

Cleaner road transport requires an ambitious Euro 7 Emission Standards Policy

The European Public Health Alliance and the European Respiratory Society

Air pollution causes a major health impact in Europe, causing hundreds of thousands of preventable deaths. It is the most significant environmental risk that Europeans face, reducing the amount of time they spend living healthy. A major contributor to air pollution in Europe comes from motorised road transport. The air pollution emitted by vehicles, and the health, social, wellbeing and economic burden this places on individuals, cities, States and the region can be curbed with a strong European Union policy. The Euro 7 Emission Standards Policy is a great chance to improve the health of those living in Europe, and to avert premature morbidity and mortality related to air pollution from road transport.

The current state of play and demise of internal combustion engines

After one year and half of negotiations and debates, the European Parliament and the Member States of the European Union found a compromise at the end of 2022, setting ambitious CO₂ emission performance standards for passenger cars and light commercial vehicles. By 2035, all new cars and vans will have to emit zero (tailpipe) emissions. Traffic-related air pollution is a complex mixture of gases and particles resulting from the use of motor vehicles, including nitrogen dioxide (NO₂), elemental carbon (EC), ultrafine particles (UFP) and fine particle matter (PM_{2.5}). These pollutants can be emitted directly through the vehicle exhaust as tailpipe emissions but also from non-exhaust sources such as evaporative emissions of fuel, the resuspension of dust, the wear of brakes and tyres, and the abrasion of road surfaces (which are collectively referred to as non-tailpipe emissions) (Boogaard, H et al. 2022).

These new standards are crucial as they contribute to the EU 2030 and 2050 climate objectives; Europe aims to be the first climate-neutral continent by 2050. The wider deployment of zero emission vehicles will decrease one of the largest sources of greenhouse gases, save energy and improve air quality, and thereby improve health of Europeans.



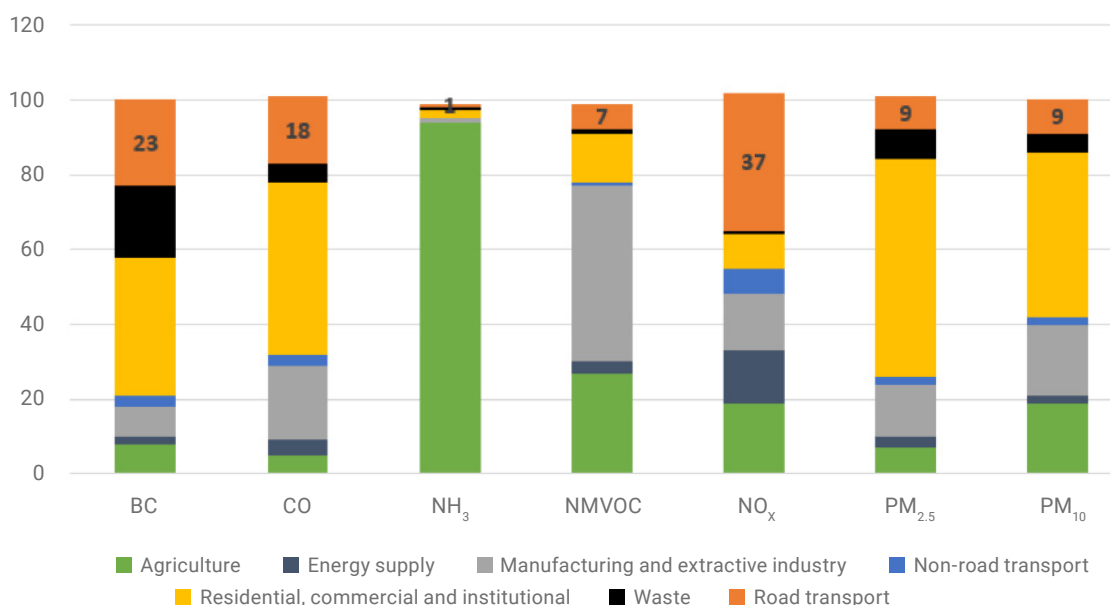
In the past four years, the European Commission worked on a legislative proposal on the ‘*European vehicle emissions standards - Euro7 for cars, vans, lorries and buses*’. The goal of these standards is to progressively lower pollutant emissions, such as nitrogen oxides (NO_x). The current generation, known as Euro 6, was developed in 2008 but is now outdated. Euro 7 is considered the last opportunity to protect human health from harmful pollutants by these petrol and diesel engines before the zero-emission deadline in 2035.

Air pollution causes significant health, wellbeing, social and economic burden in Europe, and its estimated economic damage is up to EUR 853 billion annually (European Commission, 2022).

Air pollution causes morbidity and mortality, through a range of air pollution-related disease and conditions. From a medical point of view, it has widespread effects through the whole body, and has been associated with ischaemic cardiac disease, stroke, chronic obstructive pulmonary disease (COPD), asthma (including development of new asthma in children), infectious respiratory disease (including COVID-19), multiple cancers including lung, bladder, brain and breast, dementia, worsened mental health, insulin resistance and type 2 diabetes, preeclampsia and gestational diabetes, impaired cognitive development in children, decreased fertility and increased hospital admissions and emergency presentations (Jovanovic Andersen, 2022). Nitrogen oxides (NO_x) cause damage to the human respiratory system and increase a person’s vulnerability to, and severity of, respiratory infections, asthma, and chronic lung disease. Reducing air pollution has large co-benefits for climate mitigation, energy security, and biodiversity and it increases the resilience of populations for pandemics.

