As Volkswagen Pushed to Be No. 1, Ambitions Fueled a Scandal

By DANNY HAKIM, AARON M. KESSLER and JACK EWING  SEPT. 26, 2015

Martin Winterkorn, Volkswagen’s chief executive, took the stage four years ago at the automaker’s new plant in Chattanooga, Tenn., and outlined a bold strategy. The company, he said, was in the midst of a plan to more than triple its sales in the United States in just a decade — setting it on a course to sweep by Toyota to become the world’s largest automaker.

“By 2018, we want to take our group to the very top of the global car industry,” he told the two United States senators, the governor of Tennessee and the other dignitaries gathered for the opening of Volkswagen’s first American factory in decades.

One way Volkswagen aimed to achieve its lofty goal was by betting on diesel-powered cars — instead of hybrid-electric vehicles like the Toyota Prius — promising high mileage and low emissions without sacrificing performance. Ray LaHood, the transportation secretary, endorsed the company’s commitment to diesel that day, calling it an “ingredient in the recipe for our long-term energy security.”

Volkswagen’s unbridled ambition is suddenly central to what is shaping up as one of the great corporate scandals of the age. On Tuesday, Volkswagen said it had installed software in 11 million diesel cars that cheated on emissions tests, allowing
the vehicles to spew far more deadly pollutants than regulations allowed. About 500,000 of the cars were sold in the United States, including Passats that rolled off the assembly lines in Chattanooga.

Disabling the emissions controls brought major advantages, including much better mileage — a big selling point in Volkswagen’s push to dominate in America.

The admissions forced Mr. Winterkorn to resign and have led to a management overhaul. Several executives were dismissed, including two top managers in research and development. Volkswagen shares declined about 34 percent last week, and the company faces penalties of as much as $18 billion from the Environmental Protection Agency.

Volkswagen’s current crisis has its roots in decisions made almost a decade ago. In 2007, it abandoned a pollution-control technology developed by Mercedes-Benz and Bosch and instead used internal technology.

At the same time, the determination by Mr. Winterkorn, the company’s hard-charging chief executive, to surpass Toyota put enormous strain on his managers to deliver growth in America.

To capture market share, Volkswagen, which also makes such brands as Audi and Porsche, would need to build the larger cars favored by Americans. But it would also need to comply with the Obama administration’s toughening standards on mileage. All automakers developed strategies to meet the new mileage rules, and diesel was a big part of Volkswagen’s plan. But diesel engines, while offering better mileage, also emit more smog-forming pollutants than conventional engines, so Volkswagen’s strategy ran head-on into American air pollution standards, which are stricter than those in Europe.

Cheating on emissions tests solved several issues at once. Not only were drivers rewarded with better mileage and performance, but the automaker also avoided more expensive and cumbersome pollution-control systems.

While Volkswagen cheated behind the scenes, it publicly espoused virtue. This, after all, is the company that used one of the largest advertising arenas in the world,
the Super Bowl, to run a commercial showing its engineers sprouting angel’s wings.

The scandal has shaken not just Volkswagen, but the whole auto industry. And it is painful for Germany, where one in seven workers is employed directly or indirectly by the auto industry. Volkswagen has long been a symbol of the efficiency and engineering acumen that make the country one of the most formidable economies in the world.

It is not Volkswagen’s first run-in with regulators over emissions. When the United States began regulating tailpipe pollutants in the 1970s, Volkswagen was one of the first companies caught cheating. It was fined $120,000 in 1973 for installing what became known as a “defeat device,” technology to shut down a vehicle’s pollution control systems. This time, it equipped its vehicles with software that was programmed to fake test results, an action the E.P.A. rebuked in 1998, when it reached a $1 billion settlement with truck-engine manufacturers for doing the same thing.

Over the last year, when confronted with evidence that its system was not performing as promised, Volkswagen aggressively pushed back, saying that regulators were not doing the testing properly.

**Scrapped Technology**

In 2007, Mr. Winterkorn attracted little attention when he made his first trip to Detroit as Volkswagen’s chief executive, during the industry’s annual auto show there. The company was then a bit player in the United States. There was more excitement about Changfeng Motor, the first Chinese automaker to participate in the show.

