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Perspectives on Electric Road Systems in Germany

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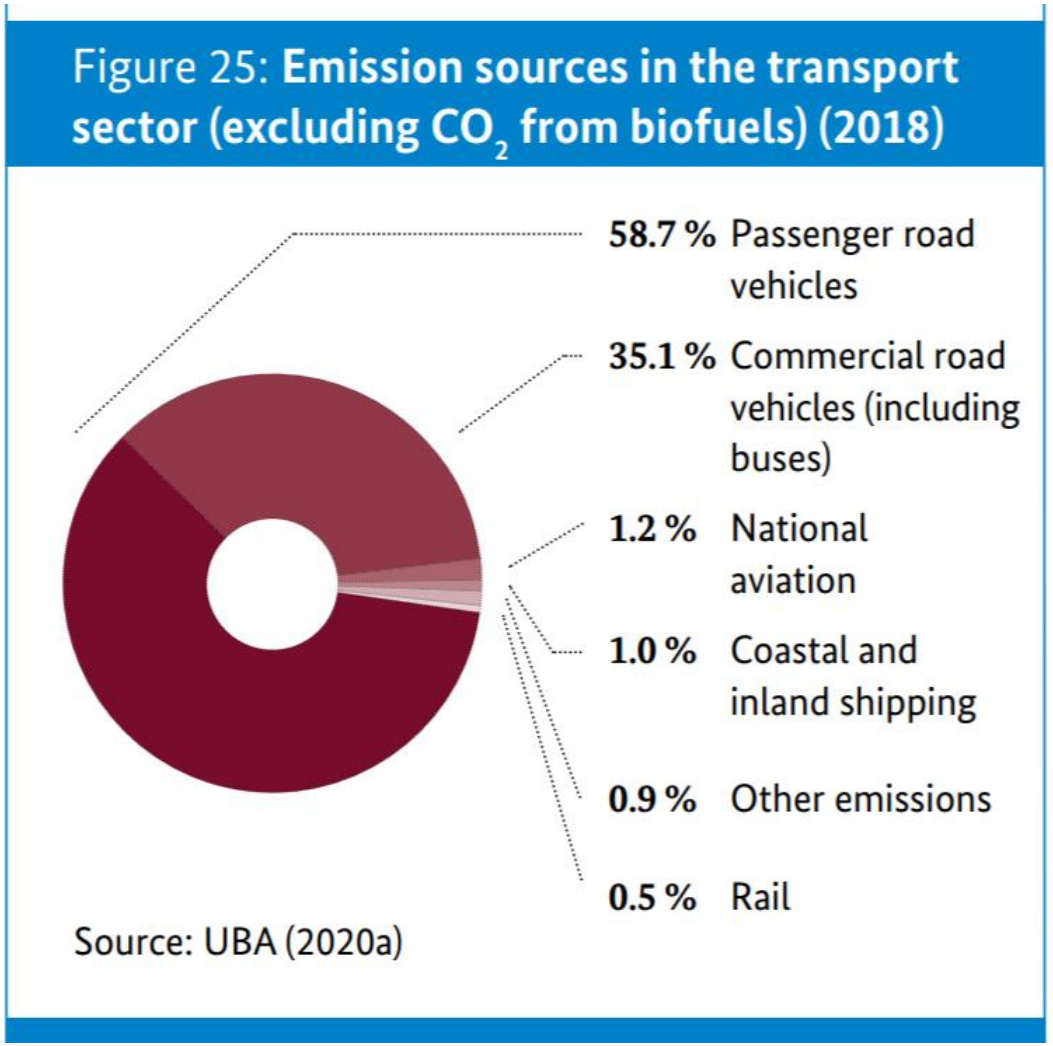
Where do transport emissions arise from?



