

Overview of TRUE data

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TRUE seminar
December 13, 2018

Overview

- Overview of remote sensing data
- Remote sensing results
- Policy applications
- Summary and outlook

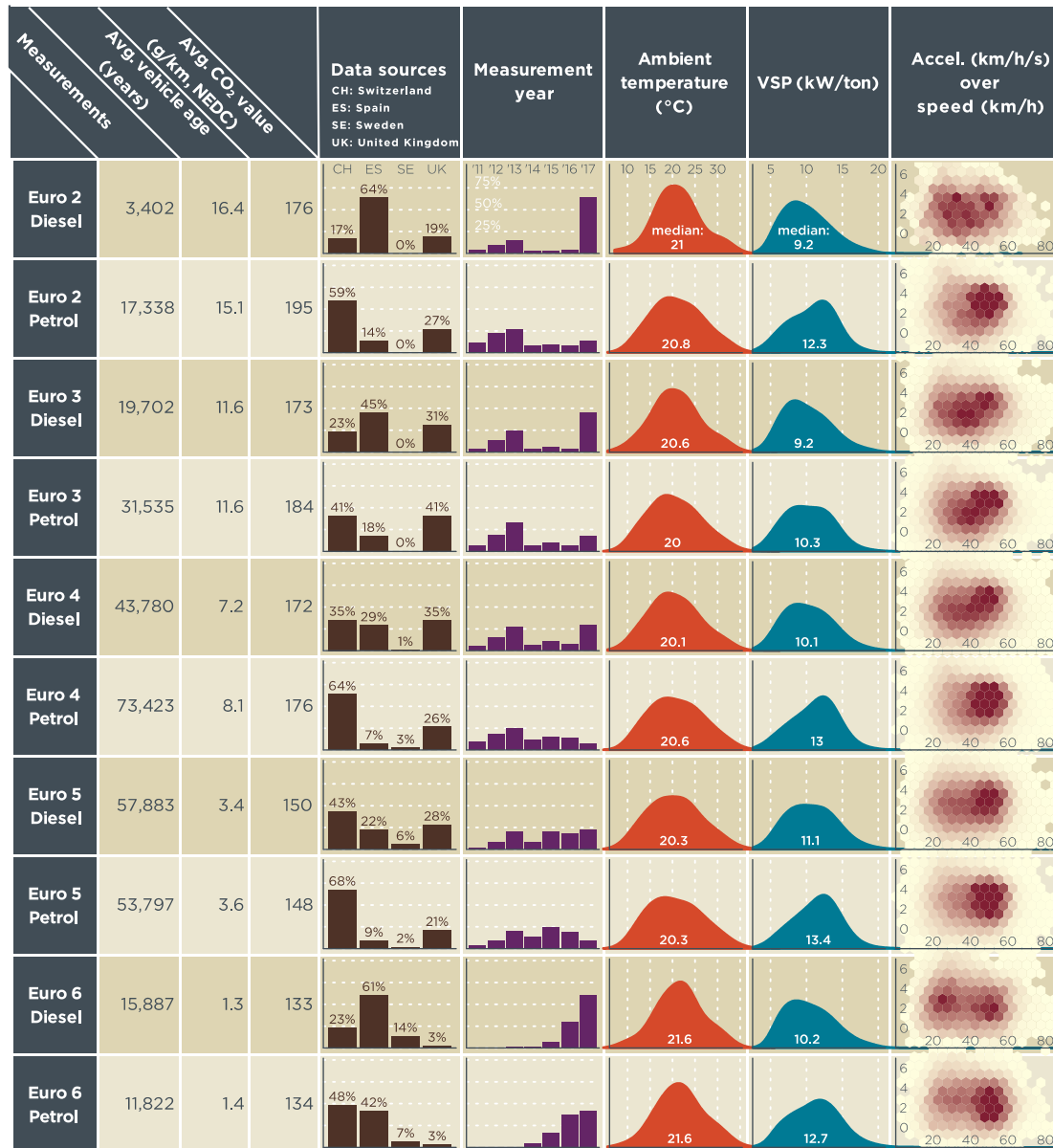
Overview of European RS data

**Current status and
future developments**

Overview of European remote sensing data

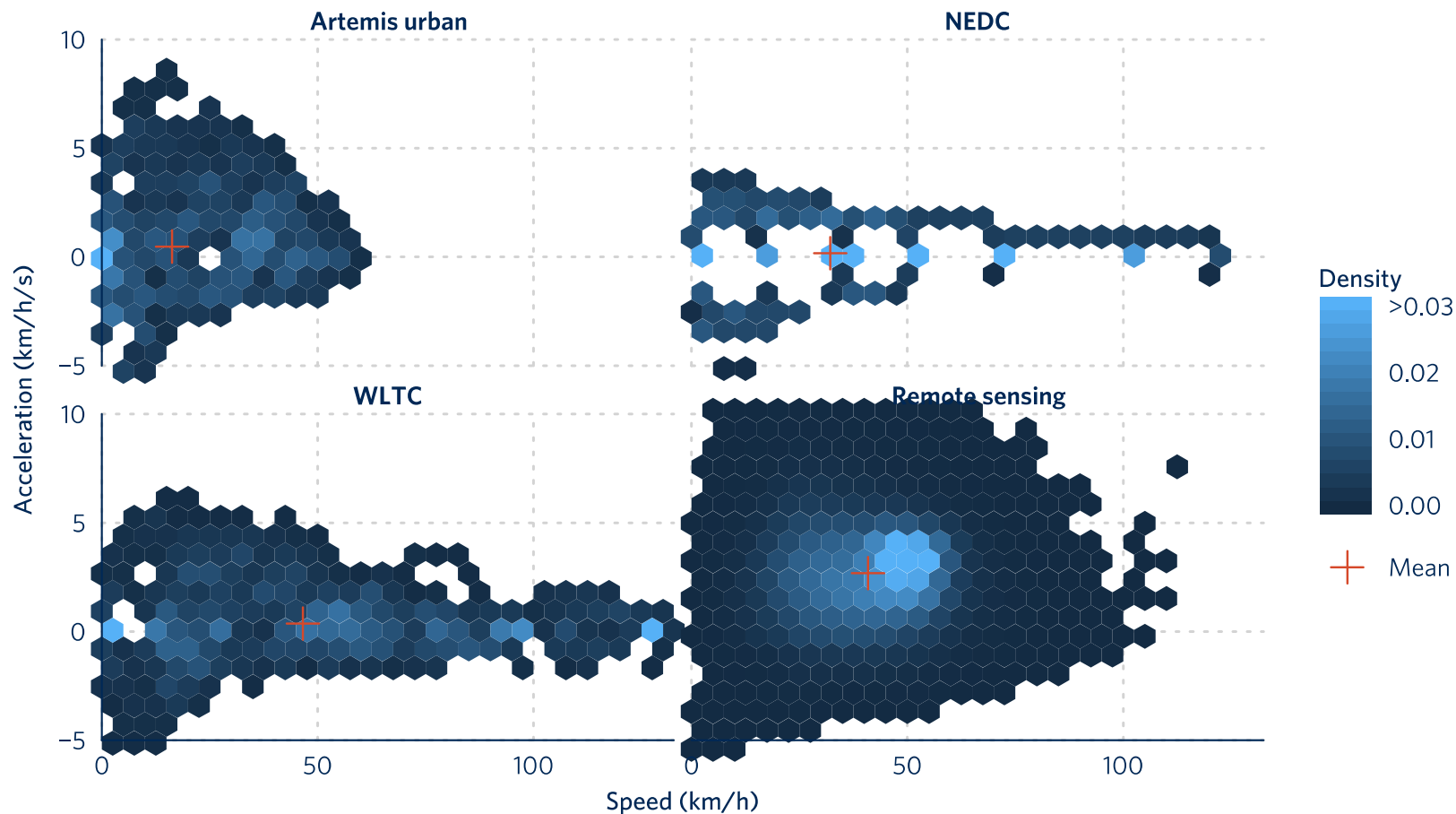
- First TRUE publications (June 2018):
 - 2011–2017
 - France, Sweden, Switzerland, UK
 - Two technologies: HEAT and OPUS/FEAT
 - >700k measurements
 - >300k valid NO_x measurements from cars
- Since then:
 - >100k measurements in London, 2017–2018
 - >200k measurements in Paris, summer 2018
- Vehicles measured:
 - mostly light-duty vehicles
 - City-specific vehicles (examples: buses, London, car sharing fleets)
- Collecting data from other regions: U.S., China, Mexico...

Overview of European remote sensing data



<https://www.theicct.org/publications/real-world-emissions-using-remote-sensing-data>

