

The Truth about Diesel Cars

11 December, 2015

Open letter to the European public and policy makers

We are a group of concerned air quality practitioners and researchers who believe that the public should be made aware of the true nature of the pollution from diesel cars.

Air pollution remains the principal environmental factor linked to preventable illness and premature mortality in the EU and still has significant adverse effects on much of Europe's natural environmentⁱ, yet for many years air quality has been regarded as a solved problemⁱⁱ. Almost half a million premature deaths in 2011 were due to poor air quality in Europeⁱⁱⁱ. The EU limit values for nitrogen dioxide and fine airborne particles remain difficult to achieve in many cities, and the promotion of diesel cars has made achievement of these limits more challenging. Most of the emissions of nitrogen oxides (NO_x) and particulate matter (PM) in our towns and cities typically come from diesel vehicles. The EU emission limits for diesel cars are less stringent than those for most petrol cars^{iv}.

Diesel vehicles are responsible for most of the emissions of particulate matter and nitrogen oxides from road traffic. Particle filters are now fitted to new diesel cars and can be effective at reducing the emissions of particulate matter. Technologies to reduce nitrogen oxide emissions from these vehicles have, however, been unsuccessful so far under road conditions.

Most European Governments have promoted diesel cars by providing fiscal incentives for cars with lower CO₂ emissions^v, but more significantly, by taxing diesel fuel less than petrol. This has led to over 45 million more diesel cars in Europe since the mid 1990s, millions in each of the major European countries. There is evidence that these policies have only marginally, if at all, reduced real world CO₂ emissions^{vi}, but have exacerbated poor urban air quality. In addition, black carbon^{vii} emissions from diesel cars without particle filters, and malfunctioning engines, stimulate global warming^{viii}, and are also responsible for some of the health effects of poor air quality.

So called "clean diesels" are unlikely to be clean over their lifetime. European legislation requires emissions compliance only for the first 150,000 km, while in the USA it is required for 240,000 km. For diesel cars to have similar emissions to petrol cars requires a complex 5-step chemical process and the engine not to malfunction^{ix}; an unrealistic expectation for all in-use cars. In France, for example, the engines of three quarters of 168 diesel cars randomly chosen from the fleet were found to be malfunctioning with up to four individual problems per car^x.

Diesel is cheaper than gasoline in virtually all EU countries, and with the better fuel economy provides an incentive for consumers to purchase diesel cars. However, there is not a simple relationship between the diesel-gasoline price differential and the market share of diesel cars. There are other influences that affect its popularity including the huge economic importance of the EU motor industry in many countries which, since the 1990s, has primarily developed diesel engines aiming to reduce CO₂ emissions^{xi}. The industry in other parts of the world has adopted other approaches. The Japanese motor industry, for example, has instead heavily invested in hybrid technology. In this way, Japan was able to reduce CO₂-emissions of newly registered cars much faster and more efficiently than the European Union, although diesel cars have been almost entirely removed from Japanese streets^{xii}.

The European motor industry, with the associated trade organisations, and the European oil industry, have recently launched a public campaign to promote diesel cars. This includes a website^{xiii} and an open letter to policymakers in Europe (dated July 8 2015). This material is misleading.

The European car industry has claimed for almost 20 years and again in the open letter that "*Diesel cars (have) significantly lower CO₂ emissions per kilometre (and) are essential to manufacturers'*

efforts to reach the EU's ... CO₂ fleet average targets". This is wrong. The reason why diesel cars tend to have lower CO₂ emissions is that the industry has invested in diesel engines at the expense of petrol engines over the past 20 years. Despite this CO₂ emissions of cars with a downsized, charged petrol engine can be comparable with an equivalent diesel car. For example, a 1.0 l Ford Focus (petrol fuelled) emits 99 g CO₂/km, the same car with a small diesel engine (1.5 l) emits 98 g CO₂/km^{xiv}.

The European oil industry has worked closely with the carmakers to promote diesel. As the demand for fuel oil declined due to the increasing use of gas to heat homes and generate electricity in the 1980s, European oil companies were faced with a surplus. Diesel and fuel oil are similar middle distillate products of refineries and an increase in demand for diesel was an obvious solution to the declining sales of fuel oil^{xv}. The influential oil industry therefore has promoted the dieselisation of the car fleet since the 1990s^{xvi}.

European motor and oil industries describe clean diesel in their open letter as "*a new generation of diesel made up of advanced engines, cleaner diesel fuel and effective controls*". Ultra-low sulphur diesel is not new, it was introduced a decade ago, and it is well known in the air quality field that diesel emission controls have not been effective. For example, the testing of vehicles in the real world, undertaken for the UK Government in 2011, showed that there had been essentially no improvement in NO_x emissions over two decades despite the introduction of increasingly more stringent limit values^{xvii}.

Analysis, taken under real world driving conditions by the International Council for Clean Transportation, and published in October 2014, concluded that "*modern diesel passenger cars have low on-road emissions of carbon monoxide (CO) and total hydrocarbons (THC), but an unsatisfactory real-world emission profile of nitrogen oxides (NO_x)*" (PM performance was not included in the study). "*The average on-road emission levels of NO_x were estimated to be 7 times the certified emission limit for Euro 6 vehicles*"^{xviii} which is 700 % of the emissions allowed. There were, however, some differences among the performance of the vehicles tested, with a few vehicles performing substantially better than the others suggesting that the technology exists for low NO_x diesel cars. So far, measurements on cars in London show that there has been little if any improvement since the early 1990s when the Euro standards were first introduced^{xix}.

The NO_x issue has been recognised by regulators and Europe is preparing to implement real world testing for cars. However, its introduction is likely to be delayed because of a lack of agreement on the appropriate real-world emissions test procedure for future Euro 6 cars. Instead of "*actively supporting ... real-world improvements*", the European car industry is presently lobbying to delay these requirements until after 2021^{xx}.

In their Open Letter, the European motor and oil industries, state "*Political measures restricting the rollout of the new generation of diesel technology would therefore undermine existing efforts to cut CO₂ emissions. Such measures make no sense from an environmental point of view*". In reality, it's the opposite. The environment, climate and health of the people would benefit from stepping away from the diesel car. Those diesel cars already on the streets, however, need to be retrofitted to reduce emissions.

The US Environmental Protection Agency's notice of violation of the Clean Air Act to Volkswagen suggests that the carmaker has deliberately used a defeat device to evade clean air standards. EU legislation also makes it illegal to use such devices^{xxi}. It seems ironic that this notice was issued less than three weeks after the European motor industry launched its diesel promotion.

With the help of weaker standards, diesel cars have been granted pollution privileges by EU law for over 20 years^{xxii}. As a result, poor air quality continues to have grave consequences for public health and European policy makers must act to correct this as a matter of urgency.

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