Source: Umweltbundesamt (UBA), graph from https://www.bmu.de/publikation/climate-action-in-figures-2020/

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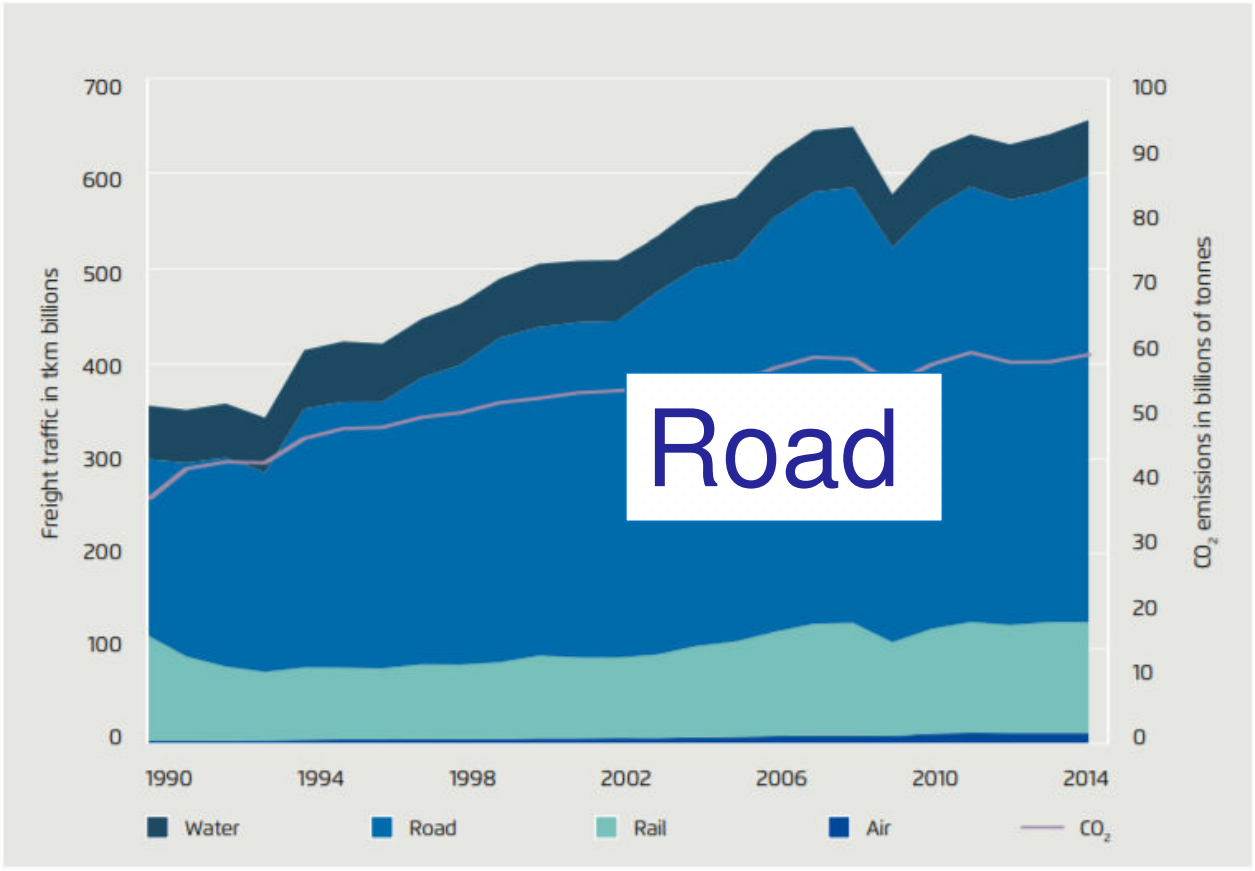
Modal split cargo

German freight traffic and CO_2 emissions, 1990 to 2014 — Figure 8.1



Authors' figure based on UBA data, Tremod, p. 63

Source: Umweltbundesamt (UBA), graph from https://www.agora-verkehrswende.de/12-thesen/