One Volkswagen executive did make headlines — but he was not there. Wolfgang Bernhard, head of the Volkswagen brand, was a well-known figure in Detroit, having spent several years as the second-highest-ranking executive at Chrysler, then part of Daimler. He was remembered for dressing in black leather during one auto show while he rode a four-wheel, 500-horsepower motorcycle called the Dodge Tomahawk.
Mr. Bernhard was widely expected to resign in a corporate shake-up, and he did a few days later. His departure set off ripples not just in Volkswagen’s boardroom, but also under the hoods of its future diesel vehicles. Mr. Bernhard, a longtime Daimler executive, previously announced a deal to use a technology called BlueTec, which was developed by Mercedes, a division of Daimler, and Bosch, a German supplier.

BlueTec mixes a chemical known as urea with engine exhaust to neutralize nitrogen oxide, one of the most harmful diesel pollutants. While it is an effective system, it can be costly and requires drivers to periodically top up a tank of urea.

A few months after Mr. Bernhard’s departure, the plan was scrapped. The trade publication Automotive News quoted an Audi executive saying Volkswagen’s own technology was strong enough. “We don’t need BlueTec,” the executive said.

There have been no suggestions to date that BlueTec vehicles sold by Mercedes violate emissions standards.

Matt DeLorenzo, a diesel expert and the managing editor at Kelley Blue Book, said it was not surprising to the industry at the time that Volkswagen abandoned BlueTec for its small and midsize cars in favor of a system that would not require the unwieldy, expensive urea tank. (Volkswagen uses its own urea-based system for heavier vehicles like the Touareg S.U.V.)

“Volkswagen wanted to make the diesel ownership experience as easy as possible, akin to having a regular gas engine,” he said.

In the 1970s, Mr. DeLorenzo said, when automakers all switched to catalytic converters to meet American emissions standards, Honda developed an engine technology that it claimed would run clean without the converters. It worked — at least at first — and Honda sold the cars for several years. But emissions requirements kept tightening each year, and Honda’s solution could no longer keep up. The automaker was forced to switch to catalytic converters like everyone else.

Mr. DeLorenzo theorized that Volkswagen may have faced a similar situation, in which the company thought it could start selling its non-urea diesels in America and
get a year or two of sales on the books, and as emissions standards ratcheted up, it would find a way to improve the technology to keep pace.

“It could have been an incremental thing that got them caught up in this,” he said. “They thought they could maybe fix this later, then discovered they couldn’t and went down a dark path.”

Mr. Bernhard, who is now head of Daimler’s truck division, declined through a spokesman to comment.

**Chance Revelation**

The same year Mr. Winterkorn made his speech in Chattanooga, officials from California’s environmental regulator began hearing about a problem from their European Union counterparts: They were finding discrepancies between the emissions of diesels in the lab and on the road, across the industry.

It was not completely unexpected that on-the-road performance might not match lab tests, given the varying road conditions vehicles face. But it led to the idea that new testing methods outside laboratories might be needed.

In 2013, a nonprofit group, the International Council on Clean Transportation, proposed testing on-road diesel emissions from cars in the United States — something never done before.

California regulators decided to team up with the group. They had an attractive chip to offer: the state’s laboratory, where vehicles were tested for California emissions compliance.

The transportation council, staffed by a number of former E.P.A. officials, did not expect to catch Volkswagen, or anyone else, cheating. In fact, it assumed that American diesel cars would run much cleaner than their European counterparts, thanks to stricter United States emissions rules. The group felt that by promoting a success story for diesel, it could pressure — and perhaps shame — automakers in Europe into improving their own emissions.
"We thought we would be seeing some clean vehicles," said John German, one of the project leads at the council. "That was the whole point when we started."

It was only by chance that the group’s testing of three vehicles began with two Volkswagens. The researchers already had a BMW X5 and a Volkswagen Jetta — and then a Passat owner happened to see an ad seeking cars for the project and offered up his.

