

Deviation between real-world and type-approval fuel and electricity consumption

UNECE GRPE IWG on Automotive Life Cycle Assessment
23th Session of Subgroup 4 (Use phase)
March 18, 2025

Georg Bieker

Overview

- Worldwide Harmonised Light Vehicles Test Procedure
- New European Driving Cycle
- United States: CAFE and EPA
- China: electric light-duty vehicles test cycle

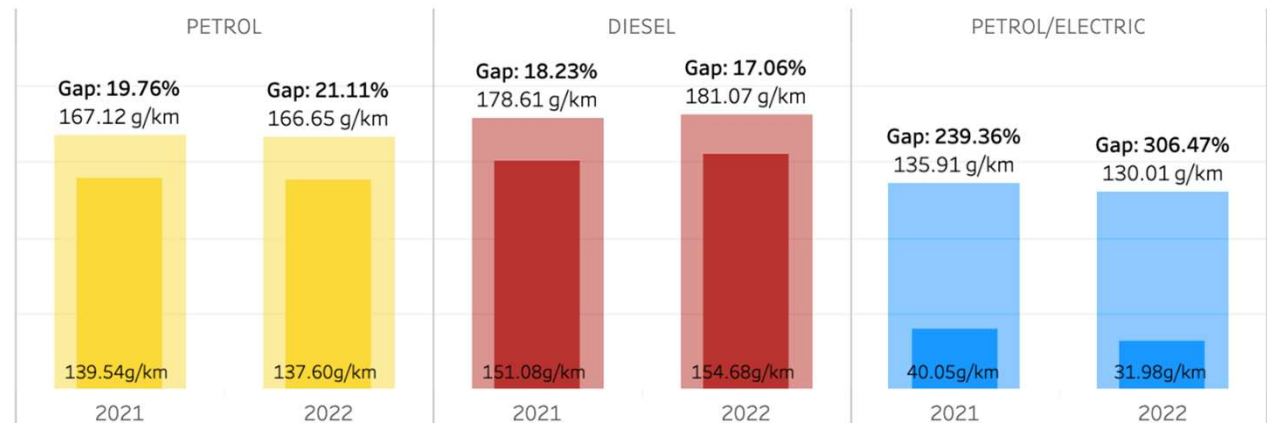
Worldwide Harmonised Light Vehicles Test Procedure

ICEVs and PHEV in Europe

Source:

- European Commission
- 2.9 mio. vehicles registered in 2021 and 2022

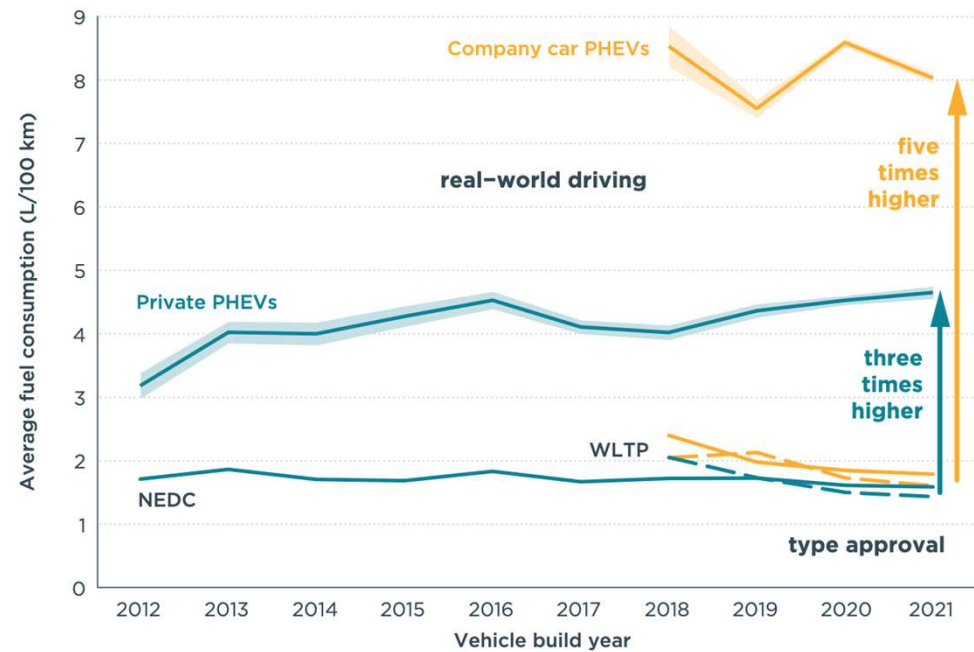
➔ Confirm ICCT numbers for ICEVs and PHEVs.



