



The project is funded by the European Commission's
Directorate-General Environment



EU Transport GHG: Routes to 2050?

Conclusions on reducing transport's GHG emissions to 2050

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Final stakeholder conference

15 March 2010, DG Environment, Brussels

Partners

www.eutransportghg2050.eu



Overview

- What GHG reduction in transport is needed?
- Both transport demand and GHG emissions expected to keep on growing without policy intervention
- Range of reduction options available and needed: technical, structural and demand reduction options
- Policy framework for meeting long term targets:
 - What: broad range of very ambitious policy instruments
 - When: urgently
 - Who: all governmental levels
- Co-benefits, costs and risks
- Key conclusions

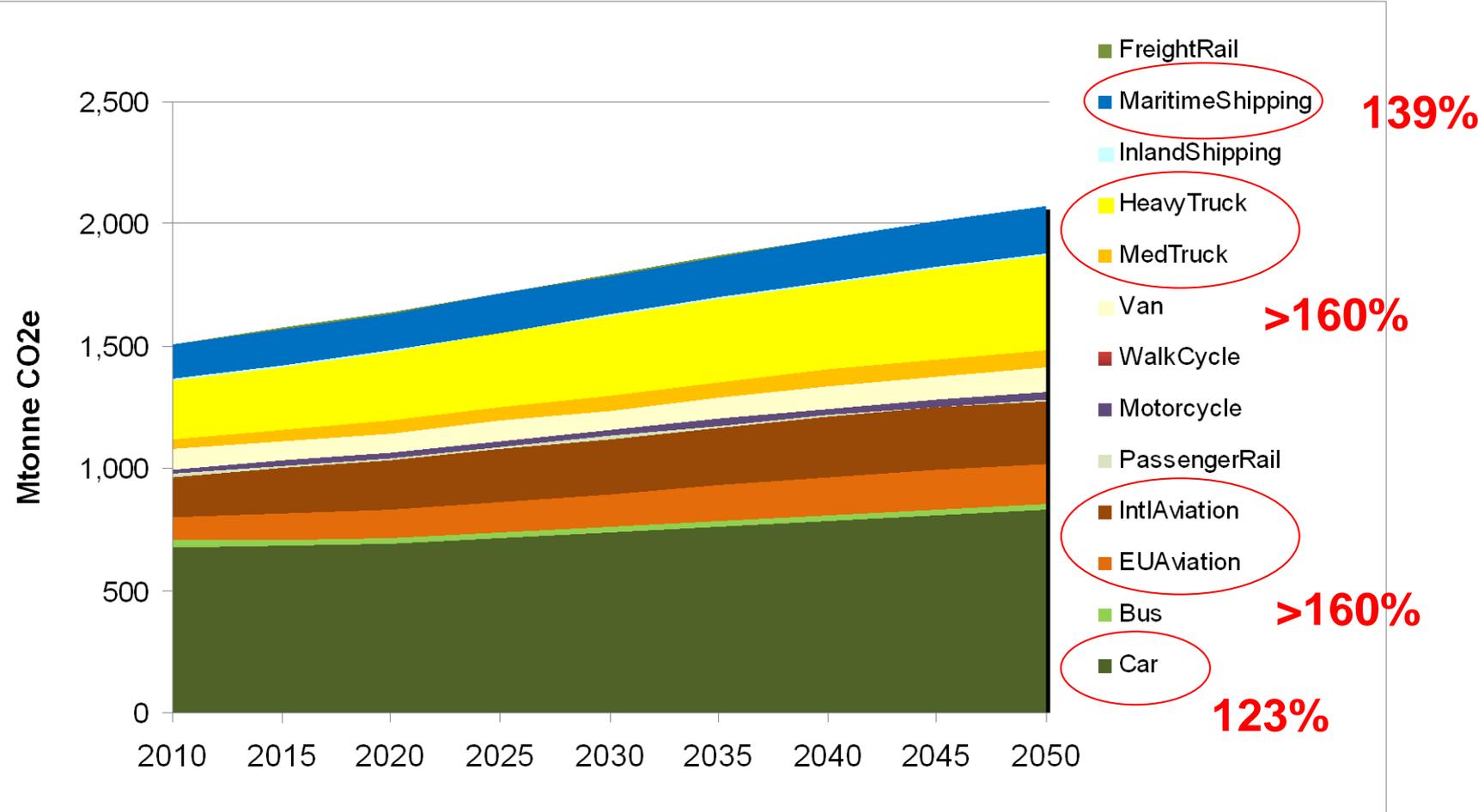
What GHG reduction is needed in transport?

