



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



EU Transport GHG: Routes to 2050?

Final Stakeholder Conference

15 March 2010, Brussels

Partners

www.eutransportghg2050.eu





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EU Transport GHG: Routes to 2050?

Introduction to the project and meeting

Ian Skinner, AEA Associate

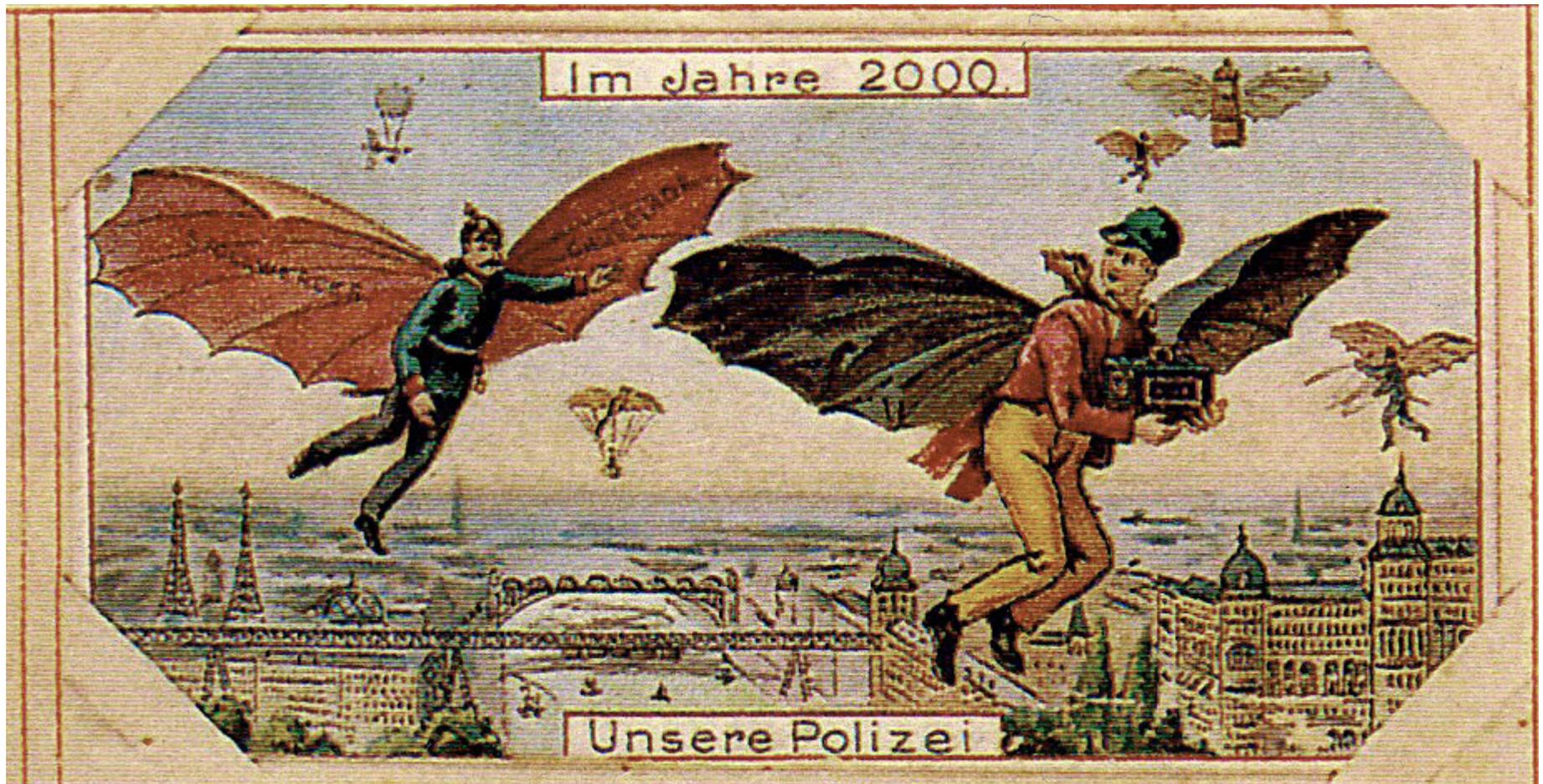
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The challenges of looking into the future...



