Towards an International Verkehrswende

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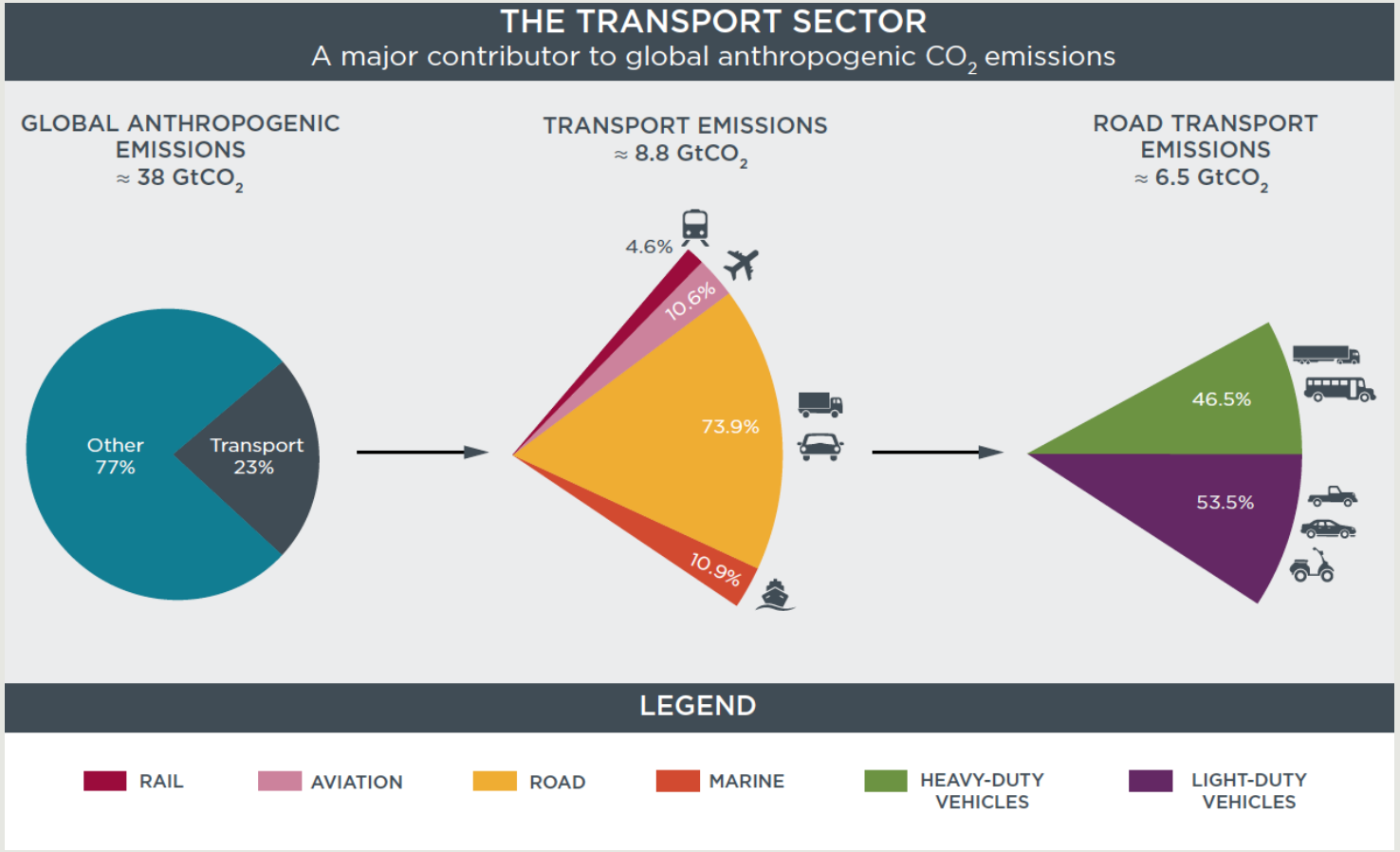
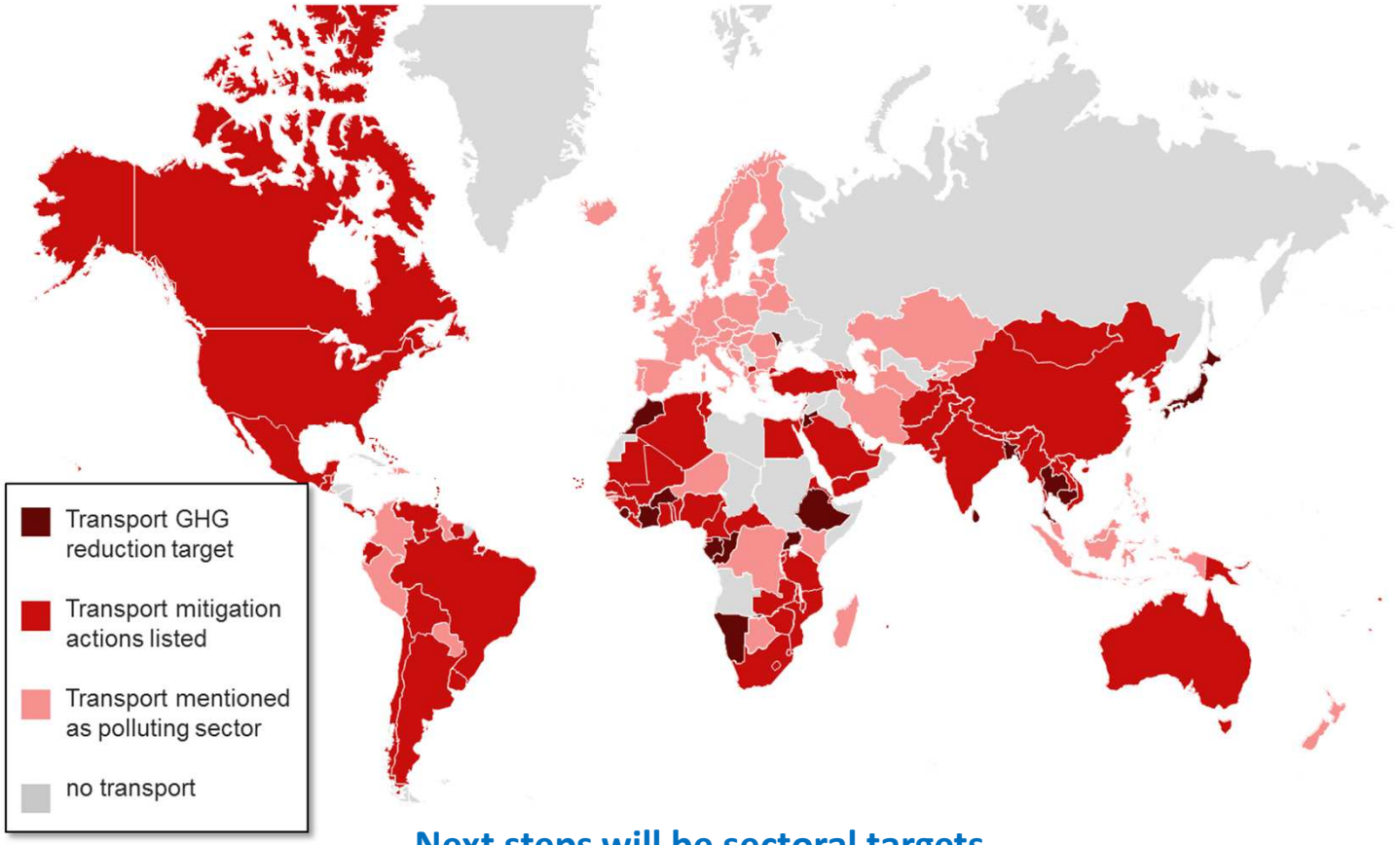
How the global transport sector contributes to Climate Change.



