ENERGY SUFFICIENCY IN THE TRANSPORT SECTOR

Dr. Heike Brugger

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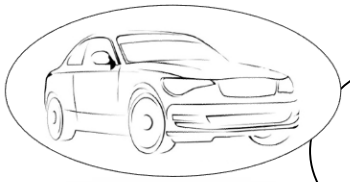
Sufficiency in Transport – About much more than Energy Savings



Decision if and how to travel

Effects on Transport

Increasing Comfort & Quality Time

Individual Decision-Making

Effects on the Tertiary Sector

Creating Liveable Cities

Decision what and how to consume

Effects on the Industry

Decreasing Emissions

Decision-Making | Affected Sectors | Outcomes

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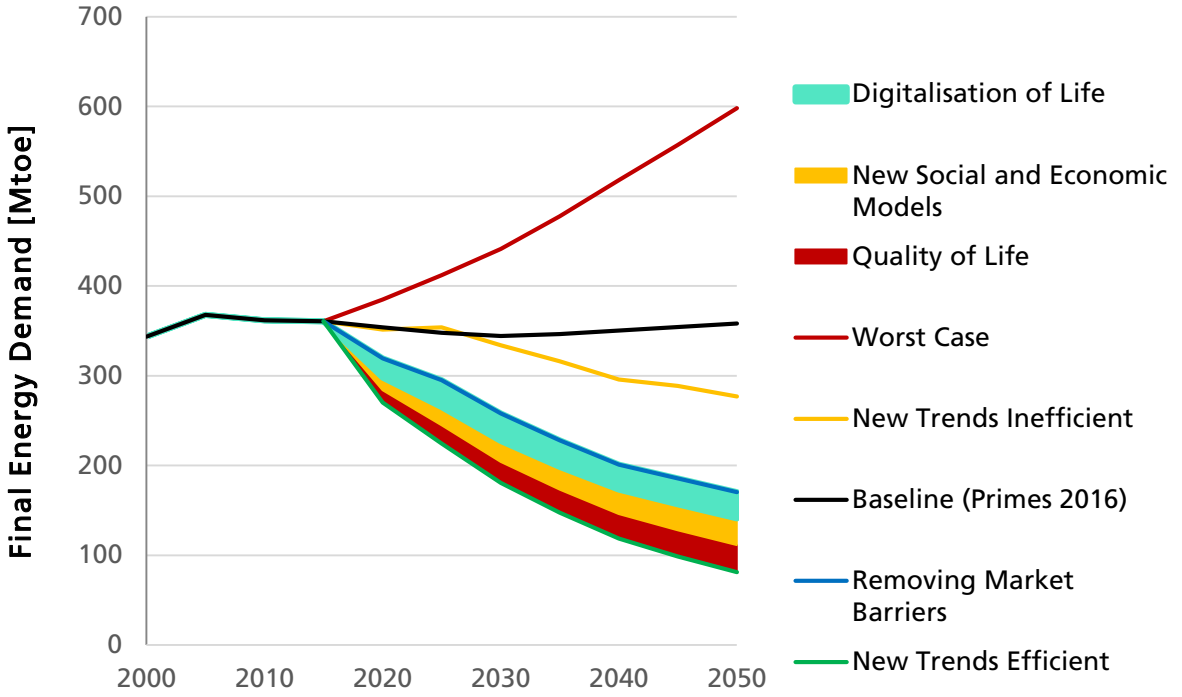
Final Energy Demand in the Transport Sector (EU28) - Scenarios for Future Development



Reduction potentials:

- 52% in the Removing Market Barriers Scenario
- 23% in the New Trends Inefficient Scenario
- 77% in the New Trends Efficient Scenario
- Up to 67% increase in the Worst Case Scenario

