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Institute for Advanced Sustainability Studies e.V.



## Experiences from German cities and regions Focus on mobility

**LE STUDIUM**  
Loire Valley  
Institute for Advanced Studies

Climate, air quality, and health: long-term goals and near-term actions, June 28, 2019

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Eckard Helmers, **Hochschule Trier**

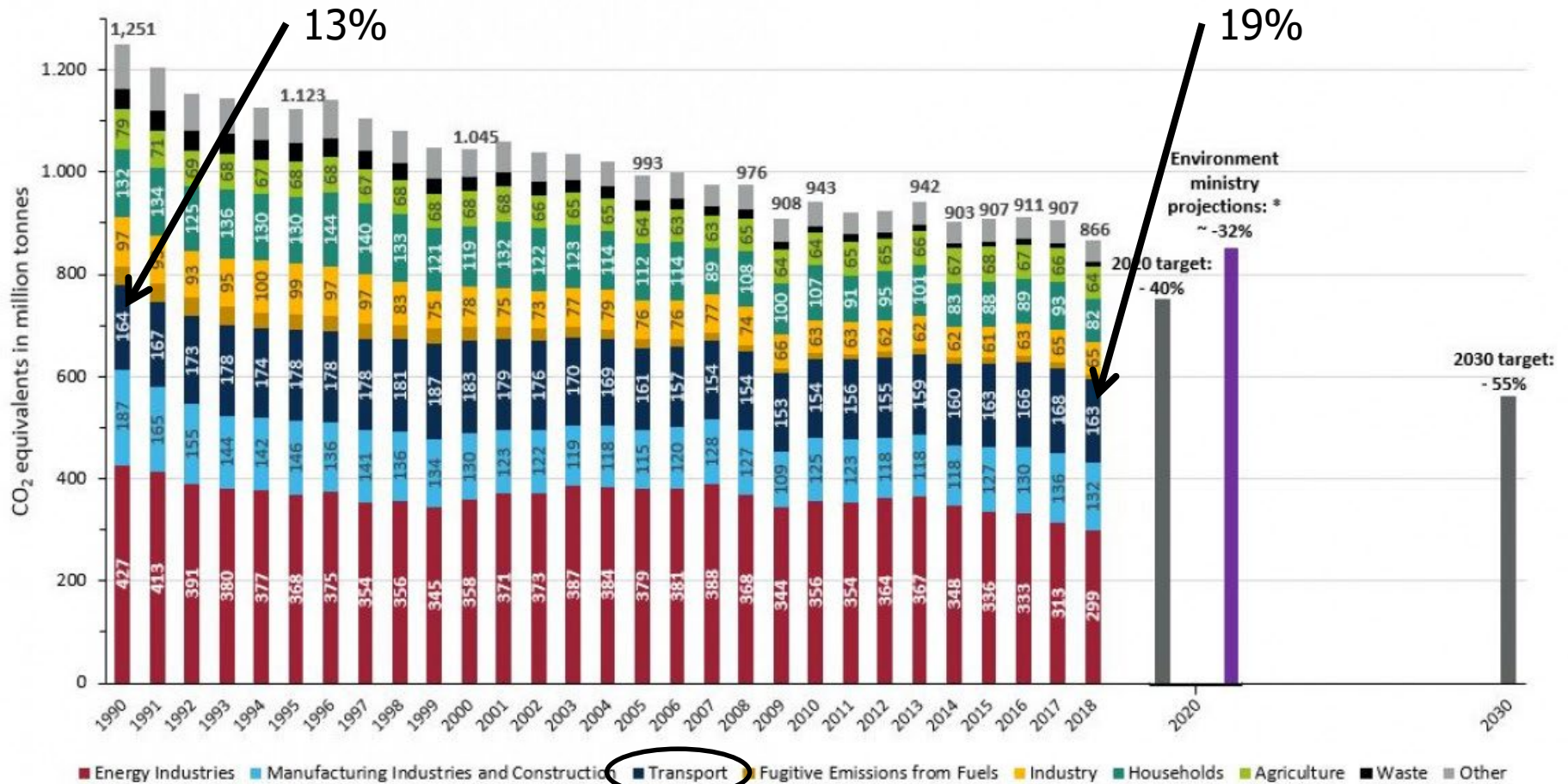
Uwe Tiedke, **International Council for Clean Transportation**

Andreas Kerschbaumer, **Berliner Senatsverwaltung für Umwelt, Verkehr und Klimaschutz**

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# Greenhouse gas emission trends in Germany by sector 1990-2018.