Source: ICCT 2015

Transport is already part of Climate Action Plans

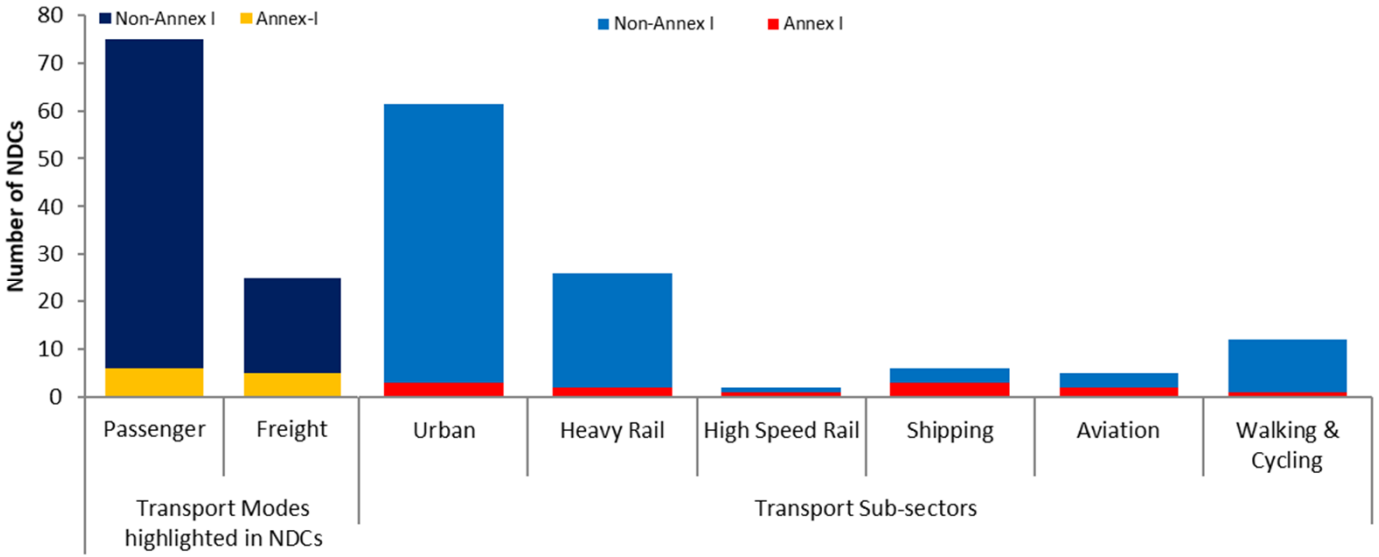


Next steps will be sectoral targets

Source: GIZ

Transport Plays Strong Role in NDCs, But More Ambition Needed

- Countries submitted Nationally Determined Contributions (NDCs) before COP21 in Paris to show planned climate action
- 75% of NDCs highlight transport as mitigation source
- BUT Strong focus on passenger transport
- Planned transport mitigation measures aim at cities



Greater ambition also needed at the national level

Overview of existing mobility and energy measures across G20 countries

	NATIONAL PROGRAMMES TO SUPPORT SHIFT TO PUBLIC TRANSPORT	MEASURES TO SUPPORT LOW-CARBON FREIGHT LOGISTICS	NATIONAL-LEVEL MEASURES TO SUPPORT NEW MOBILITY SERVICES	NATIONAL MEASURES TO SUPPORT NON-MOTORISED TRANSPORT	ROAD CHARGES
Argentina	existing	existing	no	no	existing
Australia	no	existing	no	existing	no
Brazil	existing	existing	no	no	no
Canada	no	existing	no	no	no
China	existing	existing	no	no	existing
EU	existing	existing	no	existing	no
France	existing	existing	no	existing	existing
Germany	no	existing	existing	existing	existing
India	existing	existing	no	existing	no
Indonesia	existing	no	no	existing	existing
Italy	no	no	no	no	existing
Japan	existing	existing	no	no	existing
Korea, Rep.	existing	existing	existing	existing	no
Mexico	existing	existing	no	no	existing
Russian Fed.	existing	existing	no	no	existing
Saudi Arabia	existing	existing	no	no	no
South Africa	existing	no	no	no	existing
Turkey	existing	existing	no	existing	existing
UK	existing	no	no	existing	existing
United States	existing	existing	existing	existing	no

	ENERGY/ CARBON EMISSION STANDARDS LDV	ENERGY/ CARBON EMISSION STANDARDS HDV	PRICING INSTRUMENTS	MANDATORY VEHICLE LABELLING	SUPPORT MECHANISM FOR ELECTRIC VEHICLES AND CHARGING INFRASTRUCTURE	MANDATORY BIO-FUEL TARGETS	SUPPORT FOR OTHER LOWCARBON FUELS & PROPULSION SYSTEMS
Argentina	no	no	no	no	no	existing	existing
Australia	no	no	no	existing	existing	no	existing
Brazil	existing	no	no	no	existing	existing	existing
Canada	existing	existing	existing	existing	no	existing	existing
China	existing	existing	no	existing	existing	no	existing
EU	existing	no	existing	existing	no	existing	existing
France	existing	no	existing	existing	existing	existing	existing
Germany	existing	no	existing	existing	existing	existing	existing
India	existing	no	existing	existing	existing	existing	existing
Indonesia	no	no	existing	no	no	no	existing
Italy	existing	no	no	existing	existing	existing	existing
Japan	existing	existing	existing	existing	existing	no	existing
Korea, Rep.	existing	no	existing	existing	existing	existing	existing
Mexico	existing	no	existing	no	existing	existing	existing
Russian Fed.	no	no	existing	no	no	no	existing
Saudi Arabia	existing	no	no	existing	no	no	no
South Africa	no	no	no	existing	no	existing	no
Turkey	no	no	no	existing	existing	existing	no
UK	existing	no	existing	existing	existing	existing	existing
United States	existing	existing	existing	existing	existing	existing	existing

Federal Climate Protection Plan 2050:
The *Verkehrswende* is an official goal of the Government.

