

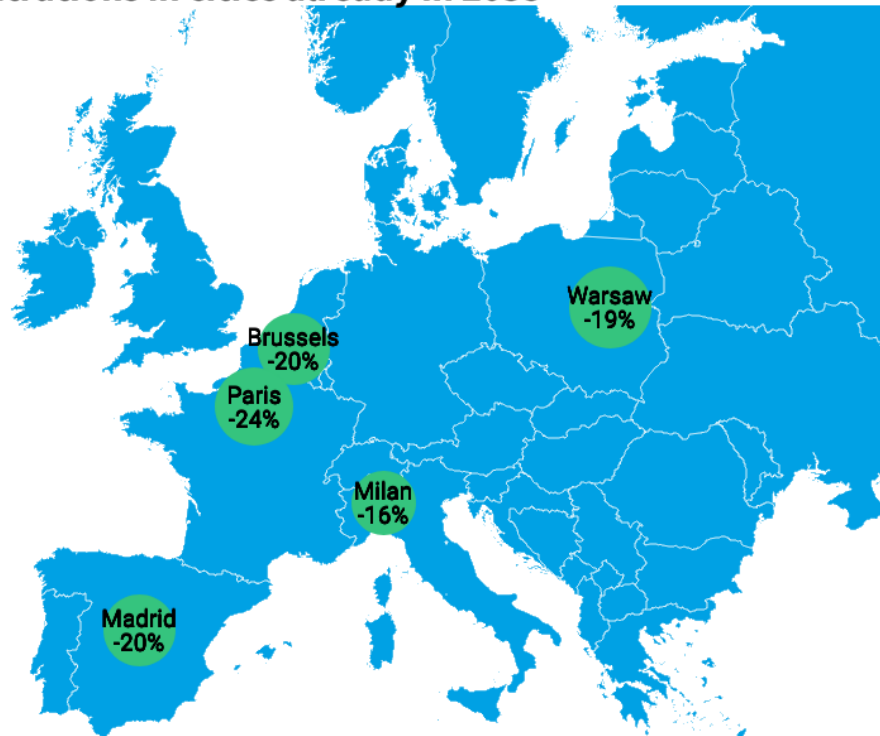
## Factsheet

# A robust Euro 7 will substantially improve air quality in Europe

### Executive summary

One of the main claims made by carmakers opposing the introduction of Euro 7 standards, is that they won't significantly improve the quality of the air we breathe. New research commissioned by Transport & Environment and carried out by Air Quality Consultants debunks this.

**Robust Euro 7 limits will substantially reduce NO<sub>2</sub> concentrations in cities already in 2035**



Source: Modelling by Air Quality Consultants Ltd., commissioned by T&E, based on implementation of the European Commission's Euro 7 Impact Assessment's medium ambition scenario for cars, vans, trucks and buses in 2025.

 TRANSPORT & ENVIRONMENT [transportenvironment.org](https://transportenvironment.org)

The results show that aligning car and truck NO<sub>x</sub> pollution limits with robust Euro 7 limits (i.e. 30mg/km for cars, 350 mg/kWh cold limit and 90 mg/kWh hot limit for trucks-which were found to be the optimal policy option by the Euro 7 Impact Assessment) will reduce NO<sub>2</sub> pollution from road transport in Brussels, Madrid, Milan, Paris and Warsaw by around 50% by 2035. This will result in up to 24% lower concentrations of toxic NO<sub>2</sub> in pollution hotspots in those cities in 2035. The study also shows that without Euro 7 or other actions to reduce pollution such as more stringent low- and zero-emission zones, Brussels, Madrid, Paris and Warsaw are unable to comply with the NO<sub>2</sub> limits proposed by the revision of the Ambient Air Quality Directive until

after 2035. In addition, greater ambition on brake pollution limits could also rapidly accelerate reductions in particle pollution from brakes. A brake particle limit of 3mg/km in 2025 instead of 7 mg/km in 2025 and 3 mg/km in 2035 would almost double the reduction in brake particle pollution from 19% to 34% already in 2030. **Overall, the results show that a robust Euro 7 delivers substantial improvements in air quality on top of the car and truck CO2 standards.**

### **Introduction:**

Air pollution from road transport kills 70,000 Europeans prematurely every year<sup>1</sup> and causes a multitude of diseases including cancer, stroke and cardiovascular disease.<sup>2</sup> Despite reductions in recent years, owing mainly to changes in official testing after the dieselgate scandal in 2015 when carmakers were found to be cheating on emissions tests, road transport remains the biggest source of toxic NO<sub>2</sub> pollution in Europe<sup>3</sup>. To improve air quality, especially in cities where air pollution is at its worst, rapid cuts in pollution from road transport are needed. Despite the shift to electrification driven by the EU's car CO<sub>2</sub> standards, in November 2022 the European Commission published its proposal for a new pollutant emission standard for cars, vans, trucks and buses in November 2022<sup>4</sup>.

