

Five things to know about VW's 'dieselgate' scandal

18 November 2016



Volkswagen confessed that 11 million diesel vehicles worldwide were fitted with the manipulating software, sending the carmaker's shares into a tailspin.

Most cars affected bear the Volkswagen brand, but vehicles made by other VW group companies such as Audi, Seat and Skoda were also equipped with the software.

What are they doing to fix it?

After its admission, Volkswagen announced a global recall of all affected vehicles to fix the emissions manipulation.

Here is what you need to know about dieselgate

It has been 14 months since Volkswagen admitted to fitting millions of cars with cheating software to dupe emissions tests, plunging the German auto giant into one of the biggest scandals ever to hit the industry.

On Friday the company, mired in legal woes, said it will cut 30,000 jobs worldwide under a huge savings plan, having already paid out billions of dollars in compensation.

Here's what you need to know about "dieselgate".

What's it all about?

US authorities on September 18, 2015, accused VW of installing so-called "defeat devices" in nearly half a million cars between 2009 and 2015 to make them seem less polluting than they were.

Investigators found that some cars spewed out up to 40 times more harmful nitrogen oxide—linked to respiratory and cardiovascular diseases—than legally allowed.



Nitrogen dioxide from cars is linked to respiratory and cardiovascular diseases

It also offered to buy back cars and pay compensation—but only to owners in the United States, much to the annoyance of EU authorities.

VW took a major step towards resolving the dispute in the US in June, when it agreed to a massive \$14.7-billion (13-billion-euro) settlement—an offer

approved by a US judge last month.

The deal will see the auto giant refit or buy back some 480,000 VW and Audi cars with 2.0-litre diesel engines. Owners of those cars will also receive up to \$10,000 each in cash compensation. Some of VW's money will also go towards environmental projects.

The carmaker still needs to resolve a slew of other US complaints, and remains barred from selling [diesel vehicles](#) in the country.

Last month, it agreed to pay US suppliers some \$1.2 billion to settle claims emanating from "dieselgate".

How bad is it for Volkswagen?

The financial hangover has been pretty bad, and could get worse.



A Volkswagen dealership in Woodbridge, Virginia

Aside from ongoing litigation in the United States, VW is facing probes and lawsuits around the world, including in Germany, France and South Korea, setting the stage for more fines and compensation demands.

The company says it has set aside around 18 billion euros to cover repairs, buy-backs and legal costs, but experts believe the final bill will be much, much higher.

Dragged down by such costs, the group reported a

1.6-billion-euro net loss last year, its first in over two decades.

VW is also under growing pressure from the EU to offer compensation to European customers. While the European Commission cannot itself take any action, it has urged member states to crack down on the company for violating consumer protection laws.

VW says it has no legal obligation to fork out cash for European drivers and insists that doing so could bankrupt the company, a major employer in several EU countries.

Have other carmakers been cheating?

Tests carried out in the wake of the scandal found that [diesel engines](#) by other carmakers were also more polluting on the road than during testing. But there is no formal indication any of them installed cheating software.

Volkswagen emissions scandal

VW admitted to fitting 11 million cars worldwide with software to cheat pollution tests

What does the software do?



- Programmes diesel engines to detect when a car is undergoing emissions tests
- Turns full emissions controls for **nitrogen oxides (NOx)** on only during the test

What happens at other times?

- Emissions controls are turned off, vehicle emits NOx above limit

NOx limit 31 mg/km in the US
EPA* tests on VW models found emissions up to 40 times the limit
*Environmental Protection Agency

What does NOx do?



- Linked to increased asthma attacks, other respiratory and cardiovascular illnesses

Controlling NOx: two key systems

Selective catalytic reduction



eg VW Passat, Touareg

- Injects urea to exhaust stream to create CO₂ and ammonia
- Ammonia reacts with NO_x to form water and nitrogen

Lean NOx trap



eg VW Jetta, Golf

- Uses alkaline or rare earth oxides to grab nitrogen oxides and form nitrates
- Injects fuel to clear the system

Source: USEPA/Autonews.com/ICCT/Car7hrottle.com © AFP

The Volkswagen emissions scandal

Rather, the manufacturers in those cases said regulations allowed deactivation of emissions controls in certain conditions to protect the engine.

Still, German makers Audi, Mercedes, Opel, Porsche and Volkswagen decided this year to

voluntarily recall around 630,000 cars to fix emissions irregularities.

How have customers reacted?

With remarkable sangfroid, VW group sales have plummeted in the US—down nearly seven percent this year—but European drivers appear to have largely shrugged off the controversy.

The VW group maintains the largest share of the European car market, just shy of 25 percent, and Audi and Skoda helped drive it to higher sales in the first 10 months of 2016 compared to the same period last year.

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