Data: UBA, 2019.

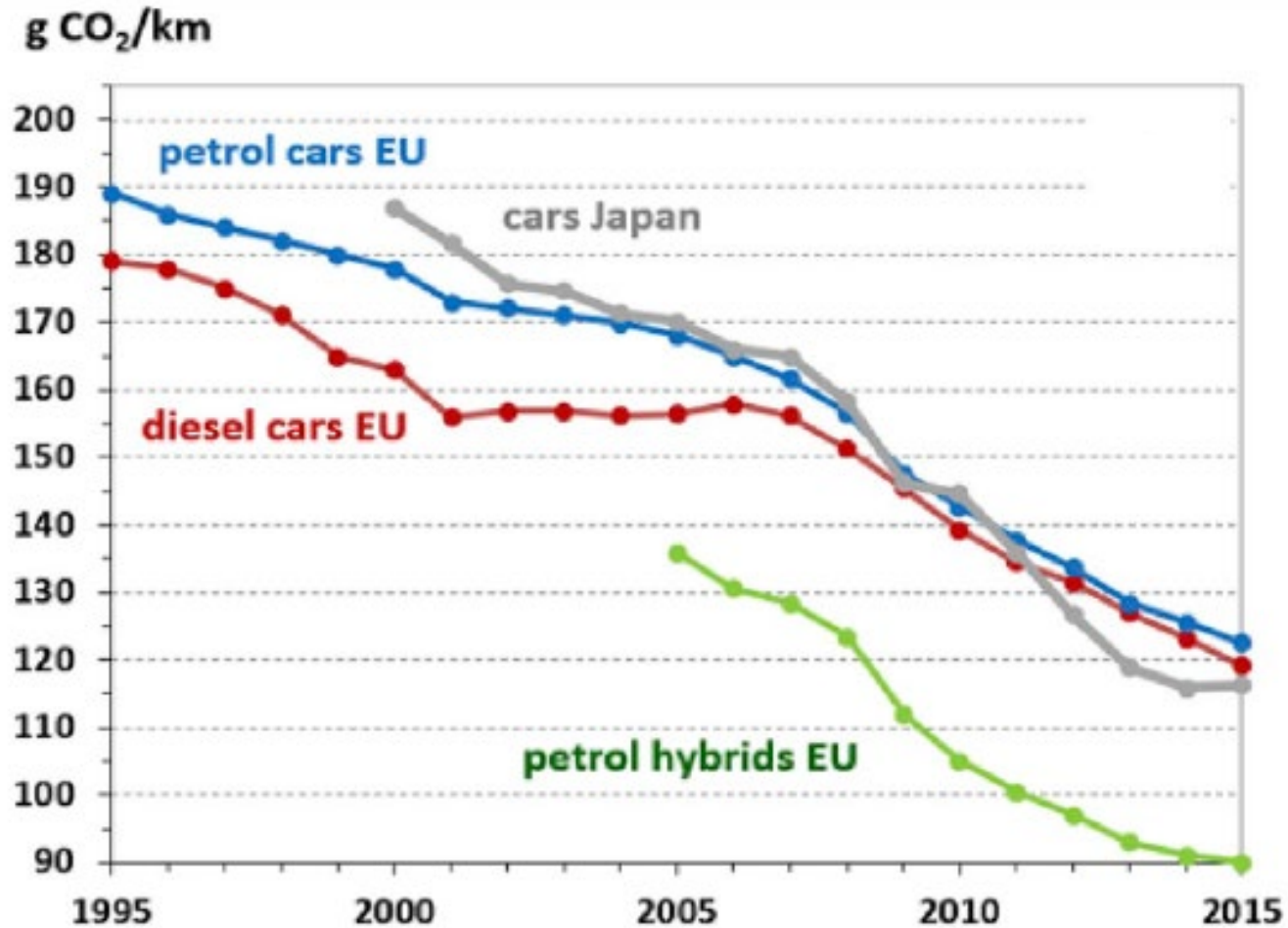


Note: Without emissions from land use, land use change and forestry (LULUCF)

\* First estimate April 2019.