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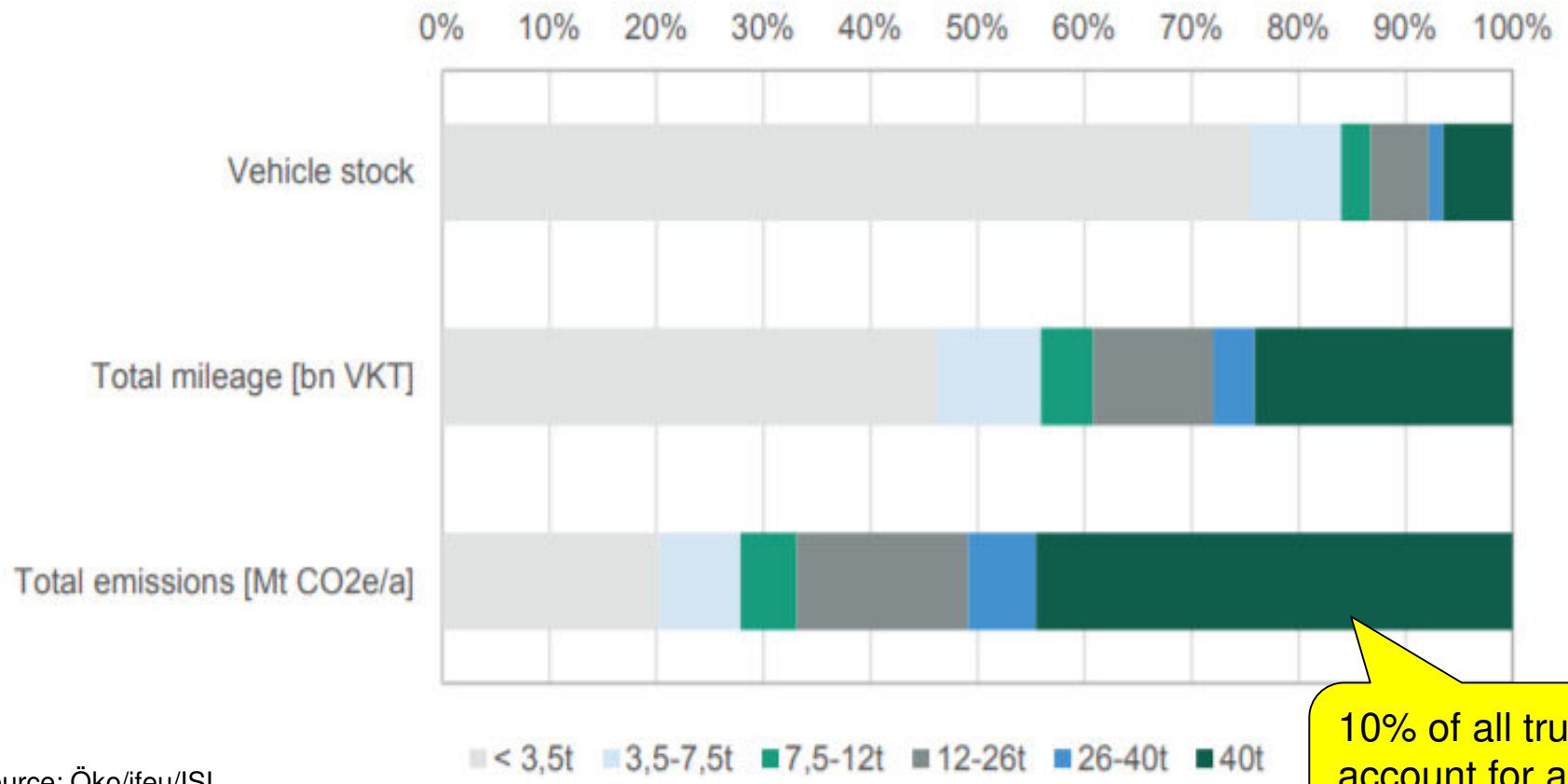
Road cargo segments by vehicle type



10% of all trucks account for almost 50% of CO_2

Source: Öko/ifeu/ISI
https://www.ifeu.de/fileadmin/uploads/pdf/Thesen_Zukunft_StrG%C3%BCterverkehr.pdf

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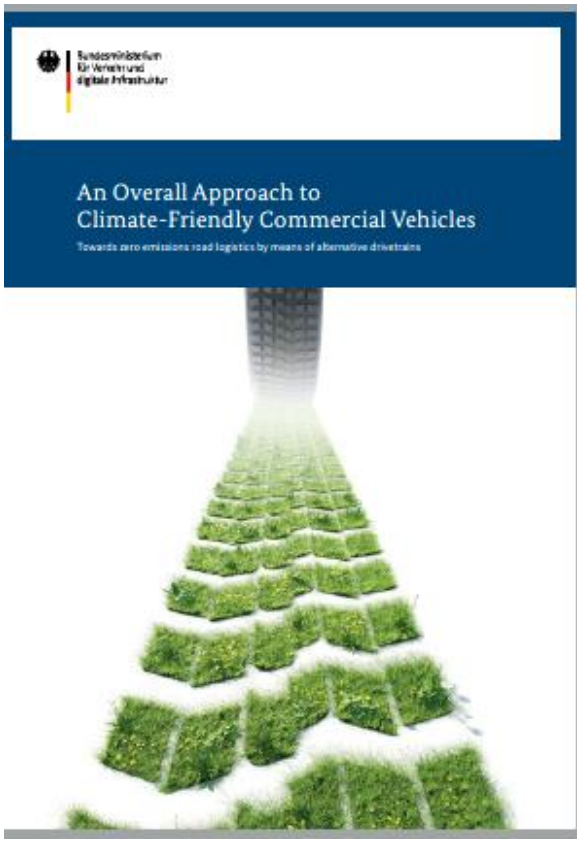
FedGov plans

