Car Emissions Scandal: Loopholes in the Lab Tests*

When Volkswagen was caught cheating diesel emissions tests in 2015, one of the first actions its engineers took was to launch a secret project: to obtain cars from rival manufacturers and conduct tests on their emissions. Its aim was to find evidence of widespread cheating across the industry, so guilt could be spread around and penalties diluted, say two people inside the company.

The Volkswagen Scandal, in other words, might helpfully become the Car Scandal.

Vehicles from Fiat, Hyundai and others were tested for harmful nitrogen oxide emissions by VW engineers at the group's Wolfsburg headquarters from late 2015 to early 2016. The engineers had a simple conundrum: VW had just admitted to equipping 11m cars with software to detect laboratory tests and enable them to enter a low-emissions mode. If VW's best engineers found regulations so onerous that they resorted to deliberate fraud, what had its rivals done?

A third person in the company insists there was a more innocent explanation for the tests. Engineers uninvolved in the original cheating had to use rival cars as control variables to better understand their own sophisticated software — some of it supplied by third parties and used by rival brands. "We were not dirtying others' hands to make our own look clean," says this employee.

Volkswagen declined to comment on this previously unreported episode.

What the engineers found shocked them. Rival brands' NOx emissions were considered "a complete disaster". Performance on the road was "completely different to the technical data", says a VW worker briefed on the results. The overall summary of whether rivals were also skewing emissions results was clear: "It's not only VW who is cheating."

What is unclear is whether rivals were deploying the same strategy as VW — using a "defeat device" to illegally trick regulators into believing its cars were green — or if they had simply become better at bending the rules on tests, a problem that still exists with petrol cars today, as the European Commission revealed last month when it disclosed the latest "tricks" carmakers were using to exploit loopholes for incoming 2020 emissions procedures.

The distinction is blurred but important. VW paid the consequences of crossing the line and cheating NOx emissions tests in the US. But the efforts of other carmakers to legally undermine testing for both NOx and CO2 in Europe have never resulted in real penalties.

Nearly three years after Dieselgate was exposed, Volkswagen is still the only carmaker to have pleaded guilty in the US court for cheating NOx emissions tests and lying to regulators. Damages have been in excess of $25bn.

* "Car Emissions Scandal: Loopholes in the Lab Tests", Financial Times

In Europe, however, there has been no comparable clampdown on what might be called "the other emissions scandal" — or what one compliance expert dubbed "the lawful but awful ways" in which carmakers legally exploit EU loopholes to achieve the best possible scores for CO2 emissions.

It had been an open secret in the industry for years that carmakers were gaming the EU lab tests in myriad ways: over-inflating tyres, taping doors, removing the sound system and turning off the airconditioning were just a few of the methods that helped cut emissions in the lab but that were impossible to replicate on the road.

In 2014, a year before the VW diesel scandal was exposed by the US Environmental Protection Agency, one study showed that carmakers had become increasingly brazen in "optimising" EU tests to lower their stated carbon-dioxide emissions. From 2001 to 2013, the gap in CO2 emissions in the lab versus on the road nearly quadrupled from 8 per cent to 31 per cent, according to the International Council on Clean Transportation.

Even with carmakers under scrutiny, and European regulators under pressure to enforce rules, the gap has since widened — reaching 42 per cent in 2016.

Once the VW engineers completed their allegedly damning report in early 2016, the company decided not to publish it. VW had just adopted a legal strategy of full co-operation with US authorities, in part to accelerate a settlement; it worried about appearing like it was shirking responsibility. The results were given to independent institutes, in case they wanted to verify them. And VW moved on.

Within months, however, allegations implicating Mercedes, Fiat-Chrysler and Opel, among others, began to emerge as the institutes and EU regulators performed their own comprehensive NOx emissions tests.

Recalls to "fix" or "modify" emissions software have since become a regular occurrence. But Europe has not taken strong action to penalise — and thus deter — them for using legal tricks to undermine C02 tests, which is why problems persist, says William Todts, executive director at the European Federation for Transport & Environment, a clean energy group.

Critics of the EU system say the national authorities' independence and incentives are questionable. For instance, Germany's transport authority, the KBA, is in a difficult position to impose billions of euros in fines on a car industry that employs 800,000 people in the country.

When, in April 2016, the KBA found that Mercedes, Opel and VW cars were understating pollution by turning off emissions controls in temperatures not found in test procedures, it recalled 630,000 cars. It issued no fines but simply told carmakers to stop exploiting the loophole.

Brussels even launched legal action against Italy last year alleging it had, in effect, allowed Fiat- Chrysler to evade emissions standards and possibly even break the law. "The emissions scandal has shown that the responsibility to enforce the law

and punish those who violate it can no longer be left solely to individual member states," industry commissioner Elzbieta Bienkowska said in May 2017 in response to the Fiat-Chrysler case.

Moreover, last month the commission's research arm said carmakers were already undermining these new CO2 emissions tests — before they even become mandatory next month.

The commission's Joint Research Centre found that cars were still being configured to produce low results on NEDC tests, but featured a different configuration to emit higher emissions on the incoming regime, the Worldwide Harmonised Light Vehicle Test Procedure, or WLTP.

The logic is to inflate the baseline for 2020 emissions — the year NEDC standards are phased out in favour of WLTP — because targets in 2025 and 2030 are based on a percentage reduction from the start point.

To obtain lower emissions on the NEDC test, carmakers can test the cars on full batteries, enable start/stop engine technology and manually shift gears quickly. To raise emissions for WLTP, they perform a separate test using a depleted battery, disable start/stop functions and shift gears more slowly.

Essentially carmakers are exploiting the fact that absolute targets are being replaced by targets measured in percentage terms. Under current rules, a car fleet's average must not emit more than 95g of CO2 per kilometre in 2020. It is not realistic to expect the same vehicles, however, to emit just 95g under the more rigorous test.

The target values for WLTP in 2021 are yet to be set. Environmental groups believe the target should be just 10 per cent higher than 95g, but car manufacturers say 20 per cent is more appropriate.

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