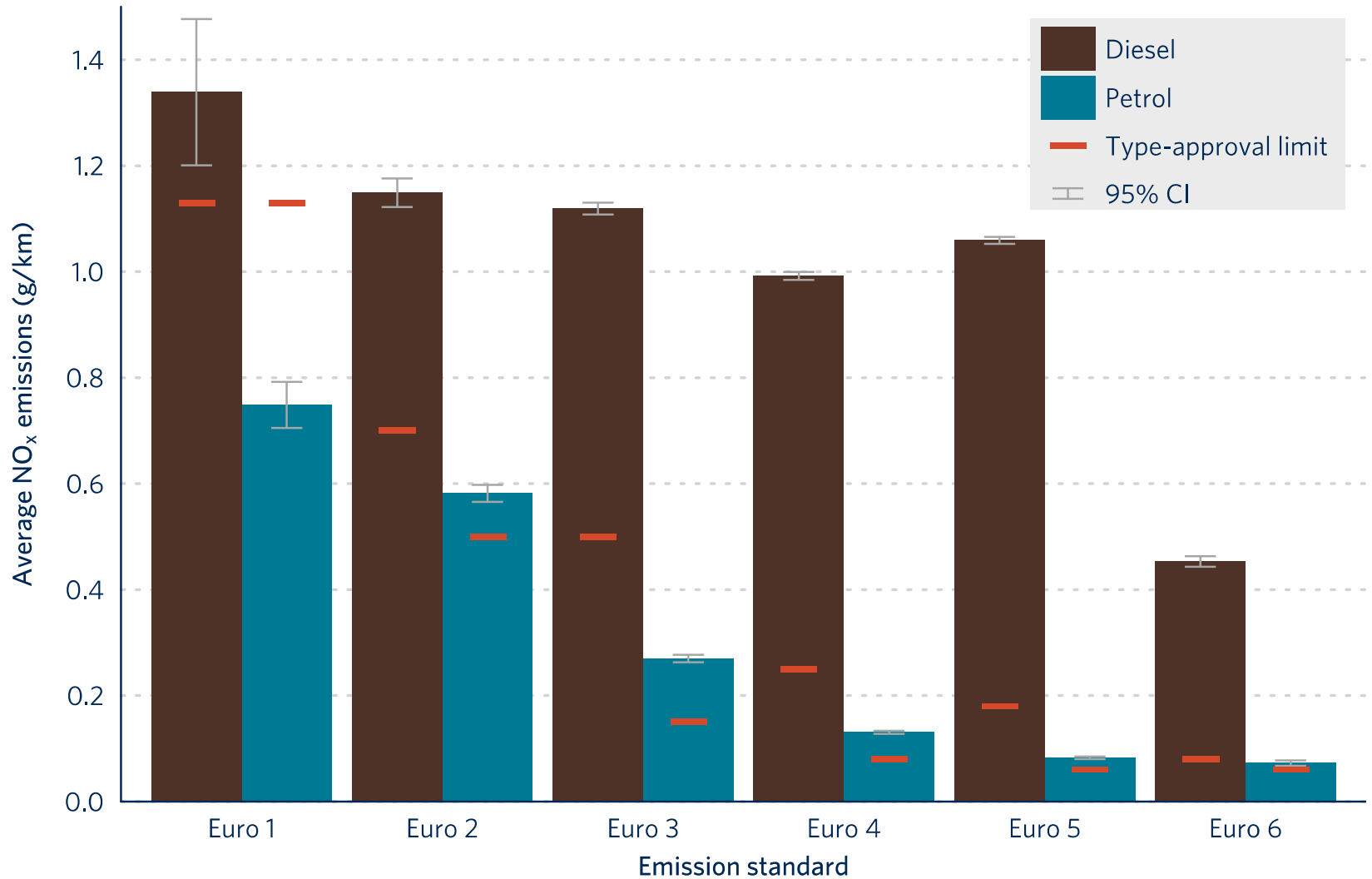
Comparison with driving cycles



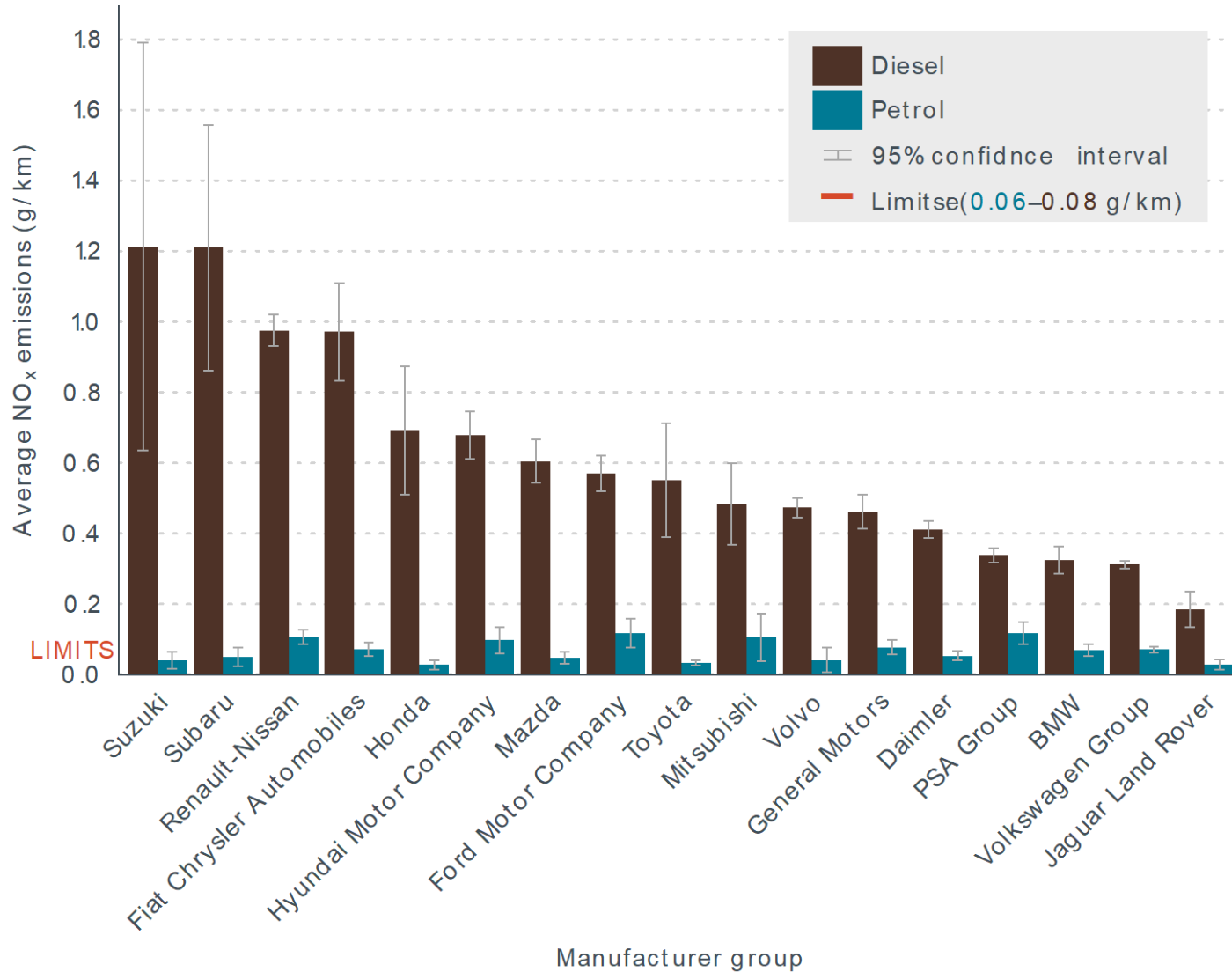
Results

**NO_x emissions
measurements and
