



The seven (dirty) air pollution tricks of the auto industry

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Summary

Europe risks putting almost 100 million more high polluting cars on its roads in the decade between 2025 and 2035¹, unless it seizes its last opportunity to introduce stricter emissions standards to reduce toxic emissions from internal combustion engines (ICE), make air safer to breathe across Europe, and make towns and cities healthier places to live in.

Air pollution causes an estimated 400,000 premature deaths every year in Europe², and due to air pollution's negative effects on health, costs tens of billions in health costs³. Poor air quality disproportionately impacts low income households and minorities. Road transport is a major cause of toxic air right across Europe.

The EU is currently revising its main law to cut pollution from cars, vans and trucks, Euro 6 emission standards, and developing new emissions standards, Euro 7, to be implemented from 2025. The Commission assembled emissions experts from across Europe, known as CLOVE, to independently assess the shortfalls in the current car and truck emissions regulation, and propose new emission limits and tests based on what is both economically and technically feasible. Following months of work and consultations, CLOVE earlier this year presented its recommendations that suggest stricter limits and rules based on what new emissions technologies, such as e-catalysts, can achieve.

The response from car manufacturers has been to fiercely oppose the CLOVE proposals, and to aggressively lobby against a stronger Euro 7 emissions standard using what amounts to dirty tricks such as unsubstantiated claims that Euro 7 will kill off the internal combustion engine. This briefing highlights those tricks and why they are misleading.

Instead of innovating and ensuring their vehicles are fitted with the latest technologies to clean up toxic emissions, the car industry is spending time and money fighting any significant improvement to the Euro 7 standard. While their CEO's are busy wooing investors at shiny EV days, the three

¹ Calculated based on T&E's internal model of EU car CO2 standards including production data obtained from IHSM. The modelling takes into account amendments to the regulation proposed as part of the Fitfor55 package. EU27+UK sales (UK buys EU type-approved cars).

² EEA. (2020). [Air Quality in Europe-2020 report](#).

³ EPHA. (2020). [Health impacts and costs of diesel emissions in the EU](#).

German carmakers and their EU umbrella group ACEA spent almost €9 million lobbying in Brussels⁴, some of which was spent weakening the clean car regulations.

The industry has a long history of cheating regulation, the Dieseldate scandal being just the most prominent case. It also has a history of overinflating emission compliance costs⁵ while the actual costs of adding better emission control technology are not prohibitive. Significantly, much lower emission limits are already feasible even for cars fitted with today's emission control technology. Research by CLOVE shows that half of cars tested today in on-road tests already emit less than half of the nitrogen oxide (NOx) emission limit⁶.

The European Commission estimates that toxic emissions can be slashed at very low cost, in the region of a €100-500 increase per car depending on the stringency of the Euro 7 standard⁷ - less than a paint upgrade on an entry level car model such as the VW Golf or Ford Fiesta⁸. By opposing an ambitious Euro 7, car manufacturers are sending a clear signal that they prioritise profits over people's health.

The result, based on T&E forecasts, is 95.8 million more ICE cars sold between 2025 and 2035¹. On average cars in the EU are and an average of 10.8 years⁹ and stay on the road much longer in Eastern and Southern Europe, often in excess of 15 years¹⁰. In effect, that means there are at least another 25 years of polluting cars on EU roads. The massive health and environmental costs caused by air pollution from road transport far outweigh the compliance costs.

The transition to electromobility is not happening fast enough within the EU to make the need for Euro 7 obsolete. By delivering low emission cars, vans, buses and trucks, the Euro 7 can be transformative in improving air quality for everyone. As long as car makers continue to sell internal combustion engines, they have a social responsibility to ensure they pollute as little as possible. It remains to be seen if carmakers will take their responsibilities seriously.

⁴ Combined 2020 EU lobbying budget for ACEA, VW, Daimler and BMW as obtained from the [EU's transparency register](#) in August 2021.

