated the controls during regular driving, increasing emissions as high as nearly forty times the permitted levels of nitrogen oxides (NO_x).⁸ These high emissions levels may pose a grave threat to the environment and public health, particularly in Europe.⁹ They have exacerbated Europe’s preexisting pollution problem, which has led some European cities to institute low-emissions zones and temporary bans on cars.¹⁰

As a result of the scandal—or “Dieselgate,” as it has come to be known—VW reported its first quarterly loss in fifteen years, and its value sank.¹¹ Its chief executive officer stepped down, and the company suspended several of its executives.¹² In March 2016, Michael Horn, head of VW’s U.S. operations,

⁴ See *id.*

⁵ See *id.*

⁶ Coral Davenport & Jack Ewing, *VW Is Said to Cheat on Diesel Emissions; U.S. to Order Big Recall*, N.Y. TIMES (Sept. 18, 2015), <http://www.nytimes.com/2015/09/19/business/volkswagen-is-ordered-to-recall-nearly-500000-vehicles-over-emissions-software.html> [https://perma.cc/J8KM-3PHH]; Andy Sharman & Robert Wright, *VW Cheated Emissions Tests, Says EPA*, FIN. TIMES (Sept. 18, 2015), <https://www.ft.com/content/5e0b8bcc-5e21-11e5-9846-de406ccb37f2> [https://perma.cc/A3RB-PWB4].

⁷ Jack Ewing, *Volkswagen Says 11 Million Cars Worldwide Are Affected in Diesel Deception*, N.Y. TIMES (Sept. 22, 2015), http://www.nytimes.com/2015/09/23/business/international/volkswagen-diesel-car-scandal.html?_r=0 [https://perma.cc/5KBX-FJDA].

⁸ See Guilbert Gates et al., *How Volkswagen’s ‘Defeat Devices’ Worked*, N.Y. TIMES (Mar. 16, 2017), <http://www.nytimes.com/interactive/2015/business/international/vw-diesel-emissions-scandal-explained.html> [https://perma.cc/Z4GC-XNAN].

⁹ See Noelle Eckley Selin, *One of the Biggest Consequences of the Volkswagen Diesel Scandal*, FORTUNE (Sept. 30, 2015), <http://fortune.com/2015/09/30/volkswagen-diesel-scandal-consequences/> [https://perma.cc/9Z2W-EPX]; Shannon Hall, *VW Scandal Causes Small but Irreversible Environmental Damage*, SCI. AM. (Sept. 29, 2015), <http://www.scientificamerican.com/article/vw-scandal-causes-small-but-irreversible-environmental-damage/> [https://perma.cc/Q7QA-KML4].

¹⁰ See Charles W. Schmidt, *Beyond a One-Time Scandal: Europe’s Ongoing Diesel Pollution Problem*, 124 ENVTL. HEALTH PERSPS. A19, A22 (2016); Kim Willsher, *Paris’s First Attempt at Car-Free Day Brings Big Drop in Air and Noise Pollution*, GUARDIAN (Oct. 3, 2015, 3:16 PM), <http://www.theguardian.com/world/2015/oct/03/paris-first-attempt-at-car-free-day-brings-big-drop-in-air-and-noise-pollution> [https://perma.cc/BJR8-9QR8]; Hall, *supra* note 9.

¹¹ Jack Ewing, *Volkswagen, Hit by Emissions Scandal, Posts Its First Loss in Years*, N.Y. TIMES (Oct. 28, 2015), <http://www.nytimes.com/2015/10/29/business/international/volkswagen-earnings-q3.html> [https://perma.cc/LS8X-J2FN]; Gates et al., *supra* note 8.

¹² Jack Ewing, *Volkswagen C.E.O. Martin Winterkorn Resigns Amid Emissions Scandal*, N.Y. TIMES (Sept. 23, 2015), <http://www.nytimes.com/2015/09/24/business/international/volkswagen-chief-martin-winterkorn-resigns-amid-emissions-scandal.html> [https://perma.cc/LPX5-UWJF]; Jack Ewing, *Volkswagen Suspends 5th Executive in Emissions Scandal*, N.Y. TIMES (Oct. 20, 2015),

suddenly resigned.¹³ That October, VW agreed to spend \$10 billion to buy back or fix the affected cars in the United States.¹⁴ And in January 2017, VW pleaded guilty to three criminal felony counts—conspiracy to commit wire fraud and to violate the Clean Air Act, customs violations, and obstruction of justice.¹⁵ The carmaker will pay \$4.3 billion in criminal and civil penalties to settle the U.S. Department of Justice's (DOJ) inquiry, increasing the total cost of the scandal in the United States to \$20 billion.¹⁶ Dieselgate is already one of the most expensive cases of corporate misconduct ever, overshadowing Toyota's \$1.2 billion settlement for faulty accelerators and General Motor's \$900 million settlement for defective ignition switches.¹⁷ To make matters worse for the company, the DOJ recently charged six VW executives, including individuals who were in charge of engine development, quality control, and regulatory affairs.¹⁸ None of the executives sit on VW's board, but U.S. prosecutors have shown a willingness to indict others if additional evidence is uncovered.¹⁹

Meanwhile, in Europe, where nearly nine million of the eleven million illegal cars were sold, consumers still have not been compensated.²⁰ VW is defying calls by the European Commission and EU politicians to buy back the rigged cars, which it did in the United States.²¹ A London court is set to hear a

<http://www.nytimes.com/2015/10/21/business/volkswagen-suspends-5th-executive-in-emissions-scandal.html> [<https://perma.cc/9H5M-49CF>].

¹³ Jad Mouawad, *Head of VW's U.S. Unit Is Out, and Dealers Are Alarmed*, N.Y. TIMES (Mar. 9, 2016), <http://www.nytimes.com/2016/03/10/business/international/volkswagen-us-chief-michael-horn-leaves-the-company.html> [<https://perma.cc/K4UW-J6J4>].

¹⁴ Neal E. Boudette, *Relief at Last for U.S. Owners of Diesel Volkswagens*, N.Y. TIMES (Oct. 25, 2016), <https://www.nytimes.com/2016/10/26/business/relief-at-last-for-us-owners-of-diesel-volkswagens.html> [<https://perma.cc/B2AR-HC7D>].

¹⁵ Hiroko Tabuchi et al., *6 Volkswagen Executives Charged as Company Pleads Guilty in Emissions Case*, N.Y. TIMES (Jan. 11, 2017), <https://www.nytimes.com/2017/01/11/business/volkswagen-diesel-vw-settlement-charges-criminal.html> [<https://perma.cc/S6YB-5XRS>].

¹⁶ *Id.* The \$4.3 billion penalty is in addition to the \$14.7 billion Volkswagen (VW) paid in July 2016 to settle consumers' class actions. Jeffrey Rothfeder, *At Volkswagen, a Scandal Where Executives Could Pay the Price*, NEW YORKER (Jan. 17, 2017), <http://www.newyorker.com/business/currency/at-volkswagen-a-scandal-where-executives-could-pay-the-price> [<https://perma.cc/5YEQ-XAZ4>].

¹⁷ Rothfeder, *supra* note 16; Tabuchi et al., *supra* note 15.

¹⁸ Rothfeder, *supra*, note 16. One of those individuals, Oliver Schmidt, was arrested in Florida, but the five others are thought to be in Germany. Tabuchi, *supra* note 15. Because Germany usually does not extradite its citizens, they may never appear in U.S. court, but the U.S. charges will impair their ability to travel. *Id.*

¹⁹ Rothfeder, *supra* note 16. Although the charges against the top managers are a notable shift in the Department of Justice's commitment to holding top executives accountable, the lack of accusations against board members could shield the company from derivative suits brought by shareholders. Tabuchi, *supra* note 15. German investigators, however, plan to interview Martin Winterkorn, VW's former CEO, who immediately stepped down. Rothfeder, *supra*, note 16.

²⁰ Patrick McGee, *VW Car Owners in EU Face Hard Quest for Compensation Over Scandal*, FIN. TIMES (Jan. 28, 2017), <https://www.ft.com/content/0b9bf1d2-e486-11e6-9645-c9357a75844a> [<https://perma.cc/YPW3-9WAX>].

²¹ *Id.*

case in 2017 brought on behalf of more than twenty thousand British VW owners seeking £3000 each, meaning the automaker could face a bill of £3.6 billion.²² Consumers in Germany, the EU nation with the most cars affected by the scandal (2.4 million), face an even tougher legal battle, as German law does not permit class action lawsuits.²³ Because German consumers must sue VW individually and the company has been appealing every case it loses, there is little incentive to sue.²⁴ The EU Commission has threatened to sue seven European nations, including Germany and the United Kingdom, for failing to penalize car manufacturers for cheating on pollution tests.²⁵

Despite VW's admission that it fooled emissions tests in the United States, it remains unclear whether the carmaker's engine-altering software violates EU law.²⁶ VW's board of directors maintain that its software is not an illegal defeat device under European regulations.²⁷ Shocking though this may seem, the regulation that European regulators left in place may let VW off the hook.²⁸ It provides: "the settings of the engine and of the vehicle's controls shall be those prescribed by the manufacturer."²⁹ Although the use of defeat devices is banned in Europe, if carmakers such as VW may determine their own engine settings during emissions tests, using software to alter engine settings may not violate European regulations.³⁰

This Note proceeds in three parts. Part I details the VW scandal, the flaws in the EU's auto regulatory system, and emissions testing in the United States.

²² See *id.*; Rob Davies, *Dieselgate: UK Motorists File Class-Action Suit Against VW*, GUARDIAN (Jan. 9, 2017, 7:21 AM), <https://www.theguardian.com/business/2017/jan/09/dieselgate-volkswagen-uk-motorists-class-action-suit> [https://perma.cc/MA8R-P98A]. The court held a preliminary hearing in the case in late January, 2017. Davies, *supra*.

²³ See McGee, *supra* note 20.

²⁴ See *id.*

²⁵ See Ewa Krukowska & Stephanie Bodoni, *VW Dieselgate Scandal Triggers Legal Clash Between EU, Germany*, BLOOMBERG MARKETS (Dec. 8, 2016, 10:19 AM), <https://www.bloomberg.com/news/articles/2016-12-08/germany-u-k-risk-eu-court-fight-in-wake-of-volkswagen-scandal> [https://perma.cc/RXE6-QCAP]. The other nations are the Czech Republic, Lithuania, Greece, Luxembourg, and Spain. *Id.*

²⁶ See Danny Hakim, *VW Admits Cheating in the U.S., but Not in Europe*, N.Y. TIMES (Jan. 21, 2016), <http://www.nytimes.com/2016/01/22/business/international/vw-admits-cheating-in-the-us-but-not-in-europe.html> [https://perma.cc/6TJD-TGAX]; Hakim & Barthelemy, *supra* note 1.