Source: Werkehr im Jahre 2000, poster from 1900 ³

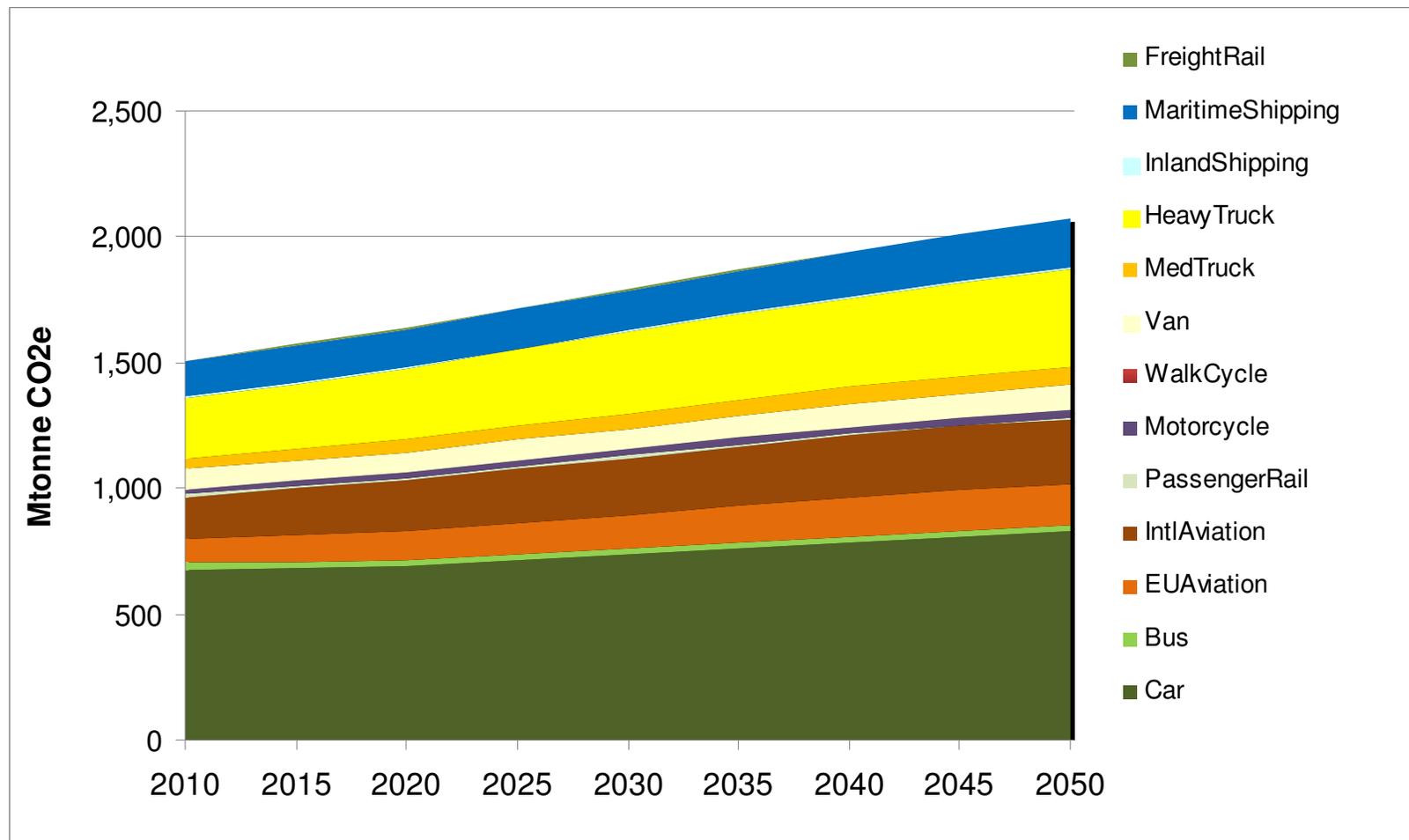
Overview

- Context of the project
- Project principles and overview
- High level findings
- Overview of the Conference