PHEVs in Europe

Sources:

- Spritmonitor.de, ICCT/Fraunhofer survey data, German Aerospace Center, HonestJohn.co.uk, Fiches-Auto.fr, Carbuyer, and MILE21.eu
- 9,000 vehicles

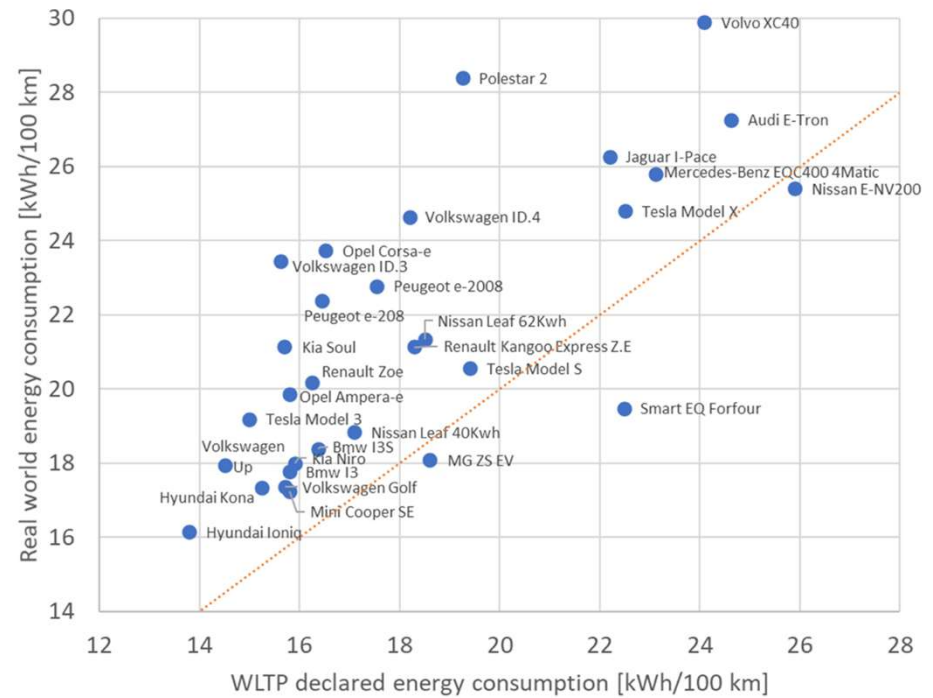


BEVs in Europe

Source:

