

# Climate impact of company cars

## Allianz Environmental Best-Practice-Sharing Roundtable

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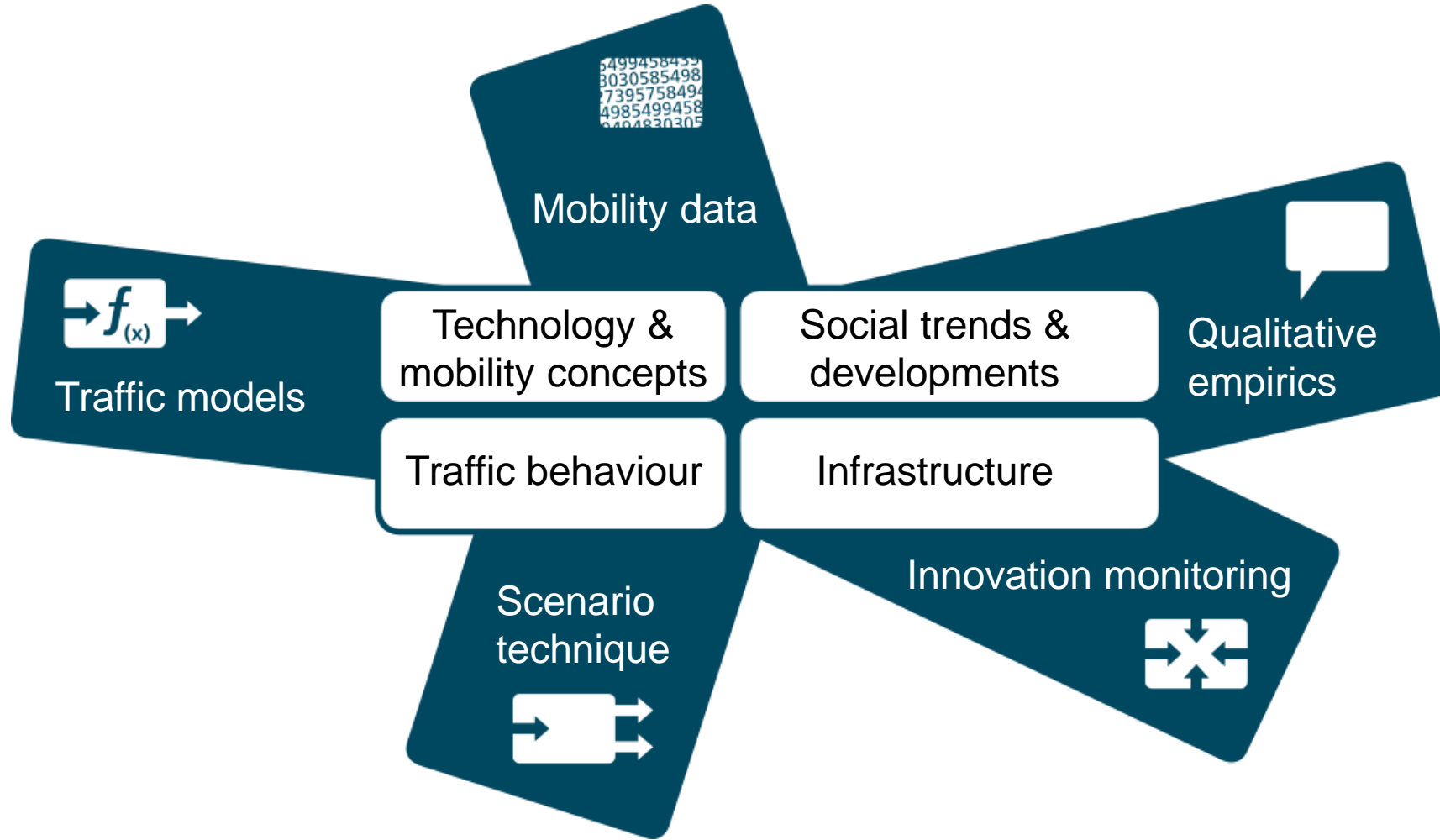
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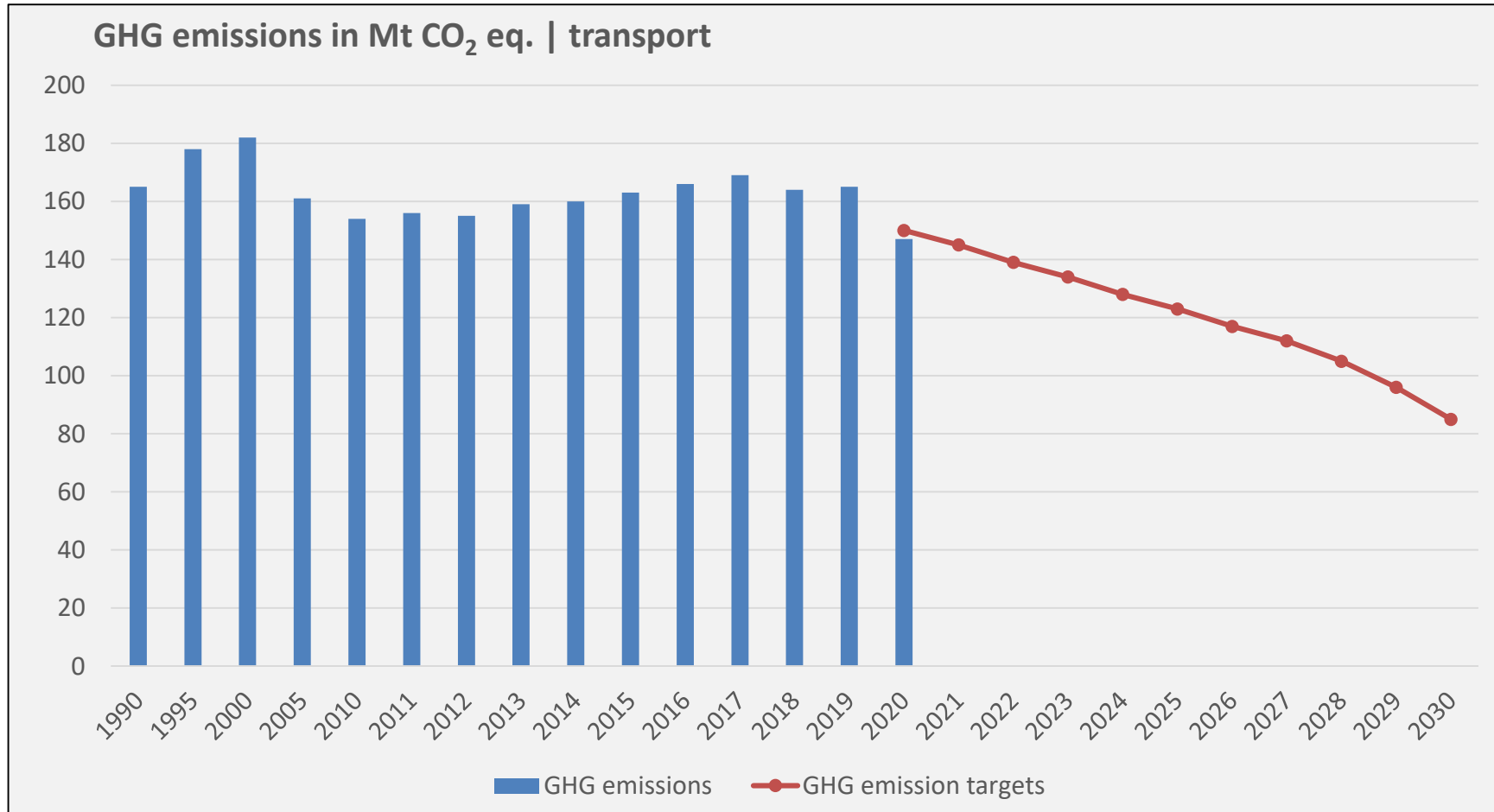
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# Institute of Transport Research – Topics & methods



