

SundayReview | OPINION

The Dirty Truth About 'Clean Diesel'

By TARAS GRESKOE JAN. 2, 2016

MONTREAL — AS scandals go, it was a juicy one. Volkswagen, one of the world's highest grossing automakers, persuaded consumers it had created a new generation of so-called clean diesel cars — until investigators discovered that defeat devices, which activated emissions controls only when the cars were tested, were concealing the fact that its vehicles emitted up to 40 times the permitted levels of pollutants during regular use.

Volkswagen has been punished with consumer opprobrium, a costly recall and plummeting sales. Yet the public outrage over the fraud obscures a much larger issue.

Volkswagen played a leading role in convincing people to accept a technology that in many countries is causing a precipitous decline in air quality for millions of city-dwellers: the diesel engine. Monitoring sites in European cities like London, Stuttgart, Munich, Paris, Milan and Rome have reported high levels of the nitrogen oxides and particulate matter, or soot, that help to create menacing smogs.

Recently, officials in Milan temporarily barred cars from the city; in Rome, too, persistent smog has forced the authorities to limit the use of private vehicles. Back in March, Paris was enveloped in a gray cloud of choking fumes that obscured the Eiffel Tower for hours and briefly earned the French capital the title of the world's most polluted city, beating out even Beijing. An air quality expert in Britain reported that much of it was "stale diesel" from traffic emissions generated in European cities.

This diesel pollution is not just unpleasant; it is also dangerous. The nitrogen

oxides produced by diesel engines, which are far more popular in Europe than in the United States, are a potent irritant for asthma sufferers. Health officials in Italy also noted increased reports of cardiovascular disease this week.

Diesel exhaust is laden with insidious soot particles, the so-called PM 2.5 (particulate matter smaller than 2.5 microns, or one-thirtieth the width of a human hair), which allow carcinogens to penetrate deep into tissues and organs. In other words, a driver who steps on the accelerator of a diesel car may be filling the lungs of nearby pedestrians, cyclists, infants in strollers and other drivers with potentially deadly particulate matter.

According to one study, 9,416 premature deaths in London in 2010 were attributed to nitrogen dioxide and PM 2.5 particles. Annual deaths linked to air pollution in Britain as a whole now rival the death toll in the early 1950s, when “pea souper” fogs caused by coal fires shrouded the capital for weeks.

How did we get here?

The German engineer Rudolf Diesel must have thought he was on to a good thing when he built his prototype engine in 1893. Unlike gasoline engines, diesel engines required no spark plugs to ignite the fuel injected into each cylinder: Pressure and high temperatures caused it to combust spontaneously.

Diesel’s engine also ran on a grade of fuel far less flammable than gasoline. More economical than other internal combustion engines, diesels became the workhorses of the 20th century: They powered ships, trains, trucks and tanks; they cut trees, dug ore and drove factories. Generations of children in rural areas got to school thanks to buses running on diesel.

The diesel engine is inherently efficient: Even a heavy sedan can get as much as 50 miles per gallon, while producing fewer carbon dioxide emissions per mile. The relatively light carbon footprint of Diesel’s invention meant that in the late 1990s, policy makers in Europe, eager to meet Kyoto Protocol goals, initiated a “dash for diesel.” Consumers got a push from sharply reduced taxes on diesel fuel.

In Europe, where tens of millions of cars run on diesel, 55 percent of all new

vehicle registrations are now for diesel cars. Thanks also to a glut of cheap diesel from Russian refineries, which last year ramped up production to half a million barrels a day, diesel is now a cheap option at many gas stations.

Industry soon took the hint: Diesel could be marketed as green. The Diesel Technology Forum's website proclaims that "Today's ultralow sulfur diesel, advanced engines and effective emissions control combine to achieve near zero emissions."

In the United States, which has some of the world's toughest air pollution laws, automakers worked hard to convince consumers that a new generation of "clean diesel" cars were far less polluting. Volkswagen heavily promoted its "TDI" (turbocharged direct injection) technology.

We know better now. As anybody who has seen the black smoke spewing out of the pipes of a big rig as it changes gears can testify, diesel has a fatal flaw. It tends to burn dirty, particularly at low speeds and temperatures. In cities, where so much driving is stop and start, incomplete diesel combustion produces pollution that is devastating for human health.

Fortunately, Volkswagen sold under half a million of its "clean diesel" cars to the American public before the emissions scandal broke. Today, fewer than 1 percent of the passenger vehicles sold in the United States run on diesel fuel.

So Americans have a head start on Europe, where policy makers are belatedly coming to view diesel as a devil's bargain. In a bid to make quick gains in the fight to slow global warming, they abetted a dramatic and quickly apparent decline in urban air quality. It turns out opting for diesel may even have failed to limit climate change: Researchers at Stanford found in 2002 that the warming because of soot from diesel emissions may more than offset the cooling because of reduced carbon dioxide emissions over the long term.

Europe is now scrambling to undo the damage. In London, Mayor Boris Johnson last year called for a national program to pay some drivers to scrap their diesel vehicles. In Paris, Mayor Anne Hidalgo has gained broad support for a proposed ban on diesel cars.

City leaders have a ways to go. On half a dozen visits to Europe in the last five years, I've marveled at the way traffic-limiting policies, along with better transit and bicycle infrastructure, have made life there more pleasant. While I envy such smart advances in urbanism and transportation, I've also noticed a paradoxical decline in air quality.

Elsewhere around the world, such forward-thinking leaders as Enrique Peñalosa, the recently re-elected mayor of Bogotá, Colombia, are betting on public transit, rather than private cars, to keep their cities moving. Battling its own smog problem, Bogotá now has a pilot project to replace its rapid transit system's diesel-powered buses with Chinese-made electric vehicles. Officials in Madrid have gone further, with plans to make its city center car-free by 2020.

Last month, the signatories of the climate deal in Paris agreed that the world has to begin a long-term shift from fossil fuels to more sustainable forms of energy. Recognizing "clean diesel" for the oxymoron it is would be a good place to start.

Correction: January 10, 2016

Because of an editing error, an article about diesel engines last Sunday misstated how diesel engine combustion works. Only diesel fuel is injected into each cylinder, not a fuel-air mix.

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