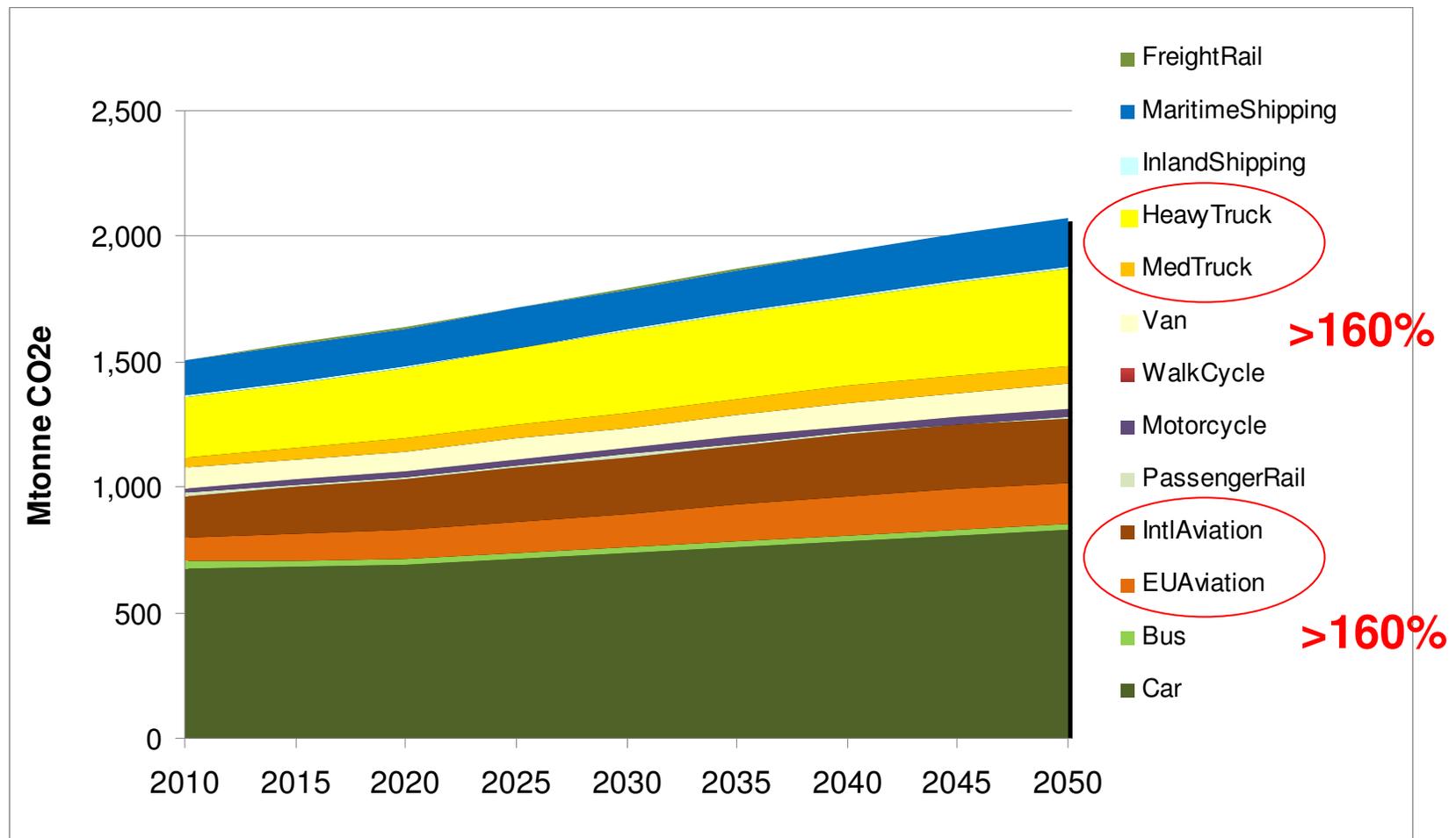
Context of the project

Projected GHG emissions growth by mode



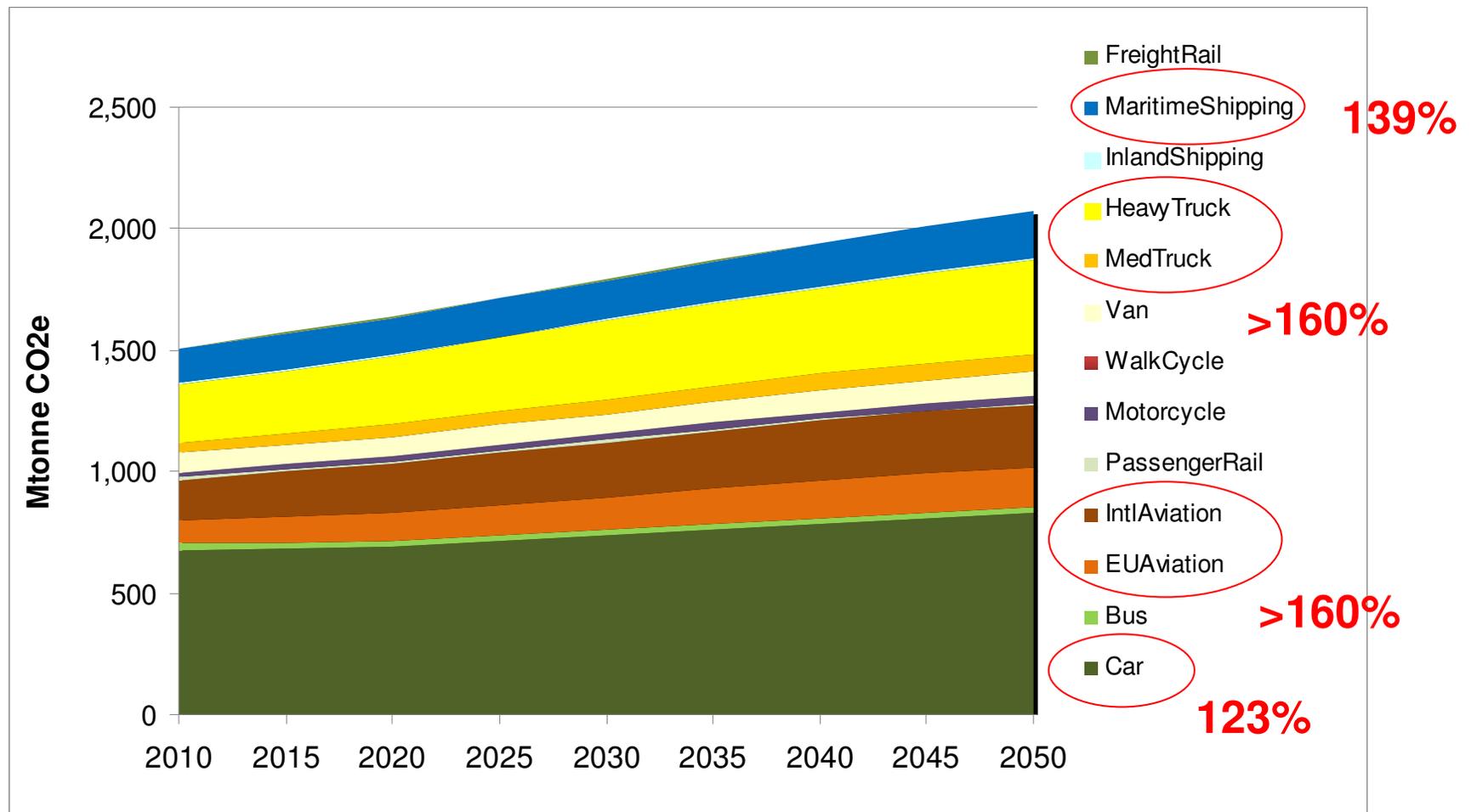
Source: EU Transport GHG 2050 tool

Projected GHG emissions growth by mode



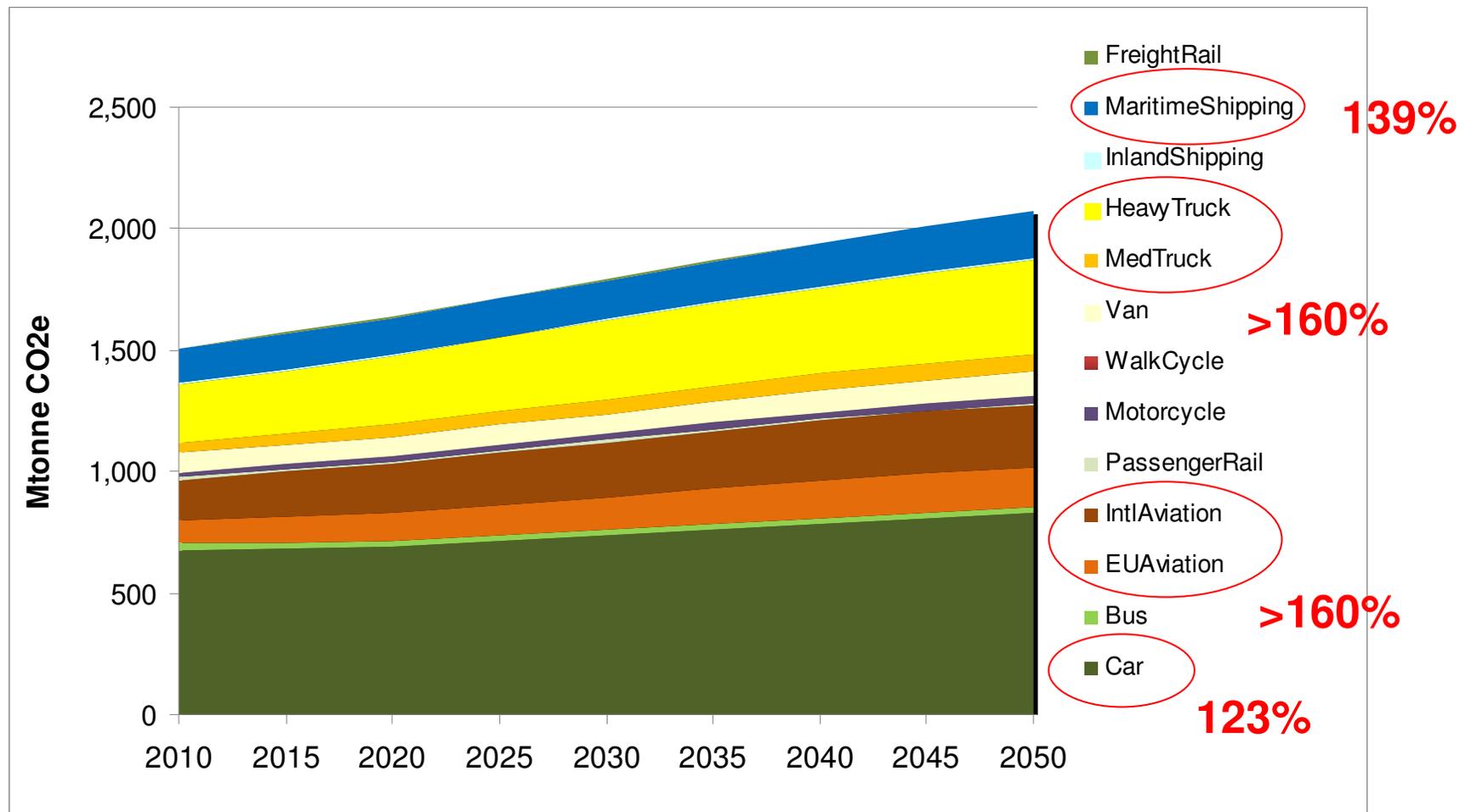
Source: EU Transport GHG 2050 tool

Projected GHG emissions growth by mode