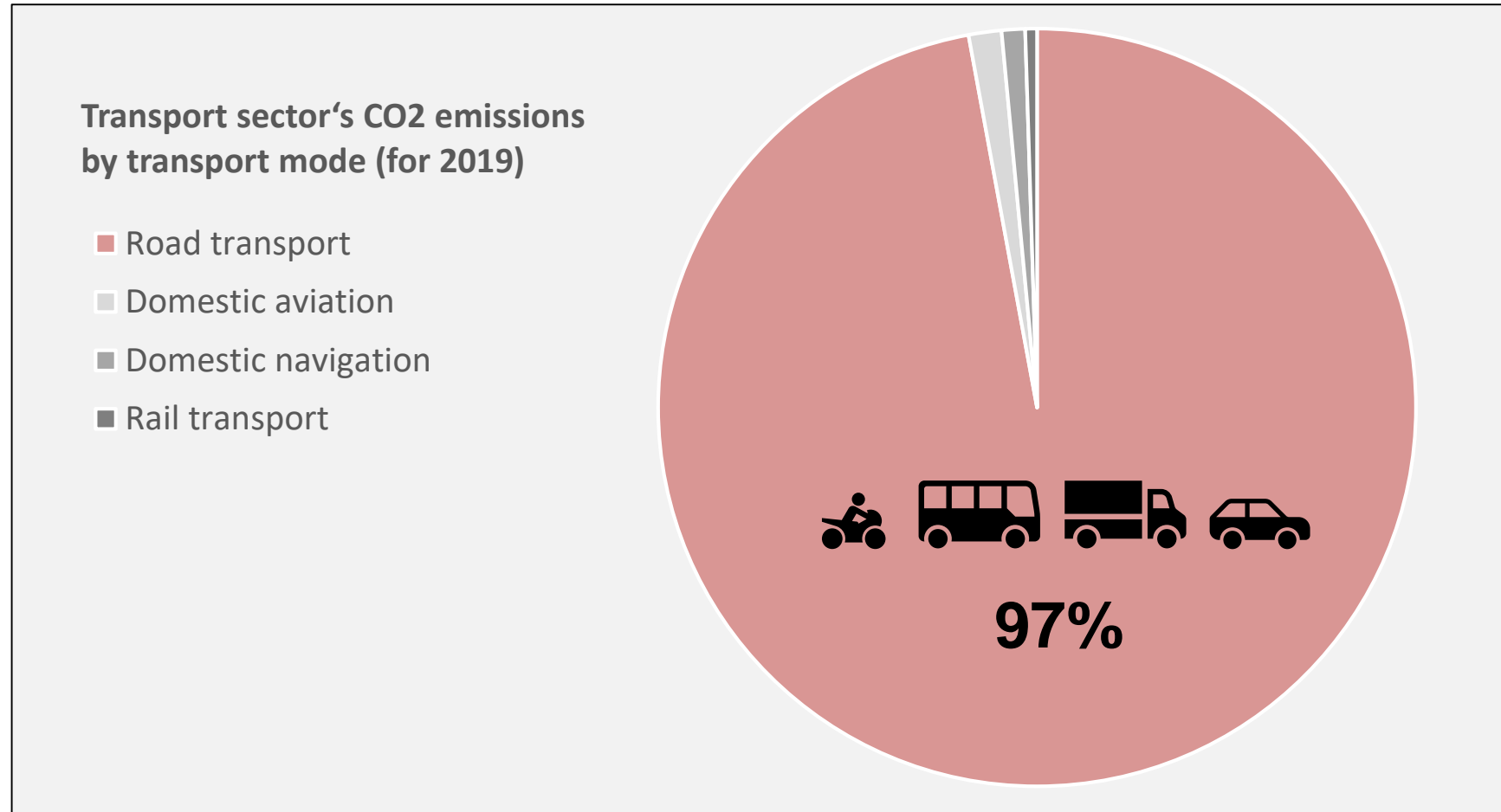
# Compared to 1990 levels, the German transport sector must reduce its greenhouse gas (GHG) emissions by almost 50% until 2030



Source: [Umweltbundesamt](#) (2022).