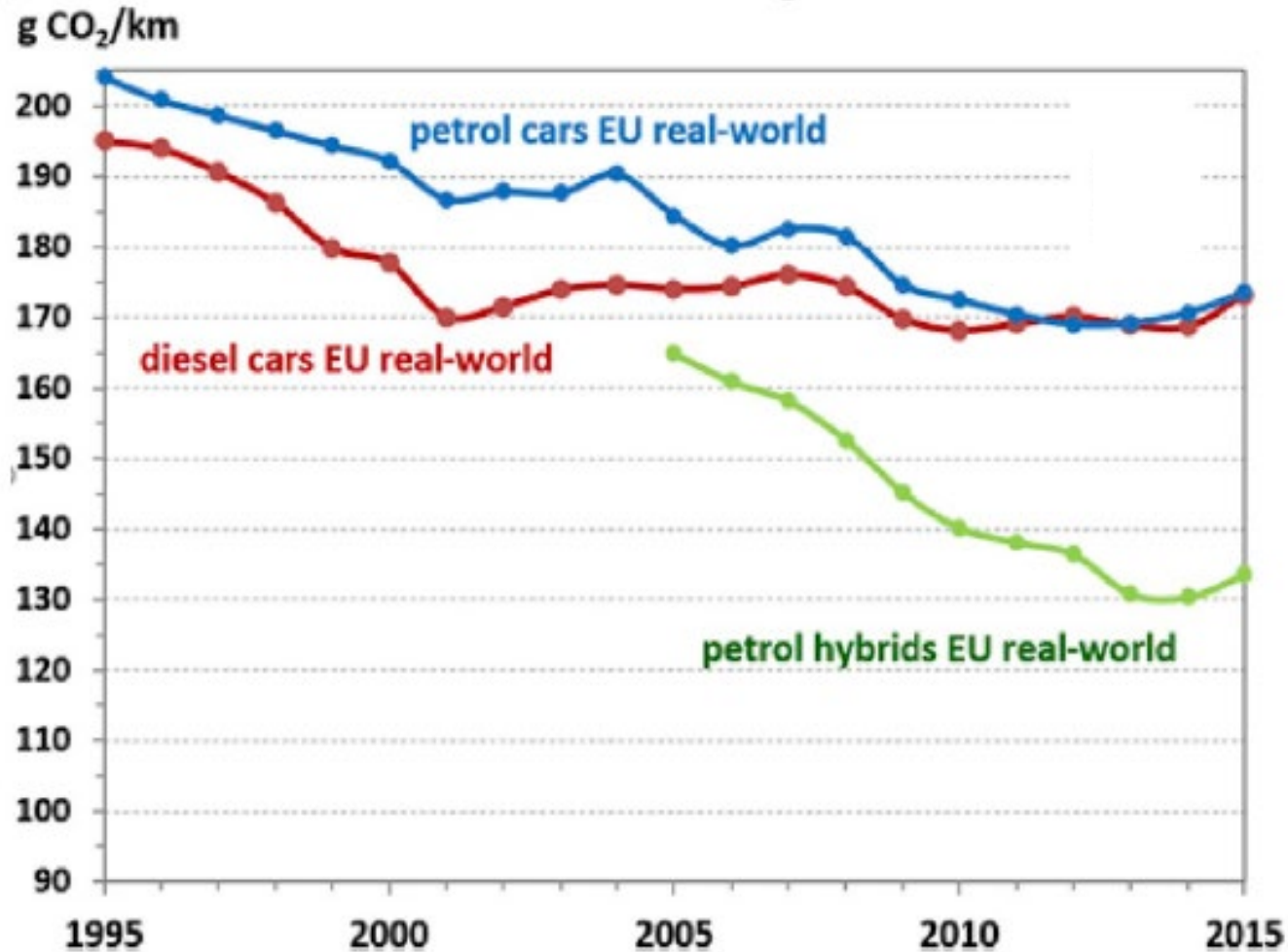
\*\*According to environment ministry calculations from October 2017, Germany is set to widely miss its goal to reduce greenhouse gas emissions by 40% by 2020.

