

In-use fuel economy

Current status and recent findings

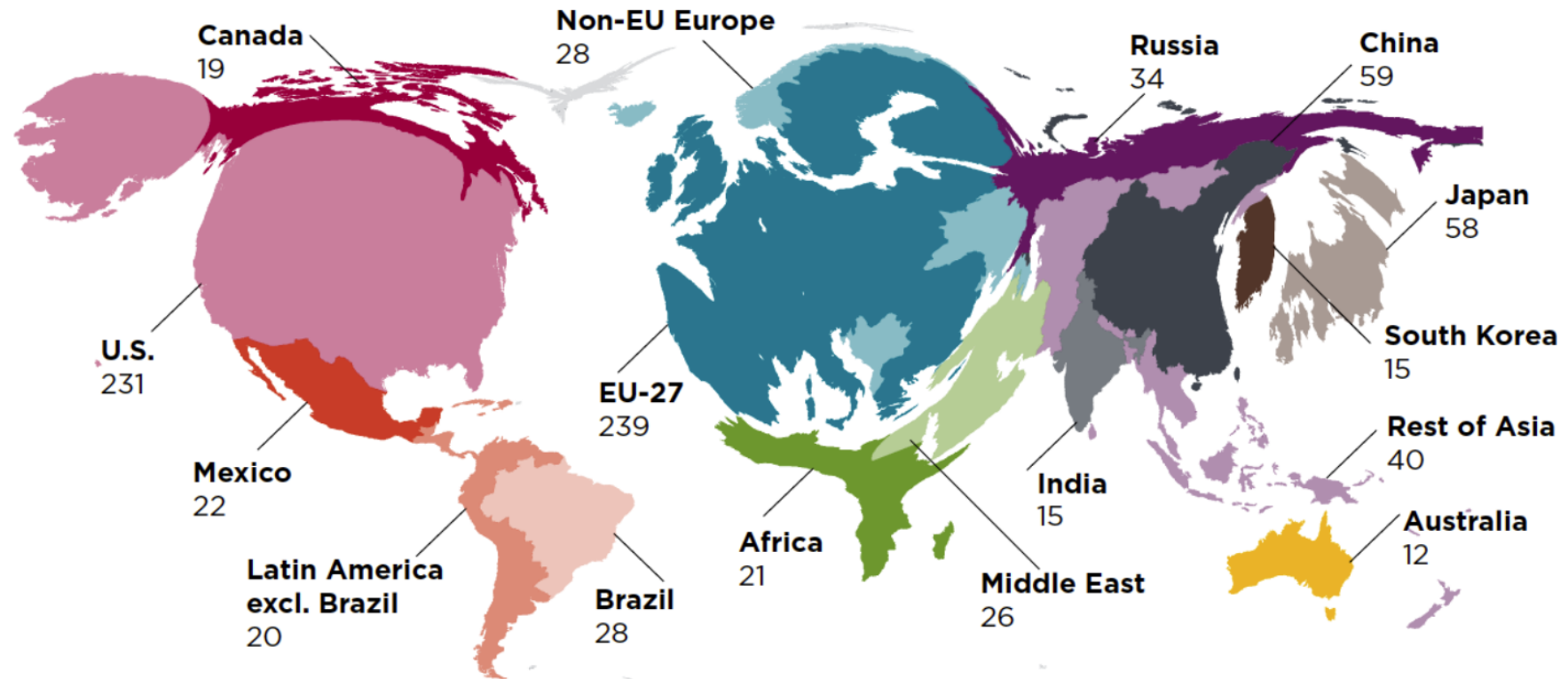
Peter Mock
Managing Director ICCT Europe