- No final answer possible
- Cost effectiveness important
- Taking account of carbon leakage
- For meeting 2050 targets, also transport should strongly reduce its GHG emissions
- To meet the overall 80% reduction in the EU compared to 1990 :
 - 50-80% compared to 1990 seems minimum reduction required
 - Corresponding to 70-90% compared to BAU emission levels
- Higher overall targets (90-95%) require almost 100% GHG reduction in transport compared to BAU

Both demand and GHG emissions keep on growing

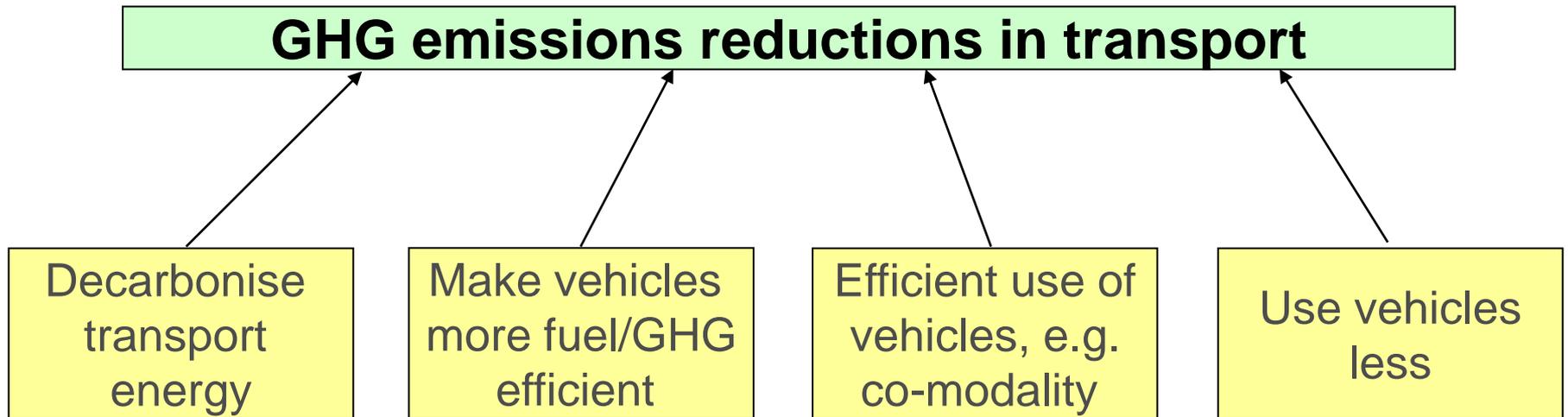
- Past and future: growth in passenger and freight transport demand
- Passenger growth lower than GDP growth, freight growth higher
- Temporary dip from economic recession
- Largest growth expected in Aviation, HGV and Shipping
- No evidence that growth in GHG and transport demand will slow down without policy intervention
- Decreases in carbon intensity have not resulted in reduced GHG emissions due to increased demand
- Existing regulation and efficiency improvements have effect but are far from sufficient