⁵ ICCT. (2021) What will it really cost to build the next generation of low-NOx trucks?

⁶ CLOVE. (8th April 2021) Presentation to the Advisory Group on Vehicle Emission standards. Available from [CIRCABC](#).

⁷ [European Parliament Committee on the Environment, public health and food safety](#). (15th June 2021).

⁸ Price checked on [www.ford.de](#) and [www.volkswagen.de](#) on 07/09/2021.

⁹ ACEA. (2020) [Automobile industry pocket guide](#).

¹⁰ Sofiaplan. Programme for Sofia 1.6. [Transport Infrastructure. Territorial area and analysis of the situation](#).

Introduction: Carmakers & their tricks

Air pollution is choking European citizens: it causes around 400,000 premature deaths per year and a wide range of serious illnesses including heart disease, lung disease and cancer. Yet - despite some reductions in pollution from road transport in recent years, owing largely to the introduction by the European Commission of on-road emissions testing following the dieselgate scandal - emissions from cars, vans, buses and trucks continue to be the leading source of nitrogen dioxide pollution (NO₂) and the third largest source of PM_{2.5}¹. Internal combustion engines (ICEs) also emit many other pollutants which are dangerous to health, such as fine particles, hydrocarbons and carbon monoxide. These emissions cause tens of thousands of premature deaths each year and costs society billions in healthcare costs².

The latest research shows that there is no safe level of air pollution³. Beyond pollutants that we know, such as nitrogen oxides (NO_x), emissions of which are regulated at the vehicles' tailpipe, there is an array of other gases and compounds emitted from internal combustion engines (ICE) not yet regulated but also damaging our health and environment, e.g., volatile organic compounds such as formaldehyde⁴ or very small particles⁵. This means there is still a clear and urgent need to further reduce and eliminate emissions of all harmful compounds for road transport. This will reduce air pollution, make air across Europe safer for everyone to breathe, and cities more pleasant to live in. This is a top priority of the EU Green Deal⁶. The main tool in Europe to reduce pollution from cars, vans and trucks - including toxic gases and carcinogenic particles - are the Euro air pollution norms, with the latest Euro 7 standard now in development.

Yet instead of innovating and deploying the latest technologies to clean up the exhausts, the car industry spends time and effort to fight against people's right to clean air. Most recently, this involves aggressively lobbying against the upcoming Euro 7⁷ pollutant emission standards by attacking their cost and calling them unfeasible. To turn public and political opinion against any new emission standard before any drafting of the legal texts have begun, the auto industry (represented by the European Automobile Manufacturers' Association (ACEA)) has launched a public campaign against Euro 7/VII focused on unsubstantiated claims, such as that Euro 7 will ban the internal combustion engine⁸.

A lot of these are old tactics deployed by industry to water down regulation and save themselves money. The car industry in particular has a long history of crying wolf on emission standards, claiming that compliance will be impossible, too expensive or cripple sales⁹, only to fully comply and take credit once the regulation enters force.

This briefing exposes some of those tricks putting them against facts and figures.

1. "Euro 7/VII will ban the internal combustion engine"

The car industry's claims that new Euro 7 emission standards are designed to ban the internal combustion engine in 2025¹⁰ are utterly unfounded and designed to turn public opinion against new emissions regulation. This argument is directed in particular at EU governments with large automotive industries, such as Germany and France, to get support and create fear for jobs and manufacturing decline.

However, The European Commission has repeatedly explained that Euro 7/VII ‘does not have the objective to put an end to internal combustion engines’¹¹. Instead, its objective is to make sure that ‘new vehicles placed on the market are as clean as possible’ and the proposals ‘will set realistic but necessary levels of ambition’. The Commission to this date have not proposed any limits or new requirements, so there is simply zero evidence to claim that engines would be forced to disappear from 2025.