Source: EU Transport GHG 2050 tool

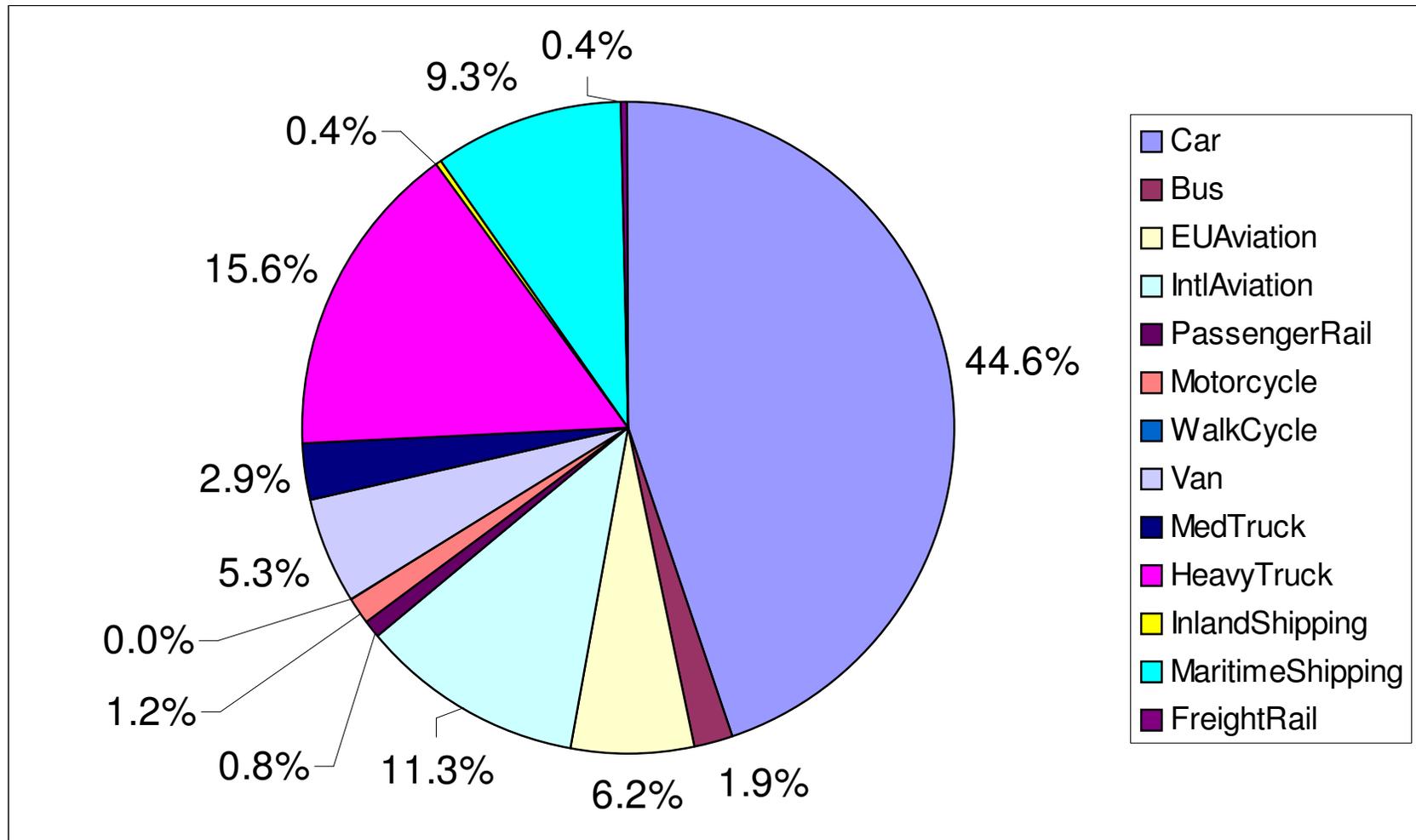
Projected GHG emissions growth by mode



Source: EU Transport GHG 2050 tool

Some studies have higher projections

GHG breakdown by transport mode (2010)



Source: EU Transport GHG 2050 tool

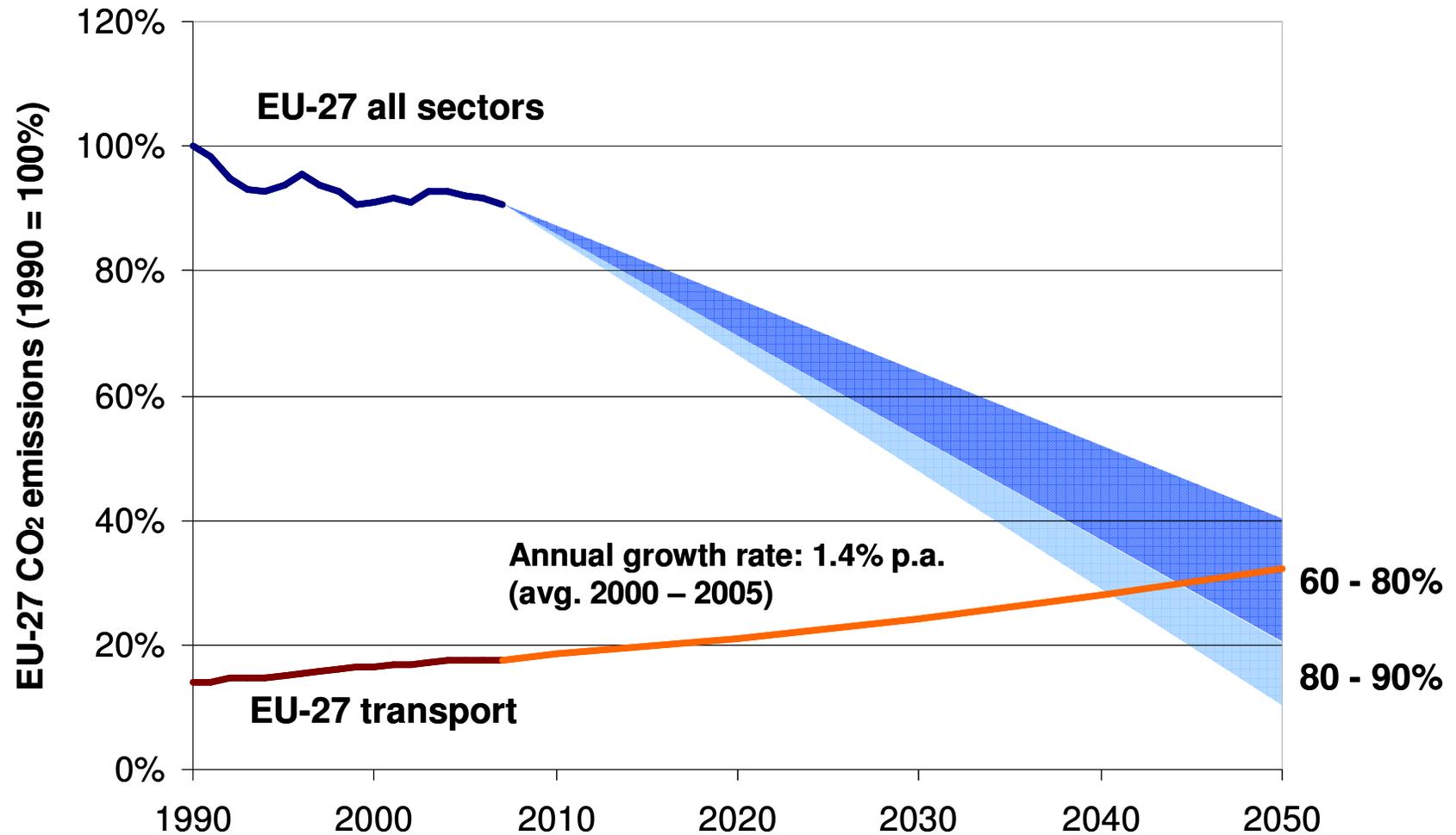
In the run-up to Copenhagen...