GFEI workshop on in-use fuel economy
London, July 16, 2014

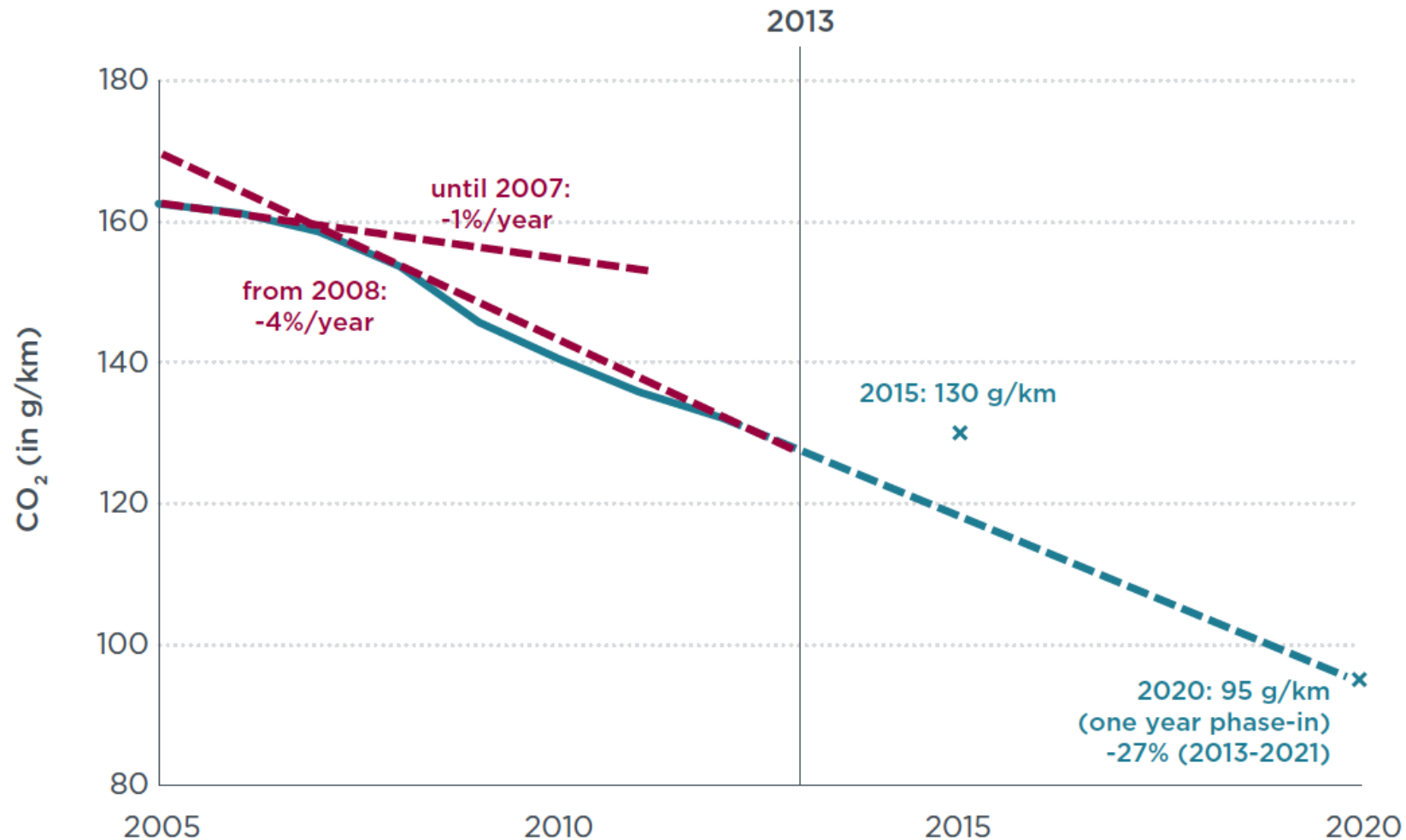


ICCT is working with governments in the top vehicle markets worldwide

Number of light-duty vehicles on the road in 2010



The EU's CO₂ regulation shows a strong effect: Type-approval emission levels are decreasing.



But how does it look
for real-world
emissions?



There is different levels of representing 'real-world' driving during testing.



On-road data recording

With data-logger or manual recording (e.g. car magazines, websites, fleet owners, ...)

On-road testing

With PEMS or data-logger or manual recording (e.g. EU RDE procedure)

A/C on added weight
uphill driving traffic jams
low temperatures
lower aerodynamic
higher tire resistance
random speed trace



Laboratory testing (enhanced)

On a chassis dyno ("enhanced" settings)



Laboratory testing

On a chassis dyno (type-approval)

A/C off lowest weight
flat driving no traffic
optimal temperature
best aerodynamic
lowest tire resistance
fixed speed trace