To prepare the new Euro 7 regulation, the Commission assembled a consortium of independent emissions experts from across Europe known as CLOVE. Their role was to independently assess the shortfalls in the current car and truck emissions regulation, and based on this propose new emission limits and develop new or improved tests to cover all ICE applications¹². This includes an assessment of the ‘techno-economic feasibility of new pollutant emission limits’¹³, in effect meaning that any proposals put forward by the CLOVE consortium must be both economically and technically feasible. CLOVE has since presented its recommendations¹⁴, stressing that they are all based on what all powertrains can achieve if they deploy the best available emissions technology. The Commission will now use CLOVE’s findings along with research from the Commission’s own Joint Research Center (JRC), the impact assessment and its own expertise to formulate new emission standards which are technically feasible for all vehicle types.

2. “Euro 7 is not technically feasible”

Since the early days of the first Euro pollution standards, the car industry claimed that emission limits are not feasible, lobbying to weaken and delay them¹⁵. Daimler, VW, BMW, Audi and Porsche went as far as illegally colluding to delay the development and use of selective catalytic reduction (SCR) emission control technology - to reduce toxic NOx emissions - despite its maturity. They were fined 875 million euro by the Commission this year¹⁶ for collusion to delay emission reductions. Yet, despite the industry’s delaying and stalling tactics, cars eventually met the applicable emission limits, such as new Euro 6d-temp and 6d cars, on time and remained adequately priced. This time around the industry’s approach to new emission standards is no different.

Technology does not stand still, it progresses. The reality is that the current Euro 6 emissions standards are outdated, having been agreed more than a decade ago. Following their introduction in 2014, we now have evidence on how they can be improved. Loopholes which allow cars to substantially exceed the legal emission limits on the road, such as during fast accelerations, driving in hilly regions¹⁷ or particle filter cleaning¹⁸, need to be closed. For example, T&E testing¹⁹ of the latest diesel cars in 2019 showed that particle number emissions can be more than double the legal limit on tests where a particle filter cleaning (a.k.a DPF regeneration) occurs. Trucks on the other hand perform particularly badly when driving in cities, in some cases emitting as much as eight times the legal NOx limit²⁰.

Emission control technology itself has progressed significantly since 2008 - when the current Euro 6 limits were agreed upon - including the development of dual dosing SCR systems and high efficiency petrol particle filters. Tests by CLOVE show that half of cars tested on-road, both inside and outside of conditions covered by current EU tests, already emit less than half of the nitrogen oxide (NOx) emission limit²¹. This is in line with the first of two potential NOx emissions limits proposed by CLOVE for after 2025 of 30mg/km, showing that just by using technology already available today cars can have significantly lower emissions on the road than the current Euro 6 rules require. But this potential - which would have significant

benefits for public health - is not tapped today. Similarly, three petrol plug-in hybrids tested by T&E in 2020 emitted less than a quarter of the current NOx limit²². These results highlight that much lower emission limits are already feasible for cars fitted with today's emission control technology.

Technological developments also means that we can regulate new pollutants. For example, ammonia slip catalyst mean that ammonia emissions can be brought down to levels close to 1mg/km in everyday driving²³. E-catalysts can drastically reduce emissions during cold start operation, when the engine is first started which often occurs in cities and releases large amounts of pollution; while new technology such as vacuum aspiration can reduce dangerous particle emissions from brakes, aiding both engine and electric vehicles alike.

Ultimately, as part of the process of developing the new Euro 7 standards, CLOVE have, over the last two years, undertaken extensive research work to ensure limits are set at a technologically feasible level, before issuing their recommendations on new Euro 7. The latest emission limits proposed by the consortium in April are based on what the new emission control technologies can deliver under a wide range of driving conditions. The limits include engineering and measurement safety margins to ensure that all vehicles can meet the limits²⁴. Independently of CLOVE's work, engineering company AVL²⁵ have built diesel and petrol demonstrator cars which can achieve the emissions levels proposed by CLOVE²⁶. For trucks, new ambitious emissions standards already signed into law in California, require NOx reductions of up to 90%, in line with the reductions proposed by CLOVE which shows that large emission reductions for trucks are also feasible²⁷.