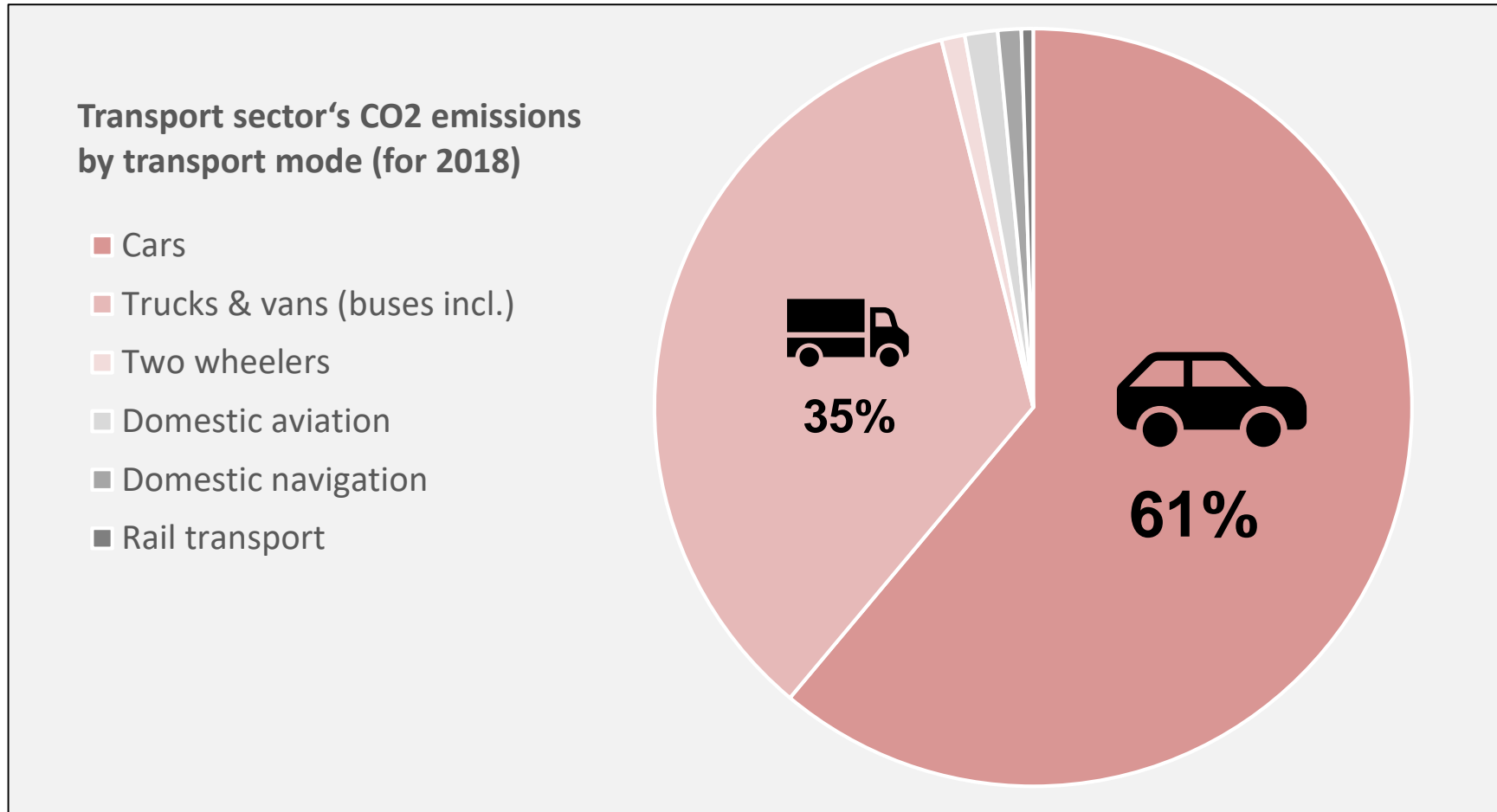
## In Germany, road transport is responsible for almost the entire GHG emissions of the sector (accounting based on the Kyoto Protocol)



Source: [Umweltbundesamt](#) (2021a).



## More specifically, almost two thirds of the sector's GHG emissions are caused by cars

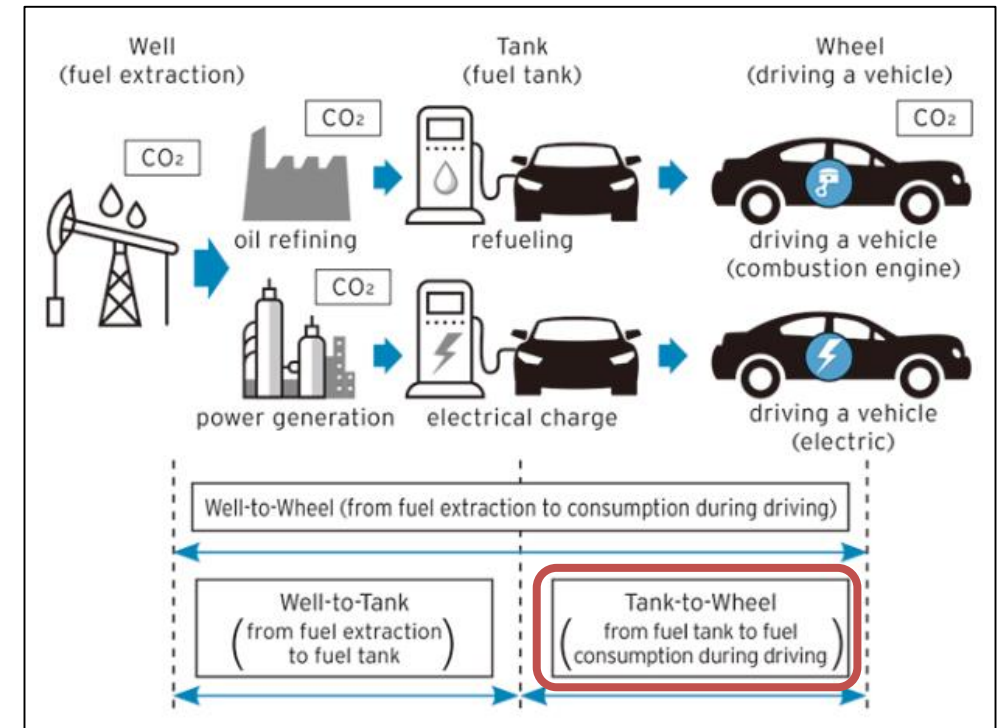


Source: [Umweltbundesamt](#) (2021a).