## What about fuel efficiency?



Helmets et al. (2019) <https://doi.org/10.1016/j.atmosenv.2018.10.039>

## Based on real-world fuel consumption



Helmets et al. (2019) <https://doi.org/10.1016/j.atmosenv.2018.10.039>

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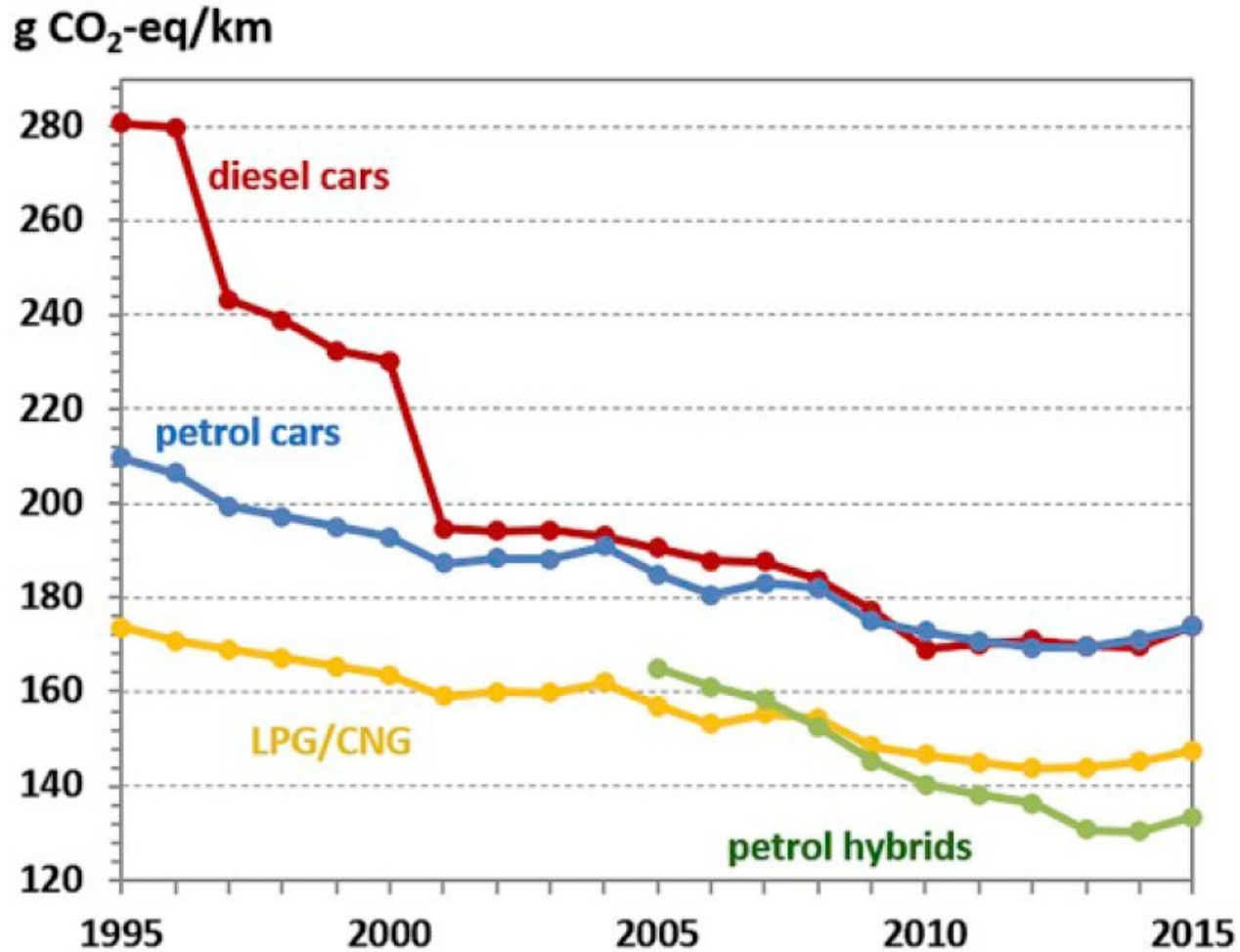