- Charge pass data in the Netherlands
- 6,200 electric passenger cars

+19% on average

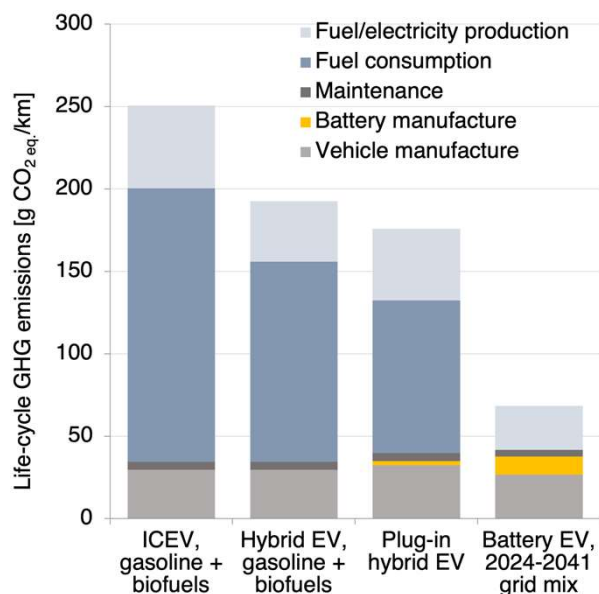


Summary

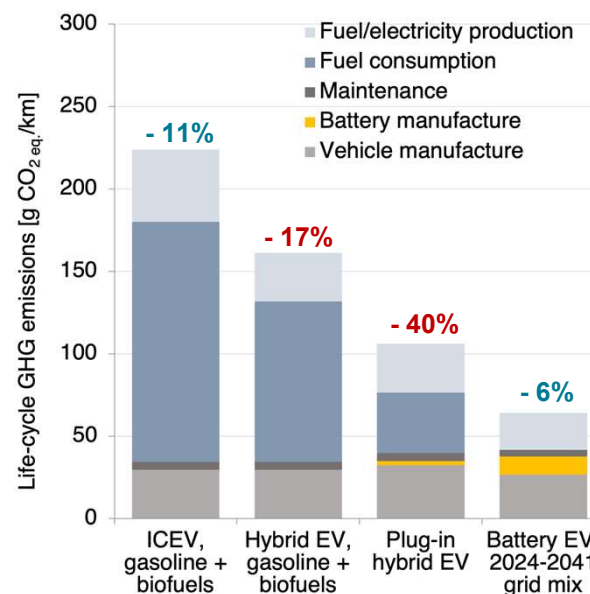
	Fuel consumption			Electricity
Power train type	Gasoline ICEV	Diesel ICEV	PHEV	BEV
Real-world deviation	+20%	+18%	+240%	+19%
Source	European Commission			TNO report

The deviation between real-world and WLTP values impacts the life-cycle GHG emissions intensity of power train types differently

Case 1: Real-world usage consumption



Case 2: Official WLTP values



The gap between real-world consumption and official values is higher for PHEVs and HEV.

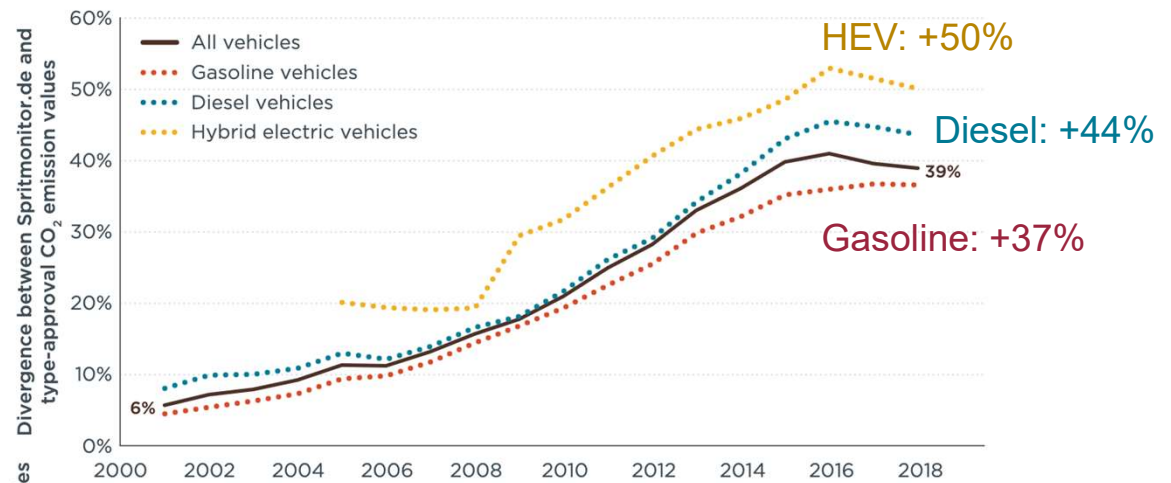
Assuming official test values results in a distortion of the comparison.