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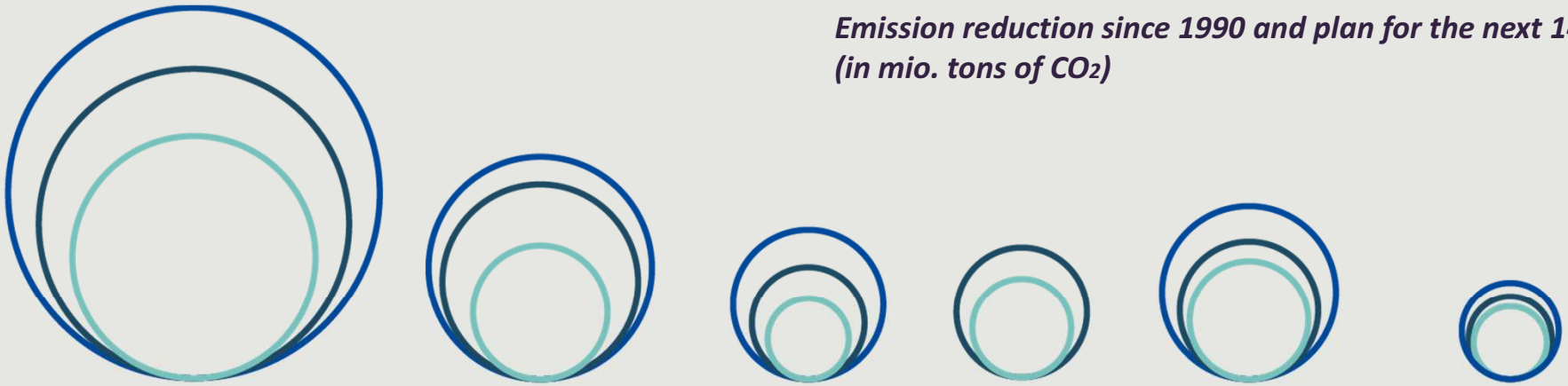
For the first time ever the German transport sector has an own ambitious emission reduction target.

Sector Goals for 2030

Emission reduction since 1990 and plan for the next 14 years (in mio. tons of CO_2)



	Total	Energy	Building	Transport	Industry	Agriculture
1990	1248	446	209	163	283	88
2014	902	358	119	160	181	72
2030	543–562	175–183	70–72	95–98	140–143	58–61

Source: Süddeutsche Zeitung

German greenhouse gas emission reduction sector targets 2030 (Climate Action Plan 2050, November 2016)

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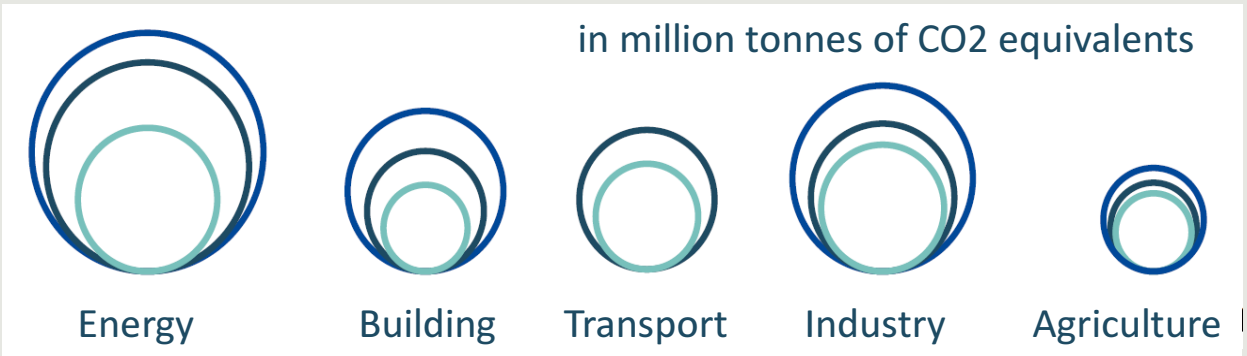
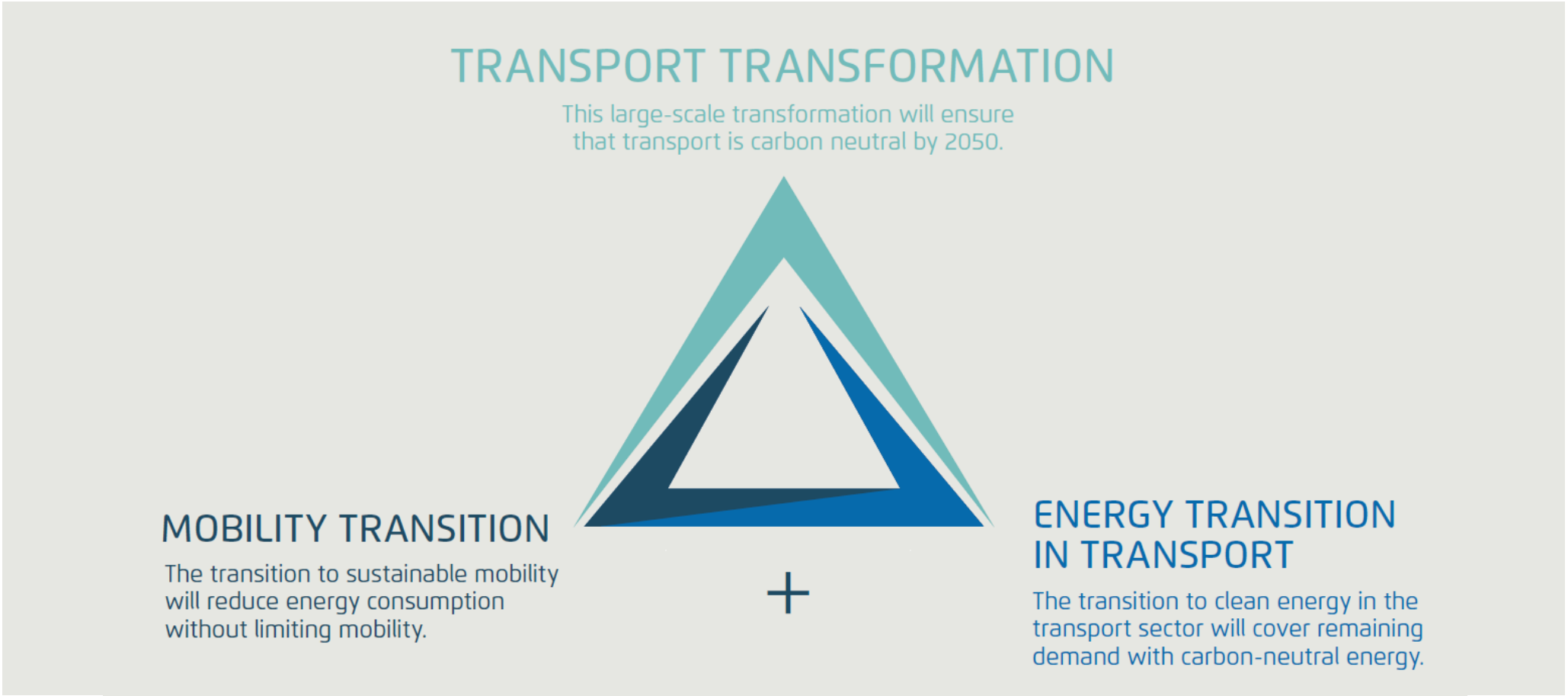
Sector	*1990**	*2014**	*2030**	*2030 (reduct., comp. to 1990)*
Energy	466	358	175-183	61-62%
Buildings	209	119	70-72	66-67%
Transport	163	160	95-98	40-42%
Industry	283	181	140-143	49-51%
Agriculture	88	72	58-61	31-34%
Other	39	12	5	87%
Total	**1248**	**902**	**543-562**	**55-56%**