²⁷ See Hakim, *supra* note 26. The board's determination contradicts both European and U.S. regulatory findings. *Id.* In December 2015, German regulators said that VW used a forbidden defeat device. *Id.*

²⁸ See Hakim & Barthelemy, *supra* note 1.

²⁹ Regulation No 83 of the Economic Commission for Europe of the United Nations (UNECE)—Uniform Provisions Concerning the Approval of Vehicles with Regard to the Emission of Pollutants According to Engine Fuel Requirements, 2015 O.J. (L 172) 1, 80 (EU) [hereinafter Regulation No 83]; see also Hakim & Barthelemy, *supra* note 1.

³⁰ See Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 on Type Approval of Motor Vehicles with Respect to Emissions from Light Passenger and Commercial Vehicles (Euro 5 and Euro 6) and on Access to Vehicle Repair and Maintenance Information, 2007 O.J. (L 171) 1, 6; Hakim & Barthelemy, *supra* note 1.

Part II discusses the EU regulations at issue for VW, Europe's diesel pollution problem, the U.S. vehicle certification process, and the U.S. treatment of defeat devices. Part III argues that VW's emissions-test trickery is illegal under EU law despite an apparent inconsistency in European rules. Furthermore, it analyzes the consequences of deeming VW's cheating legal in Europe, and recommends ways to improve the EU's auto regulatory system.

BACKGROUND

A. Volkswagen Cons the World

Carmakers have long struggled to sell diesel cars in the United States because of their association with dirty, smoky engines.³¹ That one of diesel's most appealing features, fuel economy, tends to be less important to Americans than to Europeans has made a hard sell even harder.³² To make its diesel cars more attractive to American consumers, VW in 2008 heralded a "new era of diesel," featuring what it claimed to be its cleanest engines yet.³³ The clean diesel campaign was a core part of an ambitious growth strategy initiated by then-C.E.O., Martin Winterkorn, to catapult VW past General Motors and Toyota as the global leader in auto sales by 2018.³⁴ Consumers had assumed that making diesel cleaner necessarily meant decreasing a car's fuel economy or performance.³⁵ But with its new cars, VW promised customers the best of both worlds: outstanding fuel economy and performance, as well as lower emissions.³⁶ As the fallout from the scandal has shown, VW's promise was in fact too good to be true.³⁷

On October 8, 2015, Michael Horn, VW Group of America President and C.E.O., testified before members of Congress on the German carmaker's installation of software in its diesel cars to trick emissions tests.³⁸ Horn apologized on behalf of VW, the world's top carmaker by sales for the first half of 2015, for using software in eleven million cars "that served to defeat the regu-

³¹ See James Surowiecki, *The Environmental Legacy of the Volkswagen Scandal*, NEW YORKER (Sept. 24, 2015), <http://www.newyorker.com/news/daily-comment/the-environmental-legacy-of-the-volkswagen-scandal> [https://perma.cc/8CZ5-VDJB]; see also Adam Aston, *This Is Not Your Father's Diesel*, BLOOMBERG BUSINESSWEEK (Apr. 10, 2008, 12:00 AM), <http://www.bloomberg.com/bw/stories/2008-04-09/this-is-not-your-fathers-diesel> [https://perma.cc/6GN8-C48F].

³² See Surowiecki, *supra* note 31.

³³ See *id.*

³⁴ See Rothfeder, *supra* note 16.

³⁵ See Surowiecki, *supra* note 31.

³⁶ See *id.* BMW and Mercedes made comparable claims about their clean diesel cars, but neither is embroiled in an emissions scandal. See *id.*

³⁷ See *id.*

³⁸ Bill Chappell, *'It Was Installed for This Purpose,' VW's U.S. CEO Tells Congress About Defeat Device*, NPR (Oct. 8, 2015, 10:17 AM), <http://www.npr.org/sections/thetwo-way/2015/10/08/446861855/volkswagen-u-s-ceo-faces-questions-on-capitol-hill> [https://perma.cc/HTR7-QC5F].

lar emissions testing regime.”³⁹ That same day, German prosecutors raided VW’s headquarters in Wolfsburg to seize documents and records that reflected the company’s emissions cheating.⁴⁰

Dieselgate originated from a study conducted by a small research team at West Virginia University between late 2012 and May 2013.⁴¹ The International Council on Clean Transportation, which provides independent research to government entities that regulate the environment, commissioned the team to test diesel cars that VW marketed as eco-friendly and fuel-efficient.⁴² The group discovered that the VW Passat and the VW Jetta had on-road diesel emissions levels that were drastically higher than what U.S. regulators normally saw in tests.⁴³ After repeatedly verifying its procedures, the group turned over its data to the EPA and the California Air Resources Board.⁴⁴

On September 18, 2015, the EPA issued a notice of violation to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. alleging that approximately half a million diesel vehicles sold in the United States since 2008 included software that sidestepped EPA emissions regulations.⁴⁵ The notice stated that certain VW vehicles used “a sophisticated software algorithm” that “detects when the car is undergoing official emissions testing, and turns full emissions controls on only during the test.”⁴⁶ During normal driving con-

³⁹ See *id.*; Virginia Harrison, *Move Over Toyota! Volkswagen Winning Global Sales Race*, CNN MONEY (July 28, 2015, 7:36 AM), <http://money.cnn.com/2015/07/28/investing/volkswagen-toyota-biggest-carmaker/> [<https://perma.cc/8ZJM-MN5K>].

⁴⁰ Chappell, *supra* note 38.

⁴¹ See David Morgan, *West Virginia Engineer Proves to Be a David to VW’s Goliath*, REUTERS (Sept. 23, 2015, 9:11 PM), <http://www.reuters.com/article/us-usa-volkswagen-researchers-idUSKCN0RM2D720150924> [<https://perma.cc/BR2Y-PPCE>]; see also Sonari Ginton, *How a Little Lab in West Virginia Caught Volkswagen’s Big Cheat*, NPR (Sep. 24, 2015, 5:04 AM), <http://www.npr.org/2015/09/24/443053672/how-a-little-lab-in-west-virginia-caught-volkswagens-big-cheat> [<https://perma.cc/Q5FH-D3A7>].

⁴² Ginton, *supra* note 41.

⁴³ See Morgan, *supra* note 41. Daniel Cardner, the engineer who led the study, said of the results: “(We) saw huge discrepancies. There was one vehicle with 15 to 35 times the emissions levels and another vehicle with 10 to 20 the emissions levels.” *Id.* (alteration in original).

⁴⁴ See Ginton, *supra* note 41.

⁴⁵ EPA, *California Notify Volkswagen of Clean Air Act Violations/Carmaker Allegedly Used Software That Circumvents Emissions Testing for Certain Air Pollutants*, U.S. ENVTL. PROTECTION AGENCY (Sept. 18, 2015), <https://www.epa.gov/newsreleases/epa-california-notify-volkswagen-clean-air-act-violations-carmaker-allegedly-used> [<https://perma.cc/WGS2-VES7>] [hereinafter VW Notice of Violation, September 2015]. A notice of violation is the first step in the agency’s enforcement process. *Enforcement and Compliance History Online, Frequently Asked Questions*, U.S. ENVTL. PROT. AGENCY, <https://echo.epa.gov/resources/general-info/echo-faq> [<https://perma.cc/M37P-KA4K>]. It indicates that the agency believes the recipient of the notice is in violation of the law. *Id.* It does not constitute a final, legal determination that a violation has taken place. *Id.*

⁴⁶ VW Notice of Violation, September 2015, *supra* note 45. According to the Environmental Protection Agency (EPA), the software could sense that a test was taking place based on “speed, engine operation, air pressure and even the position of the steering wheel.” Russell Hotten, *Volkswagen*:

ditions, the effectiveness of the cars' emissions controls were substantially reduced.⁴⁷ Thus the cars met emissions standards when tested but emitted NO_x at up to forty times the legal cap when driven normally.⁴⁸ VW's software therefore constituted a "defeat device" according to the CAA.⁴⁹

The VW scandal began in the United States but soon spawned an international investigation.⁵⁰ On September 22, 2015, VW revealed that eleven million of its diesel cars contained software that could cheat emissions tests.⁵¹ Almost nine million of these cars are in Europe, including the Audi A3 and the VW Jetta, Beetle, Golf, and Passat.⁵² In response, the UK, Italy, France, South Korea, and Germany began investigations.⁵³ Although VW said it would recall 8.5 million cars in Europe, including 2.4 million in Germany and 1.2 million in the UK,⁵⁴ it has so far refused to compensate European owners or buy back the cars.⁵⁵

B. EU Auto Regulation: A Broken System

European emissions tests are governed by the New European Driving Cycle (NEDC).⁵⁶ Although its name suggests otherwise, the NEDC was developed in the late 1970s and has not been seriously revised since 1996.⁵⁷ The NEDC puts cars through two cycles; the first lasts approximately thirteen

The Scandal Explained, BBC NEWS (Dec. 10, 2015), <http://www.bbc.com/news/business-34324772> [<https://perma.cc/AR4H-VNQ6>].

⁴⁷ VW Notice of Violation, September 2015, *supra* note 45.

⁴⁸ *Id.* Nitrogen oxides (NO_x) emissions are linked to nitrogen dioxide, ground-level ozone, and fine particulate matter. Exposure to these pollutants is associated with asthma attacks and other serious respiratory illnesses, as well as premature death. *Id.*

⁴⁹ *Id.*

⁵⁰ Hotten, *supra* note 46.

⁵¹ Ewing, *supra* note 7.

⁵² Hotten, *supra* note 46. VW steadfastly denies that its software is illegal in Europe. Hakim, *supra* note 26. Paul Willis, VW's head in the United Kingdom, admitted that VW used defeat devices in certain models in the United States but maintained he didn't think "it [was] possible to make the same definitive legal determination in relation to the software that was fitted" to "differently configured vehicles in the U.K. and the E.U." *Id.* Moreover, in a statement to the *New York Times*, VW said that "[t]he Board of Management remains of the opinion" that the system "is not a forbidden defeat device." *Id.*

⁵³ McGee, *supra* note 20; Hotten, *supra* note 46.

⁵⁴ Hotten, *supra* note 46.

⁵⁵ McGee, *supra* note 20. In the United States, in contrast, VW has agreed to pay roughly \$11 billion to buy back or fix affected cars—making it one of the largest settlements in a consumer class-action. See Hiroko Tabuchi, *Volkswagen Expected to Pay Another \$1 Billion in Emissions Scandal*, N.Y. TIMES (Dec. 20, 2016), <https://www.nytimes.com/2016/12/20/business/volkswagen-agrees-to-buy-back-or-fix-remaining-diesel-cars.html> [<https://perma.cc/XKU6-TTSK>]; Hiroko Tabuchi & Jack Ewing, *Volkswagen to Pay \$14.7 Billion to Settle Diesel Claims in U.S.*, N.Y. TIMES (June 27, 2016), <https://www.nytimes.com/2016/06/28/business/volkswagen-settlement-diesel-scandal.html> [<https://perma.cc/8E72-PNKC>].