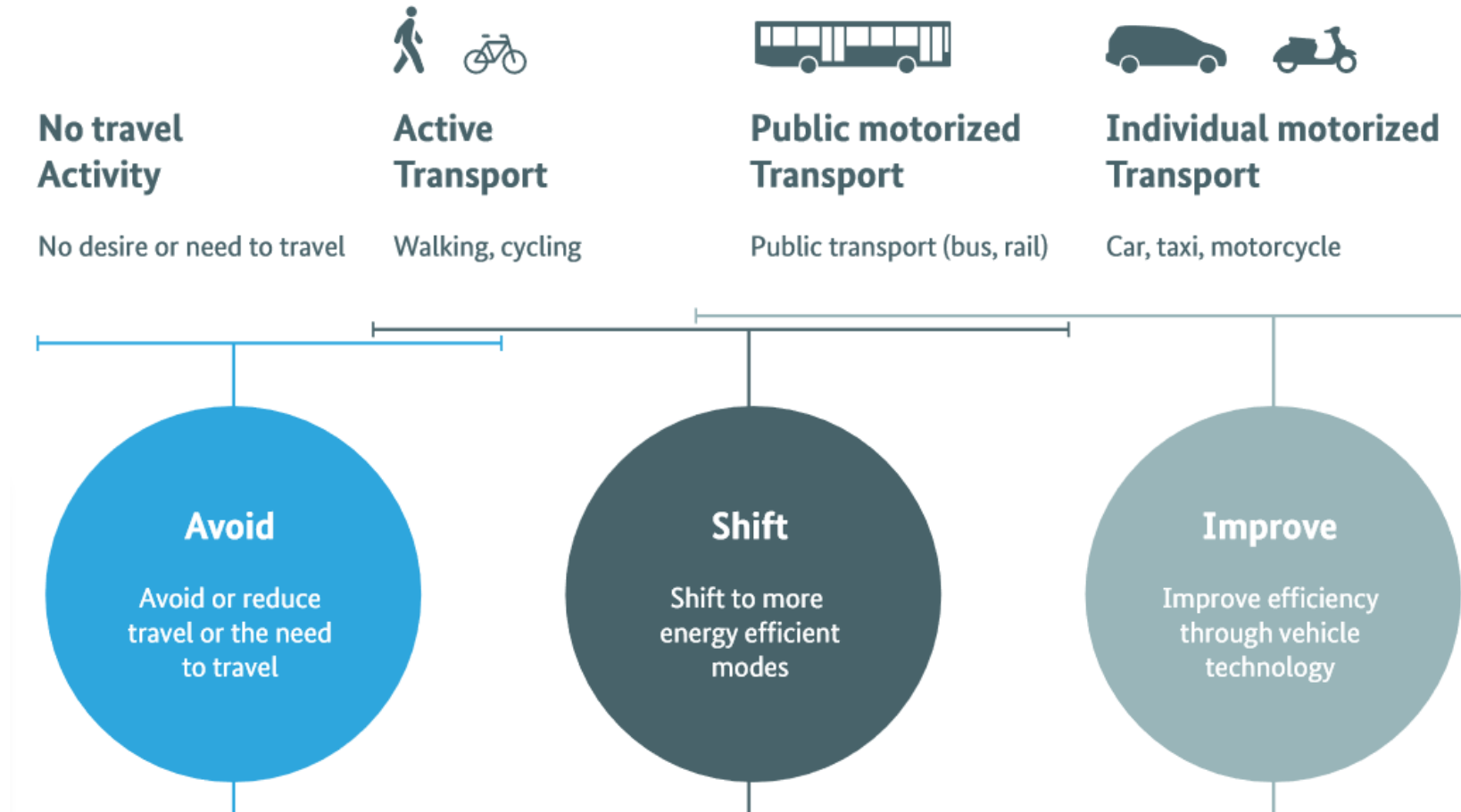
# The transport sector's GHG emissions refer to Tank-to-Wheel emissions

- CO<sub>2</sub> emissions of the transport sector refer to a subrange in the energy chain of a vehicle that extends from the point at which energy is absorbed to discharge, i.e. Tank-to-Wheel (TTW).
- Under the TTW perspective and concerning CO<sub>2</sub> emissions battery electric vehicles (BEV) are zero emission vehicles.
- The Well-to-Wheel perspective covers the entire energy consumption and CO<sub>2</sub> emissions of a fuel caused by production, supply and use.
- Life cycle assessment (LCA) covers all stages of the life cycle of a vehicle (cradle-to-grave), i.e. Well-to-Wheel + vehicle body cycle (manufacture, maintenance, recycle).