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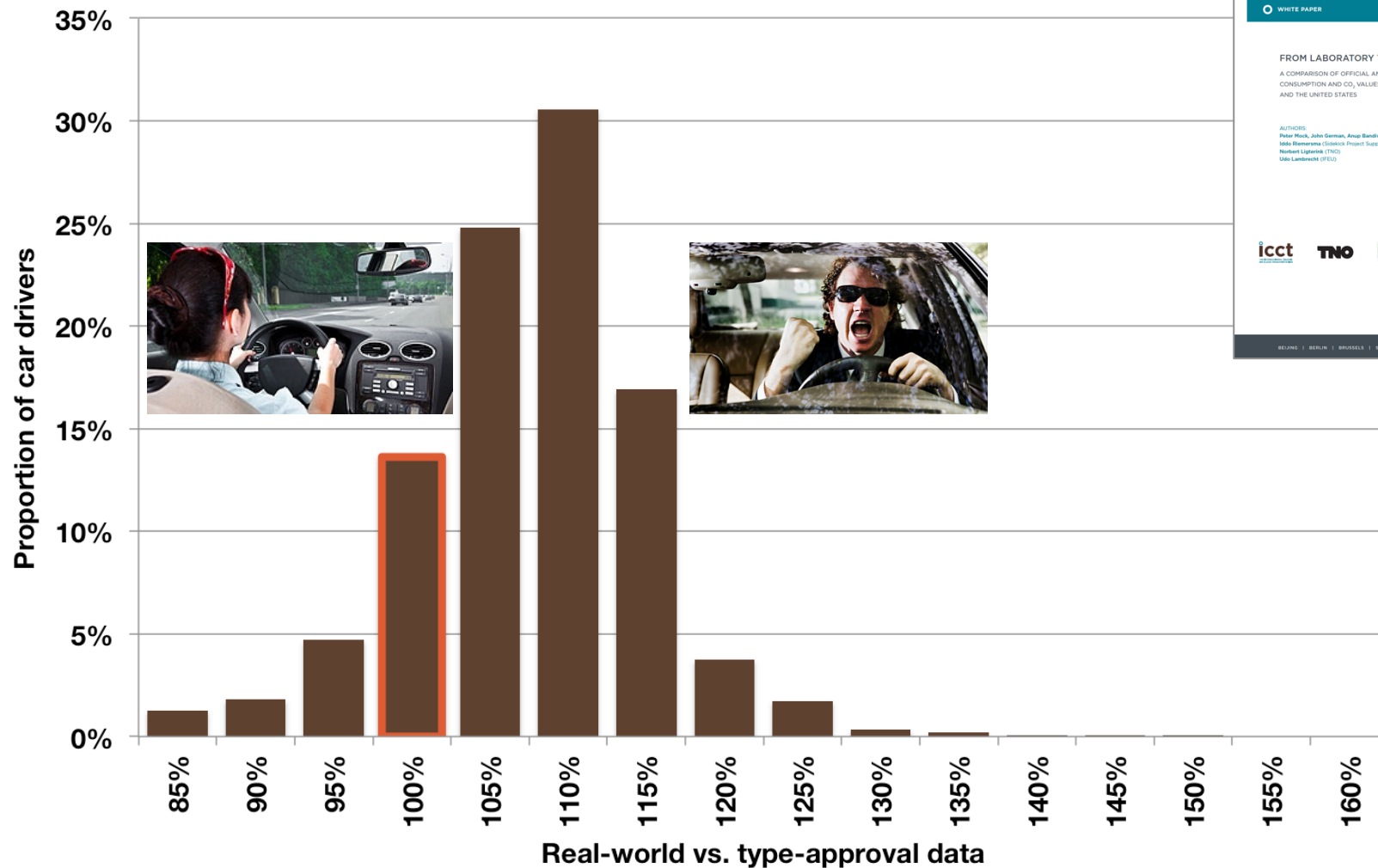