⁵⁶ Russell Hotten, *Volkswagen Scandal: Are Car Emissions Tests Fit for Purpose?*, BBC NEWS (Sept. 24, 2015), <http://www.bbc.com/news/business-34340301> [<https://perma.cc/KVP8-VQQ2>].

⁵⁷ *Id.*

minutes at an average speed of twelve miles per hour, and the second approximately seven minutes at an average speed of thirty-nine miles per hour.⁵⁸ Cars endure acceleration and deceleration tests that measure carbon monoxide, NO_x, particulate matter, and fuel efficiency, among other things.⁵⁹ Although the NEDC is supposed to simulate real-world driving, critics argue that it bears little, if any, resemblance to how people actually drive.⁶⁰ According to Jane Thomas of Emissions Analytics, most drivers would not recognize the mild acceleration, cruising speed, and braking employed in the tests.⁶¹

Europe's auto regulatory system has many loopholes.⁶² Although EU rules require tests to take place in controlled laboratory conditions, they do not require cars to be fully outfitted during tests.⁶³ For example, automakers may test stripped-down preproduction cars known as "golden vehicles" that will never be sold.⁶⁴ It is common for cars to undergo tests before they are equipped with backseats or wheels with heavier tread, which increases fuel efficiency and reduces emissions.⁶⁵ Carmakers also may tape car doors and grilles to improve aerodynamics, and use "superlubricants" to reduce friction in a car's engine.⁶⁶

A major issue with the European system is that automakers pay the very companies that certify their cars.⁶⁷ Some auto industry and environmental analysts say this commercial relationship allows carmakers to exercise too much

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.* VW managing director Paul Willis said of the New European Driving Cycle (NEDC), "It is widely recognised, both inside and outside of the industry, that the . . . testing . . . is not fit for purpose Its deficiencies are recognised. There is no simple linear relationship that exists between data from NEDC testing and data derived from real world driving." Alan Tovey, *Inquiry Into 'Not Fit for Purpose' Testing System After VW Emissions Scandal*, TELEGRAPH (Nov. 16, 2015, 5:16 PM), <http://www.telegraph.co.uk/finance/newsbysector/industry/11999303/Inquiry-into-not-fit-for-purpose-testing-system-after-VW-emissions-scandal.html> [<https://perma.cc/ZCM5-WQWT>].

⁶¹ See Hotten, *supra* note 56.

⁶² Hakim & Barthelemy, *supra* note 1.

⁶³ Jason Chow et al., *Europe's Auto Makers Keep Test Firms Close*, WALL ST. J. (Sept. 30, 2015, 5:21 PM), <https://www.wsj.com/articles/europes-auto-makers-keep-test-firms-close-1443648097> [<https://perma.cc/6R39-H78M>].

⁶⁴ *Id.* Golden vehicles frequently lack standard equipment, such as air bags and air conditioning units. *Id.*

⁶⁵ *Id.*; see also Danny Hakim & Hiroko Tabuchi, *Volkswagen Test Rigging Follows a Long Auto Industry Pattern*, N.Y. TIMES (Sept. 23, 2015), <http://www.nytimes.com/2015/09/24/business/international/volkswagen-test-rigging-follows-a-long-auto-industry-pattern.html> [<https://perma.cc/2K7F-KFZ4>]. An executive from a leading car manufacturer said European automakers approach emissions tests as if they are "preparing for a major race. We tune them and pamper them like stud horses." Chow et al., *supra* note 63. He also noted that carmakers never randomly select test vehicles from the assembly line. *Id.*

⁶⁶ See Hakim & Tabuchi, *supra* note 65. Using such superlubricants reduces friction to a degree that could not be achieved normally. *Id.*

⁶⁷ Chow et al., *supra* note 63.

influence over test outcomes.⁶⁸ The auto industry in Europe also lacks central regulatory supervision, as automakers are permitted to have their cars certified by regulators in any of the EU's twenty-eight member states.⁶⁹ No matter where a car is certified, all other member states must recognize the certification.⁷⁰ Countries differ in how they implement EU rules, resulting in test standards that are soft and easy to manipulate.⁷¹ Moreover, unlike the EPA, the EU lacks the authority to perform random spot checks, which help catch abuse.⁷²

The EU's central government in Brussels and its member states are embroiled in a heated battle to reform Europe's regulatory system.⁷³ Europe plans to modify its existing testing regime by requiring cars to undergo road tests in addition to laboratory tests, but regulators would still not conduct them.⁷⁴ The proposed road test would continue to permit the use of preproduction vehicles and would not feature "cold starts," which is when most emissions occur.⁷⁵ Additionally, the road tests would initially allow carmakers to discharge over two times the present European limits on NO_x.⁷⁶

C. Emissions Testing in the United States

The EPA derives its authority to regulate emissions from motor vehicles from the Clean Air Act (CAA).⁷⁷ Unlike in the EU, where carmakers can shop

⁶⁸ *Id.* Jos Dings, director of the environmental group Transport & Environment, based in Brussels, said, "[t]here is no incentive to be tough on car makers." *Id.* This is because the testing firms are dependent on the carmakers for business, and the carmakers are free to select which firm does the test. *See id.* Like bond issuers that shop around bond rating agencies for the highest credit rating, carmakers shop around for lenient testing firms. Danny Hakim & Keith Bradsher, *After Volkswagen Revelation, Auto Emissions Tests Come Under Global Scrutiny*, N.Y. TIMES (Sept. 24, 2015), http://www.nytimes.com/2015/09/25/business/international/volkswagen-emissions-pollution-regulations.html?_r=0 [https://perma.cc/W6D9-LEHS].

⁶⁹ *See* Hakim & Barthelemy, *supra* note 1.

⁷⁰ *Id.* Gerben-Jan Gerbrandy, a Dutch member of the European Parliament, said of the EU regulatory regime, "[w]hat we have developed is a phony system of testing where the member states are in competition with each other for who can make it the most easy for the car manufacturers to pass the test." Hakim & Barthelemy, *supra* note 1.

⁷¹ Chow et al., *supra* note 63.

⁷² *Id.*; *see* Hakim & Barthelemy, *supra* note 1.

⁷³ Hakim, *supra* note 26.

⁷⁴ *See* Danny Hakim & Jad Mouawad, *Galvanized by VW Scandal, E.P.A. Expands On-Road Emissions Testing*, N.Y. TIMES (Nov. 8, 2015), <http://www.nytimes.com/2015/11/09/business/energy-environment/epa-expands-on-road-emissions-testing-to-all-diesel-models.html> [https://perma.cc/4NX3-U3DC].

⁷⁵ *Id.*

⁷⁶ *Id.* The road tests are set to begin in 2017; by 2021, all new cars would be required to emit at most fifty percent more than current NO_x limits. *Id.*

⁷⁷ *See Summary of the Clean Air Act*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/laws-regulations/summary-clean-air-act> [https://perma.cc/YUA4-NDTW]. Enacted in 1970, the Clean Air Act (CAA) authorized the EPA to create National Ambient Air Quality Standards to protect public

around member states for certification, automakers in the United States face up to three rounds of testing.⁷⁸ First, car companies conduct their own tests and submit their results to the EPA.⁷⁹ Second, the EPA randomly tests ten to fifteen percent of the cars on the production line to verify the carmakers' results.⁸⁰ Approximately three to four percent of new car models face a third level of testing: the EPA asks car owners to loan their cars for in-service inspection.⁸¹ The United States' more robust testing regime helped the EPA detect VW's illegal equipment even though only one percent of cars in America are diesel-powered.⁸² In Europe, by contrast, VW's technology went undetected, despite the fact that diesel cars constitute approximately half of the cars on the road.⁸³

In response to the VW scandal, the EPA has moved away from traditional lab tests and extended its on-road emissions tests to cover all types of diesel cars.⁸⁴ Previously, the EPA conducted road testing primarily on large trucks.⁸⁵ The technology used for road tests, which resembles a Rube Goldberg machine and partly hangs off the back of the car, captures exhaust gases.⁸⁶ According to American regulators, the goal of road tests is to help verify the findings of lab tests—not to supplant them—and to catch defeat devices.⁸⁷ Under the CAA, manufacturers are prohibited from manufacturing, selling, or installing defeat devices, which render inoperative any device or element of design of the vehicle's emissions control system.⁸⁸

health. *Id.* When Congress enacted the CAA, California already had its own vehicle emissions caps in place. *California's Right to Exceed Federal Auto Emissions Standards Is Upheld*, L.A. TIMES (May 2, 2011), <http://articles.latimes.com/2011/may/02/local/la-me-clean-cars-20110502> [<https://perma.cc/CDC5-54YC>]. As a result, California may enact its own stricter standards if it so chooses. *Id.*

⁷⁸ See Sara Stefanini, *VW Scandal Spotlights Lax EU Auto Standards*, POLITICO (Sept. 22, 2015, 9:01 PM), <http://www.politico.eu/article/volkswagen-emissions-nox-eu-us-epa-test/> [<https://perma.cc/ZG3A-RDXK>].

⁷⁹ *Id.* This first round of testing is known as self-certification. *Id.*

⁸⁰ *Id.*

⁸¹ *Id.* The EPA offers the car owner twenty dollars per day and a loaner car in return for the use of the car. Hakim & Mouawad, *supra* note 74. After testing is completed, the EPA returns the car with a full tank of gas and an oil change. *Id.*

⁸² Stefanini, *supra* note 78.

⁸³ *Id.*

⁸⁴ See Hakim & Mouawad, *supra* note 74. According to Luke Tonachel, who specializes in auto emissions for the Natural Resources Defense Council, "[r]egulators must think more like the cheaters E.P.A. is starting to use new tests that can't be readily gamed by manufacturers." *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ See *id.* Lab tests are superior at detecting nitrogen dioxide and other particles and pollutants. See *id.*

⁸⁸ See 42 U.S.C. § 7522(a)(3)(B) (2012).