Projected GHG emissions growth by mode



Source: EU Transport GHG 2050 tool

Broad range of options available



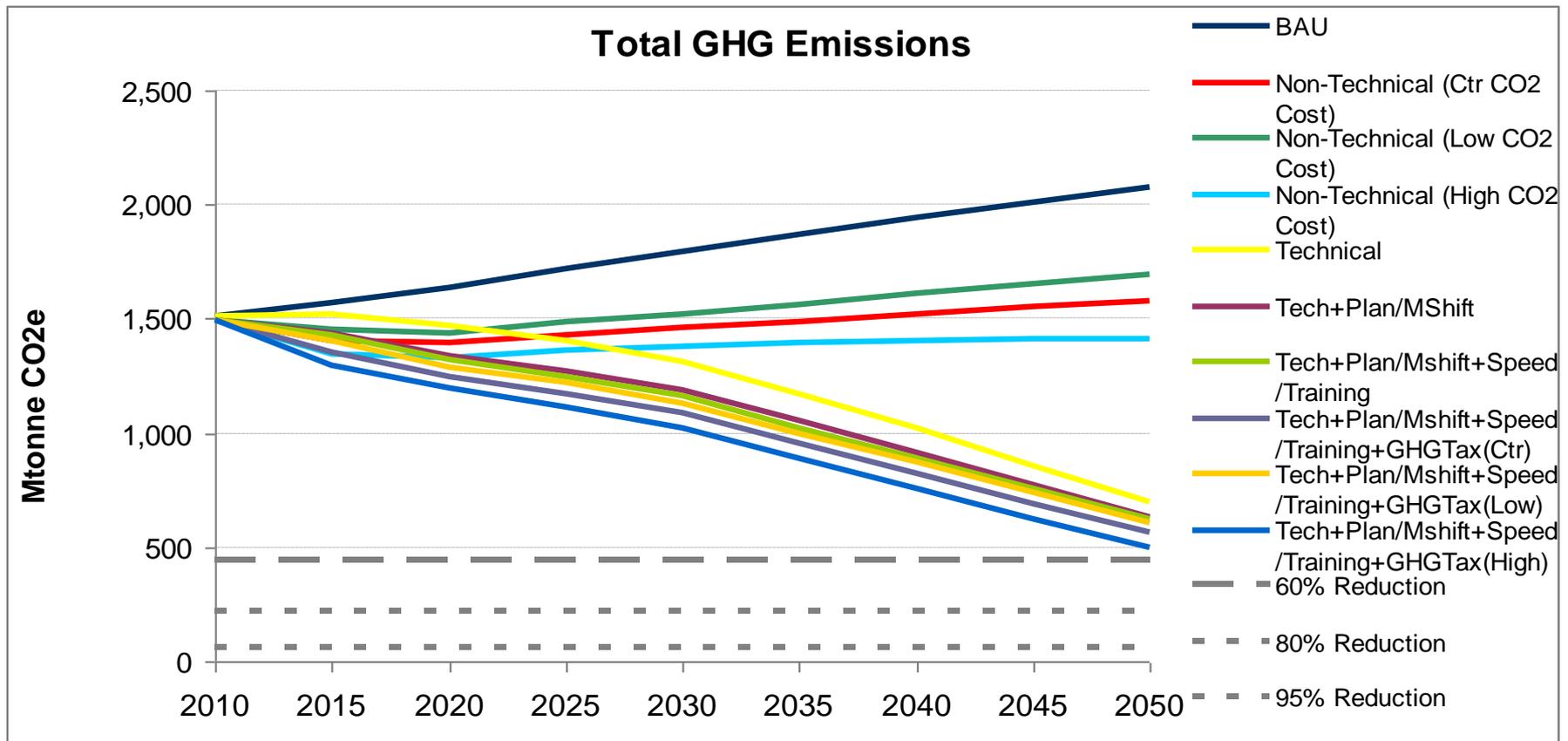
Policy framework for meeting long term targets: What (1)

- Regulation of energy or GHG efficiency of vehicles
 - For all modes
 - Stepwise tightening
 - Test cycles reflecting real life emissions
- Regulation of energy carriers:
 - Shift to low-carbon alternatives for current fuels
 - Strong interaction with other sectors (energy, food)
 - Broad facilitation and standardization needed for major shift
- Spatial, infrastructure, speed and traffic management policy at all levels and abolishment of subsidies to:
 - encourage slow modes
 - curb down demand growth
 - Put higher weight to GHG reduction in EIA, SEA and CBA
- Non-transport policy for transition to transport extensive economic growth (e.g. development of Green GDP)