policy applications**

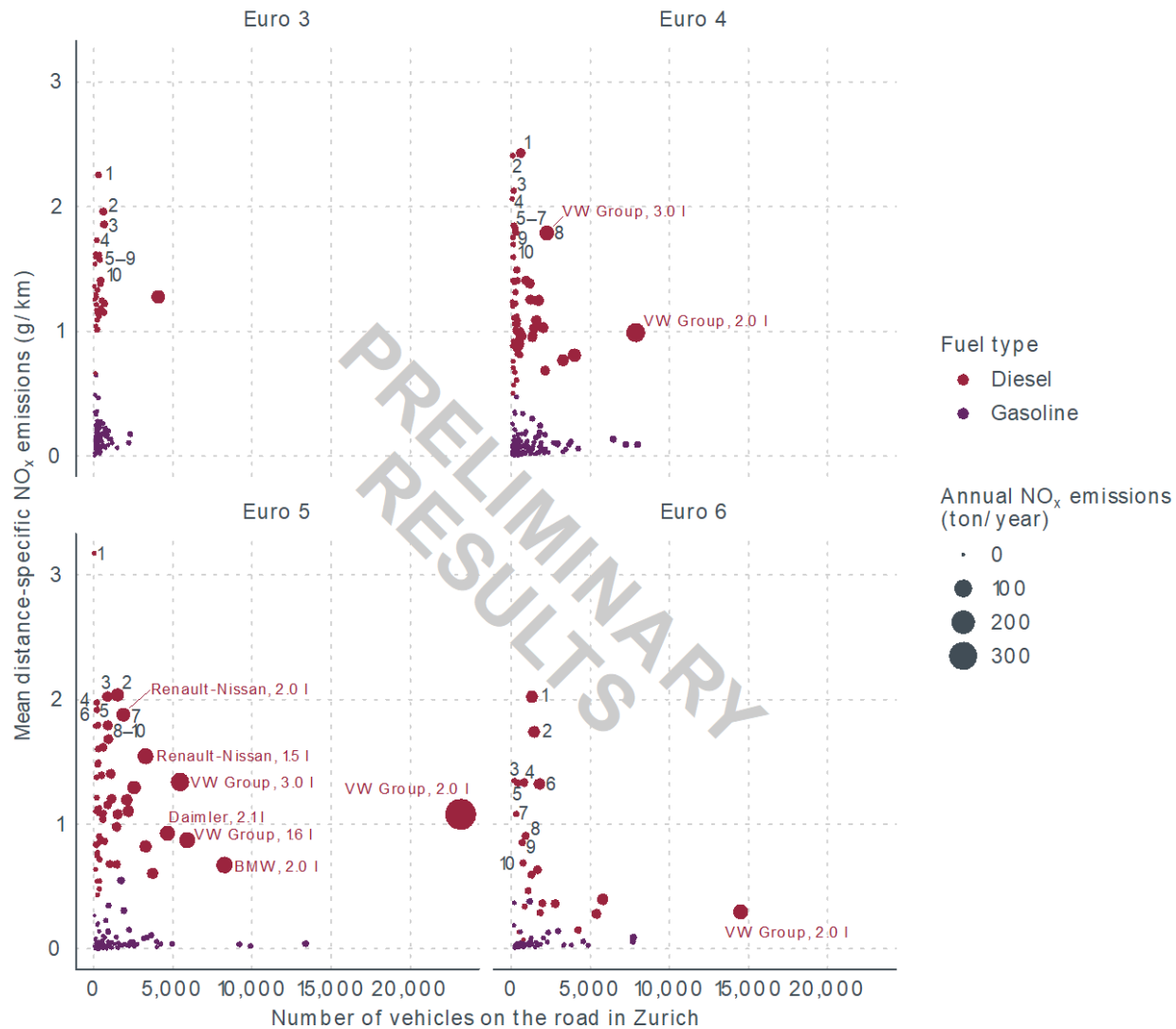
Emissions modeling



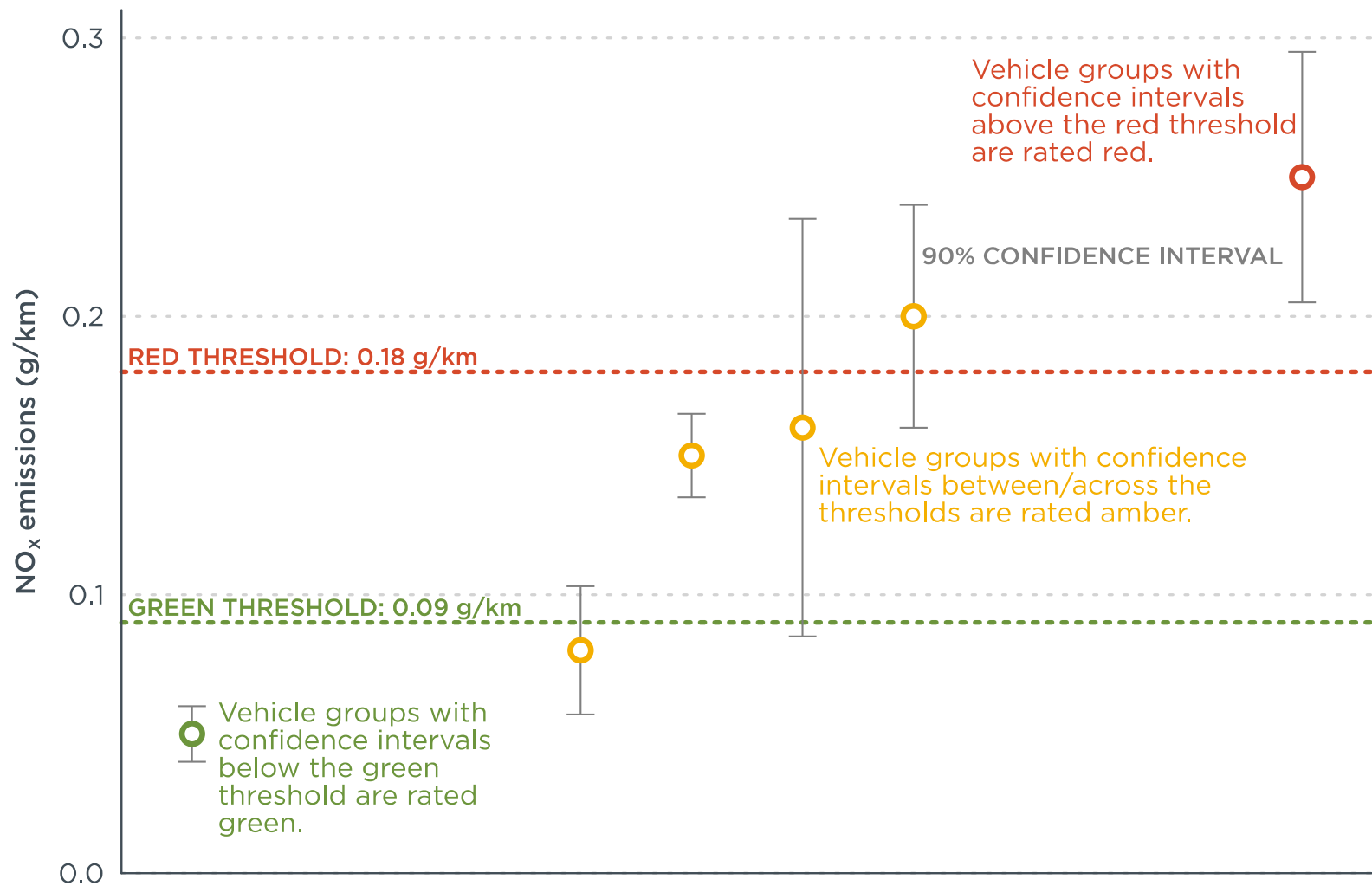
Market surveillance