Focusing on road transport emissions is one of the most efficient ways to reduce air pollution in European cities; cars and vans are the single largest source of nitrogen dioxide (NO₂) pollution, a potent gas which has significant effects on individual health and wellbeing (EEA, 2022). According to the European Environment Agency (EEA)’s annual report on “[Air quality in Europe](#)”, in 2020 in the EU, 49,000 premature deaths were attributable to exposure to NO₂ concentrations above the WHO guideline level of 10 µg/m³. An estimated 175,702 years were lived with disability (YLDs) due to Type 2 diabetes mellitus attributed to NO₂ air pollution, per year, in 30 European countries. The EEA calculated that 89% of the EU’s urban population was exposed to concentrations of NO₂ above the WHO guideline level. In 2018, more than 39% of NO_x emissions in the EU came from road transport, and in urban areas it was up to 47% (EEA, 2022).

Contributions to EU-27 emissions of air pollutants from the main source sectors in 2020 - EEA (2022)



Tackling air pollution at its source requires political will but brings immediate and long-lasting health benefits.

The European proposal

In November 2022, the European Commission presented [a legislative proposal for stricter emissions standards](#), the Euro 7, for cars, vans, lorries, and buses. The goal of this proposal is to achieve the new air quality standards proposed by the Commission in October 2022 by tackling emissions from tailpipes as well as from brakes and tyres. These rules on brakes and tyres emissions will apply to all vehicles, including electric ones as they will still cause pollution from non-tailpipe sources including brakes, microplastics from tyre wear, and dust resuspension from road/asphalt abrasion.

The proposal replaces previously separate emission rules for cars and vans (Euro 6) and lorries and buses (Euro VI). This means that the Euro 7 standards bring emission limits for all motor vehicles under a single set of rules, regardless of whether the vehicle uses petrol, diesel, electric drivetrains or alternative fuels. The new rules also set emission limits for previously unregulated pollutants, for instance nitrous oxide (N₂O) emissions from heavy-duty vehicles. Compliance for vehicles will be extended, ensuring that they stay clean for longer, and emissions will be monitored by on-board sensors that will guarantee that vehicles are not tampered throughout their lifetime.

The Commission's proposal introduces new sub-categories for Euro 7; Euro 7+ for vehicles with 20% less emissions, 7A for vehicles with adaptive control, and 7G internal combustion vehicles with geo-fencing. For instance, the geo-fencing category "Euro 7G" would mean that a plug-in hybrid car can only use its battery in low-emission zones (LEZ). These designations can be combined. Yet, it is unclear how this will work in practice.

At the moment, the date for the entry into force of the new regulation is 1 July 2025 for new cars and vans, and 1 July 2027 for new lorries and buses.

The Health Community's Disappointment with the Euro 7 Standards

The EU plan for reducing air pollutant emissions from cars is disappointing despite having the potential to improve Europe's outdated vehicle emission legislation. The proposed standards give a green label to vehicles that perform no better than current Euro 6 targets. It fails to take into account existing cleaner technologies (Ragon, et al. 2021), which being available and affordable, can drastically cut pollutant emissions.

The low level of ambition of Euro 7 emission standards undermines the EU's commitments to protecting the health of Europeans. Indeed, Euro 7 is a necessary element of the revision of the *Ambient Air Quality Directives* (AAQD), especially given the impact of polluting vehicles on human health.

One million additional polluting cars are placed on EU's roads every month, and they will remain for decades to come. It will be even more difficult for Member States to meet stringent revised World Health Organization (WHO) Air Quality Guidelines. They require large reductions in ambient nitrogen dioxide (NO₂) concentration of which road transport is one of the main sources.

Looking at the new sub-categories for Euro 7, several concerns have already been raised. For example, "Euro 7G" risks shifting pollution to other areas of a city which are not geo-fenced. When the internal combustion engine is turned on in a plug-in hybrid after a period of zero-emissions driving, there is a large spike in pollution. If many cars turn on their engine directly outside of a geo-fenced area, local air quality will be negatively impacted, disrupting the ongoing transition from low to zero emission zones at the local level and raising the issue of health inequalities, which is already a significant issue in terms of the burden of morbidity and mortality from air pollution.

Another issue with this proposal is the time that a car is required to meet emissions limits. Cars would have to comply with emissions limits until 200,000 km or 10 years, whichever comes first. Yet, the average age of cars and vans in the EU was almost 12 years in 2020, and in some countries the average age was 17, meaning that the average car in the EU is already outside of the guidelines of the Standards. This proposal will cause second or third hand owners to end up with vehicles that no longer comply with the Euro 7 standards, displacing air pollution from wealthier to poorer regions.

What can the European Union do?

The date of 2035 for the end of the sale of new internal combustion engine vehicles is too long a time to wait. As it stands, the Commission's proposal on Euro 7 is not enough. It will not solve the health issues caused by air pollution from road transport.

The European Public Health Alliance, the European Respiratory Society, and the members and partner of both organisations, are advocating for an ambitious, stringent, logical and health-focussed Euro 7 Emissions Standard to be put in place across the European Union, without delay.

The policy should be in line with the latest scientific recommendations and evidence on the health, social and environment effects related to internal combustion engines and road transport, including the 2021 World Health Organization Air Quality Guidelines. Within the Euro 7 draft, the EU should support the most ambitious scenario "policy option 2b – High Zero-Pollution Ambition", based on best available technology, e.g. cutting NO_x limits by at least 50%. Emissions regulation should be strengthened to ensure that vehicles meet the emission limits on the road, for all pollutants, under all possible driving conditions. Effective implementation is as important as the limits themselves. The health toll of road transport and internal combustion engines needs to be reduced urgently, to ensure EU meets its climate objectives by 2050 and to guarantee a healthier future to all European citizens.

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