## But isn't diesel better for the climate?



Image: US EPA

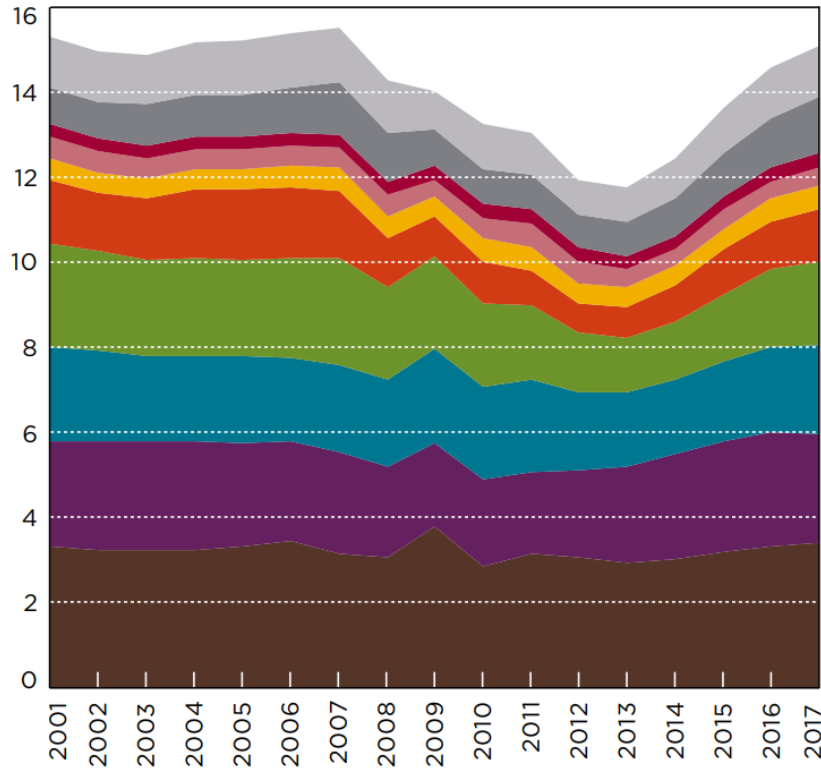
## Including Black Carbon



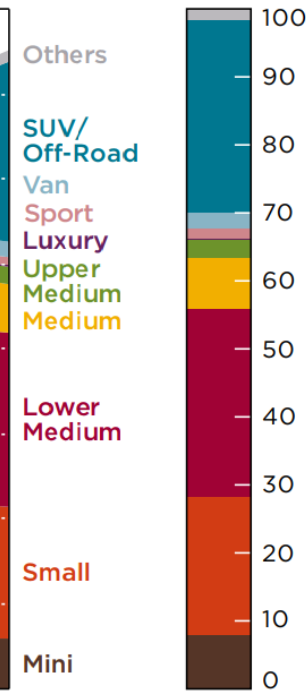
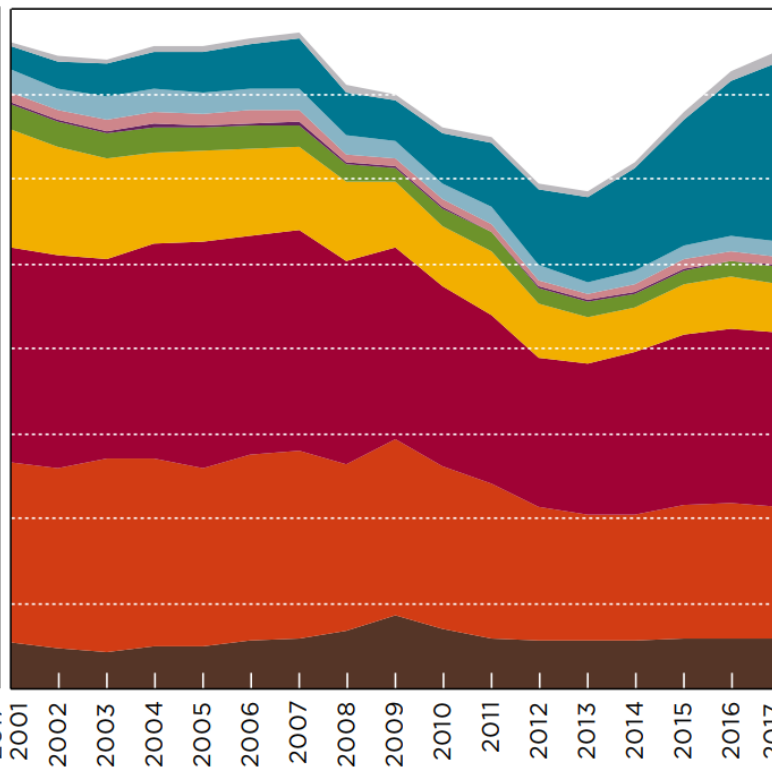
