

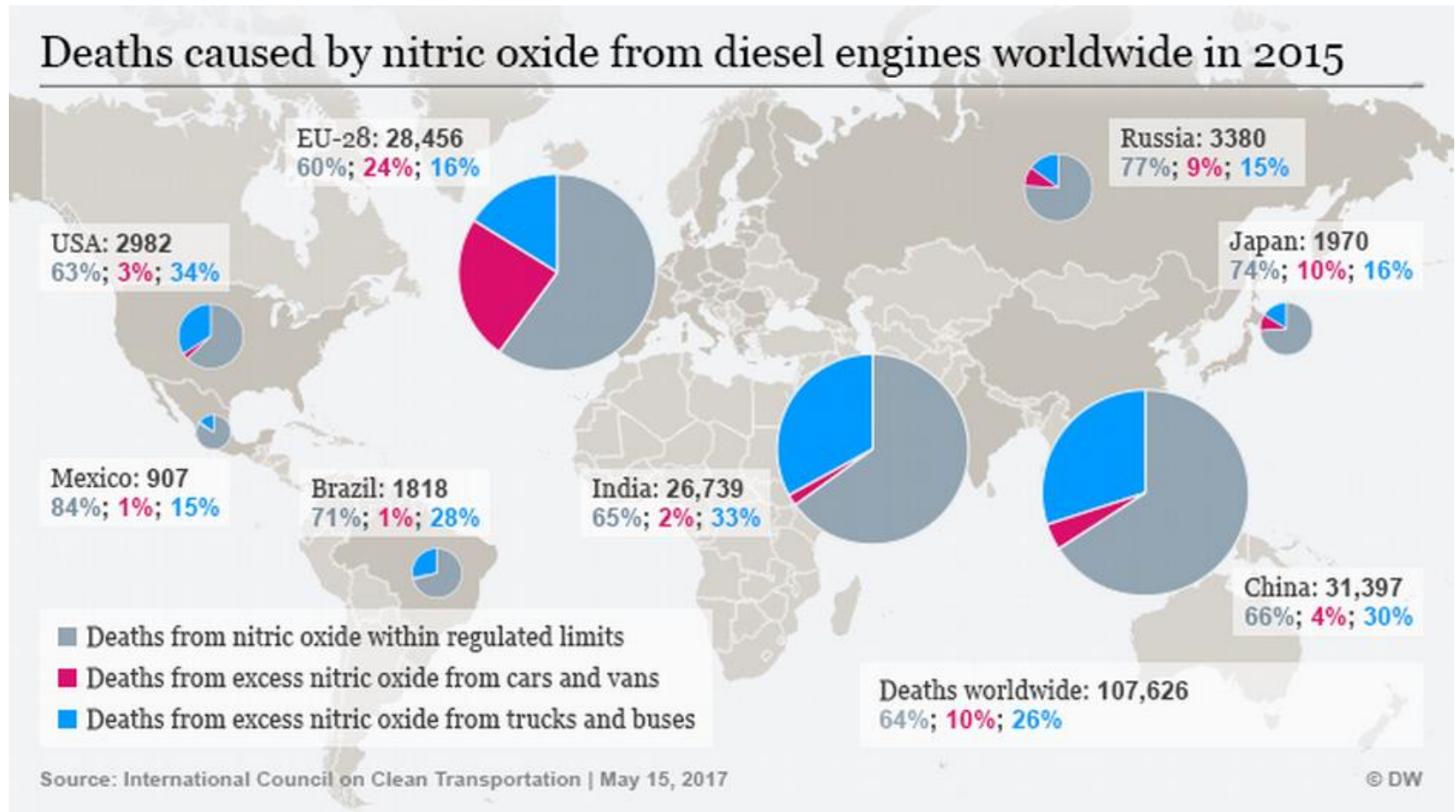
# Low Emission Zones policy: How remote sensing data can contribute

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2019 Polis Conference, Brussels  
November 27<sup>th</sup>, 2019