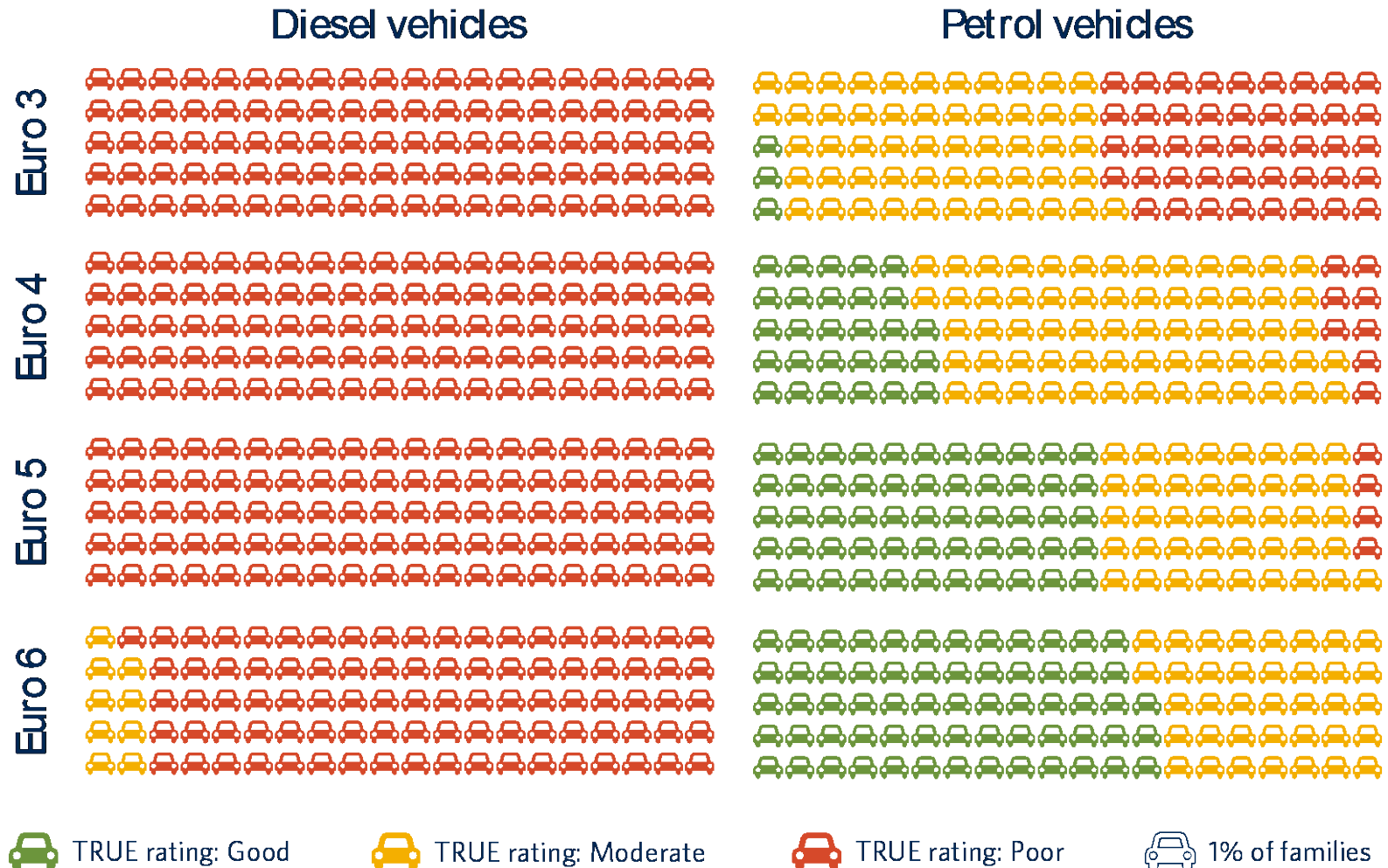
Tailor-made policies



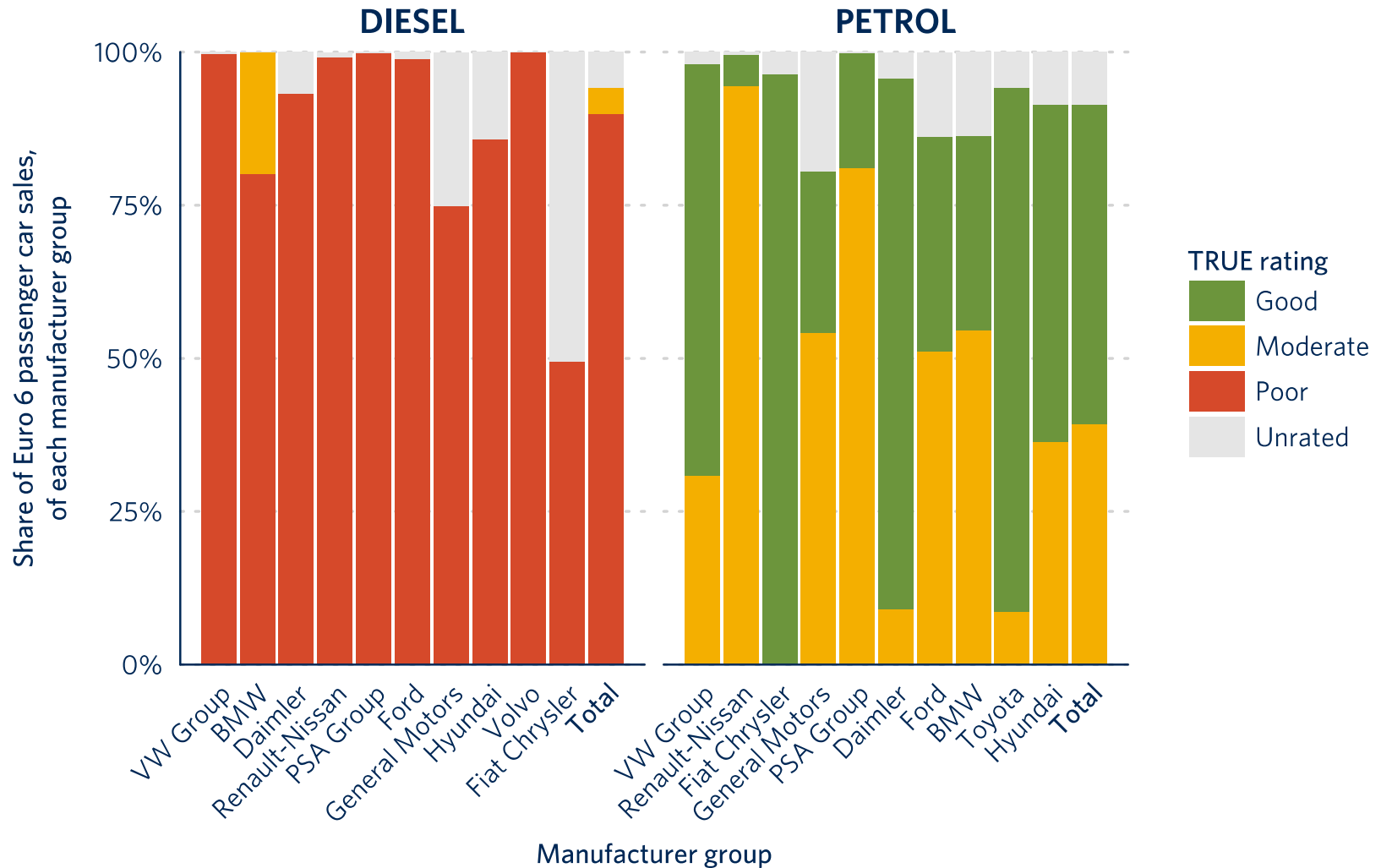
Informing consumers: TRUE rating explanation



Informing consumers: results (1)



Informing consumers: results (2)











































Informing consumers: Application

HOW DOES YOUR CAR RATE?