Data: Federal German Government

Core elements of the transport transformation



Authors' figure

12 insights into the Verkehrswende

Agora Verkehrswende

Preamble	Transforming the transport sector is crucial for the success of the clean-energy transition.	
Insight 1	Transforming transport requires decarbonisation and sustainable mobility.	**Basics**
Insight 2	Efficiency is the guiding principle of the transport transformation.	
Insight 3	In cities, the mobility transition has already begun.	**Mobility transition**
Insight 4	Rural areas also benefit from the mobility transition.	
Insight 5	Driverless vehicles are ideal for shared use.	

Insight 6	Electrification is key to an energy transition in transport.	**Energy transition in transport**
Insight 7	Carbon-neutral fuels can supplement wind and solar energy.	
Insight 8	The freight sector needs an improved rail system and climate-neutral roads.	
Insight 9	Power supply and transport benefit from sector coupling.	**Sector coupling, infrastructure and financing**
Insight 10	Rethinking the development and financing of transport infrastructure.	
Insight 11	The transport transformation can strengthen German industry.	**Additional benefits of the Verkehrswende**
Insight 12	The transport transformation will be driven by its benefits to society.	

Passenger transport: Reducing energy consumption by strengthening the mobility network and using digitalisation

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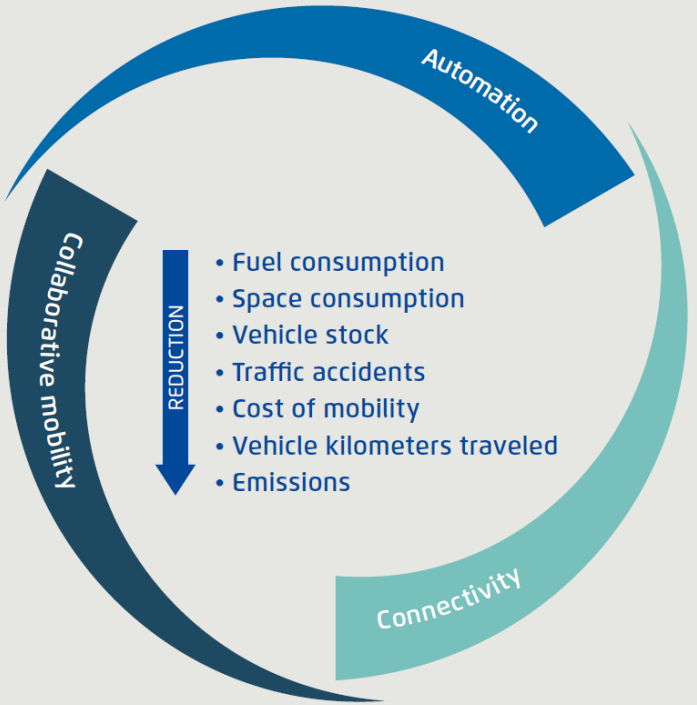
The mobility network

- Public transport
  - Light rail
  - Subway
  - Tram
  - Bus
  - Taxi
- Non-motorised transport
  - Bicycle
  - Pedestrians
- Collaborative mobility
  - Carsharing
  - Ridesharing
  - Bikesharing

Digitalisation in transport – trends and potentials



Authors' figure

Freight transport: Reducing energy consumption through shifting from road to rail