“**The European Council** calls upon all Parties ... to agree to global emission reductions of at least 50%, and aggregate developed country emission reductions of at least 80-95%... It **supports an EU objective**, in the context of necessary reductions according to the IPCC by developed countries as a group, **to reduce emissions by 80-95% by 2050 compared to 1990 levels.**”

*Presidency Conclusions, Brussels European Council,
29/30 October 2009*

<http://register.consilium.europa.eu/pdf/en/09/st15/st15265.en09.pdf>

The 2050 target: *Keep global warming under 2°C by end of century*



What does this mean for transport?

- BAU scenarios show increase of EU transport's GHG emissions of 60% to 70% between 1990 and 2050.
- On current trends, by 2050:
 - Transport's GHG emissions will be 30% of 1990 economy-wide GHG emissions
 - Maximum economy-wide reduction achievable would 70% - all remaining emissions from transport
- Assuming an EU economy-wide GHG 80% reduction is required, then:
 - If transport's GHG emissions halved between 1990 and 2050, transport's share of total emissions would increase from 20% to 50%...
 - ... this would be a 70% decrease compared to BAU
 - If an 80% emissions reduction was needed from transport (compared to 1990), then this would be around 90% compared to BAU

Political context

Commission President Barosso recently underlined the importance of the transport sector in terms of reducing GHG emissions by noting that the next Commission:

“needs to maintain the momentum towards a low carbon economy, and in particular towards decarbonising our electricity supply and the transport sector”

Political Guidelines for the next Commission, September 2009

Political context

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“needs to maintain the momentum towards a low carbon economy, and **in particular towards decarbonising** our electricity supply and **the transport sector**”

Political Guidelines for the next Commission, September 2009

- **Reflected in some of the mandates for the new Commissioners**

EU approach: Current and potential...

- To date, EU policy on reducing transport's GHG emissions has been **targeted** at specific areas, e.g.:
 - Passenger car CO₂ Regulation
 - Inclusion of aviation in EU Emissions Trading Scheme
 - Clean road vehicles Directive
 - Proposed Regulation on CO₂ from vans
 - Biofuels and Renewable Energy Directives
 - Carbon reduction requirement of amended Fuel Quality Directive
- Given scale of the challenge **a coordinated, strategic approach** should help to ensure that the “best” measures are undertaken at most appropriate time