II. DISCUSSION

A. Controlling Motor Vehicle Emissions in Europe

The EU's air-pollution legislation has evolved over time.⁸⁹ Early legislation focused on regulating the sources of pollution, such as cars, and later legislation focused on specific substances, such as lead and sulfur.⁹⁰ In the 1970s, the European Community instituted standards that regulated air pollution from motor vehicles and products.⁹¹ Since then, the standards for motor vehicles and fuels have been amended many times to create more stringent standards and to institute procedures for states to regulate compliance.⁹² In 1977, an amendment set emission caps for NO_x.⁹³ In 1988, emissions standards were introduced for particulates.⁹⁴ Diesel-powered cars have also been regulated since the early 1970s, and these regulations have been amended many times since.⁹⁵

European states have thoroughly debated and negotiated the regulation of motor-vehicle pollution.⁹⁶ Member states such as Germany, which is known for its powerful car industry, have sought to subvert the efforts of EU policy makers in Brussels by pushing for relaxed emissions standards.⁹⁷ Germany has applied tremendous pressure to other member states, and several central European countries with domestic auto industries have supported its efforts.⁹⁸ France, the UK, and Italy, however, have defied Germany's pressure.⁹⁹

⁸⁹ See ELLI LOUKA, *CONFLICTING INTEGRATION: THE ENVIRONMENTAL LAW OF THE EUROPEAN UNION* 132 (2004).

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.* at 132, 134.

⁹³ Commission Directive 77/102/EEC, of 30 November 1976 Adapting to Technical Progress Council Directive 70/220/EEC of 20 March 1970 on the Approximation of the Laws of the Member States Relating to Measures to be Taken Against Air Pollution by Gases from Positive-Ignition Engines of Motor Vehicles, 1977 O.J. (L 32) 32, 32–34; LOUKA, *supra* note 89, at 135.

⁹⁴ Council Directive 88/436/EEC, of 16 June 1988 Amending Directive 70/220/EEC on the Approximation of the Laws of the Member States Relating to Measures to Be Taken Against Air Pollution by Gases from Engines of Motor Vehicles (Restriction of Particulate Pollutant Emissions from Diesel Engines), 1988 O.J. (L 214) 1, 1–4; LOUKA, *supra* note 89, at 135.

⁹⁵ Council Directive 72/306/EEC, of 2 August 1972 on the Approximation of the Laws of the Member States Relating to the Measures to Be Taken Against the Emission of Pollutants from Diesel Engines for Use in Vehicles, 1972 O.J. (L 190) 889, 889–90; see LOUKA, *supra* note 89, at 136.

⁹⁶ LOUKA, *supra* note 89, at 135.

⁹⁷ See Hakim & Barthelemy, *supra* note 1; Barbara Lewis & Charlie Dunmore, *Germany Leans on EU States to Weaken Car Emissions Law*, REUTERS (June 18, 2013, 1:48 PM), <http://uk.reuters.com/article/us-eu-cars-for-tuesday-idUKBRE95H0J320130618> [https://perma.cc/8ZY9-LMT6].

⁹⁸ See Lewis & Dunmore, *supra* note 97.

⁹⁹ See *id.*

Recently, Germany has actively defended its auto industry from pro-environment proposals widely supported by European nations.¹⁰⁰ In a European Parliament vote in September 2015, Germany was the only member to oppose strengthening emissions standards.¹⁰¹ Even before Dieselgate, members of the European Parliament called for emissions tests to be performed under real-world driving conditions, rather than in laboratories.¹⁰² Many members saw the emissions tests then in effect as obsolete.¹⁰³ Germany, however, opposed the European Commission's proposal to implement real-world emissions tests.¹⁰⁴ Germany's resistance has led some members of Parliament to criticize the nation as being too subservient to auto-industry lobbyists, including VW itself.¹⁰⁵

In February 2016, the European Parliament approved a controversial plan to test car emissions under real-world driving conditions, but critics consider the plan too soft on the car industry.¹⁰⁶ The plan, backed by the EU's industrial-policy chief and the European Automobile Manufacturers' Association, allows NO_x emissions to exceed legal limits by as much as 110% between September 2017 and January 2020, and by as much as 50% thereafter.¹⁰⁷ European Industry Commissioner, Elzbieta Bienkowska, promised to review the fifty percent overshoot cap and to move to apply the legal limit by 2023.¹⁰⁸ The plan's supporters contend that exceeding Europe's NO_x limit by more than 200% is less significant than implementing on-road emissions tests.¹⁰⁹ But critics argue that the passage of the plan represents the European Parliament's genuflection to the auto-

¹⁰⁰ See Aline Robert, *German MEPs Oppose Stricter Car Emissions Tests*, EURACTIV (Sept. 25, 2015), <http://www.euractiv.com/sections/transport/german-meps-oppose-stricter-car-emissions-tests-317981> [<https://perma.cc/YBU8-D86B>].

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ See *id.* Despite the apparent danger they pose to the environment, some gasses emitted by cars are not regulated in Europe. See *id.* For example, cars may emit an unlimited amount of methane, even though its greenhouse effect is twenty-three times stronger than that of carbon dioxide. *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ See *id.* In response to Germany's rejection of the proposal, Christine Revault d'Allones Bonnefoy, a member of the European Parliament's Committee on Transport, said, "[i]t really felt like we had representatives of Volkswagen among us" *Id.*

¹⁰⁶ Jonathan Stearns, *EU's Controversial Car-Pollution Test Plan Wins Final Approval*, BLOOMBERG (Feb. 3, 2016, 9:28 AM), <http://www.bloomberg.com/news/articles/2016-02-03/eu-s-controversial-car-pollution-test-plan-wins-final-approval> [<https://perma.cc/QL6M-7CBK>]. The EU Parliament's environment committee opposed the plan, but failed to collect the minimum 376 votes needed to veto it. *Id.*

¹⁰⁷ *Id.* EU member states approved the plan on October 28, 2015, after rejecting a more stringent proposal due to concerns about higher costs for carmakers. *Id.* The tougher plan would have allowed automakers to exceed the EU NO_x limit by up to sixty percent for only two years, starting in September 2017. *Id.* The legal cap would have been enforced starting in September 2019. *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

industry lobby and an abdication of its responsibility to protect public health.¹¹⁰ They also allege that too little has been learned from the VW scandal.¹¹¹

B. Pollution from Diesel Cars in Europe

Even before the VW scandal unfolded, European cities faced serious problems with air pollution.¹¹² In mid-March 2015, a dense smog containing diesel exhaust pollutants covered cities in the UK, France, Spain, Germany, Italy, Poland, and Lithuania.¹¹³ In response, many EU cities instituted low-emissions zones to keep environmentally harmful diesel vehicles out of certain urban areas.¹¹⁴ Paris attempted to reduce emissions by enacting its first-ever “car-free day” on September 27, 2015, prohibiting cars in thirty percent of the city between 11:00 a.m. and 6:00 p.m.¹¹⁵ Milan also banned cars for six hours, in December 2015, to alleviate the smog enshrouding Italy’s financial capital.¹¹⁶ Other European cities have gone to even greater lengths; in 2015, London Mayor Boris Johnson supported a national program to pay some drivers to get rid of their diesel cars.¹¹⁷ These efforts, however, have been unsuccessful at decreasing NO_x concentrations thus far.¹¹⁸ This is because most diesel cars released before Euro 6, the EU’s latest emissions standards, emitted at least as much NO_x as previous generations.¹¹⁹ Jens-Borken Kleefeld, a senior scientist at the International Institute for Applied Systems Analysis, predicts that NO_x

¹¹⁰ See *id.*

¹¹¹ *Id.*

¹¹² See Schmidt, *supra* note 10, at A22.

¹¹³ *Id.* Parisian air pollution levels were at one point the worst in the world, even topping those in Beijing and Delhi. *Id.*

¹¹⁴ *Id.* In Germany, for example, a driver’s ability to enter into any of the country’s more than seventy low-emission zones is dictated by the color of a sticker on the windshield. *Id.* Older vehicles are given red stickers, whereas newer, cleaner vehicles are given yellow and green ones. *Id.*

¹¹⁵ *Id.*; see also Willsher, *supra* note 10 (noting that the mayor of Paris is planning more car-free days in the city).

¹¹⁶ See Colleen Barry, *Bicyclists Have Free Rein as Milan Bans Private Cars*, ASSOCIATED PRESS (Dec. 28, 2015, 4:25 PM), <http://bigstory.ap.org/article/b00b58679afb4e3e85751c5cde165417/bicyclists-have-free-rein-milan-bans-private-cars> [<https://perma.cc/283U-8UA6>].

¹¹⁷ See Taras Grescoe, *The Dirty Truth About ‘Clean Diesel,’* N.Y. TIMES (Jan. 10, 2016), <http://www.nytimes.com/2016/01/03/opinion/sunday/the-dirty-truth-about-clean-diesel.html> [<https://perma.cc/83BY-84BV>].

¹¹⁸ Schmidt, *supra* note 10, at A22.

¹¹⁹ *Id.* The EU enacted its first set of emission standards, Euro 1, in July 1992. Chris Ebbs & Martin Saarinen, *Euro 6 Emissions Standards: What do They Mean for You?*, AUTO EXPRESS (Nov. 13, 2016, 1:00 PM), <http://www.autoexpress.co.uk/car-news/consumer-news/90816/euro-6-emissions-standards-what-do-they-mean-for-you> [<https://perma.cc/W23W-NW4H>]. Since then, EU emissions standards have been revised five times, most recently in September 2014 (Euro 6). See *id.* The Euro 6 regulations set different limits for petrol and diesel cars. *Id.* For diesel cars, Euro 6 sets a more stringent cap on NO_x emissions than Euro 5—eighty milligrams per kilometer compared to 180 milligrams per kilometer. *Id.* The cap on NO_x emissions from petrol cars, however, is the same as it was under Euro 5 (sixty milligrams per kilometer). *Id.*

levels will decrease only when new diesel cars with much lower emissions become pervasive or when gasoline-powered cars outnumber diesel ones.¹²⁰

C. Regulation of Defeat Devices in Europe

A defeat device is equipment that reduces the effectiveness of a car's emissions control system when consumers drive, but not when the car is tested.¹²¹ It makes a car seem more eco-friendly during emissions testing than it is during everyday use.¹²² Council Regulation 715/2007 defines a defeat device as:

any element of design which senses temperature, vehicle speed, engine speed (RPM), transmission gear, manifold vacuum or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system, 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.¹²³

EU law prohibits the use of defeat devices.¹²⁴ Such devices are not prohibited, however, in certain limited circumstances.¹²⁵ Although defeat devices are banned in Europe, European regulations state that when testing emissions, "[t]he settings of the engine and of the vehicle's controls shall be those prescribed by the manufacturer."¹²⁶ This requirement also applies "to the settings for idling . . . for the cold start device and for the exhaust gas cleaning system."¹²⁷ By allowing carmakers to determine the settings of their cars' engines

¹²⁰ Schmidt, *supra* note 10, at A22.

¹²¹ See Council Regulation 715/2007, *supra* note 30, at 5–6; Gates et al., *supra* note 8. VW's "software sensed when the car was being tested and then activated equipment that reduced emissions. . . . But the software turned the equipment off during regular driving, increasing emissions far above legal limits." Gates et al., *supra* note 8.

¹²² See Gates et al., *supra* note 8.

¹²³ Council Regulation 715/2007, *supra* note 30, at 5.