Researchers hit the road, traveling five routes with varying terrain and traffic. Almost immediately, the two Volkswagens set themselves apart from the BMW.

"If you’re idling in traffic for three hours in L.A. traffic, we know a car is not in its sweet spot for good emissions results," said Arvind Thiruvengadam, a research professor at West Virginia University, which was hired to conduct the tests. "But when you’re going at highway speed at 70 miles an hour, everything should really work properly. The emissions should come down. But the Volkswagens’ didn’t come down."

It was difficult to know what was going on: When the two Volkswagens were placed on a "car treadmill" known as a dynamometer, they performed flawlessly.

"It just didn’t make sense," Mr. German said. "That was the real red flag."

**Coming Clean**

By 2014, the California regulators determined what to do next. First, they alerted their federal counterparts at the E.P.A. Then, they opened an investigation. "We brought in Volkswagen and showed them our findings," said Stanley Young, a spokesman for the California Air Resources Board. "We asked them, 'How do you explain this?'"

Volkswagen fired back. "They tried to poke holes in our study and its methods, saying we didn’t know what we were doing," Mr. Thiruvengadam said. "They were very aggressive."

The company offered many explanations: Weather conditions. Driving styles. Technicalities that it claimed the researchers and regulators did not understand.
“There was always some story, some reason they’d come up with each time,” Mr. Young said. “Meeting after meeting, they would try to explain it away, and we’d go back to the lab and try again. But we’d get the same results.”

The back-and-forth lasted for months. Finally, in April, Volkswagen made an offer: It would conduct a voluntary recall, or service campaign, to fix the problem in certain model year 2010 to 2014 diesel vehicles.

Regulators got the software update for their test vehicles and returned to the lab. The results were not good. “It didn’t solve the problem,” Mr. Young said.

Confronted again, Volkswagen continued to maintain that there was a problem with the testers, not the vehicles.

California regulators changed tack, examining the company’s software. Modern automobiles operate using millions of lines of computer code. One day last summer, the regulators made a startling discovery: A subroutine, or parallel set of instructions, was secretly being sent by the computer to what seemed to be the emissions controls.

Regulators were floored. Could Volkswagen be trying something similar to what the heavy-truck industry did to manipulate emissions tests in the 1990s?

Regulators set out to cheat the cheat, tweaking lab test parameters to trick the car into thinking it was on the road. The Volkswagens began spewing nitrogen oxide far above the legal limit.

Government officials then increased the pressure on the company, threatening to withhold approval for its 2016 Volkswagen and Audi diesel models. According to the E.P.A., that is what forced Volkswagen’s hand. On Sept. 3, a group of senior engineers admitted what the regulators had suspected: The company had installed defeat devices on nearly 500,000 diesel vehicles sold in the United States. In a presentation, they admitted that the software subroutine had been added to vehicles going back to the 2009 model year, when Volkswagen’s “clean diesel” arrived in America with promises of an environmentally friendly future.
"It was the repeated answers that did not add up that really led to the discovery of the problem in the first place," Mr. Young said. "They were kind of hoisted on their own petard."

The revelations were so stunning that some executives at Volkswagen Group of America were kept in the dark about the pending E.P.A. violation until just before it was announced, according to two people familiar with the situation who spoke on condition of anonymity.

This month, Volkswagen and Audi executives in Herndon, Va., began pressing executives in Germany for information about the delay in certifying the 2016 models for sale. The absence of details was already hampering plans for product introductions at United States dealerships.

But there was no explanation from Germany — until just before the E.P.A. announced the violation of the Clean Air Act.

After the scandal broke, Mr. Winterkorn issued a written and then a video apology. He resigned on Wednesday, saying that he had no knowledge of the trickery. "I am not aware of any wrongdoing on my part," he said, adding, "Volkswagen needs a fresh start."

Volkswagen's supervisory board named Matthias Müller, head of the Porsche division, the new chief executive, on Friday.

On Mr. Winterkorn's watch, Volkswagen did become the largest automaker in the world, surpassing Toyota in July. He had two months to savor it.

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