While welcome, the Commission's Euro proposal for cars did not follow the recommendations of its own Impact Assessment, failing to reduce pollutant emission limits for cars beyond those set for petrol cars 15 years ago. In addition, the Commission set only a weak limit for brakes of 7mg/km in 2025, reducing to 3 mg/km in 2035. This is despite European technology to meet a 3mg/km limit already being available.

T&E Commissioned *Air Quality Consultants Ltd.* to assess the impact that following the Commission's Euro 7 Impact Assessment and introducing a more ambitious 3mg/km brake particle limit in 2035 would have on pollution and air quality.

### **Key findings:**

#### **NO<sub>2</sub> pollution**

- **Aligning NO<sub>x</sub> pollution limits for cars and trucks with the findings of the Commission's Euro 7 Impact Assessment (i.e. for cars setting the NO<sub>x</sub> limit at 30 mg/km instead of 60 mg/km) will reduce NO<sub>2</sub> pollution from road transport by over 20% already in 2030 and around 50% by 2035.**

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<sup>1</sup> European Commission. (2022) Euro 7 Impact Assessment Report, Part 1

<sup>2</sup> European Environment Agency. (2022) Air pollution: how it affects our health.

<sup>3</sup> EEA. (2020) [Air quality in Europe](#).

<sup>4</sup> European Commission. (2022)

Table 1. Reduction in NO<sub>2</sub> pollution from road transport due to implementation of a Euro 7 aligned with the Commission’s Impact Assessment in 2035 compared to the baseline.

Reduction in NO <sub>2</sub> pollution from road	2025	2030	2035	2040	2045	2050
Brussels	-3%	-24%	-50%	-73%	-87%	-93%
Madrid	-3%	-23%	-47%	-69%	-81%	-84%
Milan	-3%	-22%	-46%	-64%	-73%	-73%
Paris	-3%	-23%	-48%	-70%	-84%	-88%
Warsaw	-3%	-23%	-47%	-69%	-81%	-83%

- This will **reduce concentrations of toxic NO<sub>2</sub> at pollution hotspots** in Brussels, Madrid, Milan, Paris and Warsaw by between **16% and 24% already in 2035**.
- **A robust Euro 7 reduces the burden on cities to tackle air pollution.** Without Euro 7, the most heavily trafficked air pollution hotspots in Brussels Madrid, Paris and Warsaw will still not comply with the 20µg/m<sup>3</sup> NO<sub>2</sub> air pollution limit proposed for the revision of the Ambient Air Quality Directive<sup>5</sup> in 2035 unless other measures such as low and zero emission zones are implemented<sup>6</sup>.

Table 2. NO<sub>2</sub> concentrations and % reductions in 2035 under a business as usual baseline scenario where Euro 7 is not implemented and with Euro 7 which follows the Commission's Impact Assessment and is implemented in 2025. Modelling is based on compliance at the worst case modelling station.

NO <sub>2</sub> Air Pollution Concentration (µg/m <sup>3</sup> )	Brussels	Madrid	Milan	Paris	Warsaw
2035 baseline	21	22	20	26	21
2035 IA	17 (-20%)	18 (-20%)	17 (-16%)	20 (-24%)	17 (-19%)

**Overall, implementation of a Euro 7 for cars, van, buses and trucks which is aligned with the findings of the Commission’s Impact Assessment delivers substantial cuts in NO<sub>2</sub> pollution. This translates to significant improvements in air quality already in 2035, enabling all cities to meet the proposed requirements of the revised Ambient Air Quality Directive in 2035.**

### Brake pollution

- Implementing a **3mg/km emission limit for car and van brakes in 2025** instead of 2035 will **increase reductions in brake particle pollution from 19% to 34% in 2030 and from 34% to 55% in 2035**.

<sup>5</sup> European Commission. (2022) [Proposal for the revision of the Ambient Air Quality directive](#).

<sup>6</sup> Clean Cities Campaign (2023) [How low can cities go?](#)

