SOER and the mobility system

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Assessments – towards sustainable mobility systems

- Explaining road transport emissions - A non-technical guide


- EEA Signals 2016 – towards smart & clean mobility.

- Electric vehicles in Europe: A guide to electric passenger cars and hybrids.

- TERM transport report 2016: prospects and challenges concerning future transitions to sustainable transport systems.
The mobility system - multi-level perspective

Landscape

Techno-societal systems

Technologies and solutions

Knowledge, habits
Technology
Decision-making
Goals and targets

Markets and consumer preferences
Governance
Regional structure

Transport modes
Infrastructure
Industry

Land-use
Energy
Consumption and production
Job market

Tourism
Food
Water
Finance

Innovations
Bid data
Smartphones
Environmental concerns

Shared economy
Behavioural changes
Technological development
The scale of change: EU GHG transport emissions vs targets


Future transport levels are forecast to increase significantly.

Against this background, a substantial reduction of GHG emissions from the transport sector is needed if the EU is to reach future targets.
Principles supporting systemic change

Avoid
- Changes in everyday practices

Shift
- Changes in technology

Improve
- Business as usual

Share of environmentally-friendly modes

European Environment Agency
Interactions between transport and other systems

- Land use
- The food system
- Tourism
- Energy
- Finance
- Research and Development, IT

Barriers
Lock ins
Opportunities
Barriers and lock-ins in the transport system

- Current transport patterns are dominated by road transport and car use. The system has adapted to it
- Vested interests of car manufacturing industries and other stakeholders.
- Aversion to change. Dominance of conventional tech
- Resistance from operators and state confined systems
- Lock-ins in other sectors (i.e. energy)
- The long lifespan of transport vehicles
- Environmental harmful subsidies
- The decision making process - international dimension
Niches and policies that can create change

- Changes in behaviour and preferences, specially in cities
- Air quality problems have pushed for policies
- Shared mobility
- Vehicle technology
- High speed train an new freight links
- Public policy to support niches

Image © EEA
Electric vehicles (EVs) offer a significant opportunity to reduce emissions, especially if charged by renewable energy sources.

But fundamental changes are needed to ensure a more sustainable mobility system. This goes beyond simply replacing conventional vehicles with EVs.

Source: EEA, 2016 based on TNO, 2015 (authors’ own calculations)
eea.europa.eu/transport
Air pollution from transport has decreased as a result of policies and improved technologies.

Reductions of some pollutants (e.g. NO$_x$) would have been greater had policies fully delivered real-world emission reductions.
Share of EU transport GHG emissions in 2014


- Road transport: 73%
- Maritime: 13%
- Aviation: 13%
- Railways: 0.6%
- Other transport: 0.5%

- Passenger cars: 44%
- Heavy duty vehicles & buses: 18%
- Vans: 9%
- Motorcycles: 0.9%
- Other road: 0.1%