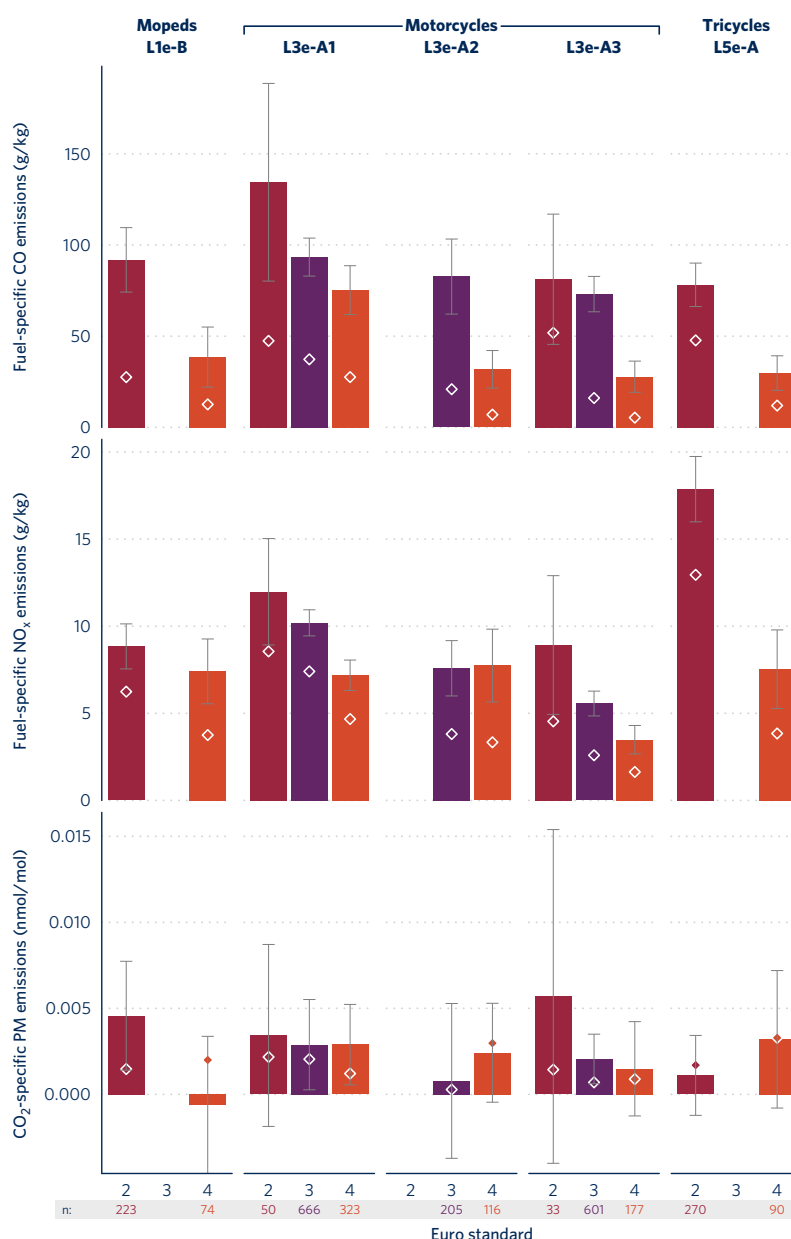


Pollutant emissions from mopeds, motorcycles, and other L-category vehicles in Paris

In the European Union vehicle emissions regulations, L-category vehicles comprise mopeds, motorcycles, and tricycles, primarily. Emissions standards for L-category vehicles have lagged those for other on-road vehicles. While they make up a small percentage of total vehicle kilometers traveled, L-category vehicles can have a disproportionate impact on air pollutant levels in an urban area.

In the course of its Paris vehicle emissions measurement project in summer 2018, The Real Urban Emissions initiative captured 3,455 valid on-road emissions measurements for L-category vehicles.

Euro 4 L-category vehicles qualify for the Crit'Air 1 emissions class and so are allowed to operate without restriction within the Paris low-emission zone (LEZ) until 2030. The CO, NO_x and PM emissions of these vehicles are high relative to other vehicle types that qualify for Crit'Air 1. Without new policies to reduce their exhaust emission limits or restrict circulation, the share of air pollution attributable to these vehicles may grow within the Paris LEZ as access restrictions are tightened in coming years.