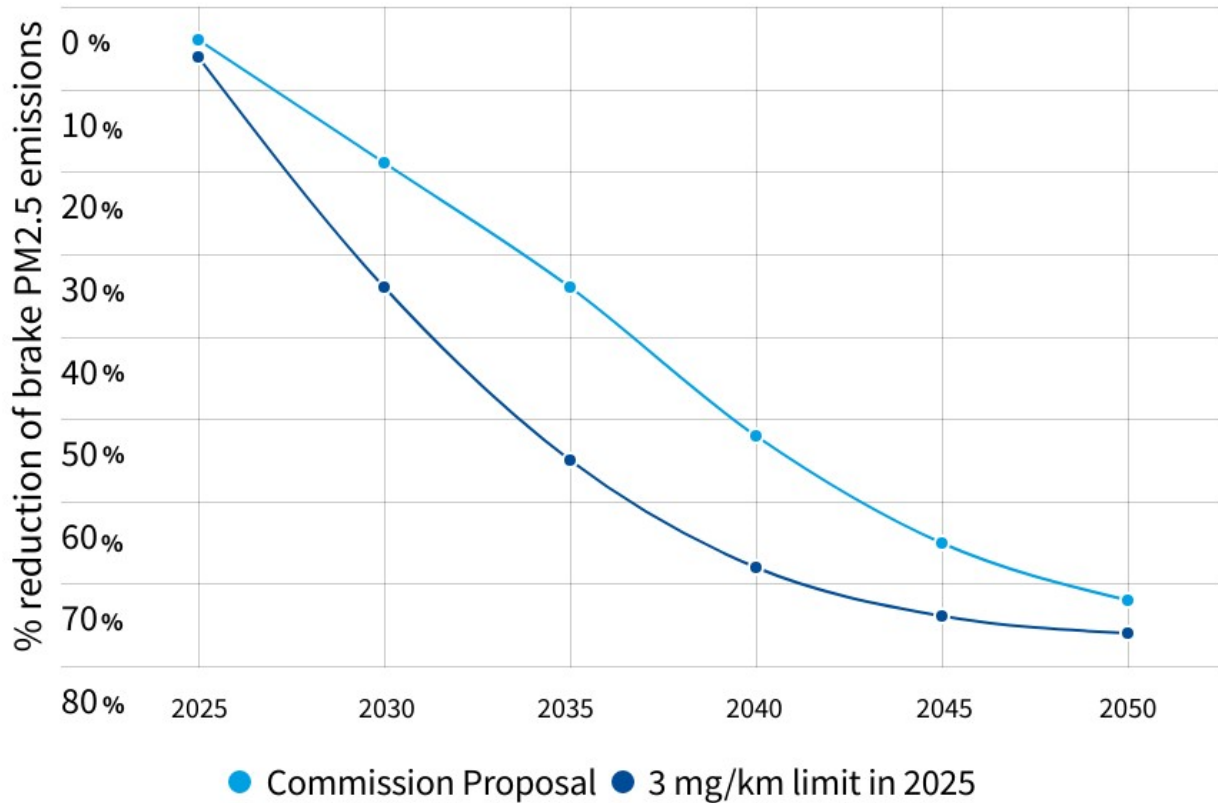


Figure 1: Reduction of car and van brake particle pollution from implementing the Commission’s proposal of a 7mg/km brake particle limit in 2025 followed by a 3mg/km limit in 2035 and an accelerated scenario where the 3mg/km limit is implemented in 2025.

**Implementing a 3mg/km brake particle limit in 2025 instead of 2035 will rapidly accelerate reductions in particle pollution from brakes. The brake vacuum technology to meet this limit is already available and cheap<sup>7</sup> costing around €100 per car. As such, there is no reason for Europe to delay effectively tackling this source of pollution.**

<sup>7</sup> T&E. (2023) [Euro 7: Let’s make it count](#)

## Key recommendations

- 1 Align Euro 7 car tailpipe emission limits with the findings of the European Commission's Impact Assessment.** For cars this means reducing the NO<sub>x</sub> emission limits from the proposed 60 mg/km to 30 mg/km.

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- 2 Accelerate the introduction of the 3g/km brake particle emission limit from 2025 to 2035** to almost double the emission savings in 2030 and ensure that the most effective European technology is fitted to cars

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- 3 Increase the emission durability for small trucks to 700,000 km and 15 years and for large trucks to 1.2 million km and 15 years** to ensure that trucks comply with emission limits throughout their lifetime.

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## **Annex- Methodology:**

Based on previous work commissioned by Transport & Environment<sup>8</sup>, experts at *Air Quality Consultants Ltd.* developed a bespoke methodology that uses recent measured concentrations from fixed monitoring stations in the selected cities, combined with the predicted changes to transport emissions in order to estimate future ambient concentrations of air pollutants. While the methodology has been simplified in comparison to detailed spatial modelling, the outcomes are suitable to demonstrate the effects that an ambitious Euro 7 might have on worst-case pollution concentrations within each city (see details in the technical report). The modelling contains several worst-case assumptions, and in particular does not account for any significant ambition in targeting non-transport emissions. This means that the future-year predictions are likely to be precautionary and that lower concentrations than predicted here are achievable with combined effort.

The modelling of the emissions reductions associated with implementation of Euro 7 and accelerated implementation of stricter brake particle limits is based on the emissions results presented in the European Commission's Euro 7 Impact Assessment. The expected impact of electrification due to the 2023 EU car CO2 Regulation and recently proposed truck CO2 standards is taken into account within the study. As such the results shown present the additional pollutant emission reductions that Euro 7 will deliver on top of the EU car and truck CO2 standards.

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<sup>8</sup> Transport & Environment. (2021). Blue Sky Recovery. How to keep lockdown low levels of air pollution in European cities. [Link](#)