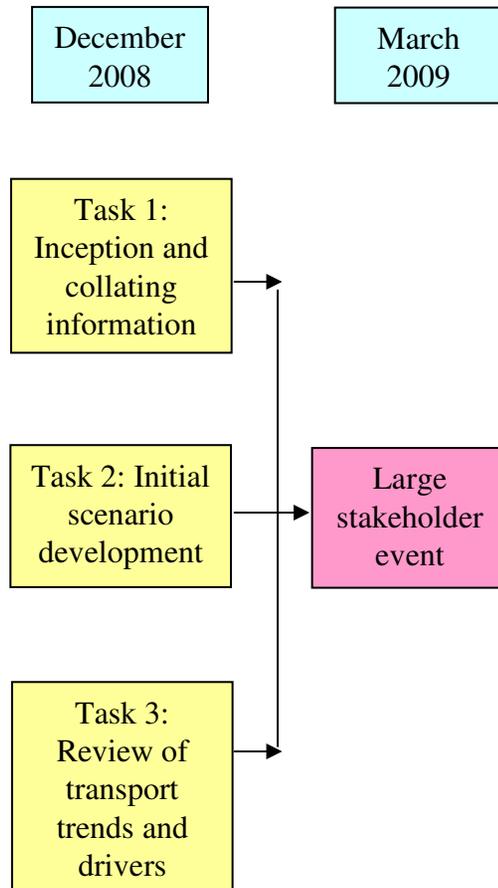


Project principles and overview

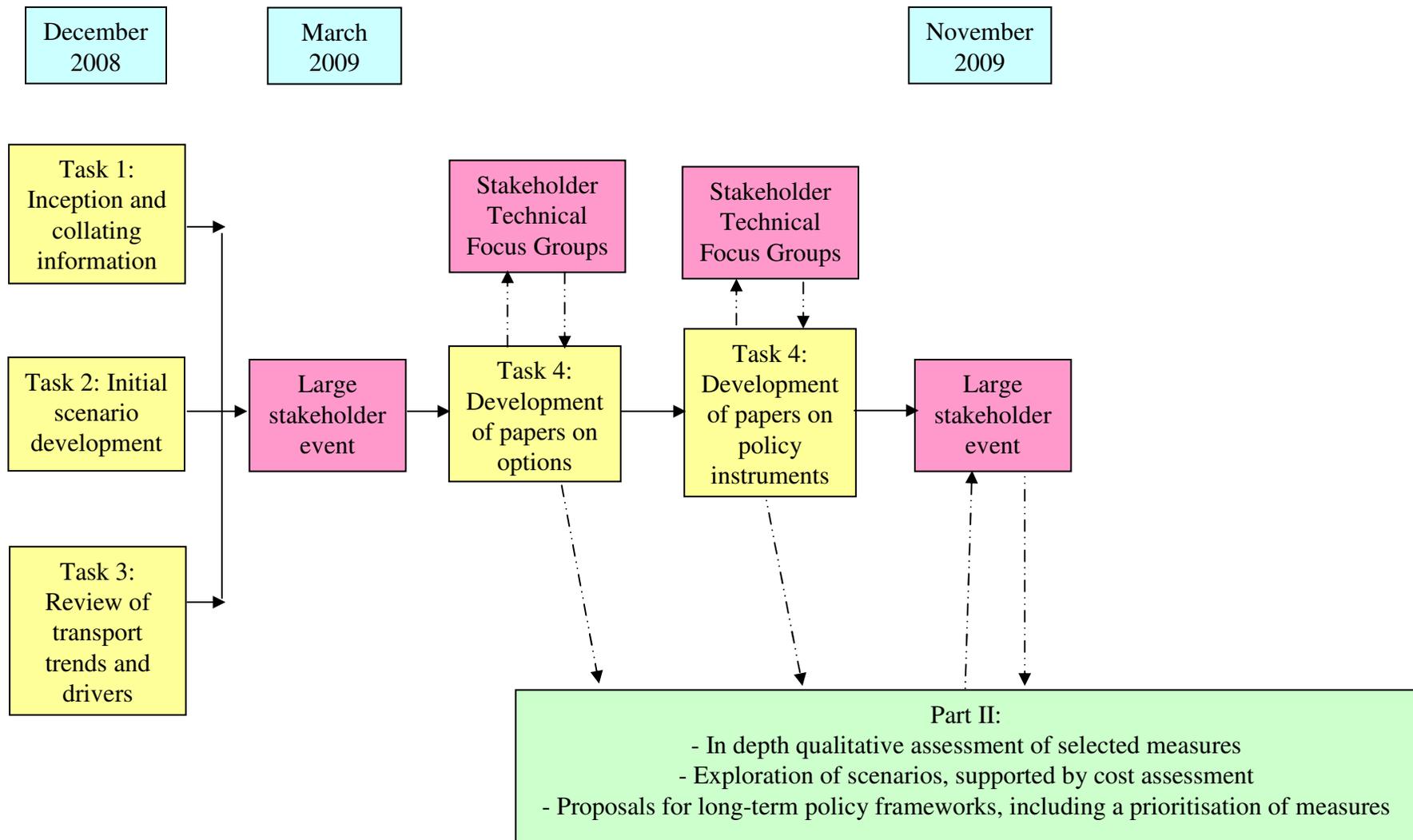
Project objectives and principles

- Begin to consider **long-term policy framework for transport** in context of need to reduce greenhouse gas (GHG) emissions economy-wide
- Dealing with **medium- to longer-term** (post 2020; to 2050), i.e. moving beyond recent focus on short-term policy measures
- Identify **what we know** about reducing transport's GHG emissions; and what we do not
- Identify by **when we need to take action** and what this action should be
- **Qualitative and quantitative** approach (necessarily given timeframe)
- Need to **engage transport and other stakeholders** about what transport might have to deliver in terms of GHG emissions reductions to 2050

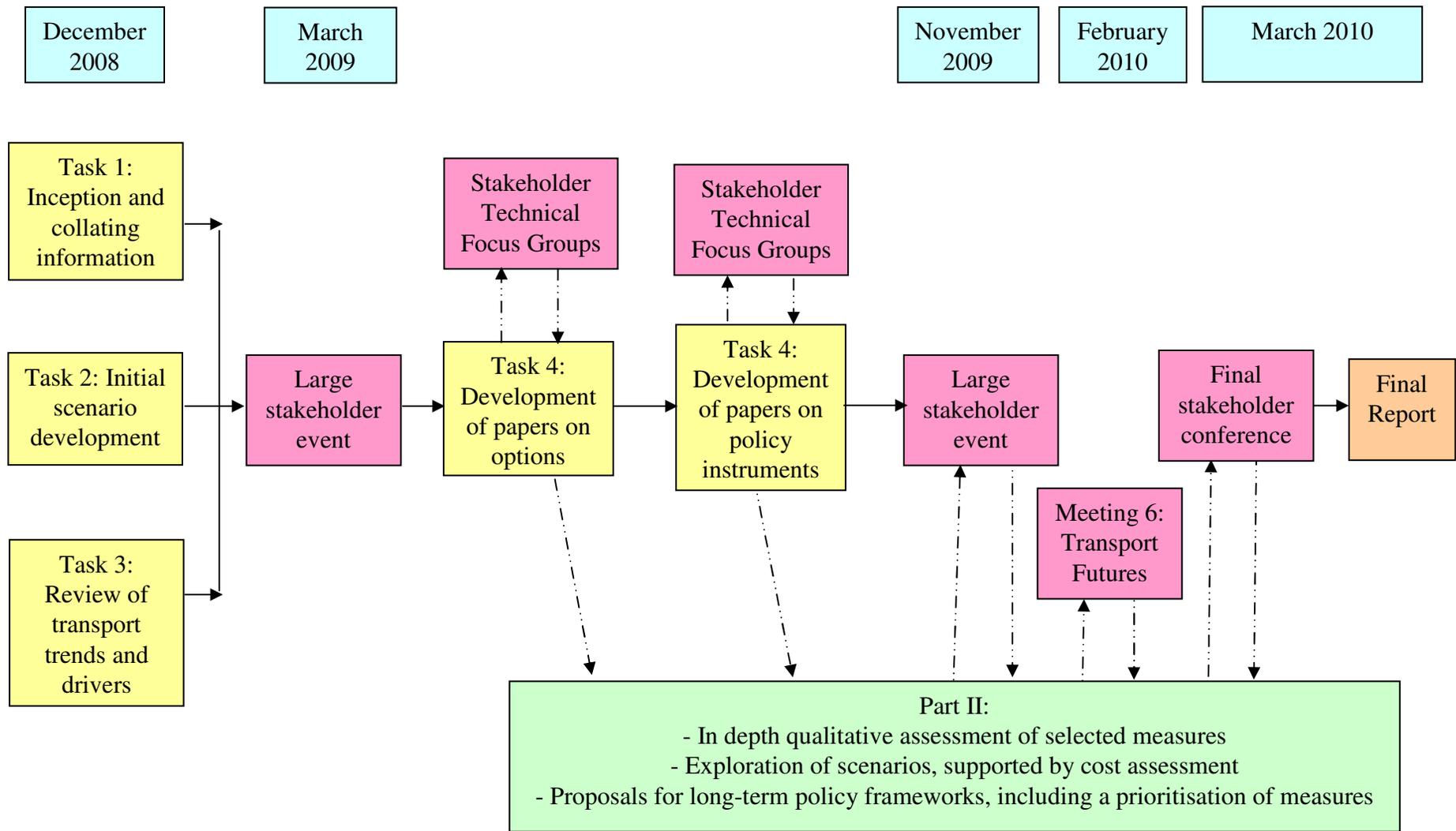
Project plan



Project plan



Project plan



What are transport's GHG emissions?