Helmets et al. (2019) <https://doi.org/10.1016/j.atmosenv.2018.10.039>

# New car registrations in Europe

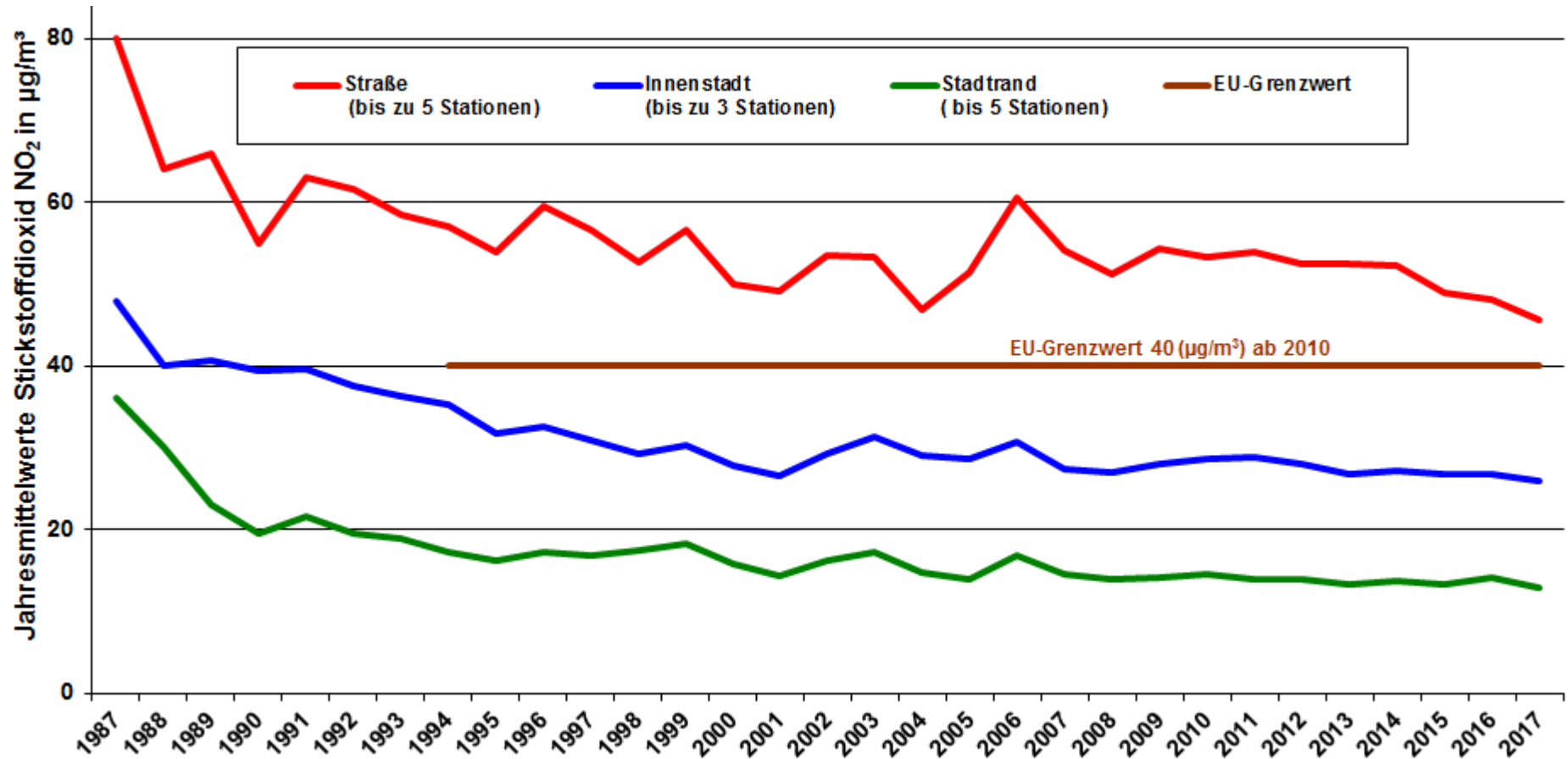
Registrations (million)