So lower and more encompassing pollution standards are technically feasible and needed to drive the adoption of the newest and best emissions control technology to reduce emissions from all vehicles to the lowest technically possible level.

3. “Euro 7 will be too expensive”

Air pollution from road transport costs EU citizens tens of billions of Euro's in health costs, due to air pollution's negative impact on health²⁸. Aside from the costs, it also causes tens of thousands of avoidable, premature deaths a year²⁹. Low emission cars, vans, buses and trucks - equipped with technology to reduce pollution to lowest technologically possible levels - are urgently needed to reduce these health costs.

The key argument of the car industry against Euro 7 is that it will cost too much. But how much is too much? The auto industry has a long history of overinflating emission compliance costs³⁰ while the actual costs of adding better emission control technology are not prohibitive. The Commission has recently announced that they expect the additional Euro 7 compliance cost to be in the region of 100-500 € per car, depending on the stringency of the Euro 7 standard³¹. For example, the cost of adding an e-catalyst or a dual dosing SCR system - that would allow cars to meet a number of stricter requirements of Euro 7 - falls between 100-200 euro for each technology³². To put this into perspective, the cost of putting much less polluting cars on the road is less than a paint upgrade on an entry level car model such as the VW Golf or Ford Fiesta, which can cost in excess of €700³³. It should also be noted that company cars make up 55% of EU car sales³⁴, rising to as much as 73% in Eastern Europe³⁵ which are largely paid by companies, not individuals, and are therefore less sensitive to purchase price fluctuations.

For trucks, compliance would result in a 2-5% purchase price increase compared to the current price of new Euro 6 trucks³⁶. However, as for company cars, purchase decisions for trucks are driven by the total cost of ownership (TCO) and the purchase price represents only a fraction of the TCO in the truck sector. T&E estimates that the increase in the TCO of a 40 tonne diesel truck in 2025 due to Euro 7 in Germany will be limited to between 0.4-0.8% over a five year period³⁷.

In reality, the increase in vehicle costs of 100-500 € per car and 0.4-0.8% per truck due to Euro 7 are not “excessive”. The car industry, despite claiming higher compliance costs, have failed to provide any data to substantiate their claims, and lawmakers should not be deterred from introducing lower emission limits - that will benefit all through improved air quality - based on unfounded claims.

4. “Stricter emissions limits will mean fewer new cars are sold, so polluting cars will stay on the road for longer”

The car industry has repeatedly cried wolf that new Euro standards will make new cars unaffordable, resulting in lower sales and older, and more polluting cars staying on the road longer³⁸. However, the last Euro 6 emission standard was first introduced for cars in 2014 and had no appreciable impact on car sales. Annual EU car registrations in 2014-2016 were 700,000 to 2.8 million higher than in 2013. Similarly, when the new on-road (RDE) testing procedure was introduced between 2017 to 2019, requiring significant improvements to the cars emission control system, annual car registrations in that period decreased by only 1%³⁹ on average. In comparison, the introduction of the Euro 6 emission standards and on-road emissions testing ensured that for the first time cars had to comply with the emission limits not just in the laboratory but also on the road. This significantly improved the on road emissions performance of cars.

5. “Euro 7 will not improve air quality”

The car industry lobby group, ACEA, have claimed that Euro 7 would only have a very limited impact on reducing air pollution and the negative health effects it causes. They argue that with Euro 6d-temp and 6d cars already delivering substantial emissions improvements compared to previous generation cars, and quicker fleet renewal with those vehicles, is sufficient to improve air quality in towns and cities.