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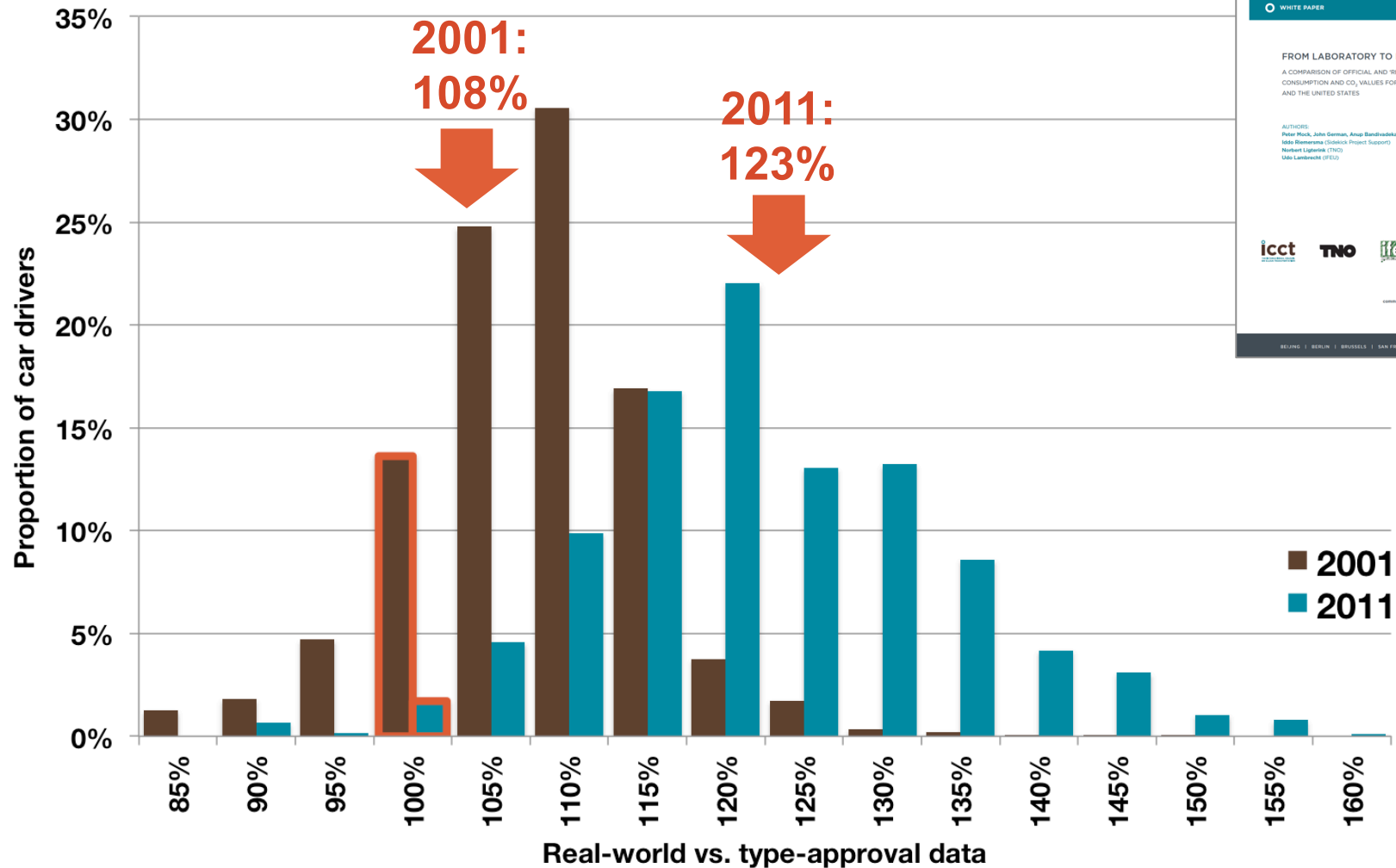
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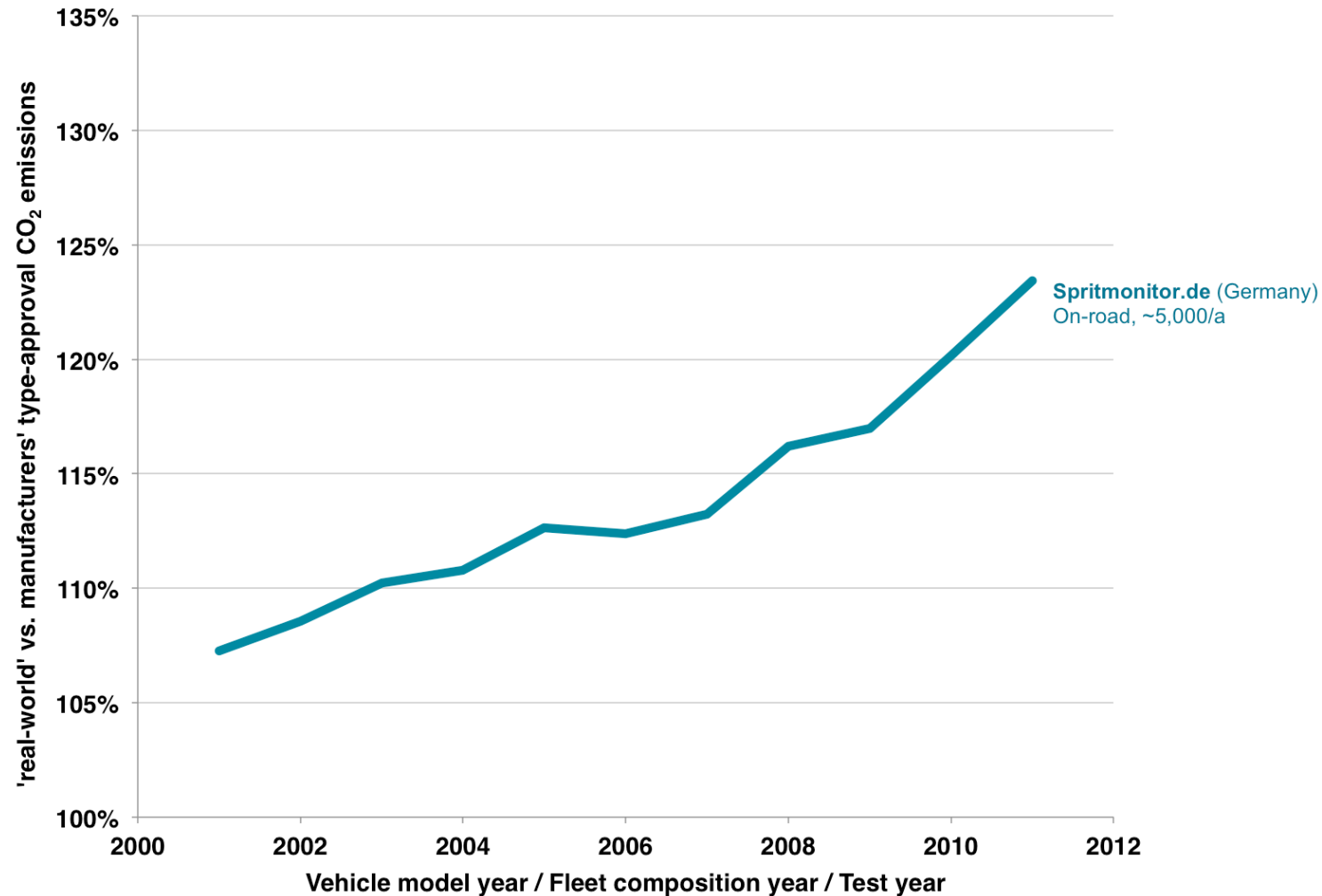
The problem with on-road data recording: Everyone drives differently ...