Market share EU-28 in 2017 (in %)



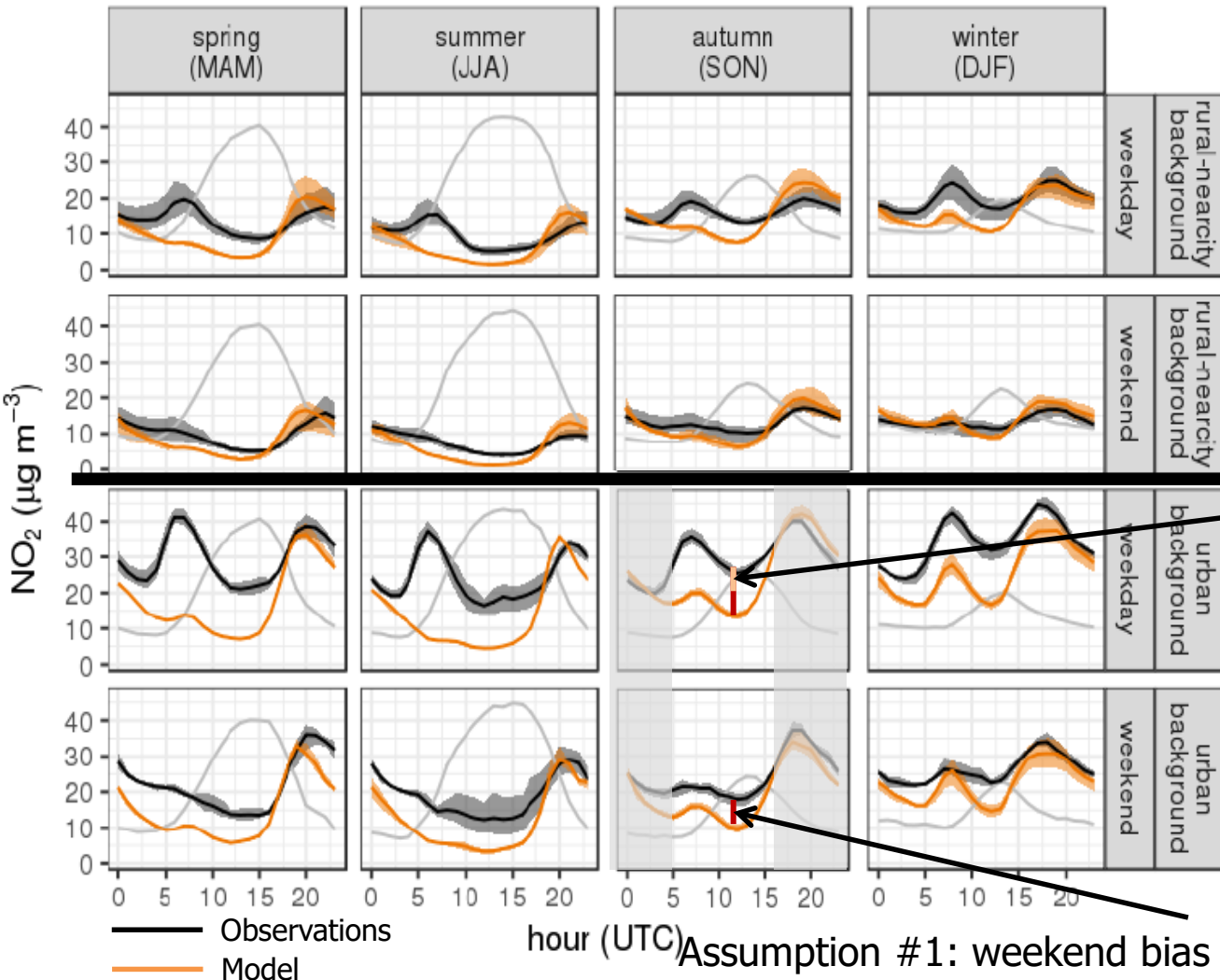
## Long-term development of NO<sub>2</sub> concentration in Berlin