[https://www.mazda.com/en/csr/special/2016\\_01/](https://www.mazda.com/en/csr/special/2016_01/)

# The reduction of GHG emissions from car traffic must be based on three central pillars

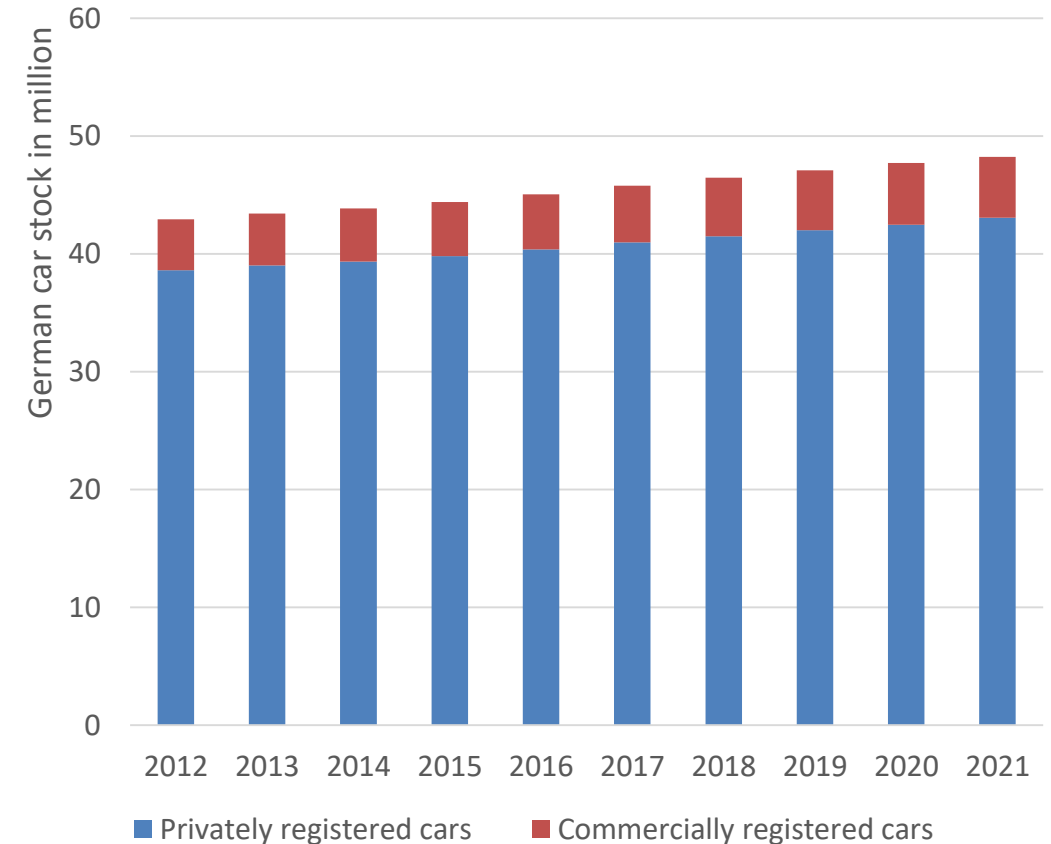


Source: [GIZ](#) (2019).



## The Federal Motor Transport Authority (KBA) in Germany differentiates between privately registered and commercially registered cars

- With about 12%, the stock share of commercially registered cars has stayed rather constant over the last decade.
- Commercially registered cars comprise a heterogenous mix of cars (e.g. company cars, car rentals, taxis, carsharing).
- The exact number of company cars in Germany is not reported. For 2020, the former German government estimates the number of company cars at around three million (~6%).
- **Is the statement that the climate impact of company cars is rather limited valid?**



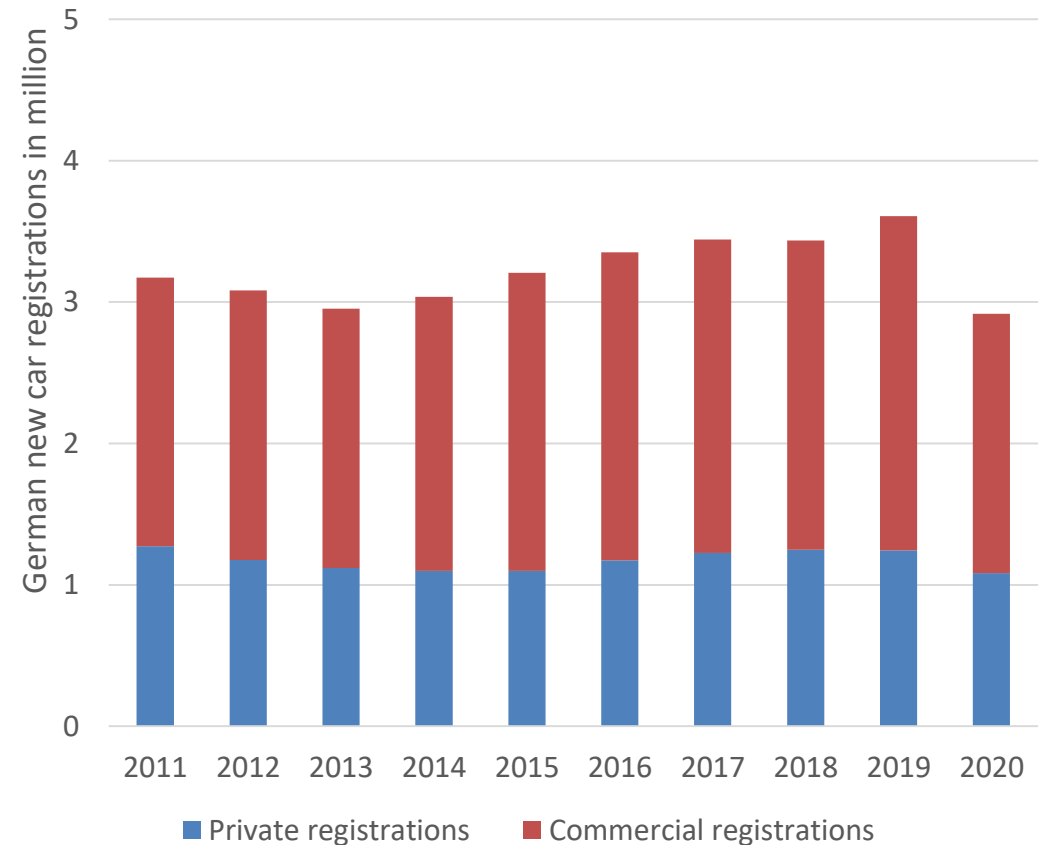
Source: [KBA](#) (2021), [Drucksache 19/26653](#) (2021).