# Excess diesel NO<sub>x</sub> emissions are linked to more than 11,000 early deaths in Europe each year



Source: Deutsche Welle

# The Real Urban Emissions Initiative (TRUE) seeks to supply cities with real-world emissions data

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TRUE seeks to supply cities with data regarding the real-world emissions of their vehicle fleets and equip them with technical information that can be used for strategic decision making to curb emissions

Partnership /  
advisory group



In March 2017, the Mayors of Paris and London announced plans to score cars based on real world emissions and publish that data

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ENVIRONMENT | Wed Mar 29, 2017 | 10:44am EDT

## Paris and London mayors announce scheme to gauge car emissions



London Mayor Sadiq Khan (L) and Paris Mayor Anne Hidalgo attend a meeting on air pollution in Paris, France, March 29, 2017. REUTERS/Gonzalo Fuentes

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Help consumers make better, more informed choices about the environmental impact of the cars they drive

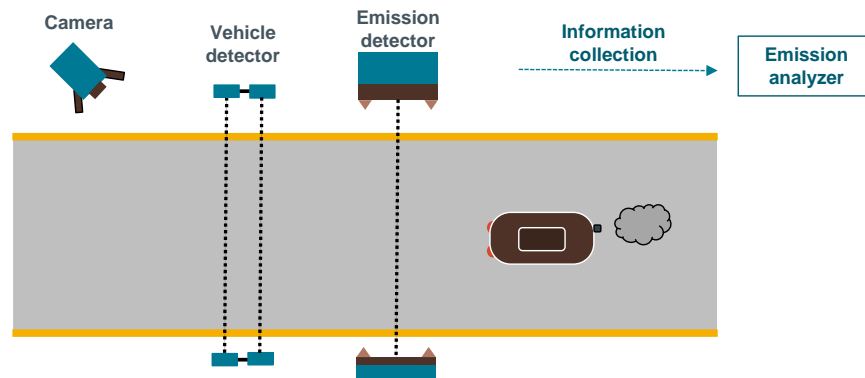


Sources: Reuters; Kodjak

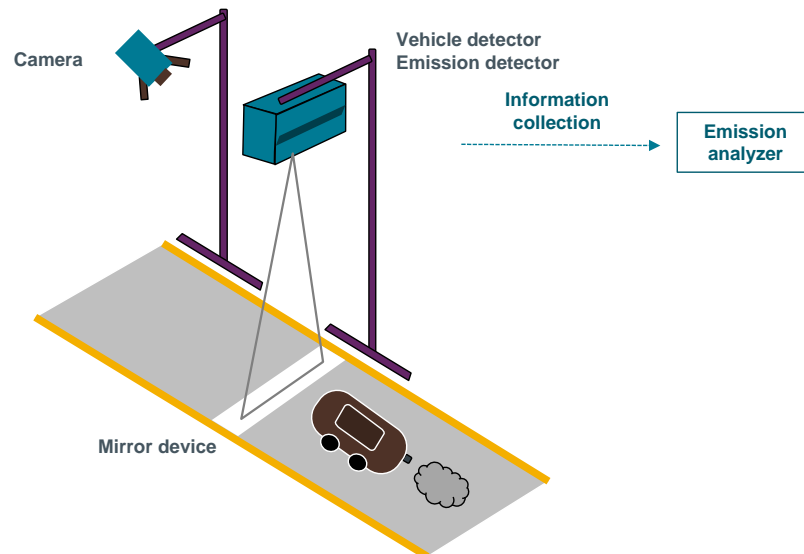
# Remote sensing is a well-suited technology for unobtrusively measuring real-world emissions