To prove this, ACEA has recently published a study⁴⁰, however the methodology and assumptions which are used to show that Euro 7 will have only minimal environmental effects are flawed. The flaws, as previously detailed by ICCT⁴⁸, include:

1. Using emission limit scenarios which are less ambitious than the least stringent Euro 7 standards proposed by CLOVE, means that the full benefit of Euro 7 is not captured and air quality benefits are underestimated.
2. Failing to take into account the emissions benefit of Euro 7 for the majority of cars sold. The ACEA study only takes into account the emissions reduction for diesel cars and trucks, omitting the emissions reductions for petrol cars which make up the majority of new cars sold today. Diesel car sales have plummeted since 2016 and petrol sales are now almost double the diesel volume. Last year diesels only made up 28% of EU car sales compared to 47.5% for petrol cars⁴¹, and over the next decade diesel sales

are expected to decline even further. An analysis of future car production in the EU shows that by 2025 diesels will account for only 15.2% of non-plug-in cars made in the EU and by 2030 only 5%⁴². In comparison petrol's share will be over 70%⁴³. Omitting petrol cars from the air quality study means that the air quality benefits of reduced emissions from the majority of the car fleet are not captured so the air quality benefits are underestimated.

3. Using the number of air quality monitoring stations that comply with EU Air Quality Standards as a measure of air quality and health benefits. This approach fails to consider the negative health effects of air pollution which occur below the air quality guideline values, for which there is a wealth of evidence⁴⁴, meaning that the health benefits of reducing pollution below air quality standard values are not considered.
4. Only assessing the air quality benefits until 2035 fails to capture the full benefit of Euro 7 as the air quality benefits are only assessed over a very short period of time. As Euro 7 is not expected to be implemented between 2025-2027⁴⁵, the air quality benefits are assessed only over a maximum of ten years. This fails to capture the lifetime air quality benefits of even the average aged car in the EU, which is 10.8 years⁴⁶. In reality, many cars stay on the road much longer, especially in Eastern Europe, often in excess of 20 years⁴⁷. So a comprehensive analysis of the air quality benefits of Euro 7 should be considered over a much longer timeframe which captures both the full period in which older vehicles are replaced with Euro 7 models and the full lifetime of the cars.
5. Overestimating the emissions performance of Euro 6 trucks underestimates the improvements to their emissions performance that Euro 7 would deliver. ACEA assumes that the latest heavy-duty trucks (Euro 6 D) emit between 32-48% less than the previous models (Euro 6 C); this appears overly optimistic as this is three times more than the 12% reduction recorded by ICCT from real world data⁴⁸.

In contrast, a recent study by ICCT⁴⁹ found that new lower emission limits would lead to a large reduction in toxic NOx emissions, the pollutant at the heart of the dieselgate scandal, which chokes cities across the EU. ICCT calculates that by 2050 Euro 7 would reduce total NOx emissions by 4.2 million tonnes, a 25% reduction compared to if the current Euro 6 emission limits were simply left in place. Such a large reduction would avoid 35,000 premature deaths and 568,000 years of life lost across the EU which would otherwise have been lost due to toxic car fumes. If an ambitious Euro 7 was also combined with a faster uptake of zero emission cars as many as 42,000 premature deaths and 682,000 years of life lost could be avoided. These findings highlight that new lower pollutant emission limits would have a large beneficial impact on people's health and drastically reduce the number of premature deaths across the EU.

While the shortcomings in ACEA's study mean that the findings do not accurately represent the benefits of Euro 7, independent data shows that an ambitious Euro 7 emission standard is expected to produce substantial reductions in emissions of toxic pollutants from internal combustion engines.

6. "Euro 7 is not needed due to transition to electro-mobility"

In July 2021, the European Commission announced plans to significantly increase the ambition of car and van CO2 standards - which drive electrification in the EU - including a target of 100% zero emission (or electric) car and van sales from 2035. However, there has been no increase in the ambition of CO2 targets until 2030, and ICE cars will still continue to be sold in large numbers in the EU for another 14 years (and for much longer in the second hand market). In fact, more than half of all annual sales will remain petrol or diesel until at least 2030. T&E forecasts that 95.8 million more ICE cars will be sold between 2025 (when Euro 7 is expected to enter into force⁵⁰) and 2035⁵¹. Cars in the EU are an average of 10.8 years

old⁵² and many stay on the road much longer, especially in Eastern and Southern Europe, often in excess of 15 years⁵³. In effect, that means there are at least another 25 years of polluting cars on EU roads.