## To assess the indirect climate impact of company cars it is helpful to consider the channels through which new cars enter the stock

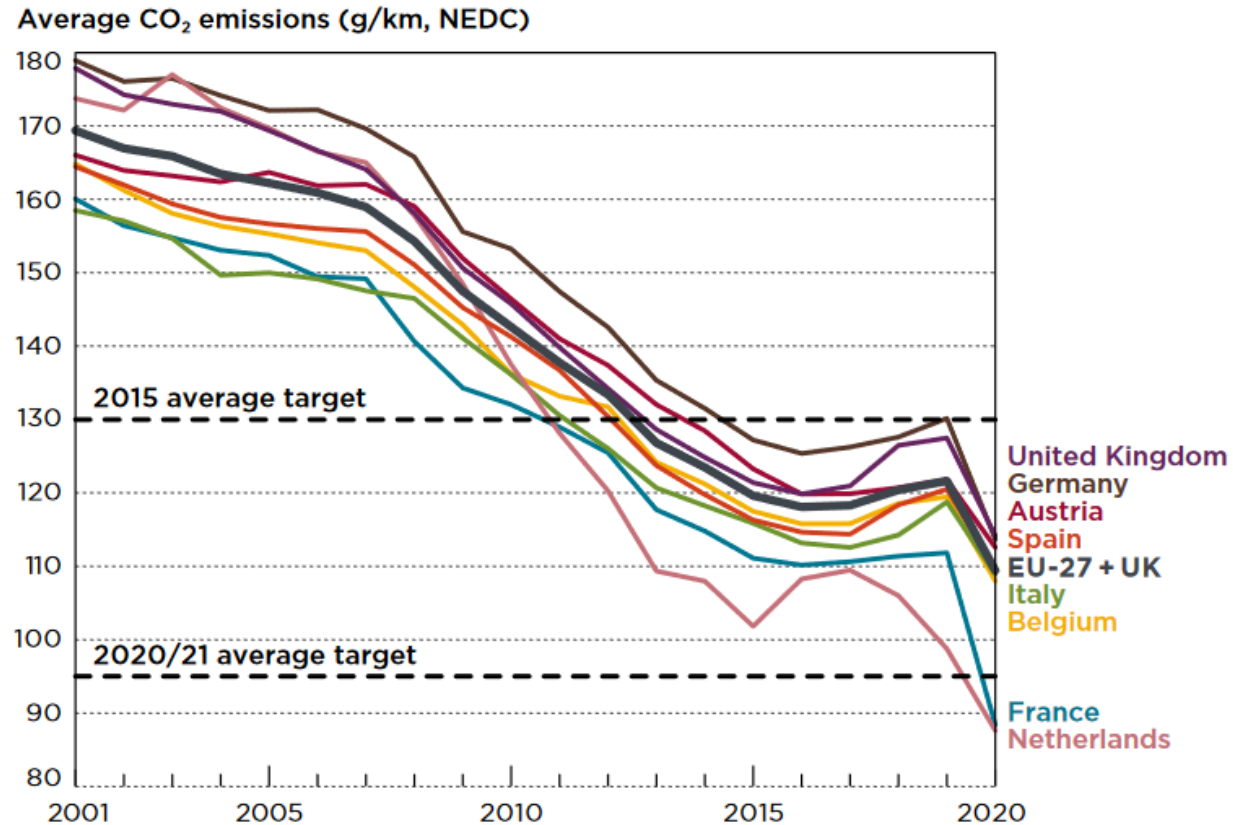
- In Germany, commercial registrations make up two thirds of new car registrations. About half of these are company cars.
- After being a company car for about four years these cars enter the used car market and make up the supply of young used cars for private households. In Germany, the average duration a car stays in the stock is 16 years.
- According to our diffusion model, the share of cars that were once commercially registered cars or are commercially registered today is 50–60%.
- **Company cars of today largely determine the car stock of tomorrow!**



Source: [KBA](#) (2021), [T&E](#) (2021).



# Compared to the European average, Germany has been showing the highest CO<sub>2</sub> emissions of new registrations for 20 years