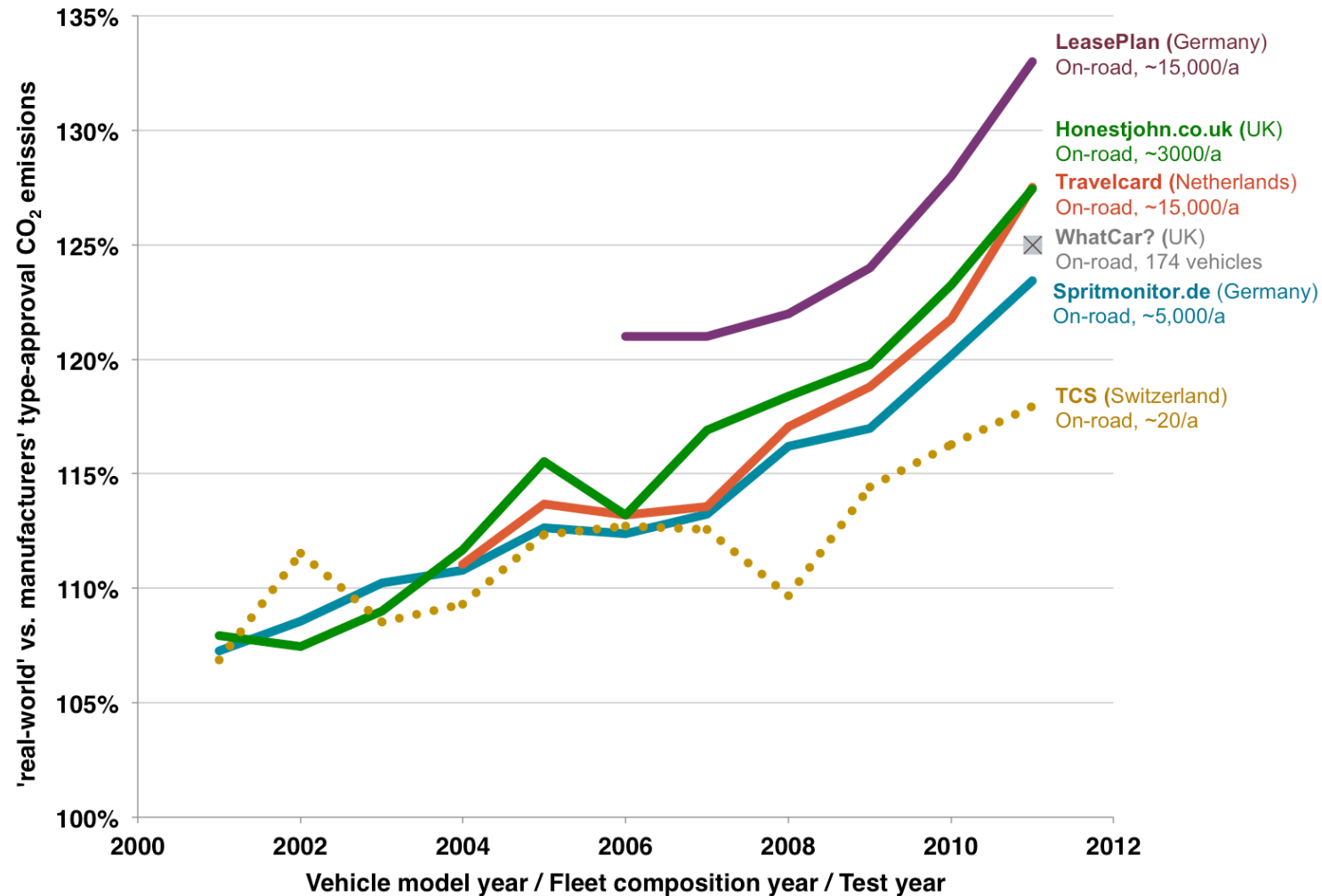
Everyone drives differently but aggregating data reveals clear trends.