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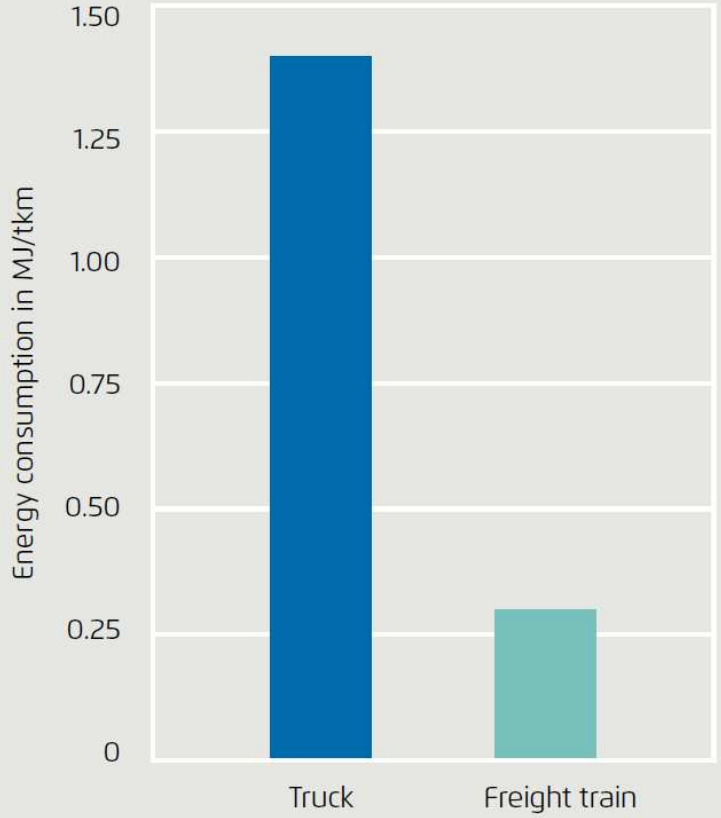
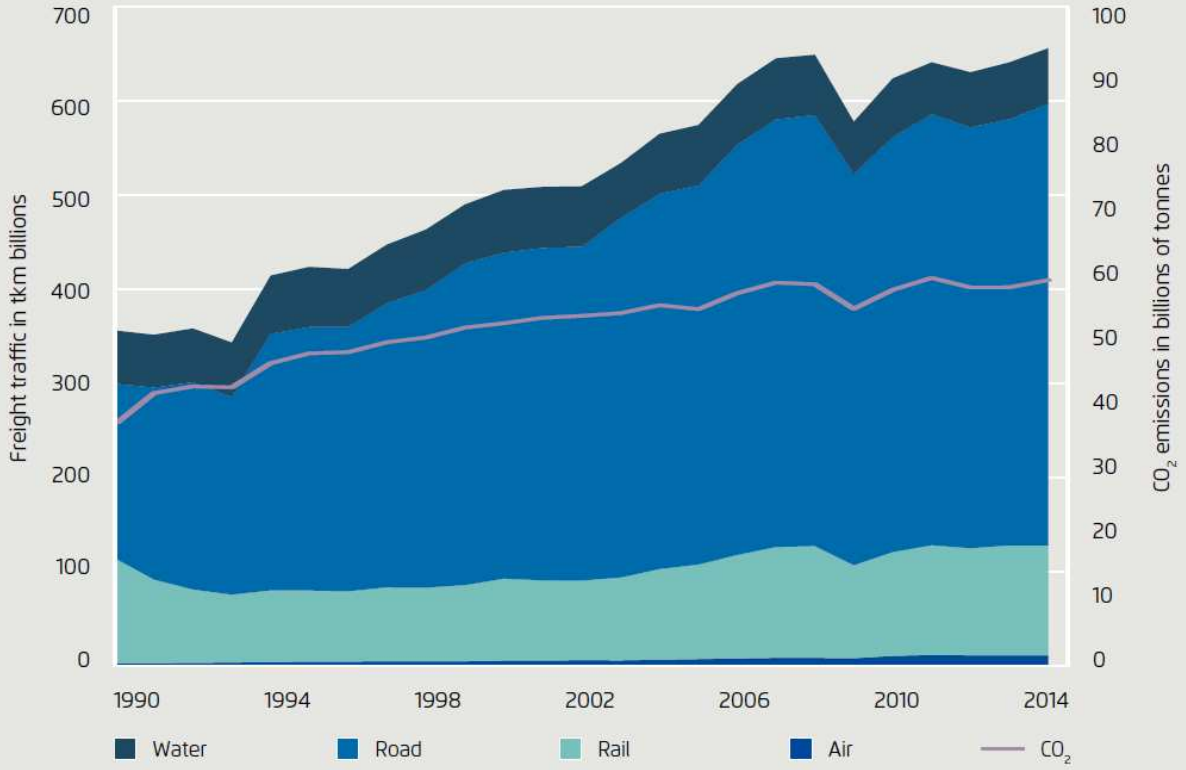
Trains need 80 percent less energy than trucks



but make up only 18 percent of German freight traffic



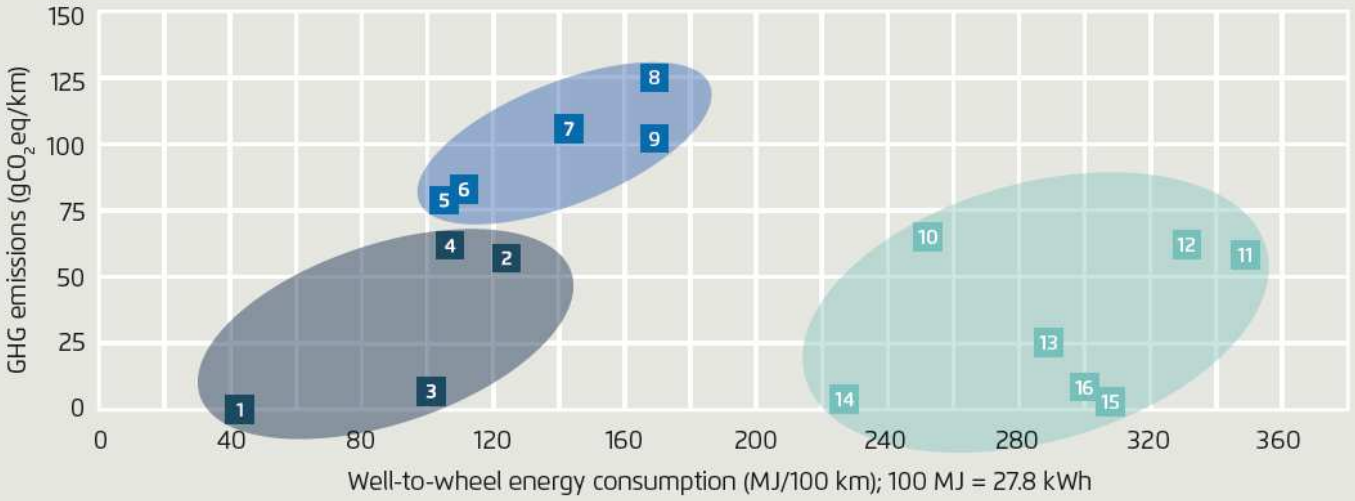
Authors' figure based on UBA (2016g)

Companies taking action: Example DHL

Interim goals 2025:

- Increase the carbon efficiency of its own activities and those of its transport subcontractors by 50% compared to the 2007 baseline.
- Operate 70% of its own first and last mile services with clean pick-up and delivery solutions e.g. by bike and electric vehicle.
- More than 50% of sales will incorporate Green Solutions, making customers' supply chains greener.
- Train and certify 80% of its employees as GoGreen specialists by 2025, and actively involve them in its environmental and climate protection activities. Join with partners to plant one million trees every year.

GHG emissions and energy consumption of various combinations of powertrains and energy sources in 2020 (cars, well-to-wheel)