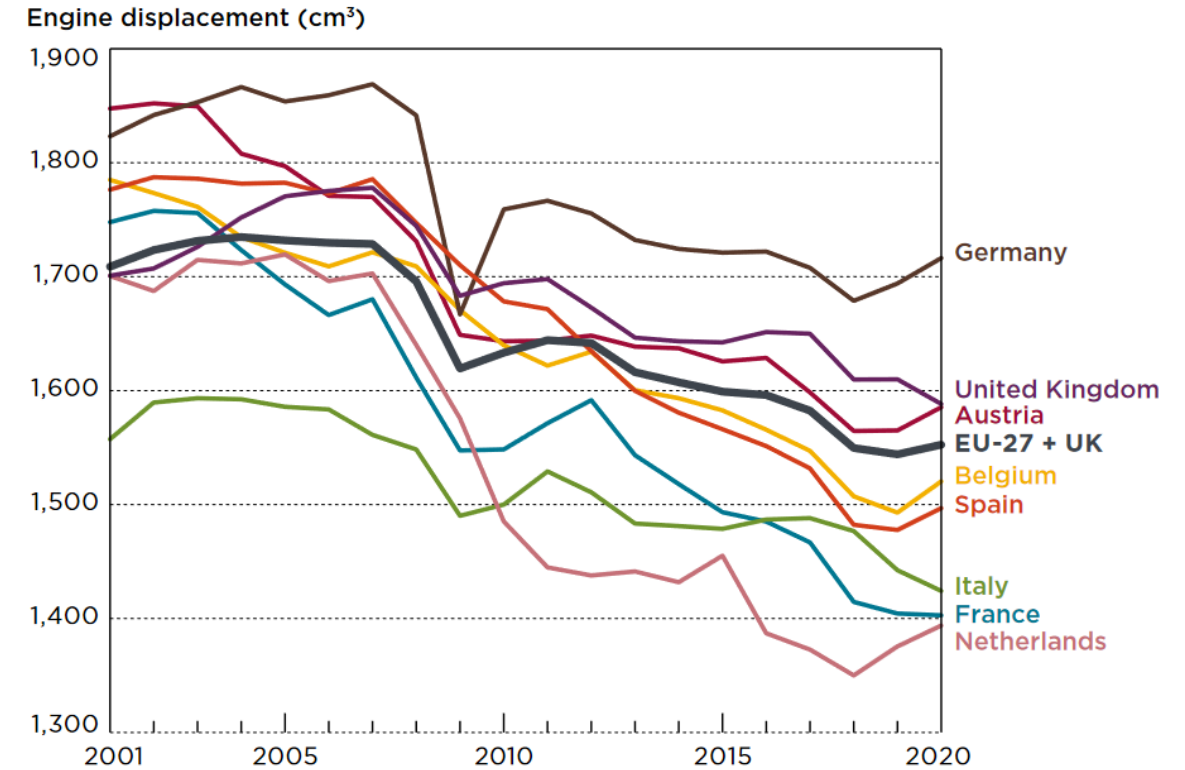
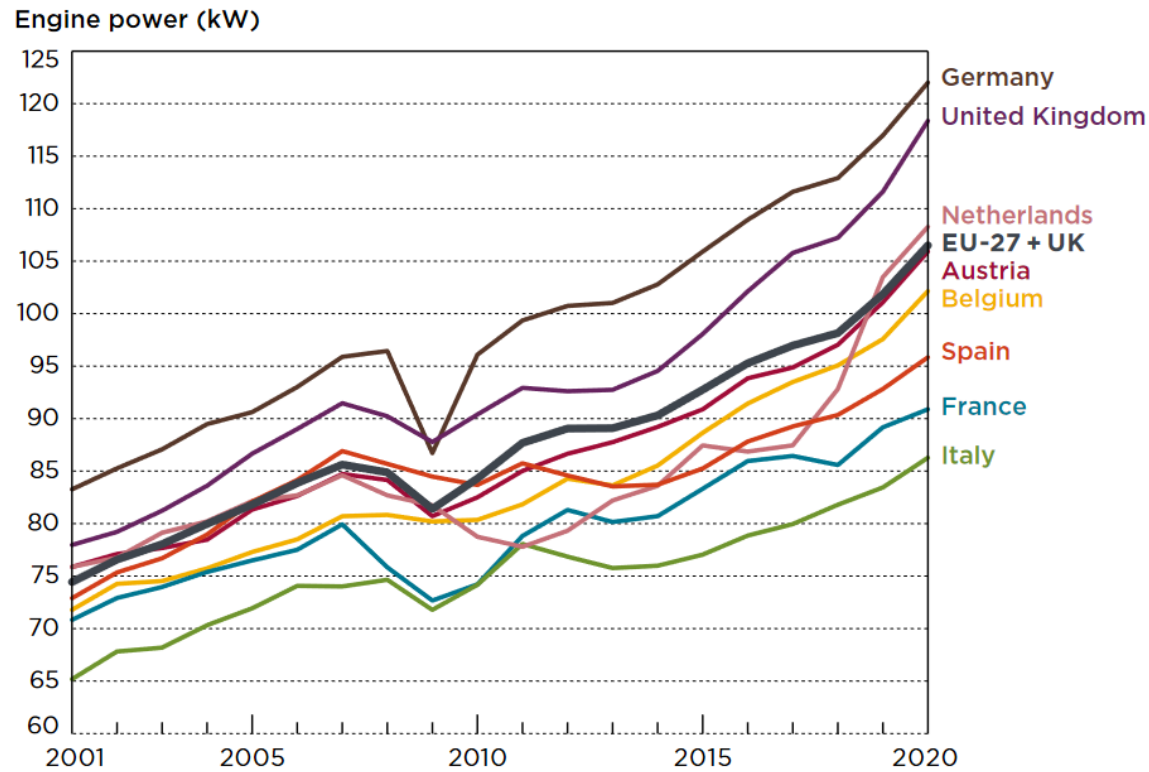


NEDC data availability for Spain for 2019 and for France for 2020 is limited (66% and 43% of the countries' new registrations, respectively). See "Remarks on data sources".

Source: [ICCT](#) (2021).



# New registrations in Germany feature the highest engine power and highest engine displacement among the EU



Source: [ICCT](#) (2021).



## Subsidies for company cars are one reason for the registration of powerful and inefficient new cars in Germany

- Private use of a company car is a monetary benefit and must be taxed accordingly.
- In Germany, the actual advantage of private use of a company car exceeds the calculated monetary advantage.
- This de facto subsidy stimulates the purchase of more expensive vehicles.
- In Germany, the CO<sub>2</sub> emissions of a company car is irrelevant for the calculation of the monetary benefit. This is not the case in various other European countries.

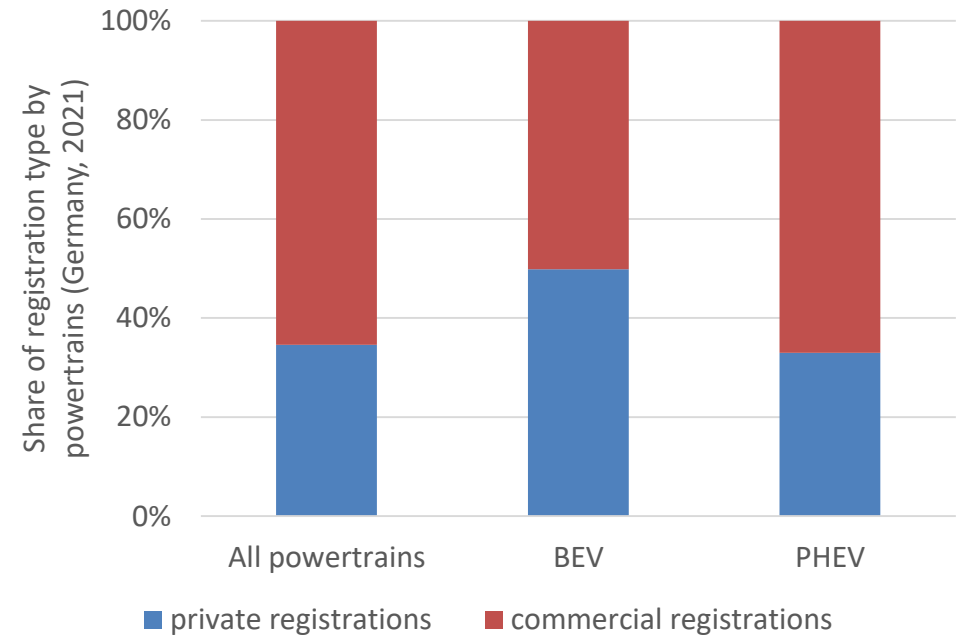
Monetary benefit of company cars in selected countries