General Framework: A stringent pathway will reconcile the properties of alternative technologies with the requirements of users and providers.

Climate agreement 2030: 1/3 of heavy duty road transport to be electric or powered by PtL by 2030

Key Measures:

- Vehicle funding, without favouring any specific technology. **E-Trucks: 80% of additional costs are covered by Gov.**
- Infrastructrure deployment, **incl. ERS pilots**
- **Differentiation of HGV tolls by CO_2 emissions** from vehicles.



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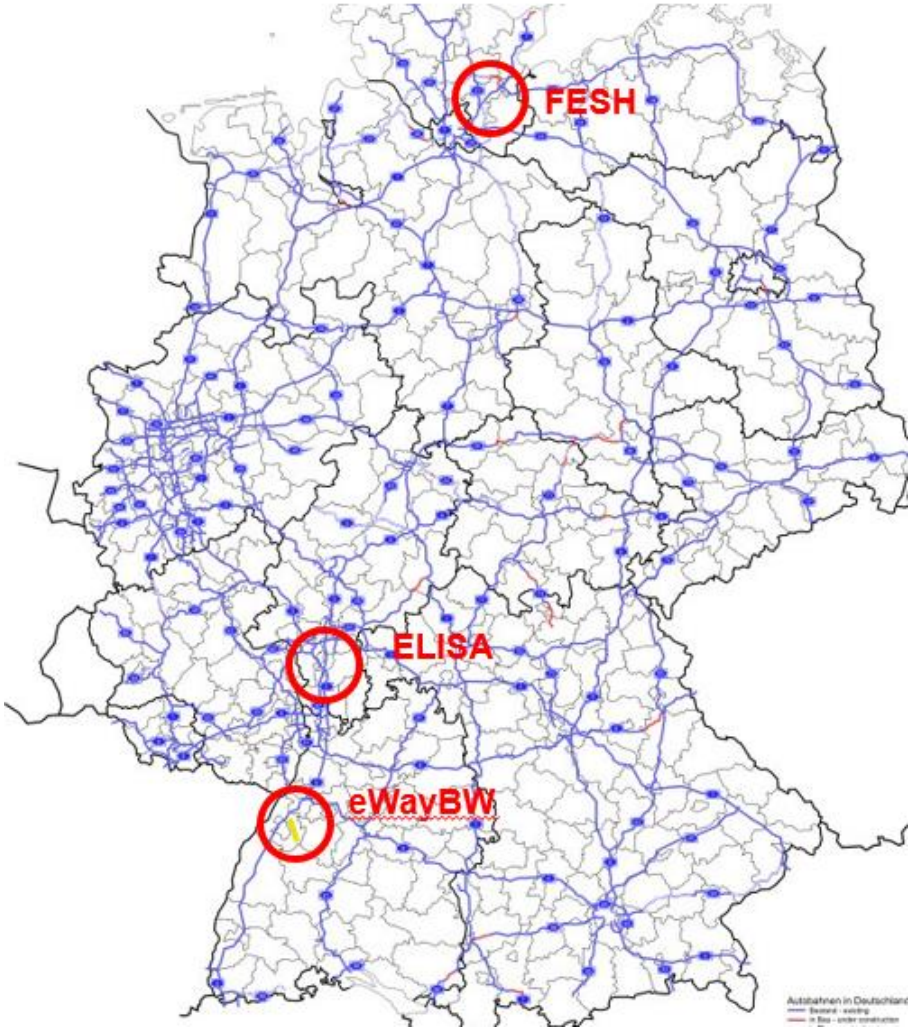
E-Highway projects