¹²⁴ *Id.* at 6. The regulation provides: "The use of defeat devices that reduce the effectiveness of emission control systems shall be prohibited." *Id.*

¹²⁵ See *id.* The prohibition shall not apply where:

- (a) the need for the device is justified in terms of protecting the engine against damage or accident and for the safe operation of the vehicle;
- (b) the device does not function beyond the requirements of the engine starting; or
- (c) the conditions are substantially included in the test procedures for verifying evaporative emissions and average tailpipe emissions.

Id.

¹²⁶ Regulation No 83, *supra* note 29, at 80. This regulation "establishes technical requirements for the type approval of motor vehicles" and "lays down rules for in-service conformity, durability of pollution control devices and On-Board Diagnostic (OBD) systems." *Id.* at 2.

¹²⁷ *Id.* at 80.

during emissions tests, this provision seemingly undercuts the EU's ban on defeat devices.¹²⁸

D. Controlling Emissions in the United States: Statutory and Regulatory Background

Title II of the CAA and regulations promulgated thereunder seek to protect the environment and human health by lowering emissions of NO_x and other pollutants from motor vehicles.¹²⁹ Section 202(a) of the CAA requires the EPA to prescribe emissions standards for any pollutant discharged from new motor vehicles that it deems deleterious to public health.¹³⁰ The EPA conducts a certification program to ensure that all motor vehicles introduced in the United States comply with the emissions standards.¹³¹ As part of the program, the EPA issues certificates of conformity to demonstrate that vehicles meet these standards.¹³² Under Section 203(a)(1) of the CAA, automakers may not sell or introduce into commerce any new car or car engine unless a certificate of conformity covers the car or engine.¹³³ Additionally, a person may not import or cause another to import any new car or car engine into the United States unless the EPA has issued a certificate of conformity covering the car or engine.¹³⁴

Certificates of conformity are issued if a vehicle or engine conforms to the emissions regulations prescribed under 42 U.S.C. § 7521.¹³⁵ To obtain a certificate, carmakers must send an application to the EPA for each engine family and model year that they will sell in the United States.¹³⁶ Every application must list all auxiliary emission control devices (AECDs) installed in the

¹²⁸ See *id.*; Council Regulation 715/2007, *supra* note 30, at 6; see also Hakim & Barthelemy, *supra* note 1.

¹²⁹ Complaint at 8, U.S. v. Volkswagen AG, No. 2:16-CV-10006 (E.D. Mich. filed Jan. 4, 2016); see 42 U.S.C. §§ 7521–7554 (2012). NO_x is a major contributor to the atmospheric reactions that produce ozone. Complaint, *supra*. Breathing ozone can lead to many health problems, including chest pain and coughing, and can exacerbate bronchitis and asthma. *Id.* Children are the most vulnerable to suffering from exposure to ozone. *Id.*

¹³⁰ 42 U.S.C. § 7521(a)(1); see also *Massachusetts v. EPA*, 549 U.S. 497, 528 (2007) (concluding that section 202(a)(1) of CAA authorizes EPA to regulate emissions from new motor vehicles if it forms a “judgment” that such emissions contribute to climate change).

¹³¹ Complaint, *supra* note 129; see also 42 U.S.C. § 7525(a)(1).

¹³² Complaint, *supra* note 129, at 8–9; *Penalty for Noncompliant Engines Upheld*, AIR POLLUTION CONSULTANT, 2015, at 3.10, 3.10; see also 42 U.S.C. § 7525(a)(1).

¹³³ *Penalty for Noncompliant Engines Upheld*, *supra* note 132; see also 42 U.S.C. § 7522(a)(1).

¹³⁴ *Penalty for Noncompliant Engines Upheld*, *supra* note 132; see also 42 U.S.C. § 7522(a)(1).

¹³⁵ See Complaint, *supra* note 129; see also 42 U.S.C. § 7525(a)(1) (“The Administrator shall test, or require to be tested in such a manner as he deems appropriate, any new motor vehicle engine submitted by a manufacturer to determine whether such vehicle or engine conforms with the regulations prescribed under section 7521 of this title.”).

¹³⁶ *Penalty for Noncompliant Engines Upheld*, *supra* note 132. The application must identify the engine family, characterize the vehicles and their emissions-control system, include emissions test results, and describe all adjustable parameters. *Id.*

vehicle.¹³⁷ An AECD is “any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.”¹³⁸ In the list, the manufacturer must justify each AECD—doing so in detail for those that reduce the effectiveness of the emissions control system; describe the parameters it senses and controls; and explain why the AECDs are not defeat devices.¹³⁹

E. Regulation of Defeat Devices in the United States

The use of defeat devices is banned in the United States.¹⁴⁰ Federal regulations define a defeat device as “an auxiliary emission control device (AECD) that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use.”¹⁴¹ Like EU law, U.S. federal law exempts from defeat-device status any device that protects the vehicle from damage or accident, or that does not function after the engine has started.¹⁴² The U.S. definition of “defeat device” mirrors the EU definition in that it does not apply if the emissions-test conditions reflect those one would expect to find in everyday driving.¹⁴³ Section 203(a)(3)(A) of the CAA prohibits any person from removing or rendering ineffective any device or element of design installed in a car in compliance with regulations under Title II of the CAA both before and after it is sold and delivered to the ultimate purchaser.¹⁴⁴ Additionally, section 203(a)(3)(B) of the CAA bars anyone from knowingly manufacturing, selling, or offering for sale a defeat device.¹⁴⁵

¹³⁷ Complaint, *supra* note 129, at 9; *see also* 40 C.F.R. § 86.1844-01(d)(11) (2015).

¹³⁸ 40 C.F.R. § 86.1803-01 (2015) (“[An] [e]lement of design means any control system (i.e., computer software, electronic control system, emission control system, computer logic), and/or control system calibrations, and/or the results of systems interaction, and/or hardware items on a motor vehicle or motor vehicle engine.”).

¹³⁹ *Id.* § 86.1844-01(d)(11).

¹⁴⁰ *See* Complaint, *supra* note 129, at 10; *see also* 42 U.S.C. § 7522(a)(3)(A)-(B); 40 C.F.R. §§ 86.1809-01, -10, -12 (2015).

¹⁴¹ 40 C.F.R. § 86.004-2.

¹⁴² *Id.*; *see* Council Regulation 715/2007, *supra* note 30, at 6.

¹⁴³ 40 C.F.R. § 86.004-2; *see* Council Regulation 715/2007, 2007 O.J. (L 171), *supra* note 30, at 6. Unlike EU law, U.S. law includes a fourth exemption from defeat-device status if:

[t]he AECD applies only for engines that will be installed in *emergency vehicles*, and the need is justified in terms of preventing the engine from losing speed, torque, or power due [sic] abnormal conditions of the emission control system, or in terms of preventing such abnormal conditions from occurring, during operation related to emergency response.

40 C.F.R. § 86.004-2; *see* Council Regulation 715/2007, *supra* note 30, at 6.

¹⁴⁴ Complaint, *supra* note 129, at 11; *see also* 42 U.S.C. § 7522(a)(3)(A).

¹⁴⁵ 42 U.S.C. § 7522(a)(3)(B); *see* 40 C.F.R. § 86-004-2.

Federal regulations provide that the EPA Administrator may test any vehicle using driving cycles and conditions “that may reasonably be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device.”¹⁴⁶ When tested, carmakers must demonstrate to the Administrator that the vehicle design “does not incorporate strategies that unnecessarily reduce emission control effectiveness exhibited during the Federal Test Procedure or Supplemental Federal Test Procedure (FTP or SFTP) when the vehicle is operated under conditions that may reasonably be expected to be encountered in normal operation and use.”¹⁴⁷ If the Administrator makes a request, the carmaker is required to explain in detail any devices, design features, or algorithms it uses both during and outside the federal emissions test.¹⁴⁸

III. ANALYSIS

A. VW's Emissions Deception Is Illegal Under EU Law

The software VW installed in its European cars qualifies as a defeat device under EU law.¹⁴⁹ VW has admitted to using illegal software to cheat emissions tests in the United States but denies that it broke European rules.¹⁵⁰ Nevertheless, the EU's and the United States' respective bans on defeat devices prac-

¹⁴⁶ 40 C.F.R. § 86.1809-10(b). This regulation applies to light-duty vehicles, medium-duty passenger vehicles, and heavy-duty vehicles. *Id.* Light-duty vehicles are “passenger cars and light trucks: minivans, passenger vans, pickup trucks, and sport-utility vehicles.” *Emissions Standards Reference Guide for On-Road and Nonroad Vehicles and Engines*, U.S. ENVTL. PROTECTION AGENCY, <https://www.epa.gov/emission-standards-reference-guide/learn-about-emission-standards-reference-guide-road-and-nonroad> [<https://perma.cc/T3R2-SLHZ>]. Heavy-duty vehicles are “heavy trucks and buses: large pick-ups, delivery trucks, recreational vehicles (RVs), and semi trucks.” *Id.*

¹⁴⁷ 40 C.F.R. § 86.1809-10(d)(1). The Federal Test Procedure (FTP) is a “low-speed city cycle.” Csaba Csere, *These Tests Failed You: Why Is the EPA So Bad at Estimating Hybrid Fuel Economy?*, CAR & DRIVER (May 2013), <http://www.caranddriver.com/features/why-is-the-epa-so-bad-at-estimating-hybrid-fuel-economy-feature> [<https://perma.cc/B7XG-C6G6>]. It is conducted in a laboratory at seventy-five degrees Fahrenheit after the car has rested for at least twelve hours. *Id.* Using limited accelerations and decelerations, the test runs for forty-one minutes and has a maximum speed of fifty-seven miles per hour. *Id.* The Supplemental FTP is a high-acceleration, aggressive driving schedule designed to more accurately assess real-world emissions. COMM. ON OZONE-FORMING POTENTIAL & REFORMULATED GASOLINE ET AL., OZONE-FORMING POTENTIAL OF REFORMULATED GASOLINE 90 (1999).

¹⁴⁸ 40 C.F.R. § 86.1809-10(d)(2)(i). The regulation requires automakers to provide “an explanation containing detailed information regarding test programs, engineering evaluations, design specifications, calibrations, on-board computer algorithms, and design strategies incorporated for operation both during and outside of the Federal emission test procedure.” *Id.*

¹⁴⁹ See Council Regulation 715/2007, *supra* note 30, at 5–6; see also Danny Hakim & Jack Ewing, *Volkswagen's Software Was 'Illegal Defeat Device,' German Regulator Says*, N.Y. TIMES (Dec. 1, 2015), <http://www.nytimes.com/2015/12/02/business/international/volkswagens-software-use-was-illegal-german-regulator-rules.html> [<https://perma.cc/3QW8-U9SM>] (explaining that German regulators determined VW's software “is an illegal defeat device according to the K.B.A's legal interpretation”).