[https://www.berlin.de/senuvk/umwelt/luftqualitaet/de/entwicklung/lang\\_no2.shtml](https://www.berlin.de/senuvk/umwelt/luftqualitaet/de/entwicklung/lang_no2.shtml)



## How well can we model urban background NO<sub>2</sub>?



- Model bias is worst in the urban background
- And during daytime
- And on weekdays

Assumption #2: remaining weekday bias is all due to road traffic

**Result: traffic emissions may be underestimated by a factor of 3**

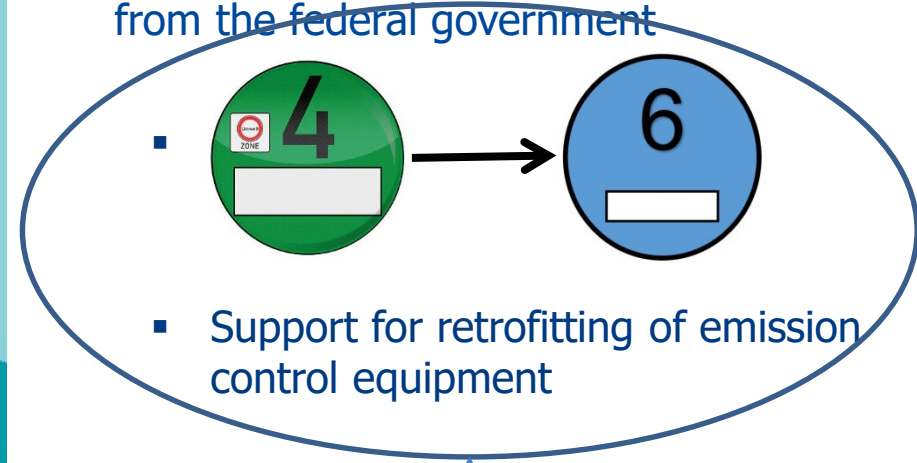
Assumption #1: weekend bias is not related to emissions

Kuik et al. (2018) <https://doi.org/10.5194/acp-18-8203-2018>

# Deutsche Umwelthilfe Klagen für Saubere Luft



- 35 cities being sued by DUH to improve their air quality plans
- Some more cooperative than others
- Courts have ruled that diesel bans are legal
- Implementation difficulties without help from the federal government



- Support for retrofitting of emission control equipment

This is not happening

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## Urban share of transport CO<sub>2</sub> emissions: Berlin



# Climate-Neutral Berlin 2050

## Results of a Feasibility Study

Senate Department  
for Urban Development  
and the Environment



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