- **each ca. 10 km length**

- **ELISA** (Hessen):
  A 5 Frankfurt - Darmstadt
  → very high traffic load
  operation started in May 2019. Actually five trucks are in operation

- **FESH** (Schleswig-Holstein):
  A 1 Hamburg – Lübeck
  → harbor connection
  operation started in January 2020

- **eWayBW** (Baden-Württemberg):
  B 462 Gernsbach – Kuppenheim
  → not a motorway, cross-town
  status: construction is in progress. Start of operation is planned for April/May 2021

Source: BOLD project https://www.erneuerbar-mobil.de/projekte/bold

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E-Highway projects

- Logistic companies use the technology under real-life conditions. Some companies plan 24/7 operation.
- Scania delivers 15 trucks until 2020/21, leasing contracts with logistic companies.
- planned duration: 3 – 4 years
- ELISA Project, Hesse: An extension of the test route by 7 km is being prepared
- **research** (examples):
  integration into traffic management,
  integration into logistic processes,
  integration into street maintenance,
  effects on the electricity grid,
  impacts on environment (e.g., birds),
  social acceptance

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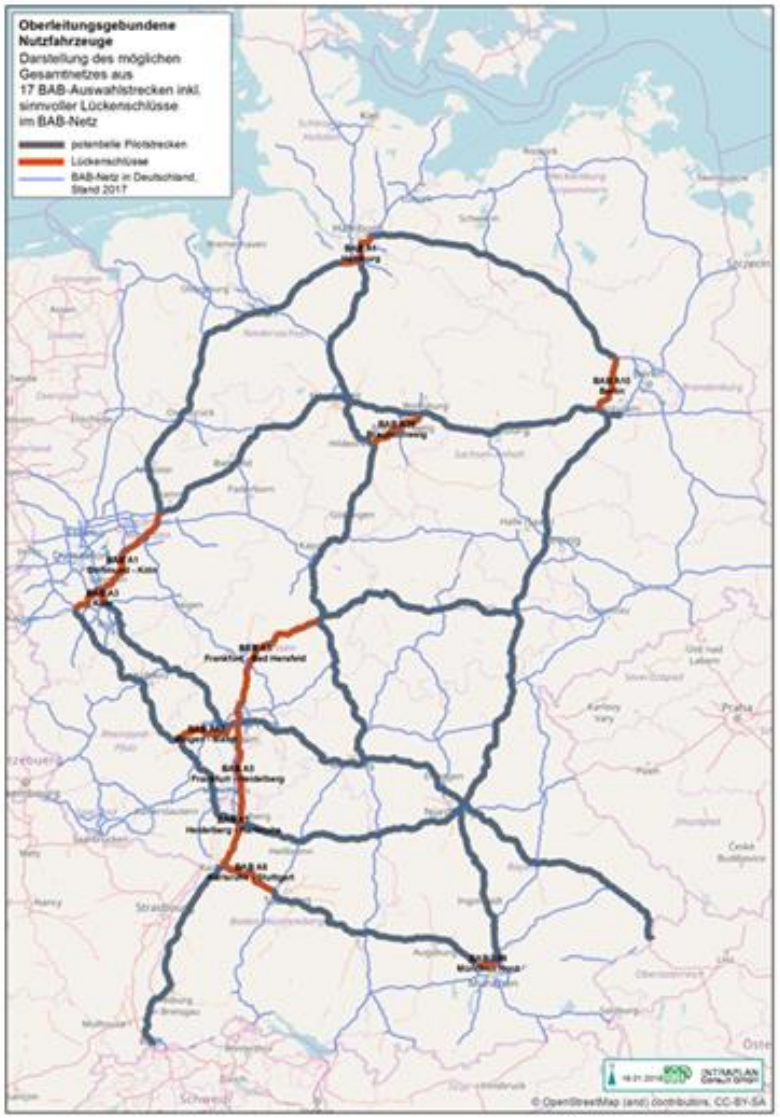
Upscaling analyses



Concept for a 4.000 km network (StratON, Roadmap OH-Lkw)

- On a 4.000 km network, 65% of ton-km (40 t vehicles) have an economic potential for ERS in 2030
- But: Other vehicle types and smaller routes (e.g. regional cycles) contribute to the potential, and might even become drivers / first movers in an initial market phase

Source: BOLD project https://www.erneuerbar-mobil.de/projekte/bold

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Thank you

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