¹⁵⁰ Hakim, *supra* note 26.

tically mirror each other,¹⁵¹ and VW equipped its cars in Europe with the very software that regulators say cheated emissions tests in the United States.¹⁵²

Generally speaking, EU law defines a defeat device as a feature of a car that “reduces the effectiveness of the emissions control system” during normal driving conditions.¹⁵³ VW installed software in each car’s electronic control module that caused the cars to perform far better during emissions tests than during everyday use.¹⁵⁴ When the software sensed the car had begun an emissions test, it told the car to activate a low NO_x temperature-conditioning mode.¹⁵⁵ This mode adjusted the engine so that it emitted low levels of NO_x and elevated exhaust temperatures.¹⁵⁶ The high exhaust temperatures heated the selective catalytic reduction system, which enhanced the system’s capability to lower NO_x emissions.¹⁵⁷ When a timer detected the end of the test procedure, the software told the vehicle to end low NO_x temperature conditioning and to transition into “normal mode.”¹⁵⁸ In “normal mode,” the emission control system instantly became less effective, permitting NO_x tailpipe emissions well above the legal limit.¹⁵⁹ Therefore, VW’s software was an element of design that sensed whether a car was being tested in order to reduce the effectiveness of the emissions control system during normal driving conditions.¹⁶⁰ It thus qualifies as a defeat device under EU law.¹⁶¹

Even though the regulation that European regulators left in place allows carmakers to change the performance settings of their engines before a pollution

¹⁵¹ See 40 C.F.R. §§ 86.1809-01, -10, -12; Council Regulation 715/2007, *supra* note 30, at 5–6. In fact, the EU’s definition of “defeat device” is virtually identical to the United States’ definition of AECD, under which all defeat devices fall. See 40 C.F.R. §§ 86.004-2, 86.1803-01; Council Regulation 715/2007, *supra* note 30, at 5.

¹⁵² Andreas Cremer, *Volkswagen Luxury Cars in Europe Fitted with Devices That U.S. Says Cheated Tests*, REUTERS (Nov. 6, 2015, 7:42 AM), <http://www.reuters.com/article/us-volkswagen-emissions-idUSKCN0SU2JI20151106> [<https://perma.cc/JP88-YFFU>].

¹⁵³ Council Regulation 715/2007, 2007 O.J. (L 171), *supra* note 30, at 5.

¹⁵⁴ Letter from Susan Shinkman, Dir., Office of Civil Enf’t, Env’tl. Prot. Agency, to David Geanakopulos, Exec. Vice President Pub. Affairs & Gen. Counsel, Volkswagen, at 4 (Nov. 2, 2015), <http://www.epa.gov/sites/production/files/2015-11/documents/vw-nov-2015-11-02.pdf> [<https://perma.cc/V93S-GZWS>] [hereinafter VW Notice of Violation, November 2015].

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ *Id.* A selective catalytic reduction system is an economical and fuel-efficient technology that reduces diesel engine emissions. *About Clean Diesel: What Is SCR?*, DIESEL TECH. FORUM, <http://www.dieselforum.org/about-clean-diesel/what-is-scr> [<https://perma.cc/WT7H-W5AE>]. It works by injecting a liquid reductant through a catalyst into the exhaust stream of a diesel engine. *Id.*

¹⁵⁸ VW Notice of Violation, November 2015, *supra* note 154.

¹⁵⁹ *Id.*

¹⁶⁰ See Council Regulation 715/2007, *supra* note 30, at 5; see also VW Notice of Violation, November 2015, *supra* note 154, at 5 (“VW knew or should have known that the software described . . . bypasses, defeats, or renders inoperative elements of the vehicle design related to compliance with the CAA emissions standards. This is apparent given the design of these defeat devices.”).

¹⁶¹ See Council Regulation 715/2007, *supra* note 30, at 5; see also Hakim & Ewing, *supra* note 149 (reporting that German regulators determined VW’s software is “an illegal defeat device”).

test, VW's trickery is illegal in Europe because VW equipped its cars with illegal defeat devices.¹⁶² None of the exceptions to the EU's prohibition of defeat devices apply to VW's software.¹⁶³ Regulation No 83, which provides "the settings of the engine and of the vehicle's controls shall be those prescribed by the manufacturer," is not an escape hatch for European automakers.¹⁶⁴ The engine settings that a carmaker prescribes for a pollution test have no bearing on whether a car uses a device that decreases the efficacy of the emissions control system during normal driving conditions.¹⁶⁵ VW's software undeniably reduced the effectiveness of its cars' emissions control systems during everyday driving.¹⁶⁶ Consequently, VW's emissions test cheating is illegal under EU law.¹⁶⁷

B. The Consequences of Deeming VW's Trickery Legal in Europe

1. Deepening the Divide Between European and American Auto Regulations

The United States and Europe have remarkably different systems of auto regulation, in terms of both the substance and administration of their respective laws.¹⁶⁸ The VW scandal has put Europe's lax testing practices in the spotlight, and the investigation has revealed fundamental disparities in American and European regulations.¹⁶⁹ In Europe, automakers may have their vehicles' emis-

¹⁶² See Council Regulation 715/2007, *supra* note 30, at 5–6; Regulation No 83, *supra* note 29, at 80; Hakim & Ewing, *supra* note 149.

¹⁶³ See Council Regulation 715/2007, *supra* note 30, at 6; see also Hakim & Ewing, *supra* note 149. First, VW's device was not designed to protect its cars' engines or to ensure that its cars operate safely; rather, according to VW U.S. C.E.O. Michael Horn, it was intentionally designed "to defeat the regular emissions testing regime." Chappell, *supra* note 38; see Council Regulation 715/2007, *supra* note 30, at 6. Second, VW's device clearly continues to operate after the engine has started. See VW Notice of Violation, November 2015, *supra* note 154. Third, the EU emissions test does not include conditions that one normally finds in everyday driving. See Hotten, *supra* note 56.

¹⁶⁴ Regulation No 83, *supra* note 29, at 80; see Hakim & Ewing, *supra* note 149.

¹⁶⁵ Council Regulation 715/2007, *supra* note 30, at 5; see Regulation No 83, *supra* note 29, at 80.

¹⁶⁶ See Danny Hakim, *Beyond Volkswagen, Europe's Diesels Flunked a Pollution Test*, N.Y. TIMES (Feb. 7, 2016), <http://www.nytimes.com/2016/02/08/business/international/no-matter-the-brand-europes-diesels-flunked-a-pollution-test.html> [https://perma.cc/2QR2-MRKH]. When driven on the road, some of VW's cars emitted nearly forty times the U.S. limits for nitrogen oxides. *Id.*

¹⁶⁷ See Council Regulation 715/2007, *supra* note 30, at 5–6; Hakim & Ewing, *supra* note 149. Nevertheless, VW likely will not face significant penalties in Europe. Barbara Lewis & Kirstin Ridley, *Facing U.S. Storm, VW Set for Easier Ride in Europe on Emissions Scandal*, REUTERS (Jan. 9, 2016, 2:38 PM), <http://www.reuters.com/article/us-volkswagen-emissions-fine-idUSKBN0UN0A920160109> [https://perma.cc/3GBZ-DXG8]. This is because there are no defined penalties for defeat devices in Europe, EU states are loathe to penalize powerful car companies, and the European Commission can fine companies only for trade and competition issues. *Id.*

¹⁶⁸ See CAROLINE FREUND & SARAH OLIVER, PETERSON INST. FOR INT'L ECON., GAINS FROM HARMONIZING US AND EU AUTO REGULATIONS UNDER THE TRANSATLANTIC TRADE AND INVESTMENT PARTNERSHIP 1 (June 2015), <http://www.iie.com/publications/pb/pb15-10.pdf> [https://perma.cc/L2XY-XRSJ].

¹⁶⁹ See Hakim & Barthelémy, *supra* note 1.

sions certified by regulators in any of the twenty-eight member states, and all other member states must accept the certification.¹⁷⁰ European automakers pay private firms to certify their cars, and they test stripped-down preproduction vehicles that bear little resemblance to the vehicles they sell to consumers.¹⁷¹ The United States, by contrast, has a substantially more robust testing regime, under which carmakers face up to three rounds of testing.¹⁷² Car manufacturers send their own test results to the EPA, the EPA tests cars randomly chosen from the production line, and sometimes the EPA borrows cars from consumers to test them.¹⁷³

This regulatory disparity increases production costs, motivates price discrimination across markets, and restricts available imports.¹⁷⁴ Divergent auto regulations are costly for the economy.¹⁷⁵ Because carmakers such as Ford and BMW sell their vehicles worldwide, they must produce different models in Europe and the United States to comply with domestic safety and environmental laws.¹⁷⁶ This increases the costs of production and reduces consumer choice, as producing models demanded by small markets becomes unprofitable.¹⁷⁷ Thus, countries on both sides of the Atlantic stand to gain from coordinating their auto regulations.¹⁷⁸

As the VW scandal has unfolded, European and American negotiators have worked on the Transatlantic Trade and Investment Partnership (TTIP), a trade deal that seeks to coordinate regulations across the EU and the United States.¹⁷⁹ The TTIP's aims include removing tariffs on imported cars and harmonizing U.S. and European safety and environmental standards for motor vehicles.¹⁸⁰ If adopted, the agreement could expand trade by at least twenty percent, increase manufacturing by European brands in the United States, and prompt American carmakers to sell a broader lineup of models.¹⁸¹ Expanding trade between the United States and the EU could spur economic growth and

¹⁷⁰ *Id.*

¹⁷¹ Chow et al., *supra* note 63; see Hakim & Barthelemy, *supra* note 1.

¹⁷² See Stefanini, *supra* note 78.

¹⁷³ *Id.*

¹⁷⁴ Freund & Oliver, *supra* note 168, at 1.

¹⁷⁵ Tom Fairless, *EU-U.S. Trade Deal Could Boost Auto Sales by 20%, Study Says*, WALL ST. J. EUR. (July 16, 2015, 6:27 AM), <http://blogs.wsj.com/brussels/2015/07/16/eu-u-s-trade-deal-could-boost-auto-sales-by-20-study-says/> [<https://perma.cc/2MPP-PJ79>].

¹⁷⁶ *Id.* For example, U.S. regulations require that the Ford Focus' roof be able to support three times its weight, whereas European regulations have no weight requirement at all. *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ See *id.*; see also Hakim & Barthelemy, *supra* note 1 (explaining that auto regulations are a "fruitful target where the sides could agree to synchronize their rules").

¹⁷⁹ Hakim & Barthelemy, *supra* note 1; Freund & Oliver, *supra* note 168, at 1.