Horizontal stationary sensor



Vertical stationary sensor





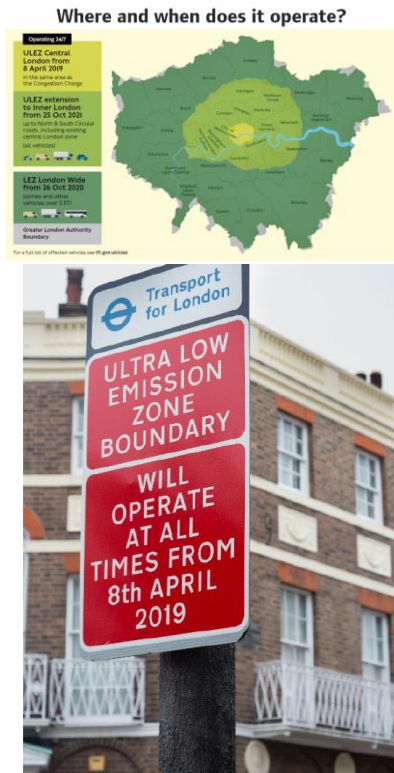
# In November 2017, the TRUE remote sensing campaign started



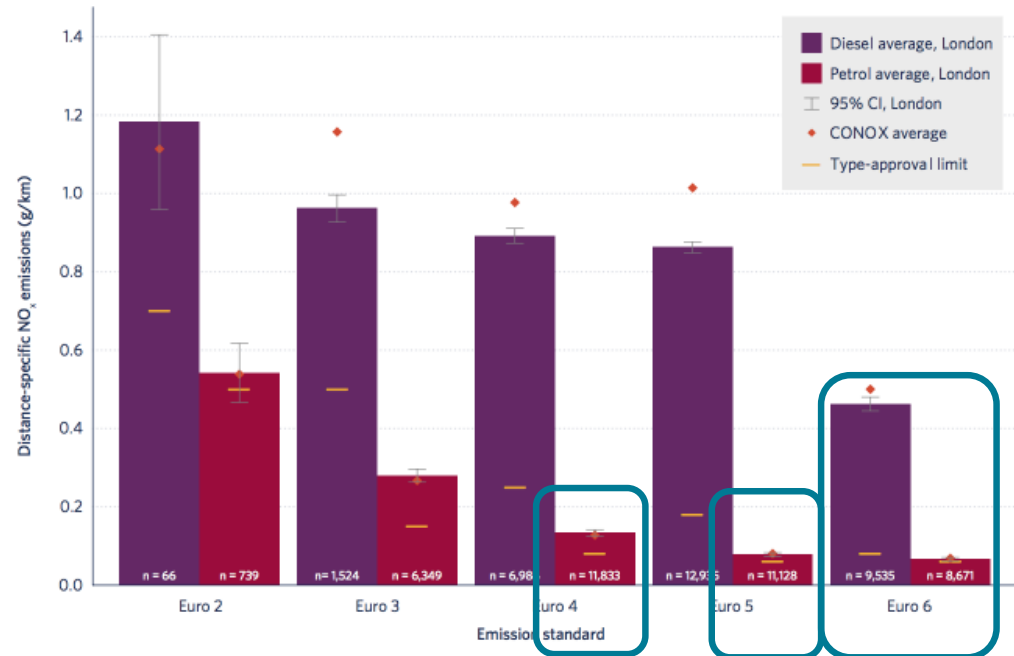
## London project

- ▶ Sampling over 45 days from November 2017 to April 2018
- ▶ 9 sampling sites throughout Greater London
- ▶ Over 100,000 vehicles measured in real-world conditions

# Real-world data show that London's new ULEZ is limiting access to diesel vehicles accounting for 61% of the passenger car NO<sub>x</sub> emissions



Source: "Improving Air quality in London" by Anna-Maria Spyriouni



**Figure 5.** Average distance-specific NO<sub>x</sub> emissions from Euro 2 to Euro 6 petrol and diesel passenger cars in the London 2017-2018 and CONOX remote sensing data