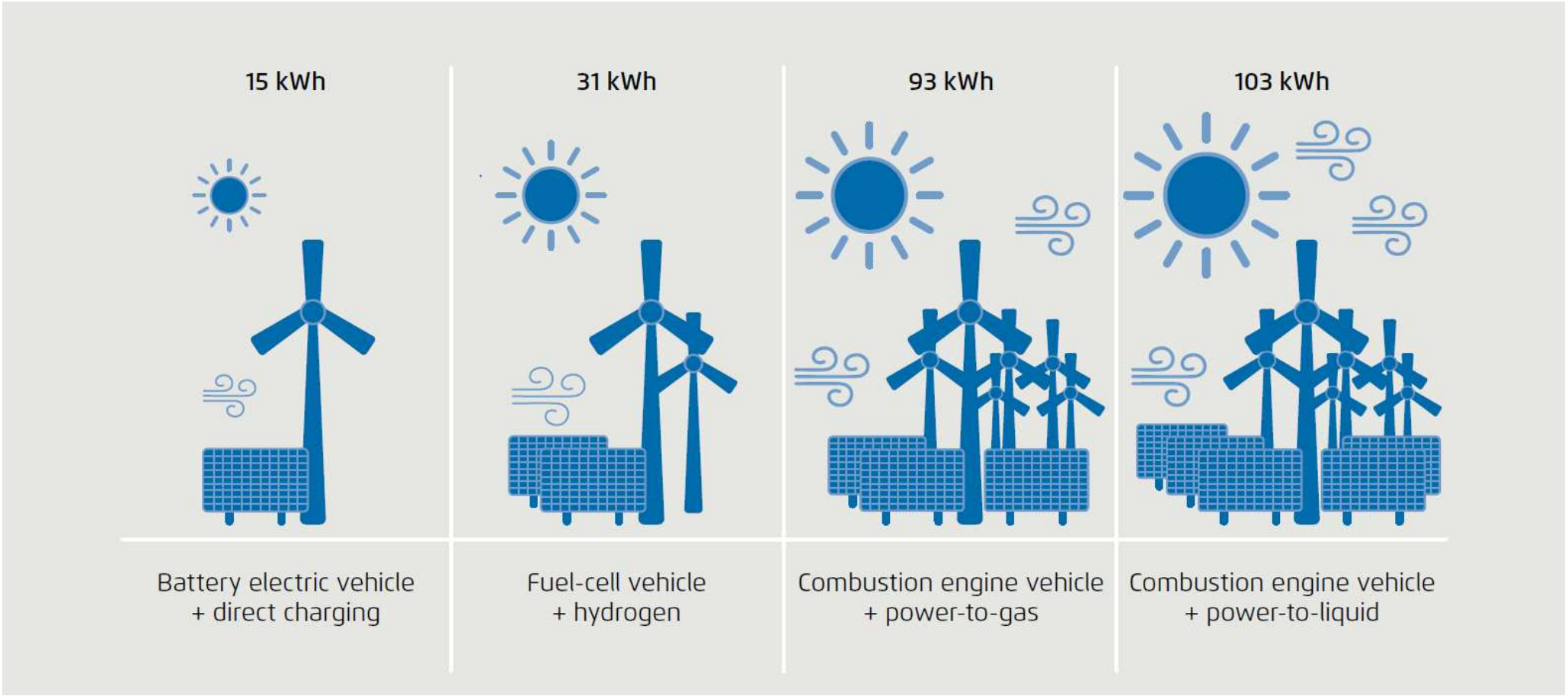
Electric vehicles
1 Electricity in BEV (wind)
2 Electricity in BEV (EU mix)
3 Hydrogen in FCEV (wind)
4 Hydrogen in FCEV (reforming of natural gas)

Fossil fuels
5 Hybrid diesel (petroleum)
6 Hybrid gasoline (petroleum)
7 Diesel (petroleum)
8 Gasoline (petroleum)
9 Natural gas (CNG)

Biofuels and synthetic fuels
10 Biodiesel (rapeseed)
11 Ethanol (sugar beet, used in E10 blends)
12 Biomethane (maize)
13 Biomethane (municipal waste)
14 Syndiesel (B2L, waste wood)
15 Syndiesel (P2L, renewable electricity)
16 Synmethane (P2G, renewable electricity)

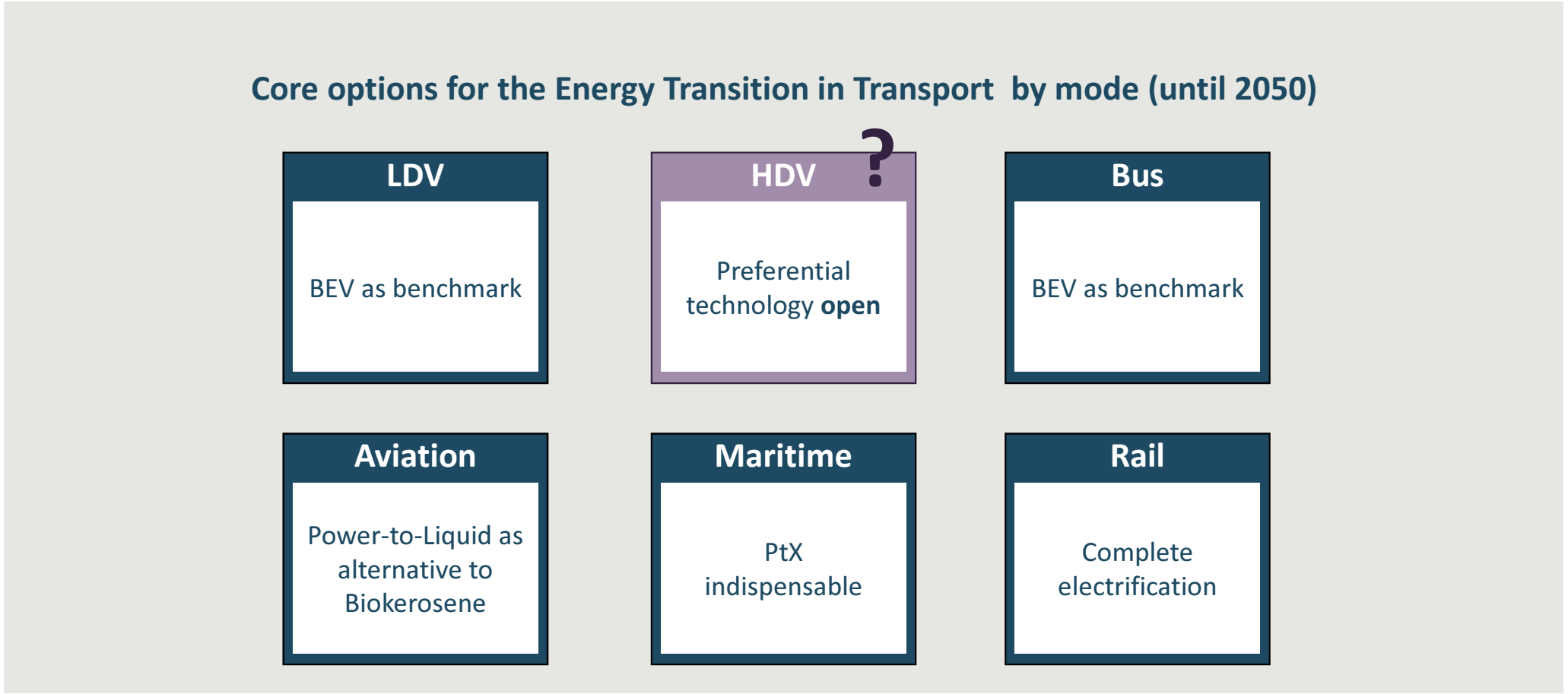
Figure based on JRC, EUCAR, CONCAWE (2014b), ILUC not included

Amount of renewable energy required for various powertrain and fuel combinations (per 100 km)



Authors' calculations and figure based on DLR, Ifeu, LBST, DFZ (2015), p. 15

Core options for the Energy Transition in Transportation (until 2050)



Source: INFRAS/Quantis 2015.