¹⁸⁰ Justin Berkowitz, *Free-Trade Cars: Why a U.S.-Europe Free-Trade Agreement Is a Good Idea*, CAR & DRIVER (June 2013), <http://www.caranddriver.com/features/free-trade-cars-why-a-useurope-free-trade-agreement-is-a-good-idea-feature> [<https://perma.cc/U72D-GDD9>].

¹⁸¹ *Id.*; Freund & Oliver, *supra* note 168, at 17.

job creation on both continents.¹⁸² In fact, according to a recent research paper from the Peterson Institute for International Economics, harmonizing U.S. and EU auto regulations could boost the combined national incomes of both partners by more than \$20 billion per year going forward.¹⁸³

But if VW is able to avoid liability in Europe, this could severely decrease the EU's bargaining power in its negotiations with the United States and make it harder to agree on uniform auto regulations in the TTIP.¹⁸⁴ The revelation that VW equipped some eleven million cars worldwide with illegal software will likely undermine the credibility of the EU.¹⁸⁵ The news has stunned consumers, investors, and average citizens alike and has revealed the deep-rooted flaws in the EU regulatory system.¹⁸⁶ It has become clear that experts and regulators, including the European Commission itself, not only knew that on-road emissions greatly exceeded emissions measured during laboratory tests but also that some cars were equipped with defeat devices.¹⁸⁷ Without the American regulatory system, VW's rampant pollution might have continued unchecked.¹⁸⁸ Europeans typically criticize American regulators for being unmindful of environmental and public-health concerns, but they can no longer claim the moral high ground.¹⁸⁹ Because European regulators turned a blind eye to VW as it cheated, deeming VW's trickery legal after the fact would undermine what little remaining credibility the EU has.¹⁹⁰ Moreover, such a rul-

¹⁸² See *Transatlantic Trade Investment Partnership*, AM. AUTO. POLICY COUNCIL, <http://americanautocouncil.org/transatlantic-trade-investment-partnership> [<https://perma.cc/34EZ-D3AU>]. The auto industry has a "job-multiplier" effect because it is closely linked to related industries, such as steel and auto parts, and depends heavily on research and development. Fairless, *supra* note 175.

¹⁸³ Freund & Oliver, *supra* note 168, at 17.

¹⁸⁴ See Carlo Bastasin, *Hanging by a Thread: Volkswagen and European Regulation*, BROOKINGS INST. (Sept. 28, 2015), <http://www.brookings.edu/blogs/order-from-chaos/posts/2015/09/28-volkswagen-scandal-implications-bastasin> [<https://perma.cc/7XNQ-W3UE>].

¹⁸⁵ Gabriele Steinhauser, *The VW Scandal—How Much Did the European Commission Know?*, WALL ST. J. (Sept. 25, 2015, 12:34 PM), <http://blogs.wsj.com/brussels/2015/09/25/the-vw-scandal-how-much-did-the-european-commission-know/> [<https://perma.cc/Z7EF-54QT>]; *Volkswagen Scandal Undermines EU Credibility in TTIP Negotiations with US*, SPUTNIK INT'L (May 10, 2015), <http://sputniknews.com/business/20151005/1028061381/volkswagen-ttip-us-eco.html> [<https://perma.cc/L4AD-YHXL>]; see also Ben Wright, *VW Is Now in Mortal Danger, but It's Not the Only One*, TELEGRAPH (Sept. 22, 2015, 9:19 PM), <http://www.telegraph.co.uk/finance/newsbysector/industry/11883829/VW-is-now-in-mortal-danger-but-its-not-the-only-one.html> [<https://perma.cc/QZ72-Y7BL>] (noting that the repercussions from the scandal will extend beyond VW). Speaking on the effect of the VW scandal, EU Trade Commissioner Cecilia Malmstrom said, "I spent a lot of time trying to explain to the Americans that we in Europe have the highest eco-standards. Now it turns out that we are not that perfect." *Volkswagen Scandal Undermines EU Credibility in TTIP Negotiations with US*, *supra*.

¹⁸⁶ Steinhauser, *supra* note 185; Bastasin, *supra* note 184.

¹⁸⁷ Steinhauser, *supra* note 185.

¹⁸⁸ See Bastasin, *supra* note 184.

¹⁸⁹ *Id.*

¹⁹⁰ See Steinhauser, *supra* note 185; *Volkswagen Scandal Undermines EU Credibility in TTIP Negotiations with US*, *supra* note 185.

ing would likely decrease European negotiators' bargaining power, making it harder to reach an agreement on the TTIP any time soon.¹⁹¹

2. Environmental and Public Health Costs

Urban air in Europe poses a serious threat to public health, and diesel cars are the main culprit.¹⁹² According to World Health Organization guidelines, more than eighty percent of the EU urban population experiences dangerous levels of air pollution.¹⁹³ Exposure to such pollution can have fatal consequences.¹⁹⁴ Urban NO_x exposure contributed to an estimated 75,000 premature deaths in Europe in 2012.¹⁹⁵ Diesel exhaust is full of soot particles that allow carcinogens to sink themselves into tissues and organs.¹⁹⁶ Diesel cars are a principal source of pollution because they are pervasive and spew their emissions close to where people live.¹⁹⁷ The devastating pollution in Europe is occurring in spite of the EU's wide-ranging laws that restrict ambient air-pollution levels, total national emissions, and emissions from vehicles.¹⁹⁸ The cause of Europe's polluted air is the EU's toothless system of emissions regulation, which enables cars to demonstrate low levels of pollution during laboratory tests yet emit sky-high levels on the road.¹⁹⁹

The VW scandal has exacerbated Europe's emissions crisis and caused tremendous harm to public health.²⁰⁰ VW's rigged cars may be responsible for almost one million tons of air pollution every year.²⁰¹ In a recent study, a team of researchers from the Massachusetts Institute of Technology and Harvard

¹⁹¹ See Bastasin, *supra* note 184.

¹⁹² See TRANSP. & ENV'T, DON'T BREATHE HERE: TACKLING AIR POLLUTION FROM VEHICLES 3 (Sept. 2015), http://www.transportenvironment.org/sites/te/files/publications/Dont_Breathe_Here_report_FINAL.pdf [https://perma.cc/XR6U-5HVS].

¹⁹³ *Id.* at 9.

¹⁹⁴ See Schmidt, *supra* note 10, at A20.

¹⁹⁵ *Id.*

¹⁹⁶ Grescoe, *supra* note 117.

¹⁹⁷ TRANSP. & ENV'T, *supra* note 192, at 3, 8. In 2008, vehicles produced eighty percent of the particulate matter and forty-six percent of nitrogen oxides in London. BORIS JOHNSON, MAYOR OF LONDON, CLEARING THE AIR: THE MAYOR'S AIR QUALITY STRATEGY 1, 41, 43 (Dec. 2010), https://www.london.gov.uk/sites/default/files/air_quality_strategy_v3.pdf [https://perma.cc/J8LF-C847]. According to a November 2015 report by the European Environment Agency, the highest levels of NO_x in Europe were measured near highways, where diesel vehicles are responsible for approximately eighty percent of traffic-related NO_x emissions. Schmidt, *supra* note 10, at A20.

¹⁹⁸ TRANSP. & ENV'T, *supra* note 192, at 3.

¹⁹⁹ See *id.*

²⁰⁰ See Steven R. H. Barrett et al., *Impact of the Volkswagen Emissions Control Defeat Device on US Public Health*, ENVTL. RES. LETTERS, Nov. 2015, at 1, 1, 9; Schmidt, *supra* note 10, at A20; Karl Mathiesen & Arthur Nelsen, *VW Scandal Caused Nearly 1m Tonnes of Extra Pollution, Analysis Shows*, GUARDIAN (Sept. 23, 2015, 2:46 PM), <http://www.theguardian.com/business/2015/sep/22/vw-scandal-caused-nearly-1m-tonnes-of-extra-pollution-analysis-shows> [https://perma.cc/HGP6-69G7].

²⁰¹ Mathiesen & Nelsen, *supra* note 200.

University estimated that the excess emissions from VW's cheating contributed to approximately fifty-nine deaths in the United States between 2008 and 2015.²⁰² The study concluded that the monetized cost of these emissions was approximately \$450 million.²⁰³ Additionally, the researchers estimated that bringing VW's rigged vehicles into compliance by the end of 2016 would prevent approximately 130 deaths and avoid approximately \$840 million in social costs in the United States.²⁰⁴ Although these numbers are jarring, the number of fatalities and financial costs attributable to the scandal are likely substantially higher in Europe, where consumers used VW's affected cars much more widely.²⁰⁵

Failing to hold VW liable for cheating European emissions tests would be a major step backward in Europe's efforts to protect the environment and public health.²⁰⁶ It could send the message to other European carmakers that they may pollute in the EU with impunity.²⁰⁷ This could wreak immense damage on the economy, the planet, and human lives.²⁰⁸

3. Stymying Thousands of Consumer Claims Against VW

The biggest financial threat that VW faces in Europe is private litigation.²⁰⁹ But due to European laws that protect corporations from class-action lawsuits brought by consumers, VW owners face a tall task.²¹⁰ In response, lawyers in cities such as Berlin and Paris are joining forces with new online businesses that seek to circumvent the obstacles to class-action suits by assuming the claims of aggrieved car owners en masse.²¹¹ The startups are considered collection agencies, as opposed to law firms, and may therefore work on commission, meaning they are paid only if their efforts to collect are success-

²⁰² Barrett et al., *supra* note 200, at 9.

²⁰³ *Id.*

²⁰⁴ *Id.* at 1.

²⁰⁵ See Schmidt, *supra* note 10, at A20; Hotten, *supra* note 46. VW will recall 8.5 billion cars in Europe, in comparison to only 500,000 in the United States. Hotten, *supra* note 46. In general, diesel cars are much more prevalent in Europe than in the United States. Schmidt, *supra* note 10. They make up only three percent of the cars and trucks driven in the United States, whereas in Europe the majority of passenger vehicles are diesel-powered. *Id.*

²⁰⁶ Schmidt, *supra* note 10, at A20, A22; Hakim & Barthelemy, *supra* note 1. See Barrett et al., *supra* note 200.

²⁰⁷ See Barrett et al., *supra* note 200, at 1, 9; Schmidt, *supra* note 10, at A20, A22; Hakim & Barthelemy, *supra* note 1; Lewis & Ridley, *supra* note 167.

²⁰⁸ See Barrett et al., *supra* note 200, at 9.

²⁰⁹ Lewis & Ridley, *supra* note 167.

²¹⁰ See Jack Ewing, *In the U.S., VW Owners Get Cash. In Europe, They Get Plastic Tubes.*, N.Y. TIMES (Aug. 15, 2016), <https://www.nytimes.com/2016/08/16/business/international/vw-volkswagen-europe-us-lawsuit-settlement.html> [<https://perma.cc/3HLT-PBB6>]. See generally McGee, *supra* note 20 (noting that European car owners must sue VW on a case-by-case basis and that German courts have sided with VW in nearly three-fourths of the lawsuits brought).