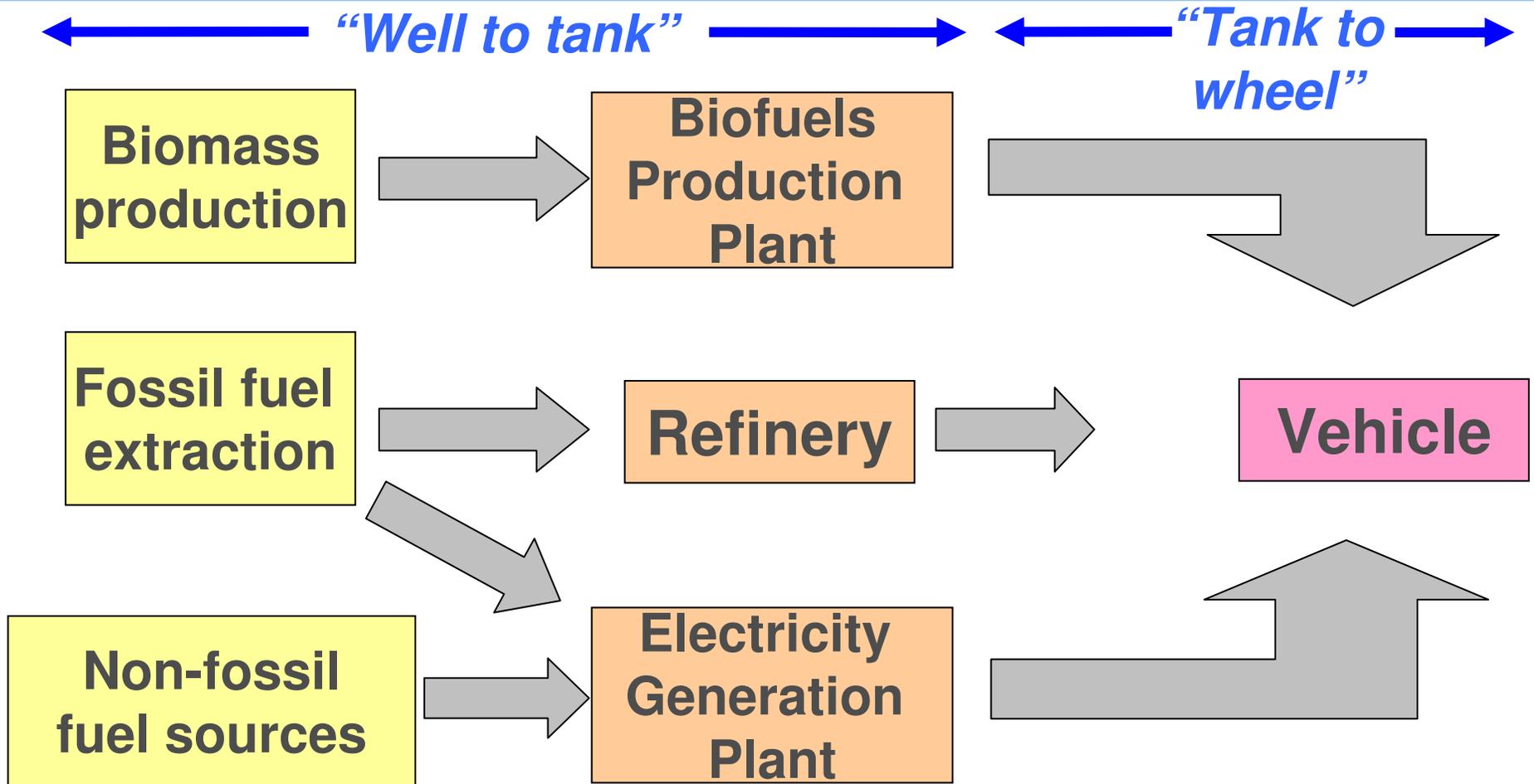
← *“Tank to wheel”* →

Vehicle

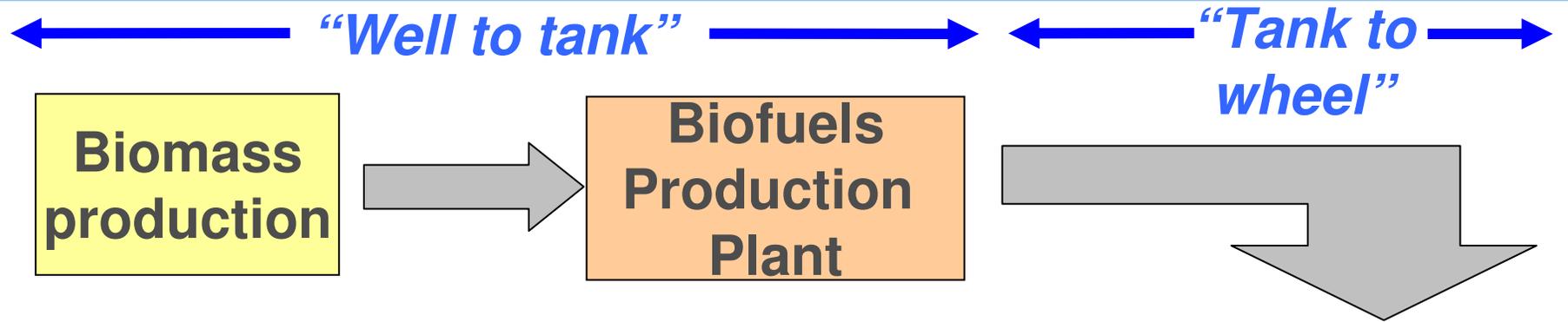
What are transport's GHG emissions?