Average CO, NO_x and PM emissions from L-category vehicles, by vehicle type and subcategory. Gray error bars represent 95% confidence interval of the mean; white markers represent the median. The number of measurements is presented below x-axis labels. L3e-A1 = small motorcycle (≤ 11 kW); L3e-A3 = high-performance motorcycle (>35 kW).

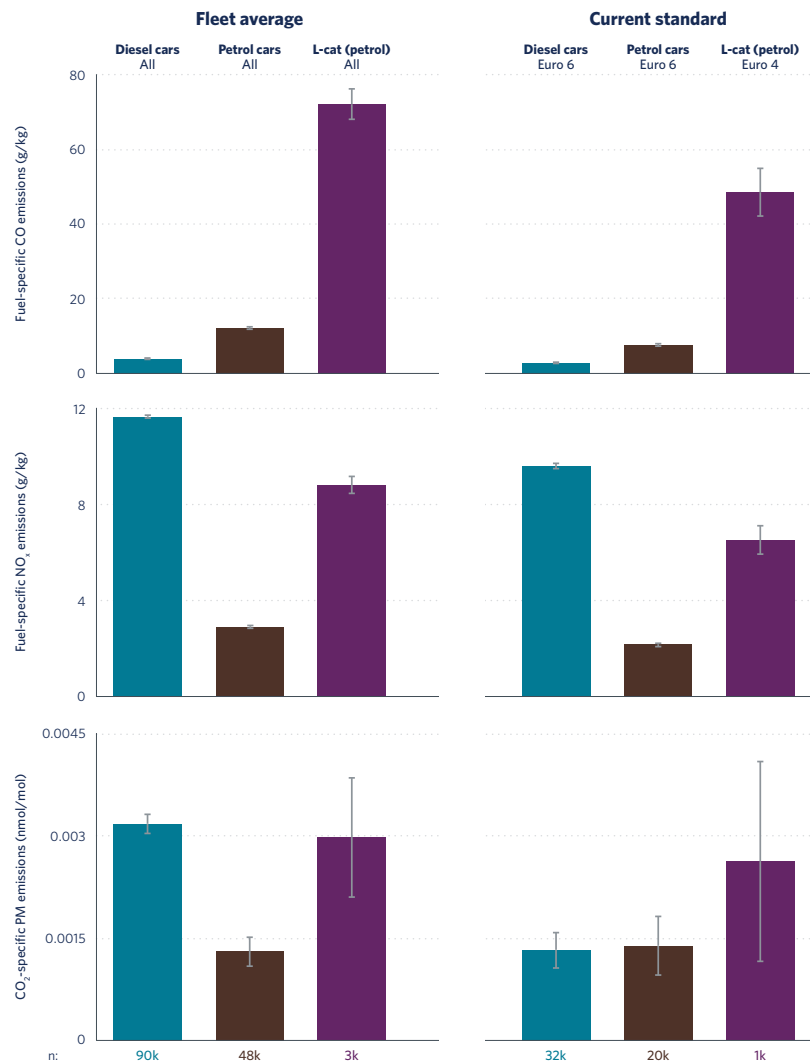
HIGHLIGHTS

While fuel-specific emissions (grams per kilogram of fuel consumed) of CO and NO_x from L-category vehicles have declined with the implementation of more stringent Euro standards (Euro 2 to Euro 4, which is the current standard for these vehicles), depending on vehicle type (moped, motorcycle, etc.) and Euro standard they remain on average 2.3–11.1 times (CO) and 1.2–6.1 times (NO_x) the average emissions for petrol passenger cars.

That gap would be smaller on a distance-specific basis, but their higher fuel-specific emissions indicate that real-world emissions reductions for L-category vehicles have not kept pace with other vehicles. Fuel-specific NO_x and CO emissions of the newest L-category vehicles (Euro 4) were more similar to Euro 2 or Euro 3 petrol cars than to comparably new cars (Euro 6).

Fleet-average CO emissions for L-category vehicles greatly exceeded average emissions from petrol and diesel passenger vehicles. Average NO_x and PM emissions from L-category vehicles are more similar to diesel than petrol passenger cars.

Considering only vehicles certified to current standards, CO emissions of Euro 4 L-category vehicles in Paris are nearly ten times greater than emissions of Euro 6 diesel or petrol cars, and fuel-specific NO_x emissions are about 3 times the emissions of Euro 6 petrol cars.



Average CO, NO_x, and PM emissions from L-category vehicles, diesel cars, and petrol cars for the entire measured fleet (left) and for vehicles certified to current Euro standards (right).



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