New European Driving Cycle

ICEVs in Europe

Source:

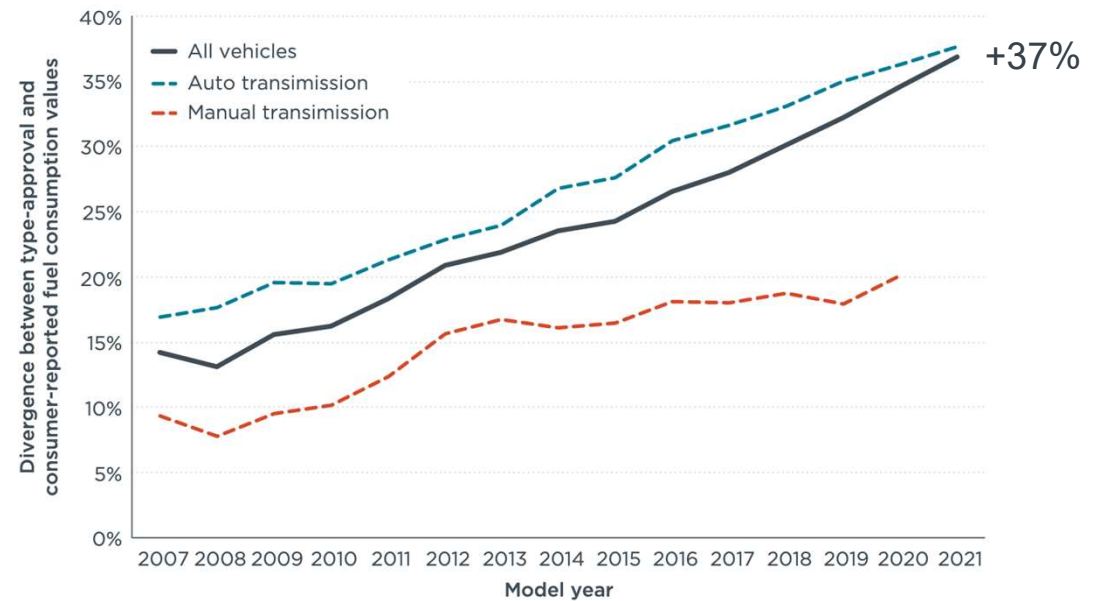
- Spritmonitor.de
- 210,000 vehicles



ICEVs in China

Source:

- XiaoXiongYouHao.com
- 2.1 mio. vehicles

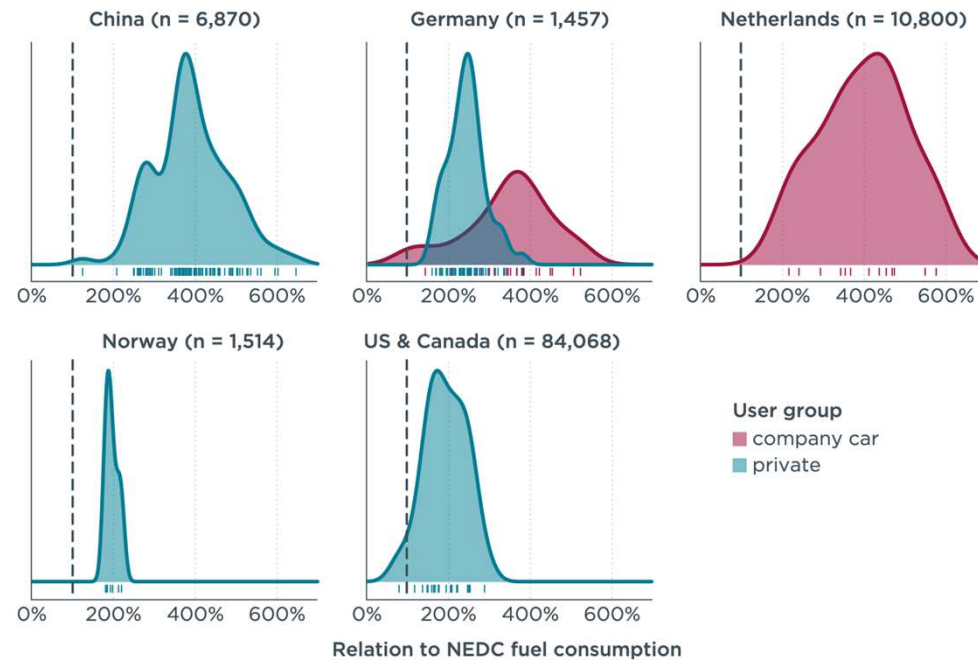


Plug-in hybrids in Europe and China

Source:

- XiaoXiongYouHao.com
- 7,000 vehicles

+300%

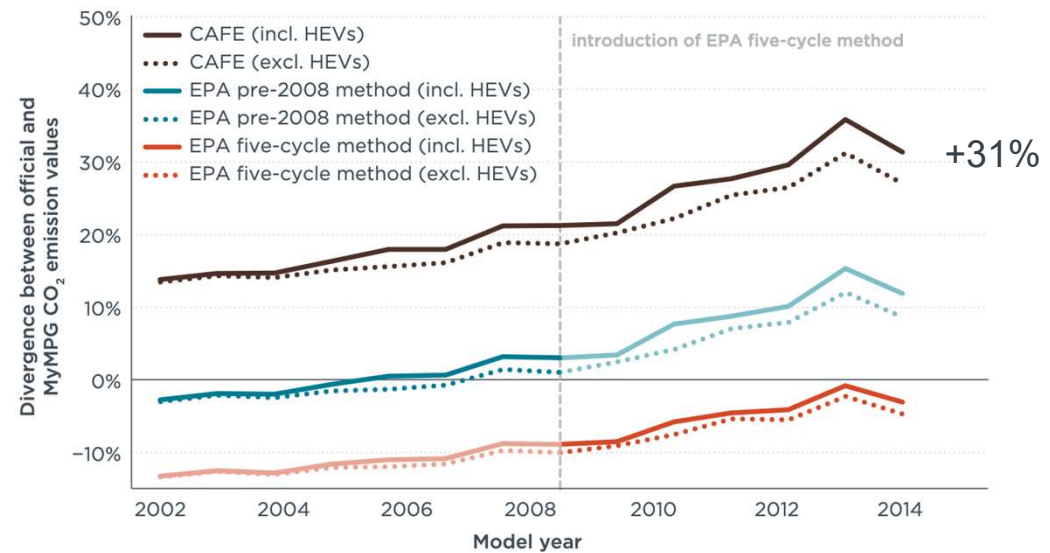


United States: CAFE and EPA tests

ICEVs and HEVs in the US

Source:

