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Light Rail Group**
House of Commons
London SW1A 0AA
Light Rail & Trams, Affordable & Sustainable Transport



"The past we inherit, the future we build ourselves"

The real costs of air pollution



(Getty Images: Mint Images)

Air pollution doesn't just look and smell bad. It kills. And it costs megabucks.

We all know that high blood pressure, smoking, high blood sugar, and cholesterol are big risk factors for premature death. But air pollution is right behind them — it's killer number five.

Remember the infamous Volkswagen car emission fraud? It has been estimated to cause the early deaths of some 1,200 people in Europe alone — via air pollution.

These meetings are by invitation only, where MPs, Stakeholders etc., within the Light Rail industry and invited members of the Public will have a chance to discuss debate and raise questions concerning Light Rail

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Emissions Scams

The fraud happened over a seven-year period.

According to the New York Times: "From 2008 to 2015, Volkswagen sold 11 million diesel cars worldwide rigged with software that cheated emissions tests by running the full emissions-control system only if the car sensed a test was underway."

So if the car's software detected that the car was out of the testing laboratory, it increased the emissions far above the legal limits. It did this to improve both the fuel economy and the car's performance. And the difference it made was enormous.

When the 2011 Volkswagen Jetta was tested in a hilly environment — without the cheating software — it emitted 38 times the permitted levels of one pollutant!

How the scam worked:

Emission omissions

Diesel engines burn the fuel at a higher temperature than petrol engines.

This means that inside the combustion chamber, a wider range of chemical reactions can happen between the diesel fuel and the nitrogen gas that makes up about 80 per cent of our air. So diesel engines produce more nitrogen-based pollutants.

After leaving the combustion chamber, the exhaust gases go through a filter to trap particles, and then a nitrogen oxide trap. But for the nitrogen oxide trap to work properly, the engine has to use a little more diesel fuel, which reduces its fuel economy.

The laboratory tests that measure air pollution from cars are well defined. The engine is started, and then allowed to idle for specified time, and then run at number of different power levels, each for a specified time.

Emissions cheating software wasn't just in Volkswagens - it also appeared in some Audi, Seat and Skoda models.

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What Volkswagen did was build into the car's software an alert for this exact laboratory testing regime.

When this very specific testing regime was seen to be active (in other words, the car was being tested for exhaust emissions), another bit of software kicked in.

Known as the "EA 189 Engine Software", the crooked software was used in a variety of Volkswagen engines, and in other cars in the Volkswagen group, including models of Audi, Seat and Skoda.

The software was designed to temporarily reduce both the power and the fuel economy of the car, which would temporarily improve the exhaust emissions. Once the test conditions finished, the car reverted to its higher emissions, higher performance programming.

The resulting air pollution came with extra profits for Volkswagen, but at extra costs to the community.

The real cost of air pollution

In early 2017, Professor Steven Barrett from the Massachusetts Institute of Technology wrote a paper entitled
"Public health impacts of excess NOx emissions from Volkswagen diesel passenger vehicles in Germany".



Professor Barrett and his team estimated that just from the illegal emissions in Germany alone, some 1,200 people would die around 11 years earlier than expected.

They also estimated that if Volkswagen were to recall and fix these cars so they would meet the European emission regulations, over the life of the vehicles this would avoid an extra 2,600 premature deaths and save the European community 4.1 billion euros in health costs.

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Another 2017 study showed that worldwide, air pollution from all sources kills over 4 million people each year.

And a joint study by the World Bank and the University of Washington estimated that air pollution costs the entire world economy about \$US5 trillion each year.

When you compare that \$US5 trillion to the growth product of the entire planet of around \$US75 trillion, it's clear that air pollution is a significant financial cost.

It seems the only people who benefit from air pollution are those who create it, and who do not pay for the consequences.

Courtesy: DR Karl Kruszelnicki, ABC Science
<http://www.abc.net.au/science/>

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