Similarly, there are no plans by truck manufacturers, as of yet, to stop the sale of ICE trucks in the EU, with sales expected until at least 2040 and beyond⁵⁴. As European trucks have an average age of 12.4 years⁵⁵, a considerable share of ICE trucks would then be expected to stay on the road well after 2050. In effect, the transition to electro-mobility is not happening fast enough within the EU to make the need for Euro 7 obsolete, and even a full phase-out in 2035 leaves dozens of millions of cars to clean up in the next 10-15 years.

It should also be remembered that the transition to electro-mobility and lower pollutant emissions standards are not mutually exclusive. In California, lawmakers have just introduced the most stringent pollutant emission standards for trucks globally alongside mandatory electric truck sales mandates. Starting from 2024, 5-9%⁵⁶ of truck sales will have to be zero emission, increasing to 40-75% by 2035⁵⁷.

A new stringent Euro 7 emissions standard for all vehicles is needed to ensure that the cars and trucks sold until the transition to only zero emission vehicles, are as low emissions as possible. Otherwise, Euro 6 cars and trucks, which in many cases emit more than the legal limits on the road, will continue to be sold until their phase-out, which will not be good for air quality. In the case of trucks this would result in vehicles which can emit multiple times the legal limit when driving in cities and urban areas continuing to be sold, despite technology to reduce their emissions being available.⁵⁸ Since the technology to further reduce emissions and ensure compliance throughout the lifetime of the vehicle under a wide range of driving conditions exists, regulation should catch up and mandate its use to ensure that the ICE vehicles that will remain on the EU's roads impact the health of its citizens as little as possible.

7. “Switching to biofuels or e-fuels is enough to reduce emissions”

Switching from fossil fuels to biofuels or (synthetic) e-fuels won't solve the air pollution problem as fuel is still burnt inside the engine releasing toxic pollution into the air. A recent fuel industry study⁵⁹ shows that when used in the latest Euro 6 d-temp cars, e-diesel only marginally reduces nitrogen oxide (NOx) emissions - the pollutant at the heart of the dieselgate scandal which has many negative health effects including heart disease - and can actually increase the amount of dangerous small particles released into the air. As such, switching to new fuels won't reduce or phase out toxic emissions from transport. Only ambitious Euro 7 standards combined with the coherent roadmap to fully transition to zero emission mobility can achieve this.

While e-fuels made from captured CO2 and hydrogen from renewable electricity are carbon neutral, this is not a viable way⁶⁰ to decarbonise transport. Making e-fuels is incredibly inefficient and therefore should be reserved for very hard to decarbonise sectors such as aviation. If just 10% of the EU's cars, vans and small trucks were powered by e-fuels, and another 10% by hydrogen, 41% more renewables would be required in 2050 compared to if those vehicles were electric instead. The land required for that infrastructure would be similar in size to Denmark⁶¹. Therefore, the use of biofuels or e-fuels in road transport cannot be used as an argument against Euro 7, or for keeping the internal combustion engine alive indefinitely. All this will do is hinder the transition to zero emission transport.

Summary

The statements made by the car and truck makers in relation to Euro 7 are designed to derail any plans to reduce toxic pollution from road transport. Lawmakers should look past the industry's claims and focus on doing what is right for EU citizens' health. This means ensuring that the draft Euro 7 proposals expected at the end of this year are ambitious and robust and bring emissions down to the lowest technically possible level. Limits must be introduced for all pollutants which are harmful to human health or the environment and can be effectively regulated at the tailpipe. Alongside this, emission limits must apply under all driving conditions and throughout the lifetime of the vehicle to avoid shifting the problem of air pollution to less affluent Member States.

Further information

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