Manufacturer v Model v Fuel Type v Emissions Standard v Engine Size v Vehicle Class v Q

RESULTS

Manufacturer	Model	Fuel Type	Emissions Standard	Engine Size	Vehicle Class	TRUE Rating (NOx)
	500	Petrol 	Euro  (2014-2018)	1.2L	Small	
	Polo	Petrol 	Euro  (2014-2018)	1.2L	Small	
	Passat	Diesel 	Euro  (2014-2018)	2L	Medium	
	Panda	Petrol 	Euro  (2014-2018)	1.2L	Small	
	Polo	Petrol 	Euro  (2014-2018)	1L	Small	
	Golf	Diesel 	Euro  (2014-2018)	1.6L	Medium	
	C-Class	Diesel 	Euro  (2014-2018)	2.1L	Medium	
	308	Diesel 	Euro  (2014-2018)	1.6L	Medium	
	5-Series	Diesel 	Euro  (2014-2018)	2L	Large	
	A4	Diesel 	Euro  (2014-2018)	2L	Medium	

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RATINGS

 Volkswagen

MODEL: Polo

RATING:  NOx

Fuel Type	Emissions Standard	Engine Size	Vehicle Class
Petrol 	Euro  (2014-2018)	1.2L	Small

Ratings System Explained

 THE REAL URBAN EMISSIONS INITIATIVE

The **TRUE rating** is a three-color categorization system designed to concisely inform the public of the magnitude of a vehicle's emissions over its lifetime under a wide range of operating conditions and driving behaviors.

While new vehicles are by definition certified to emissions levels at or below the legal limit, real-world vehicle emissions are often much higher for a variety of reasons: deterioration of emissions control systems, software that increases emissions during normal driving (aka defeat devices), defective parts, or driving conditions outside of those covered by the regulation. Emissions are also affected in a positive way by recalls and retrofits. The **TRUE ratings** reflect all these factors.

The **TRUE rating** currently covers only NO_x emissions. The rating will sequentially incorporate additional emissions (including particulate matter, carbon dioxide, and unburnt hydrocarbon emissions) during the coming phases of the project, starting in 2018.

TRUE ratings use green, yellow and red targets to indicate Good (green), Moderate (yellow), or Poor (red) emissions performance.

(1) Green rating - vehicles that we are confident have NO_x emissions that stay below 90 mg/km in a wide range of driving conditions

(2) Red rating - vehicles that we are confident have NO_x emissions that stay above 180 mg/km in a wide range of driving conditions

(3) Yellow rating - vehicles that we are confident emit between 90 and 180 mg/km of NO_x in a wide range of driving conditions, as well as vehicles that do not clearly fall into (1) or (2)

 **GOOD**  **MODERATE**  **POOR**

HOW DOES YOUR CAR RATE?

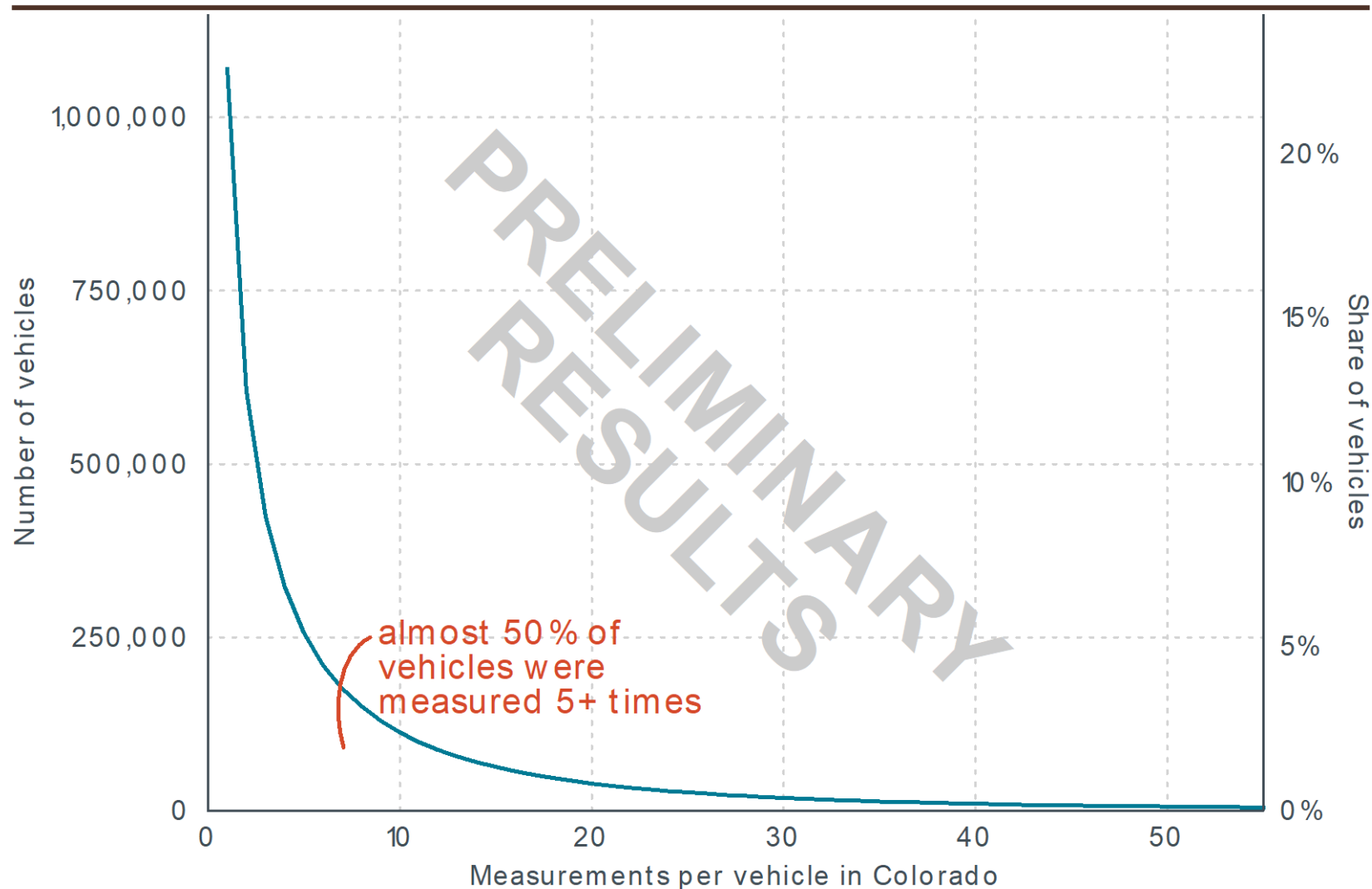
Manufacturer v Model v Fuel Type v Emissions Standard v Engine Size v Vehicle Class v