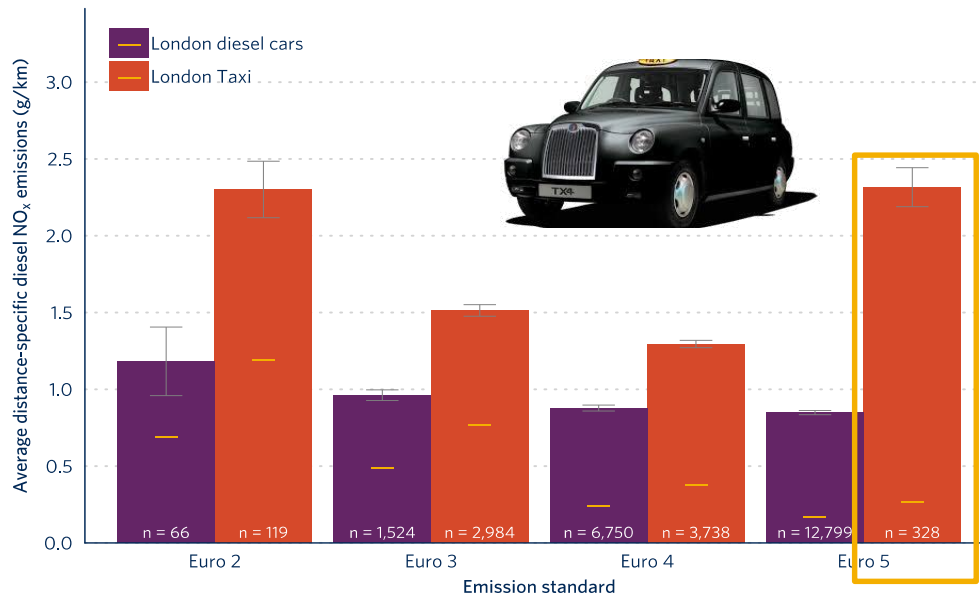
Notes: The number of measurements is presented at the bottom of each bar. Whiskers represent the 95% confidence interval of the mean.

Source: <https://www.theicct.org/publications/true-london-dec2018>

The real-world data also show that London's black cabs are about 10 times its type-approval value

### London project

- ▶ Euro 5 NO<sub>x</sub> are as bad as Euro 2...
- ▶ ...about 10 times its type-approval value
- ▶ Similar emission level confirmed by TfL on the "London" test cycle



Source: <https://www.theicct.org/publications/true-london-dec2018>



# London's new action plans are based on results of the TRUE remote sensing campaign

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*“We know that dirty vehicles are responsible for half of our NOx air pollution – and this new data from TRUE and ICCT reveals the stark health impact of polluting diesel taxis on our streets.”*

*(Mayor Sadiq Khan)*

## **New measures proposed by the Mayor and TfL:**

- > An enhanced delicensing fund, providing up to £10,000 for drivers who trade in their older, dirtier vehicles early
- > A £2.5M fund to help drivers of newer Euro 5 taxis to convert to much cleaner LPG fuel
- > A consultation early next year on a phased reduction in maximum taxi age limits for the dirtiest vehicles from 15 years to 12 years by 2022

Sources: <https://www.independent.co.uk/environment/black-cabs-taxis-air-pollution-london-research-true-icct-a8688141.html> and <https://tfl.gov.uk/info-for/media/press-releases/2018/december/mayor-and-tfl-launch-bold-plans-to-tackle-london-s-lethal-air>