Gap between 'real-world' and type-approval emissions is continuously increasing.



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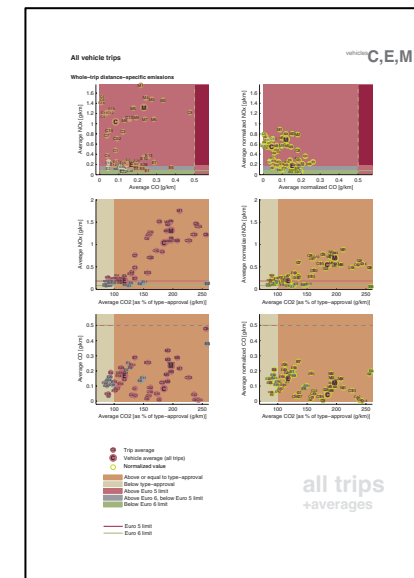
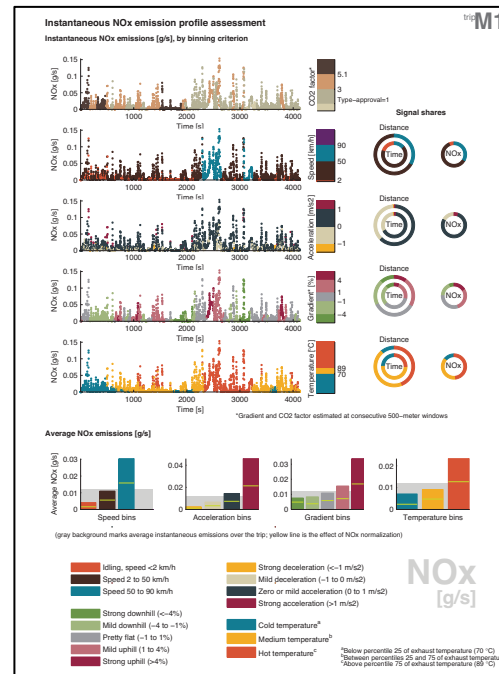