Policy framework for meeting long term targets: What (1)

- Set of pricing policies at all levels to:
 - Support uptake of low-carbon technology
 - Curb down demand growth
 - Improve efficiency of the transport system
- Generic pricing instrument:
 - Carbon tax on fuel
 - Transport in ETS or separate emission trading scheme for transport
- Other key pricing instruments:
 - Kilometre-charging
 - Vehicle taxation (differentiated to fuel efficiency)
 - Company car taxation (50% of new cars is bought by companies!)
 - Remove tax exemption for travel expense declaration
 - Same VAT regime for all transport modes
 - Land use taxation
 - Parking fees and permits

No combined policy scenario achieves a 60% reduction



Assuming very ambitious technical reductions

Policy framework for meeting long term targets: What? - two views on reduction potential

‘Technology will solve the problem’

- Vehicle and fuel regulation are primary instruments
- Other instruments for creating a market for low-carbon fuels and vehicles
- Is most attractive because no behavioural change needed

‘Limiting demand growth is imperative’

- Technological reduction potential insufficient
- Pricing policy, speed, infrastructure, spatial planning are key elements
- Difficult to get support for *reducing* transport growth, particularly as long as it is not clear what type of growth can come instead
- Requires early action and only long term impacts

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⇒ **Results of this study strongly suggest that for meeting 2050 targets both will be needed**

Policy framework for meeting long term targets: When?

- Urgent need to take action
- Long term reduction targets require all types of actions
- Most instruments have long lead times
 - Two decades from regulation of new vehicles until full impacts on average fleet
 - Spatial changes take even longer
 - Transition to less transport intensive growth take various decades as well
- Limiting policy to currently cost effective options?
 - Some more expensive options (e.g. demand related) have longest lead times
 - Avoid too rapid changes later on- it takes time for society to adapt
 - Avoid rebound effects
- Packaging of complementary policies needed
 - To avoid rebound effects
 - Fuel efficiency improvements reduce marginal transport cost, increasing transport demand and GHG emissions

Policy framework for meeting long term targets: Who?

- All government levels need to take action:
 - Energy efficient vehicles and low carbon fuels: particularly national and international level
 - More efficient transport system and demand management: early action at all levels required
 - For aviation and shipping also global action
- Non-transport policy for transition to transport extensive economic growth (e.g. development of Green GDP)
- Are current governmental structures adequate?

Co-benefits, costs and risks

- **Co-benefits:**
 - Environment: air quality, noise
 - Energy security
 - Road accidents and congestion
 - Innovative economy
- **Costs:**
 - R&D and investments for decarbonizing fuels and more efficient vehicles
 - Costs related to curbing demand growth
- **Be aware of potential trade-offs with other sectors:**
 - Sustainable electricity and biomass remain scarce goods, supply limited
 - Electric and fuel cell vehicles put extra burden on electricity sector
 - Land use biomass: for transport or food?
- **Anticipate that some policies do not achieve what they expected to do:**
 - Rebound effects and trade-offs
 - Technological limits

Key conclusions (1)

- To meet long term goals, transport's GHG emissions should be reduced by at least 50-80% compared to 1990 and possibly more
- Both transport demand and GHG emissions expected to keep on growing without policy intervention
- Broad range of very ambitious options required: both technical, structural and demand reduction
- The same for policy: no silver bullet exists, but mix of policy instruments needed

Key conclusions (2)

- Ambitious package delivers less than 60% reduction.
- To do more, stronger non-technical options will be required
- For demand growth also policy action in non-transport areas needed
- All government levels need to take action:
 - Energy efficient vehicles and low carbon energy: particularly national and international level
 - More efficient transport system and demand management: early action at all levels required
- There is an urgent need to take action because of long lead times and risks of policies achieving less than expected
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