# The Paris remote-sensing campaign was carried out in June and July 2018

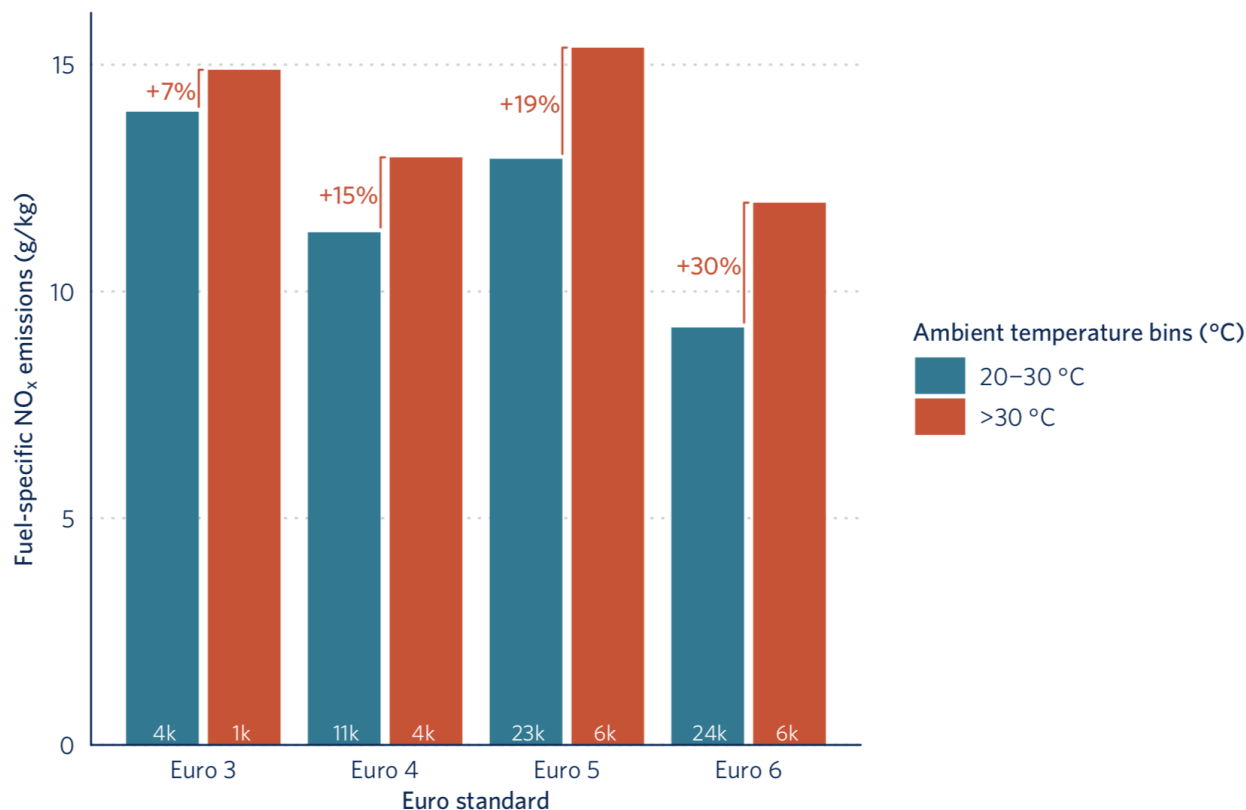


## Paris project

- ▶ Sampling over 20 days in June and July 2018
- ▶ Over 200,000 vehicles measured in real-world conditions

Source: <https://www.trueinitiative.org/data/publications/remote-sensing-of-motor-vehicle-emissions-in-paris>

Diesel vehicles are predominant and their NO<sub>x</sub> emissions are well above the limits set by the standard and in particular at ambient temperatures above 30° C



Average NO<sub>x</sub> emissions from diesel cars, in grams per kilo of fuel consumed. In hot weather, NO<sub>x</sub> emissions from Euro 6 cars were worse than emissions from Euro 4 cars at milder temperatures. The gap between in-use NO<sub>x</sub> emissions measured at ambient temperatures between 20 and 30 °C, which is the type-approval test range, and above 30 °C increases with every Euro standard, as type-approval NO<sub>x</sub> limits become more stringent.

# Recommendations on how city agencies can make use of real-world emissions data to eliminate vehicle pollution in cities

- ▶ Leverage real-world emissions data for a publicity campaign to garner public support for new policies and help consumers make better vehicle purchasing decisions
- ▶ Utilize real-world emissions data to calculate and compare the potential impact of different policy options and select the best option
- ▶ Install remote sensing networks to track real-world vehicle emissions in the city and enable rapid policy responses to new information
- ▶ Share real-world city-level emissions data when engaging with national and European level policymakers to promote impactful decision making throughout all levels of government
- ▶ Allow exemptions for vehicles that have been shown to have low real-world emissions