Country	BEV	Mid-class	Upper class
Germany	1,400€	2,520€	5,670€
Netherlands	880€	4,400€	9,900€
Belgium	754€	1,320€	6,250€
Spain	3,100€	3,400€	9,000€
UK	3,520€	5,000€	16,500€



## Through subsidies the German government aims to accelerate the diffusion of battery electric vehicles (BEV) and plug-in hybrids (PHEV)

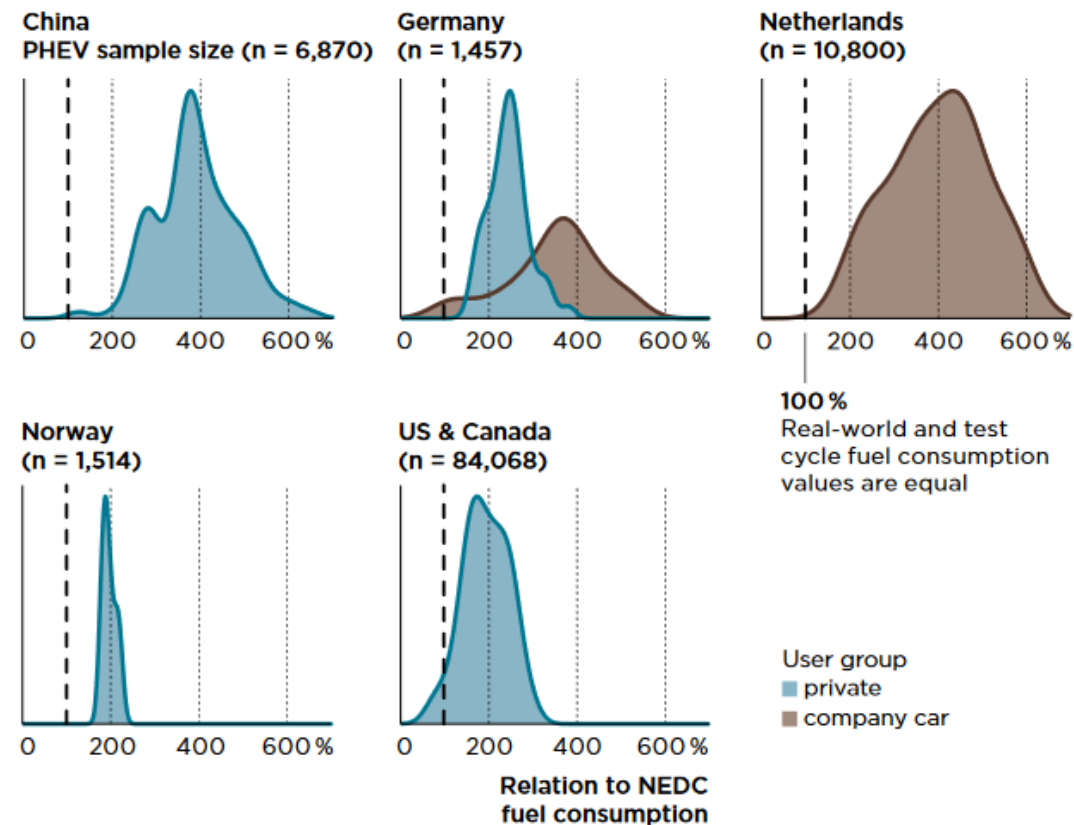
- Today, the monetary benefit to be taxed is halved for PHEVs and quartered for BEVs.
- Still, the share of commercial registrations for BEVs was rather low in 2021.
- The government aims to reach 15 million BEVs in the stock by 2030. However, models show that much more than 15 million BEVs are needed to meet the sector targets.
- More commercial registrations of BEVs will make sure that there will be a supply of young used electric vehicles in the used vehicle market for private households with lower incomes.



Source: [KBA](#) (2022), [Luderer et al.](#) (2021).

# Excursus PHEV: Data suggest that real-world emissions are much higher than laboratory emissions

- Data from over 100.000 cars suggest that PHEVs are used differently than expected.
- Fuel consumption and CO<sub>2</sub> emissions are more than twice as high as official test cycles claim.
- PHEVs are driven much less in electric mode than expected (about half of expected electric kilometers).
- PHEV trips are longer than expected and the cars are charged much less frequently.
- According to the new German government, subsidies for PHEVs will depend on a minimum share of electric use starting from 2023.



## Conclusion

- With under 10%, the share of company cars in the car fleet is rather low.
- However, they represent a large share of new registrations that enter the market every year.
- After their first life as company cars they enter the used vehicle market and make up a large share the supply of young vehicles.
- In Germany, long-standing subsidies for company cars have been one reason for the registration of inefficient cars.
- A rapid increase of BEV company cars is crucial for reducing transport emissions quickly and for the supply of zero emission vehicles for private households with lower incomes.
- In Germany, avoiding and shifting travel must complement the diffusion of zero emission vehicles to reach the short-term sector targets.



**Thank you for your attention!**

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