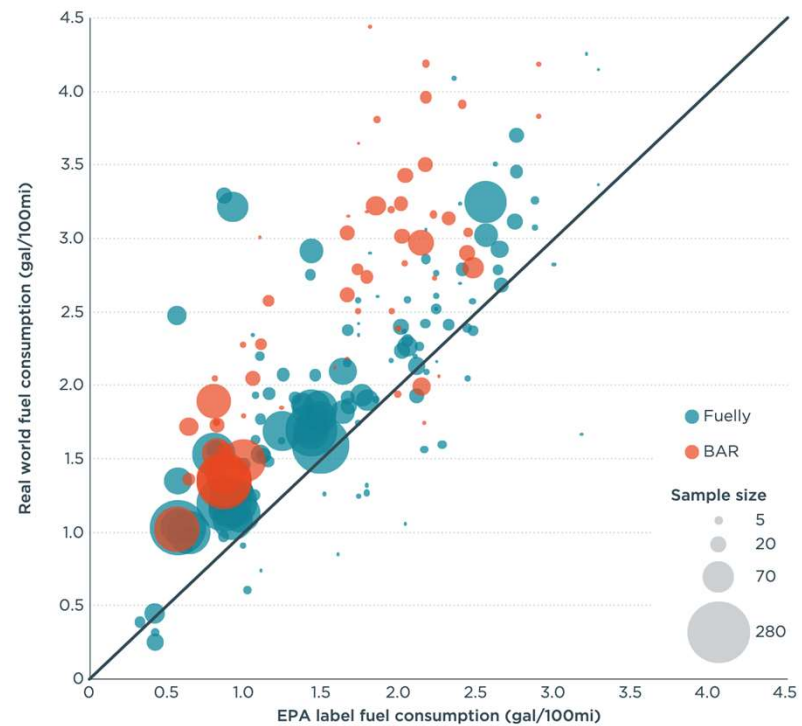
- MyMPG
- 43,000 vehicles



Plug-in hybrids in the US

Sources:

- Fuely.com, California's Bureau of Automotive Repair
- 5,400 vehicles



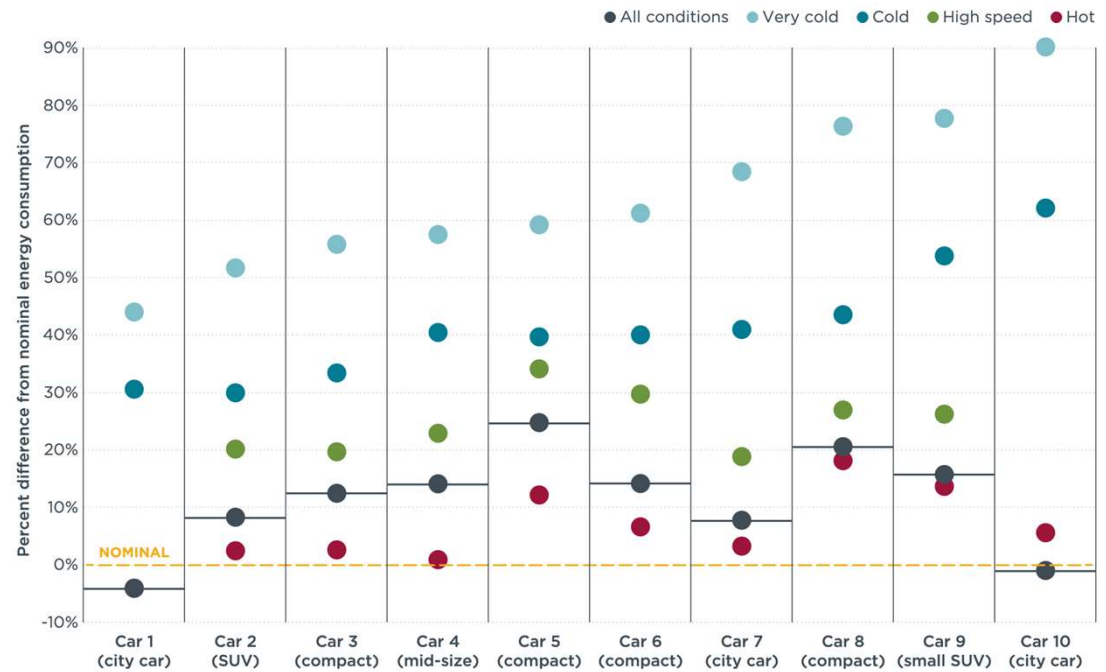
China: electric light-duty vehicles test cycle

BEVs in China

Source:

- National Big Data Alliance of New Energy Vehicles (NDANEV)
- 10 best-selling model selected: 142,000 vehicles

+15% on average
(all conditions)



Thank you!
g.bieker@theicct.org

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THE INTERNATIONAL COUNCIL
ON CLEAN TRANSPORTATION