Fraunhofer ISI (2019). Study on Energy Savings Scenarios 2050

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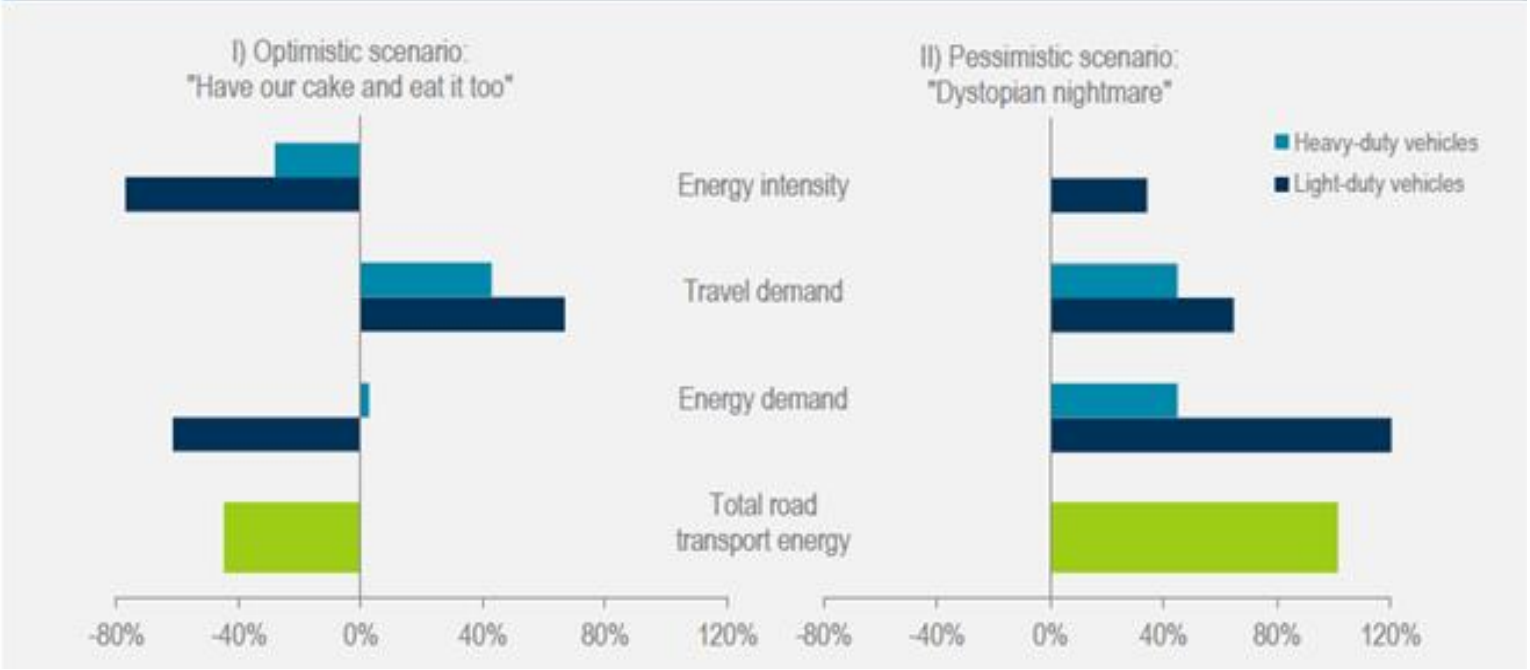
Why efficient is not sufficient...
... the trend of automatisation

Figure 2.2 Range of possible energy impacts from vehicle automation in the United States



(IEA, 2017)

- US road transport energy demand is reduced by almost half under an optimistic scenario
- but more than doubles in a pessimistic scenario