²¹¹ Ewing, *supra* note 210.

ful.²¹² Investors often fund the legal expenses in exchange for a promised piece of the eventual judgment.²¹³ In essence, the companies enable quasi-class actions.²¹⁴ If the businesses are successful, the cost to VW will likely be breathtaking, given that the carmaker's settlement in the United States was nearly \$15 billion.²¹⁵

It is unlikely that VW will receive any substantial fine from the EU.²¹⁶ Despite the fact that 8.5 million of VW's eleven million rigged cars are in Europe, no European nation has yet penalized the carmaker.²¹⁷ One reason for this is that although EU law bans defeat devices, there are no defined penalties for using them.²¹⁸ In contrast, U.S. law requires automakers to identify, describe, and justify any emissions control device.²¹⁹ As a result, the U.S. government can prosecute carmakers for omission or wrongful declaration, expanding the reach of punitive action.²²⁰ Second, EU states are loath to penalize beleaguered companies, especially ones that embody vital national interests.²²¹ There is a tacit EU rule that certain national interests are sacrosanct, and Germany's auto industry historically has been considered one of them.²²² Third, even if the European Commission desired to sanction VW, it would likely be unable to because it can directly fine companies only on trade and competition issues.²²³

Failing to hold VW liable under EU law for its use of defeat devices could stifle European consumers' claims against the carmaker.²²⁴ With the European Commission unlikely to impose financial sanctions on VW, private litigation is probably the best means of holding the company accountable for its emissions cheating in Europe.²²⁵

²¹² *See id.*

²¹³ *Id.*

²¹⁴ *Id.*

²¹⁵ *See id.*

²¹⁶ Lewis & Ridley, *supra* note 167.

²¹⁷ *Id.*

²¹⁸ Lewis & Ridley, *supra* note 167; *see also* Council Regulation 715/2007, *supra* note 30, at 6.

²¹⁹ Lewis & Ridley, *supra* note 167; *see* 40 C.F.R. § 86.1844-01(d)(11).

²²⁰ Lewis & Ridley, *supra* note 167.

²²¹ *See id.* "In general when companies are already in great difficulties due to some crisis, European governments tend to be understanding and will not necessarily seek the imposition of all possible penalties," remarked Lucas Bergkamp, a partner at the law firm Hunton & Williams in Brussels. *Id.*

²²² *Id.*

²²³ *Id.*

²²⁴ *See* Hakim & Barthelemy, *supra* note 1; Lewis & Ridley, *supra* note 167.

²²⁵ *See* Lewis & Ridley, *supra* note 167.

C. How to Improve the EU's Auto Regulatory System

The VW scandal has revealed the inherent weaknesses of the EU regulatory system.²²⁶ It has highlighted a regime lacking central oversight, closely tied to private testing firms, full of loopholes, and heavily influenced by the bloc's largest carmakers.²²⁷ Years before news of Dieselgate broke, the European Commission already knew that the German carmaker's diesel cars exceeded pollution limits.²²⁸ It also knew that other cars in the industry had similar emissions problems.²²⁹ In order for the EU to prevent similar scandals in the future, it should make significant changes to its current regulatory system.²³⁰

First, the EU should institute a central regulator analogous to the EPA.²³¹ There is no independent authority that oversees car testing throughout the EU.²³² Instead, there is a hodgepodge of twenty-eight national agencies with inconsistent standards.²³³ As a result, carmakers may have their vehicles' emissions certified by regulators in any of the bloc's member states, and then all other member states must recognize the certification.²³⁴ The EPA, in contrast, certifies all cars in the United States to ensure they comply with emissions standards.²³⁵ The EU's regulatory system is problematic because it results in varying standards from state to state, which enables automakers to target the national regulators with the softest standards.²³⁶

Second, the EU should attain greater independence from private testing firms.²³⁷ Unlike in the United States, car manufacturers in Europe hire outside contractors to certify their emissions controls.²³⁸ This setup is dangerous because it creates a commercial dependence between the testing companies and

²²⁶ Bastasin, *supra* note 184.

²²⁷ See Hakim & Barthelemy, *supra* note 1; Lewis & Ridley, *supra* note 167; Robert, *supra* note 100.

²²⁸ Hakim, *supra* note 166.

²²⁹ *Id.* Starting in 2007, the European Commission tested the on-road emissions of seven diesel cars. *Id.* Its goal was to identify the deficiencies of conducting emissions tests only in laboratories and to evaluate certain emissions-testing equipment. *Id.* The cars tested included the Renault Clio, Fiat Bravo, Fiat Punto, and BMW 120d. *Id.* The researchers found that the Renault Clio's emissions surpassed regulatory caps by as many as seven times and that the Fiats and BMW exceeded emissions limits by two to four times. *Id.*

²³⁰ See Bastasin, *supra* note 184.

²³¹ See Hakim & Barthelemy, *supra* note 1; Lewis & Ridley, *supra* note 167.

²³² Hakim & Barthelemy, *supra* note 1; Lewis & Ridley, *supra* note 167.

²³³ Lewis & Ridley, *supra* note 167.

²³⁴ Hakim & Barthelemy, *supra* note 1.

²³⁵ Complaint, *supra* note 129; see 42 U.S.C. § 7525(a)(1) (2012).

²³⁶ See Lewis & Ridley, *supra* note 167.

²³⁷ See *id.*; Chow et al., *supra* note 63.

²³⁸ Danny Hakim & Graham Bowley, *VW Scandal Exposes Cozy Ties in Europe's New Car Tests* N.Y. TIMES (Oct. 14, 2015), <http://www.nytimes.com/2015/10/15/business/international/cozy-relations-complicate-europes-bid-for-new-car-tests.html> [https://perma.cc/RZX4-MC72].

the manufacturers.²³⁹ Such financial reliance may incentivize rule-breaking, as testing firms are motivated to approve rigged vehicles to attract more business.²⁴⁰ Europe should emulate the testing regime in the United States, where the EPA completes up to three rounds of testing, including reviewing automakers' self-certification and performing random checks of its own.²⁴¹ This would help eliminate the current incentive to cheat emissions tests for profit and restore confidence in the testing system.²⁴²

Third, the EU should eliminate the loopholes that undermine its emissions-testing regime.²⁴³ These loopholes allow car manufacturers to remove the back seats from their cars to make them lighter, tape the doors and grilles to make them more aerodynamic, and even examine preproduction cars unfit for commerce.²⁴⁴ In a February 2016 vote, members of the European Parliament failed to close loopholes in emissions caps on new diesel cars.²⁴⁵ Despite concern about the high levels of pollution in European cities, NO_x emissions may now exceed legal limits by as much as 110% between September 2017 and January 2020, and by as much as 50% thereafter.²⁴⁶ To remove these loopholes, regulators will have to stand up against the car-industry lobby, which exerts an outsized influence on auto regulation.²⁴⁷

Fourth, the EU should hold Europe's powerful car companies accountable by passing legislation that empowers it to penalize automakers for using defeat devices.²⁴⁸ The EU's reluctance to punish companies that represent important national interests shields carmakers from the financial penalties they de-

²³⁹ See *id.* Vicente Franco, a researcher at the International Council on Clean Transportation, said of the regulatory system: "There is a financial dependency between the technical services and manufacturers that at some point should be rethought to improve the confidence in the system, but this is a long-term process, and it takes a lot of political will." *Id.*

²⁴⁰ See *id.*

²⁴¹ Stefanini, *supra* note 78; see Hakim & Bowley, *supra* note 238.

²⁴² See Hakim & Bowley, *supra* note 238.

²⁴³ See Hakim & Barthelemy, *supra* note 1; Bastasin, *supra* note 184.

²⁴⁴ Hakim & Barthelemy, *supra* note 1.

²⁴⁵ Arthur Nelsen, *EU Parliament Fails to Close Loopholes in Controversial Car Emissions Tests*, GUARDIAN (Feb. 3, 2016, 11:14 AM), <http://www.theguardian.com/environment/2016/feb/03/eu-parliament-gives-green-light-for-loopholes-in-car-emissions-tests> [https://perma.cc/5DSU-GFHY].

²⁴⁶ Schmidt, *supra* note 10, at A22; Stearns, *supra* note 106.

²⁴⁷ See Hakim & Barthelemy, *supra* note 1 ("Policy makers in Brussels are . . . undercut by powerful member states like Germany protecting domestic automakers."); Bastasin, *supra* note 184; *Volkswagen Scandal Puts EU Lobbying Under Spotlight*, EUBUSINESS (Oct. 1, 2015, 10:56 PM), <http://www.eubusiness.com/news-eu/us-automobile.14jq> [https://perma.cc/F26W-5QPU]. The auto lobby wields immense power in Europe, second only to the financial industry according to reports from the EU's transparency registry. *Volkswagen Scandal Puts EU Lobbying Under Spotlight, supra*. Annually, the car industry spends approximately \$22.3 million soliciting the European Commission. *Id.* German carmakers account for half of that spending, but French, Japanese, and U.S. carmakers are exceptionally influential as well. *Id.*

²⁴⁸ See Lewis & Ridley, *supra* note 167.

serve.²⁴⁹ The EU should model its legislation after U.S. law, which requires car manufacturers to identify and describe any emissions control devices in their cars during the certification process.²⁵⁰ Doing so would allow the EU to sanction carmakers not only for using defeat devices but also for lying about their existence, thereby augmenting the Union's punitive power.²⁵¹

CONCLUSION

The VW emissions scandal is one of the most alarming and costly corporate scandals in history. For nearly a decade, one of the foremost carmakers fooled the world, rigging its vehicles so that they performed soundly during emissions tests but polluted recklessly in everyday use. Perhaps the most shocking aspect of the scandal is that nobody in Europe took action to stem its tide, despite red flags. Dieselgate has exposed not only the shocking malfeasance of VW's top executives but also the profound deficiencies in the EU's auto regulatory system. Exploiting these flaws and its political clout, VW caused enormous damage to the environment, public health, the economy, its consumers, and, ultimately, itself. To improve its regulatory framework, the EU should create a central regulatory body similar to the EPA, cut ties between carmakers and private testing firms, eliminate systemic loopholes, and penalize automakers for using defeat devices. The EU has the power to hold VW accountable for its deception and to send a strong message to all carmakers that they cannot pollute in Europe without consequence. Europe has turned a blind eye to the car industry for too long; if it does not hold VW liable or fix its regulatory system soon, history will likely repeat itself.

²⁴⁹ See *id.*; Robert, *supra* note 100.

²⁵⁰ See 40 C.F.R. § 86.1844-01(d)(11); Lewis & Ridley, *supra* note 167.

²⁵¹ See Lewis & Ridley, *supra* note 167.