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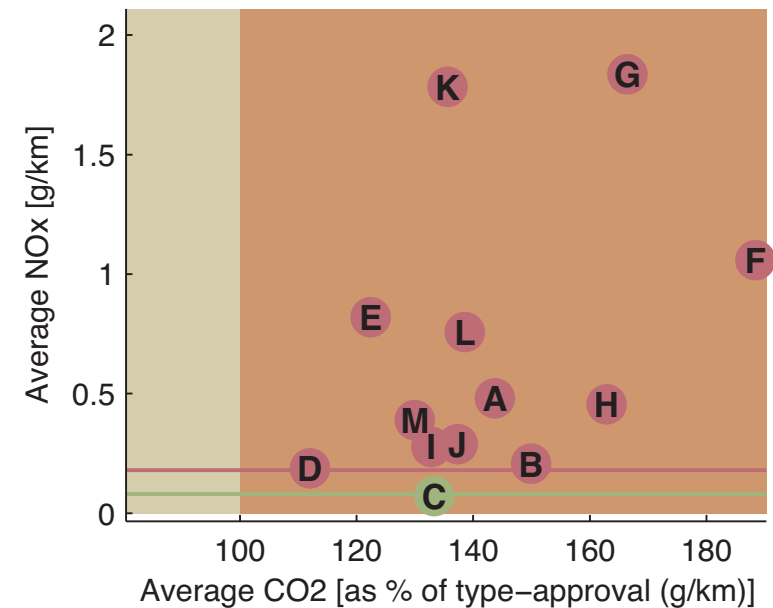
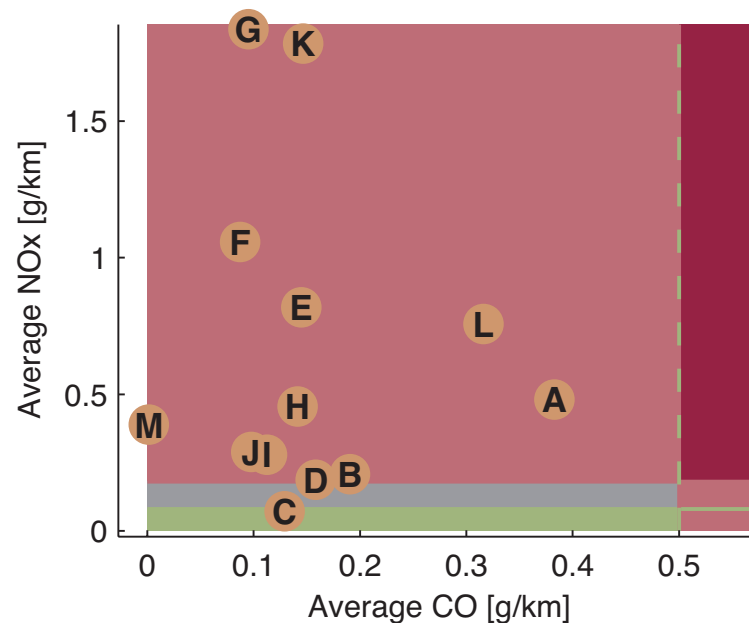
Upcoming ICCT meta-study analyzes PEMS data for a total of currently 13 vehicles.



Plots are **combined** to produce standard, complete report charts in pdf format

PEMS testing data confirms real-world CO₂ discrepancy (+ demonstrates NO_x-exceedances).