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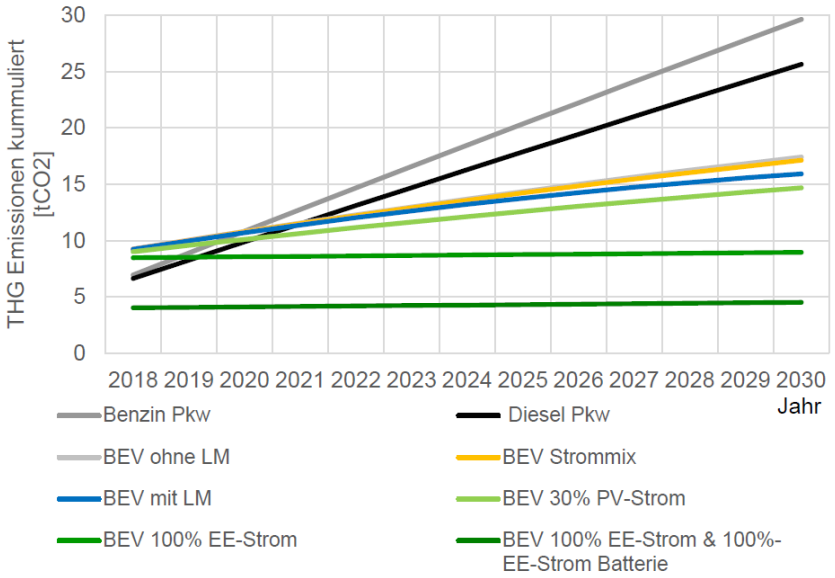
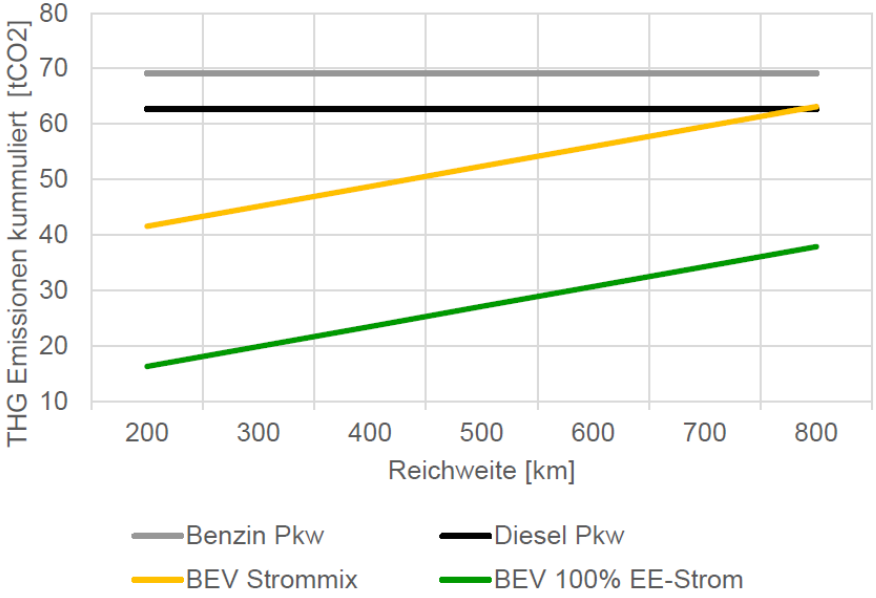
Why efficient is not sufficient...
... the trend of E-Mobility





Wietschel et. al (2019)

- E-mobility can significantly decrease THG-emissions in individual transport
- however, with current trends this cannot be taken for granted

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Consumer Actions in Passenger Transport

Consumer action	Efficiency/ sufficiency	Promoting policies
Buy small car	Sufficiency	• Consumer information • Taxation of car according to weight • Petrol tax (small cars use less fuel) • Benefits of small cars in parking etc
Buy energy efficient/electric car	Efficiency	• Consumer information • Labelling • Taxation of cars according to mileage • Petrol tax • Benefits of electric cars in parking etc.
Switch to car sharing	Both	• Consumer information • Benefits of shared cars in parking etc. • Taxation benefits for CarSharing companies (e.g. comparable to public transport)

http://www.inforse.org/europe/eu_energysufficiency.htm

Consumer Actions in Passenger Transport

Consumer action	Efficiency/ sufficiency	Promoting policies
Use public transport/bike	Both	• Make public transport more convenient and flexible • Make bicycle use more convenient and safer • Increase car costs relatively
Commute less	Both	• Promote moving closer to work • No tax incentive for commuting • Increase transport costs
Travel less, shorter holiday trips	Sufficiency	• Promote national/regional holiday destinations • Taxes/env. costs on transport

http://www.inforse.org/europe/eu_energysufficiency.htm

Examples of Sufficency Policies and Their Evaluation

ASSIST - Assessing the Social and Economic Impacts of Past and Future Sustainable Transport

The project:

- Aimed in identifying and quantifying the possible direct and indirect social and economic impacts of future sustainable transport policies
- Provides 61 Fact Sheets evaluating the various policies

http://www.assist-project.eu/

Influencing demand for sustainable transport – promotion of cycling within urban / suburban areas

Objectives

- Promote cycling and cycle-related multimodal transport and reducing road vehicle usage
- Promotion of cycling targets to improve the quality of life for citizens and reduce environmental impacts