Ergebnisse Szenario A:
Entwicklung der Treibhausgasemissionen bis 2030

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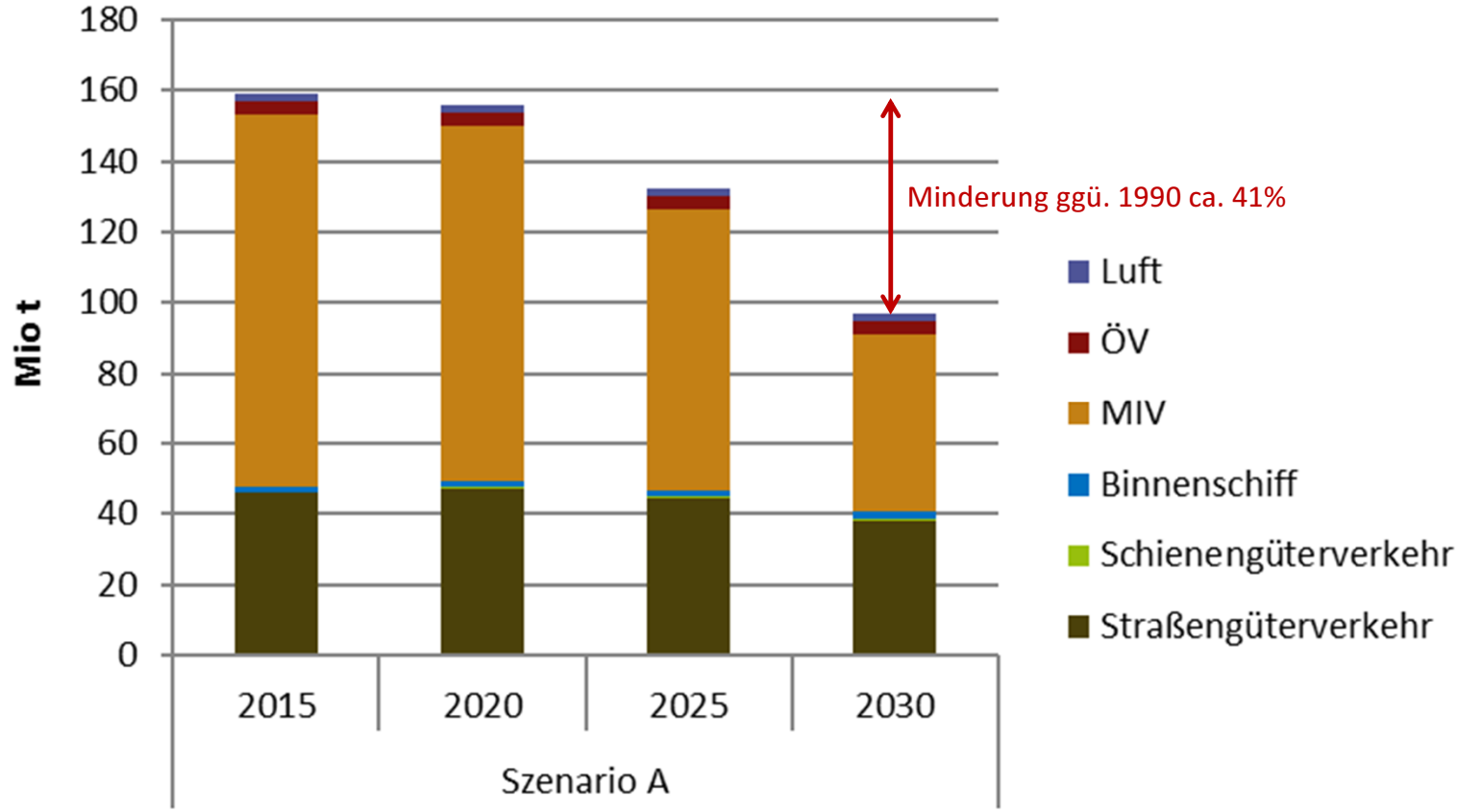
Im Szenario A werden die Minderungsziele des KSP für den Verkehr in Deutschland bis 2030 erreicht.