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Low-/High-emitter screening



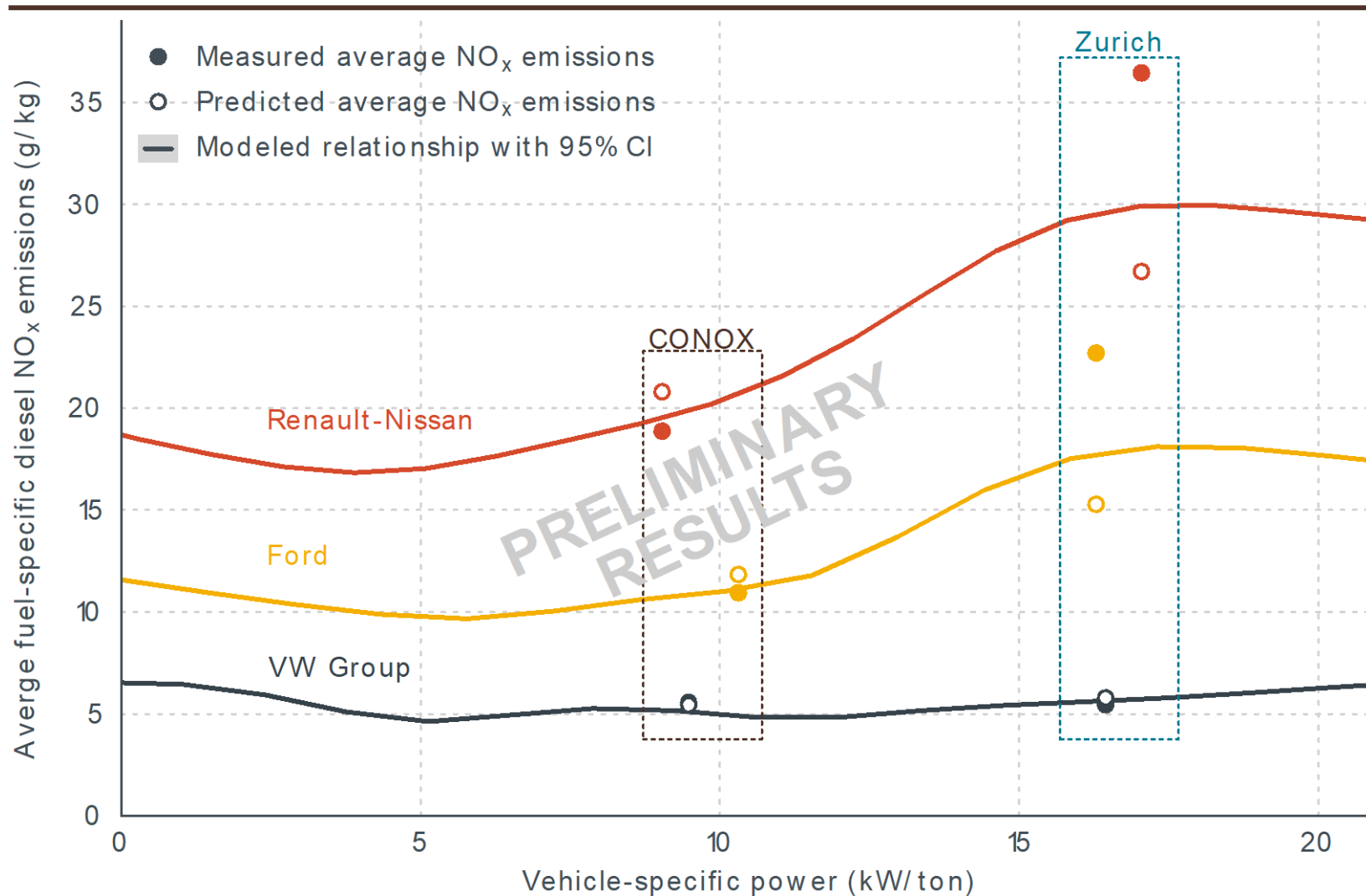
Conclusion

**Summary,
recommendations, and
outlook**

Why measure in your city? (1)

- Unique driving conditions (extreme ambient temperature, speeds, road grade, ...)
- Unique fleet composition (e.g., vehicle age, domestic vehicle brands, ...)
- City-specific vehicles: bus, taxi, car sharing fleets

Why measure in your city? (2)



Summary & outlook

- Large and growing remote sensing database
- Examples of policy applications:
 - Emissions modeling
 - Market surveillance
 - Tailor-made city-level policies
 - Consumer information
 - Low-/high-emitter screening
- Upcoming publications
 - TRUE report on London measurements
 - Report on Zurich measurements
 - Results on CO and PM emissions