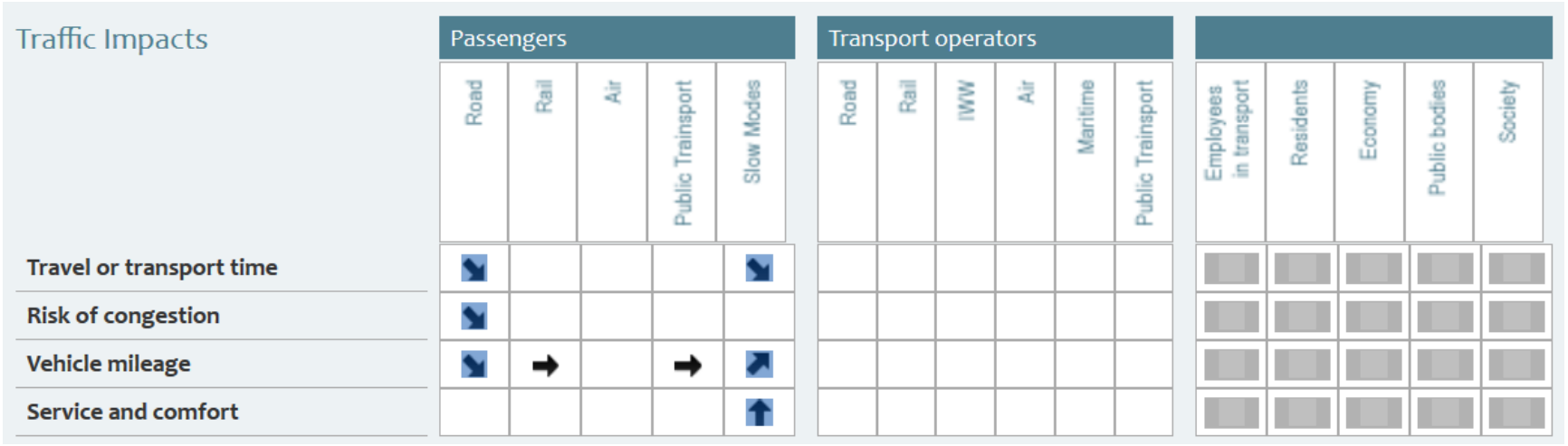
Choice of transport mode / Multimodality

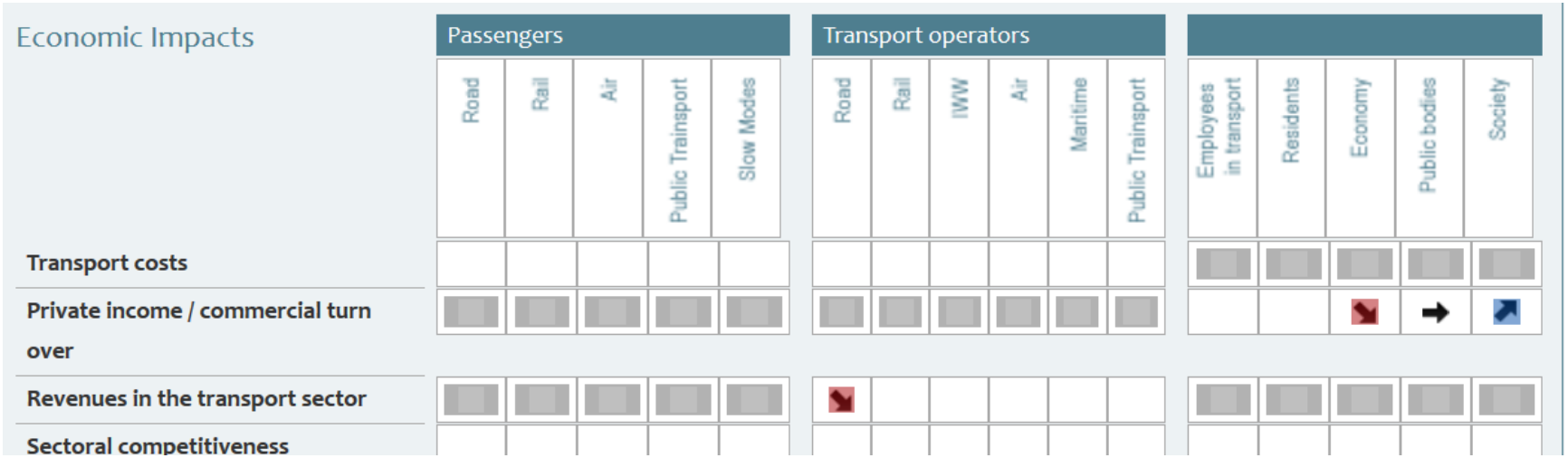
- Cycling becomes more popular; private automobile usage will decrease
- modal shift from road to slow modes.
- public transport might increase due to increased multimodal options