Ergebnisse Szenario C:
Minderungsbeiträge der Einzelmaßnahmen

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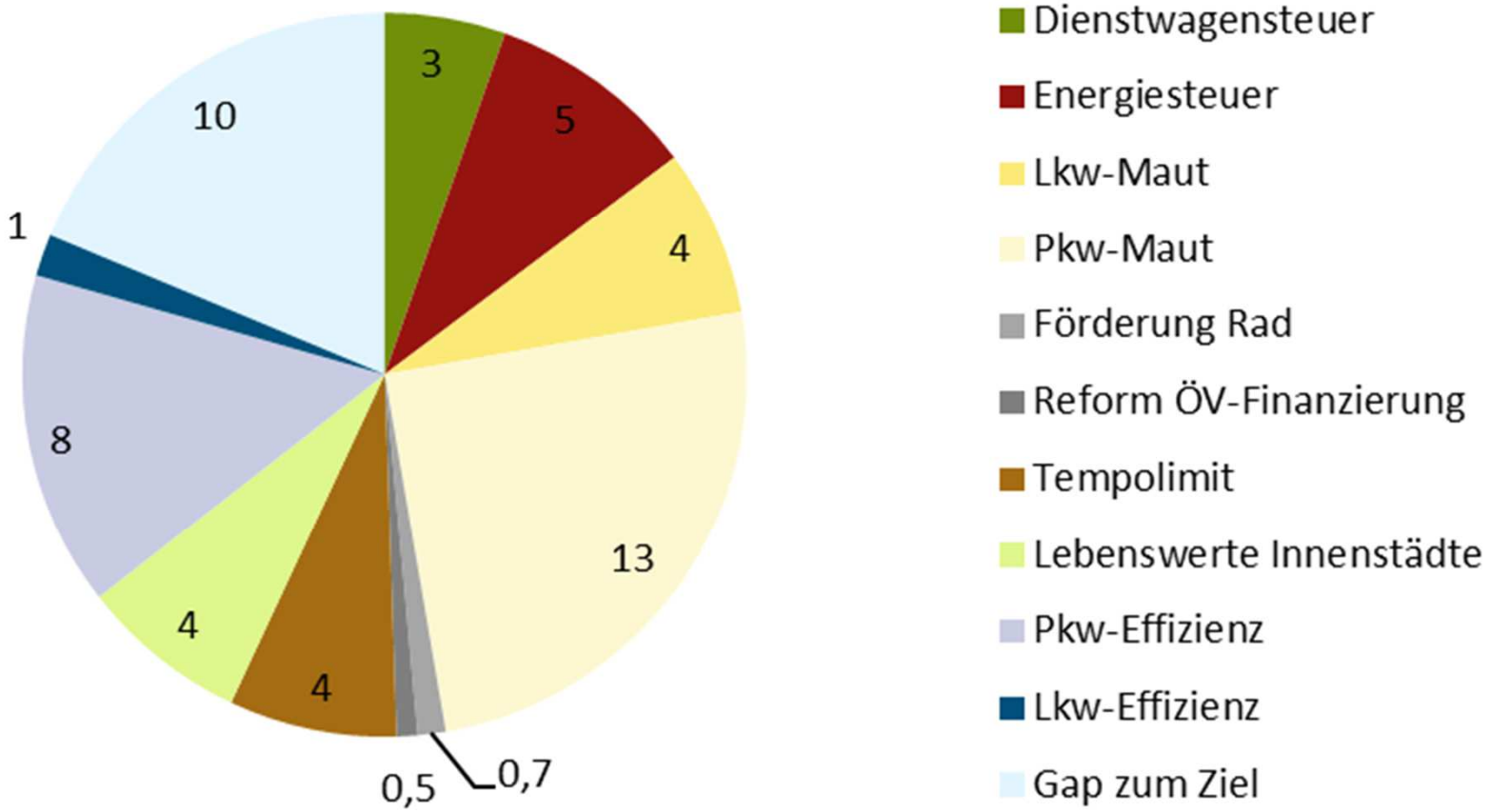
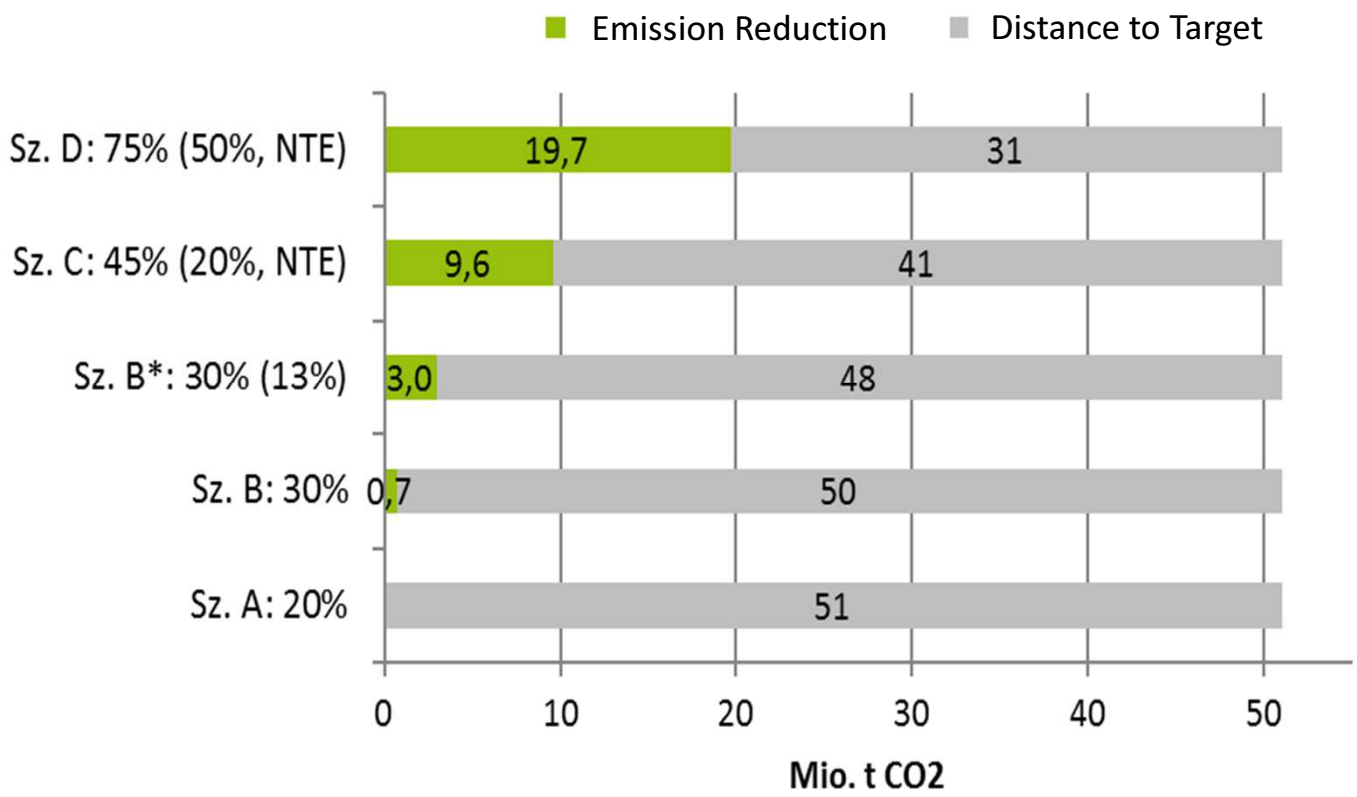
Schätzung der Minderungen in Mio. t im Vergleich zu 1990.

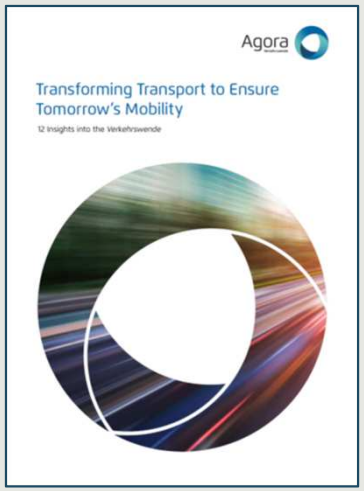


Contribution of EU-CO_2-Rgulation for PC to Germany‘s Climate Protection Plan 2050 in different scenarios

Comparing different ambition level for EU-CO_2-Regulation



Conclusions



Download link:
https://www.agora-verkehrswende.de/en/12-insights/

Download link (full report and executive summary):
https://www.agora-verkehrswende.de/en/publications/towards-decarbonising-transport//

- Paris will fail without ambitious action on transport
- Countries like Germany and Brazil are key players to take action
- Sectoral targets and a clear roadmap are required to deliver an ambitious NDC
- Need for a holistic, integrated approach on local and national level
- Without a *Energiewende* you will not able to achieve a *Verkehswende*

Agora Verkehrswende

Thank you very much for your attention!

Comments or Questions? – Please do not hesitate to contact me:

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Agora Verkehrswende is a joint initiative of Stiftung Mercator Foundation and the European Climate Foundation (ECF).