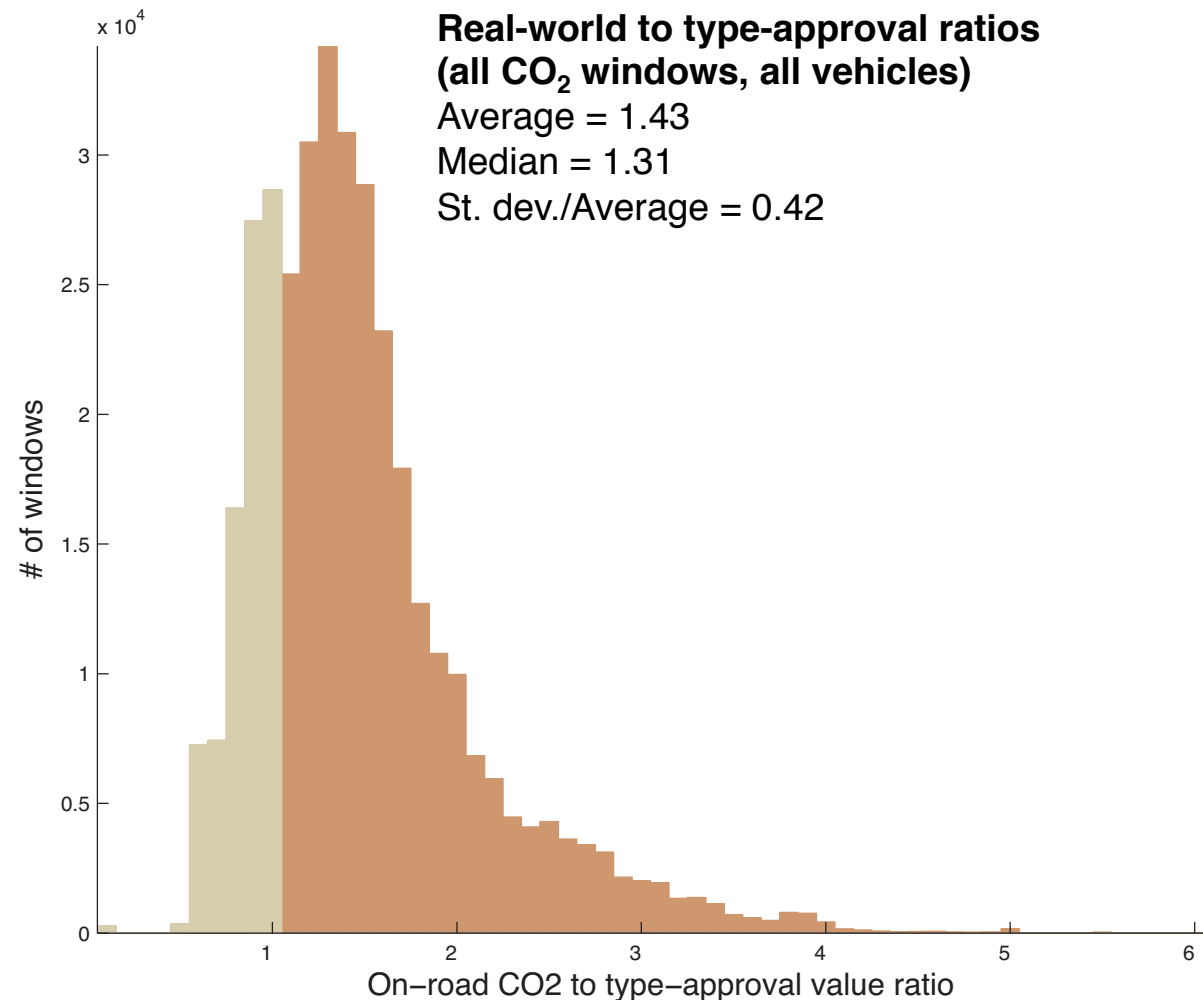
Raw distance-specific emissions, by vehicle



- Above or equal to type-approval
- Below type-approval
- Above Euro 5 limit
- Above Euro 6, below Euro 5 limit
- Below Euro 6 limit
- Euro 5 limit
- Euro 6 limit

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Real-world to type-approval CO₂ ratios, all vehicles, all windows



How can we find a good compromise of representativeness and repeatability?



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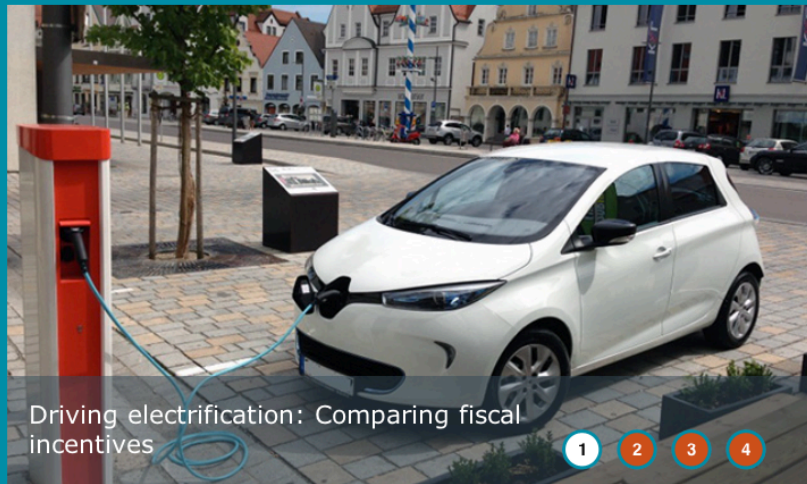


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Driving electrification: Comparing fiscal incentives

1 2 3 4

WHERE WE WORK



☒ SELECT REGION

TOPICS

Vehicle emission control in India

EU 2020 vehicle targets

Technology cost analyses: resources

Mass reduction: Resources

SPOTLIGHT

Europe's untapped resource



Europe's opportunity for biofuels from wastes and residues

Roadmap: Health



Effects of standards on public health and climate

EU Pocketbook, 2013



New edition of our annual market profile

Real-world fuel consumption



The growing gap between lab and on-road results in the EU