Origin and/or destination of trip

- easier accessability of city centres

Influencing demand for sustainable transport – promotion of cycling within urban / suburban areas





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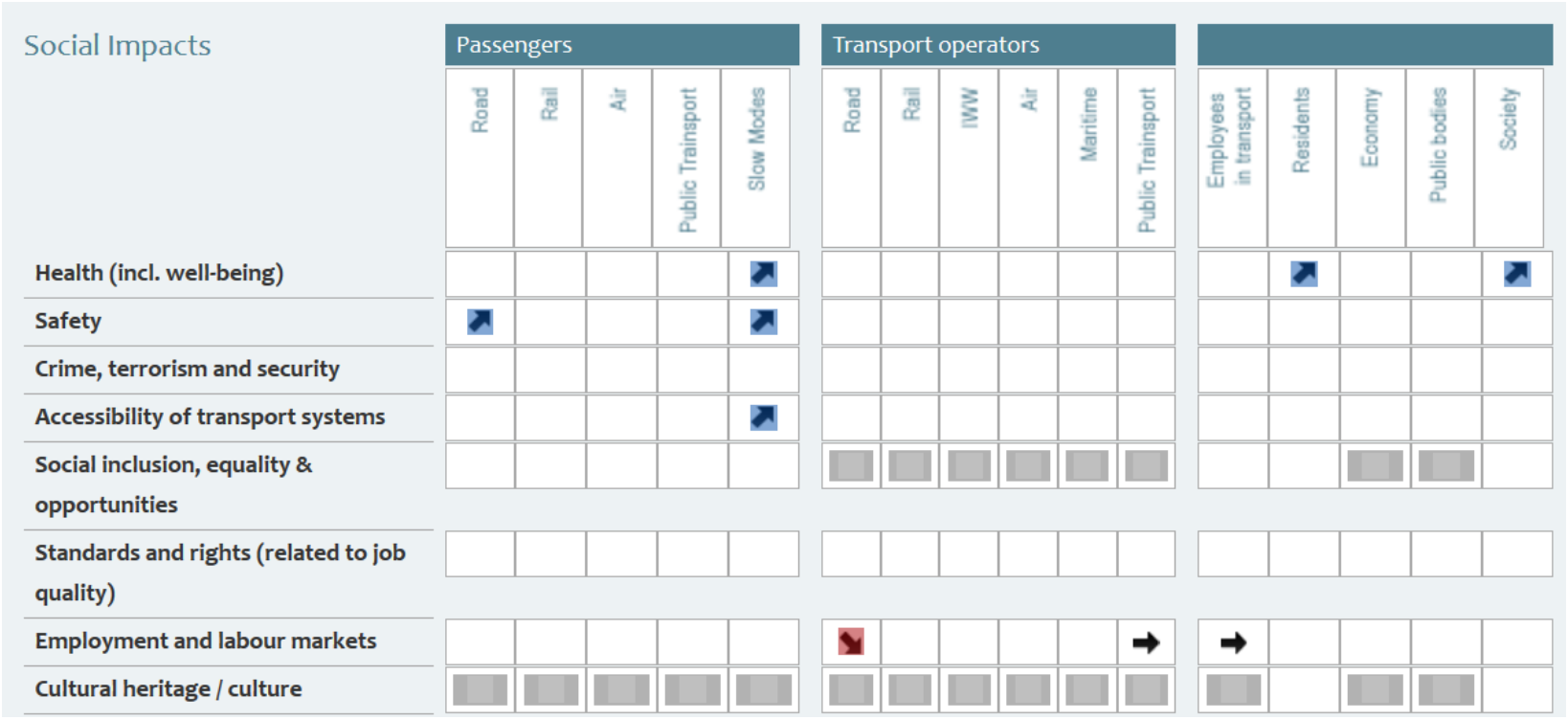
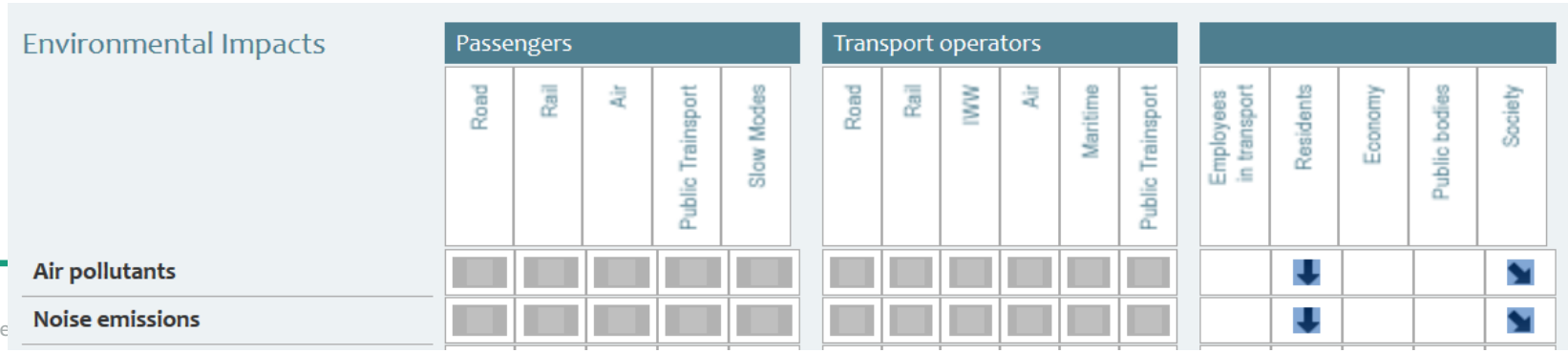
Influencing demand for sustainable transport – promotion of cycling within urban / suburban areas





