THE REAL URBAN EMISSIONS INITIATIVE

FACT SHEET

SEPTEMBER 2019

On-road motor vehicle emissions in Paris

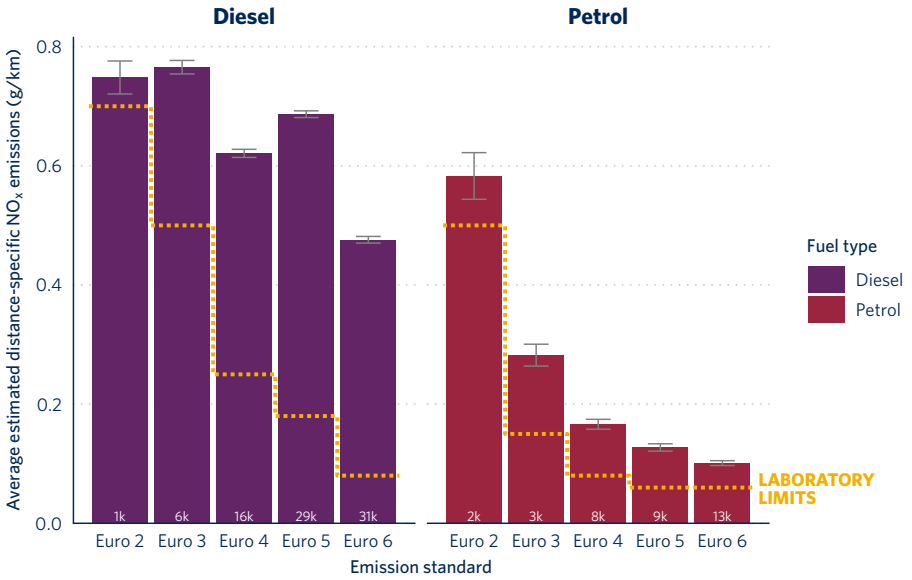
In 2017, Mayor Anne Hidalgo of Paris and Mayor Sadiq Khan of London jointly committed to making data on real-world vehicle pollutant emissions available to residents of those cities. In support of that aim, The Real Urban Emissions Initiative (TRUE) commissioned on-road vehicle testing campaigns in both cities, to be carried out using remote sensing technology.

In summer 2018, TRUE measured emissions from more than 180,000 vehicles on the road at three Paris sites.

HIGHLIGHTS OF THE STUDY

Nitrogen oxide (NO_x) emissions from Euro 6 diesel cars on the streets of Paris were 4.8 times those of Euro 6 petrol cars and 6 times laboratory limits. On average, NO_x emissions of Euro 6 diesel cars were only 18% lower than those of the oldest petrol cars, and many times higher than newer petrol cars.

NO_x emissions from petrol passenger cars in Paris decline in step with the emissions standard, but diesel cars show little improvement from Euro 2 through Euro 5 standards, and Euro 6 diesel cars only modest improvement.



Estimated average distance-specific NO_x emissions by fuel type and Euro standard for passenger cars measured in Paris in 2018. The number of measurements is presented at the bottom of each bar. Whiskers represent the 95% confidence interval of the mean.

In-use NO_x emissions increase dramatically at high outside temperatures. NO_x emissions of Euro 5 and Euro 6 diesel cars measured at ambient temperatures above 30 °C were 20% to 30% greater than at temperatures between 20 and 30 °C.

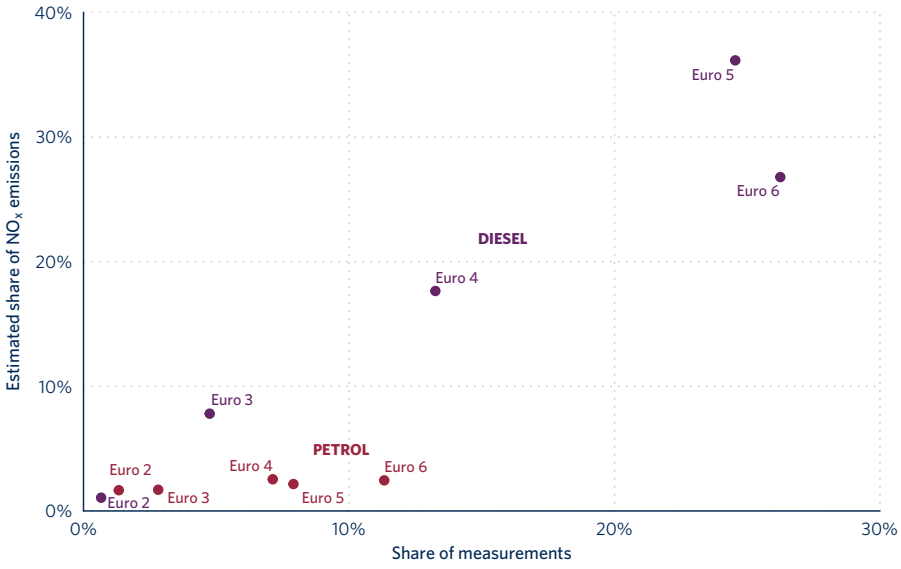
Euro 5 and Euro 6 diesel cars, which qualify for Crit'Air 2 classification and are allowed to operate without restriction in the Paris low-emission zone (LEZ) until 2024, were responsible for an estimated 63% of total passenger vehicle NO_x emissions in Paris during the field study. (The Crit'air certificate, issued for all road vehicles, indicates the vehicle's environmental class based on pollutant emissions.)

Testing results for the newest diesel cars remain inconclusive. NO_x emissions of Euro 6d-TEMP diesel cars observed in Paris were around 70% lower than diesel vehicles certified to earlier Euro 6 stages. But the number of vehicles measured

was relatively small because few are yet on the road, no data is yet available on the durability of their emissions controls, and the testing raised questions about elevated NO_x emissions at higher engine loads for these cars.

On average, NO_x emissions of Euro VI city transit and coach buses were 59% and 84% lower, respectively, than Euro V buses. On a fuel-specific basis (grams per kilogram of fuel consumed), Euro VI transit buses in Paris on average emit less NO_x than Euro 6 diesel cars.

Fuel-specific emissions of carbon monoxide (CO), particulate matter (PM), and NO_x from L-category vehicles (two- and three-wheelers) were on average significantly higher than from petrol cars. L-category vehicles certified to the most recent emissions standard (Euro 4) qualify for the Crit'Air 1 emissions classification and will be allowed to operate without restriction within Paris until 2030. Without new policies to reduce their exhaust emission limits or restrict circulation, the share of air pollution in Paris attributable to these vehicles may grow.



Estimated share of annual NO_x emissions from passenger cars and respective share of remote sensing measurements in Paris, differentiated by Euro standard and fuel type.

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TO FIND OUT MORE

For details on the Paris remote-sensing project and related questions, contact **Rachel Muncrief, rachel@theicct.org**.
For more information on TRUE, visit **www.trueinitiative.org**.

DOWNLOAD THE PAPER

"Remote sensing of motor vehicle emissions in Paris"
www.theicct.org/publications/on-road-emissions-paris-201909

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