Internalisation of external costs for specific modes of transport

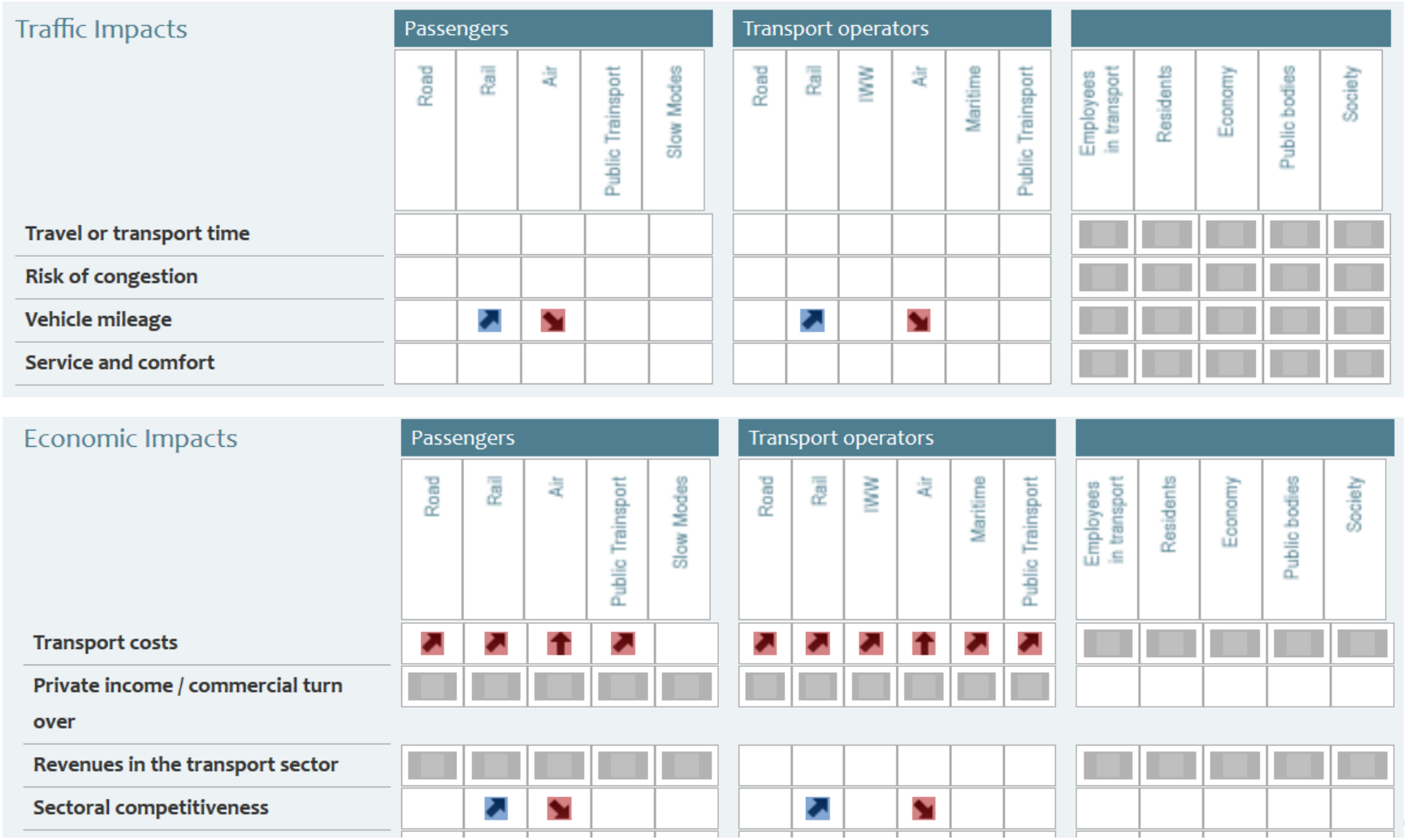
Objectives

- This policy require additional costs to be paid by all transport end-users.
- Determination of external costs is a prerequisite to develop strategies for their internalization into total costs and for the implementation of sustainable transport policies
- The measure will lead to efficient use of the existing infrastructure.
- fair treatment of both transport users and non-users

Energy efficiency / Energy usage

- the measure will eventually result in more energy efficient and more environmental friendly transport modes, as these will become more cost attractive

Internalisation of external costs for specific modes of transport



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How do we want to move and live in the future?

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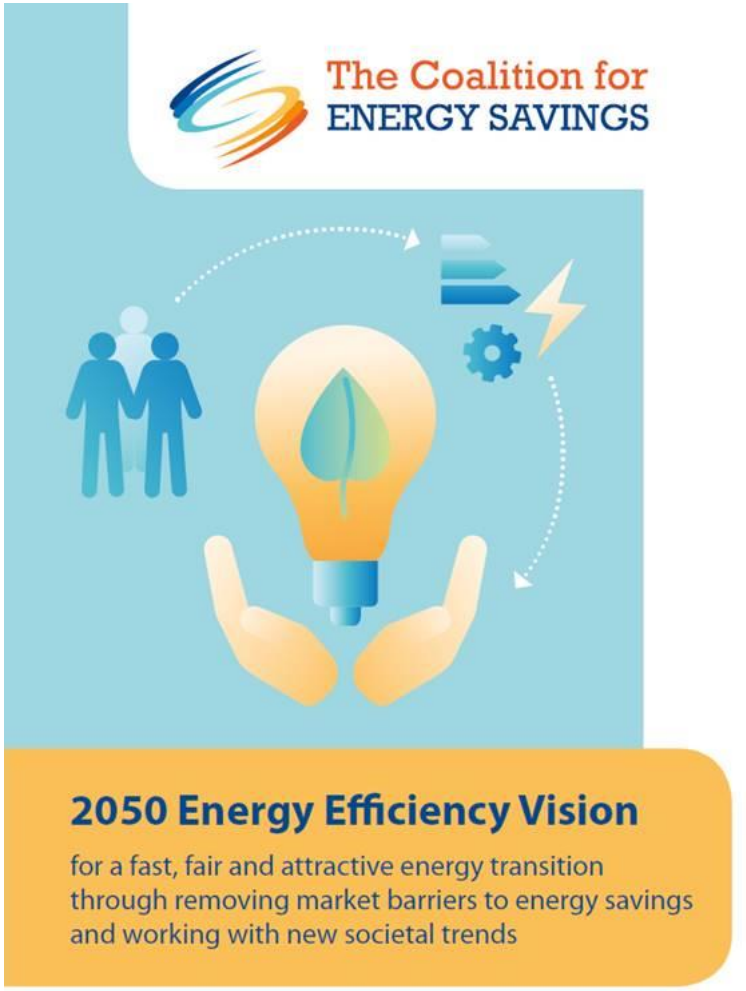

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- Study on Energy Savings Scenarios 2050

  https://www.isi.fraunhofer.de/de/competence-center/energiepolitik-energiemaerkte/projekte/energy-saving-scenarios-2050.html

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