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Fossil fuel extraction

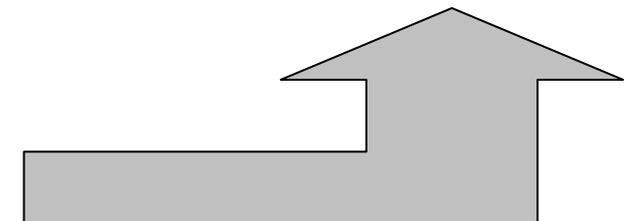
Refinery

Vehicle



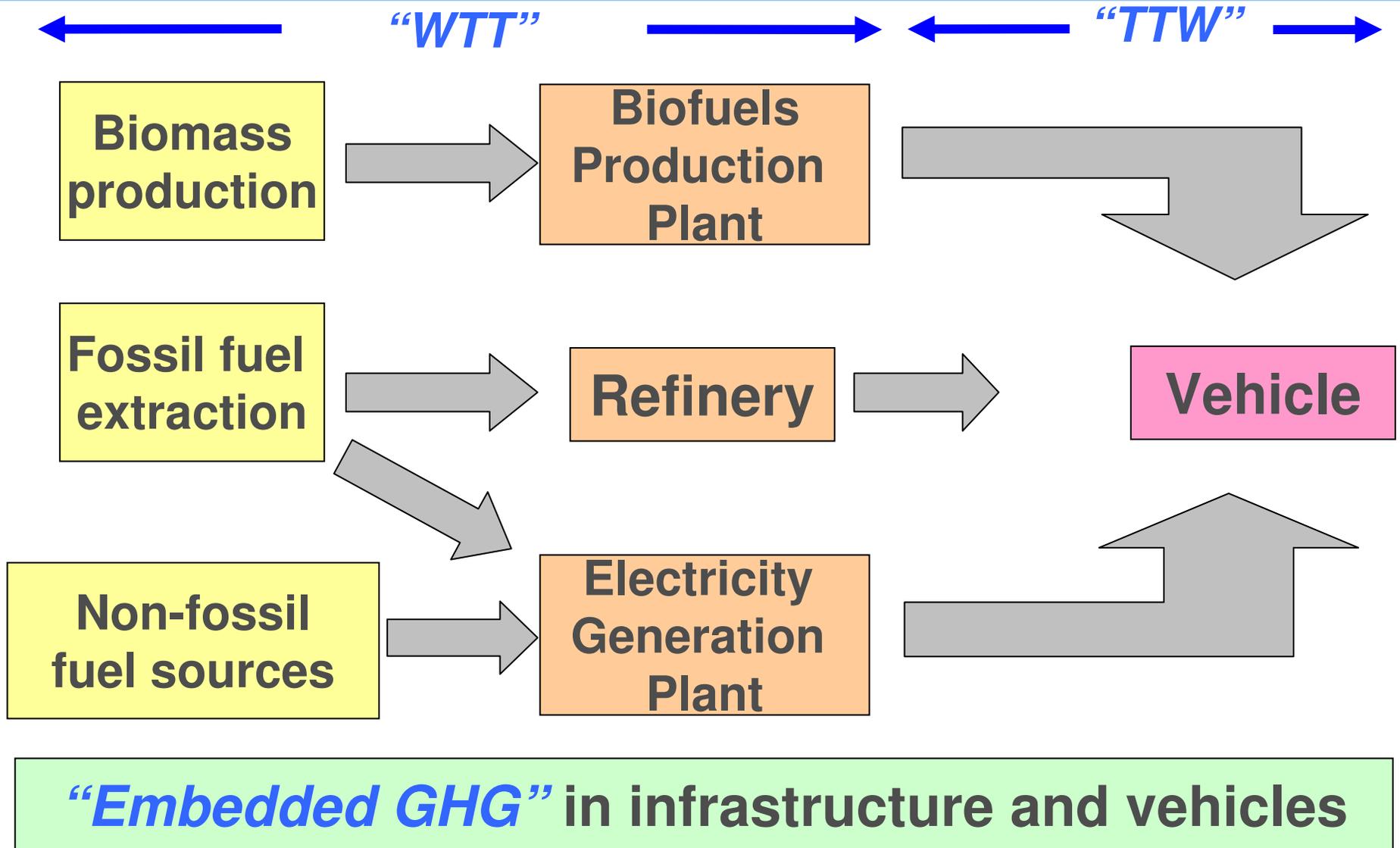
Non-fossil fuel sources

Electricity Generation Plant

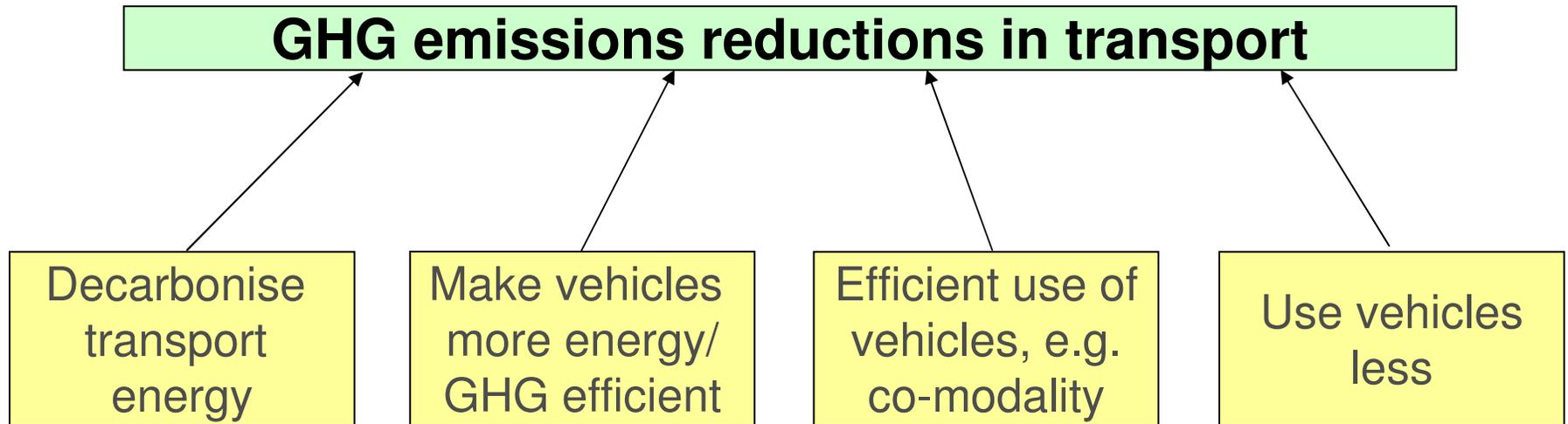


“Embedded GHG” in infrastructure and vehicles

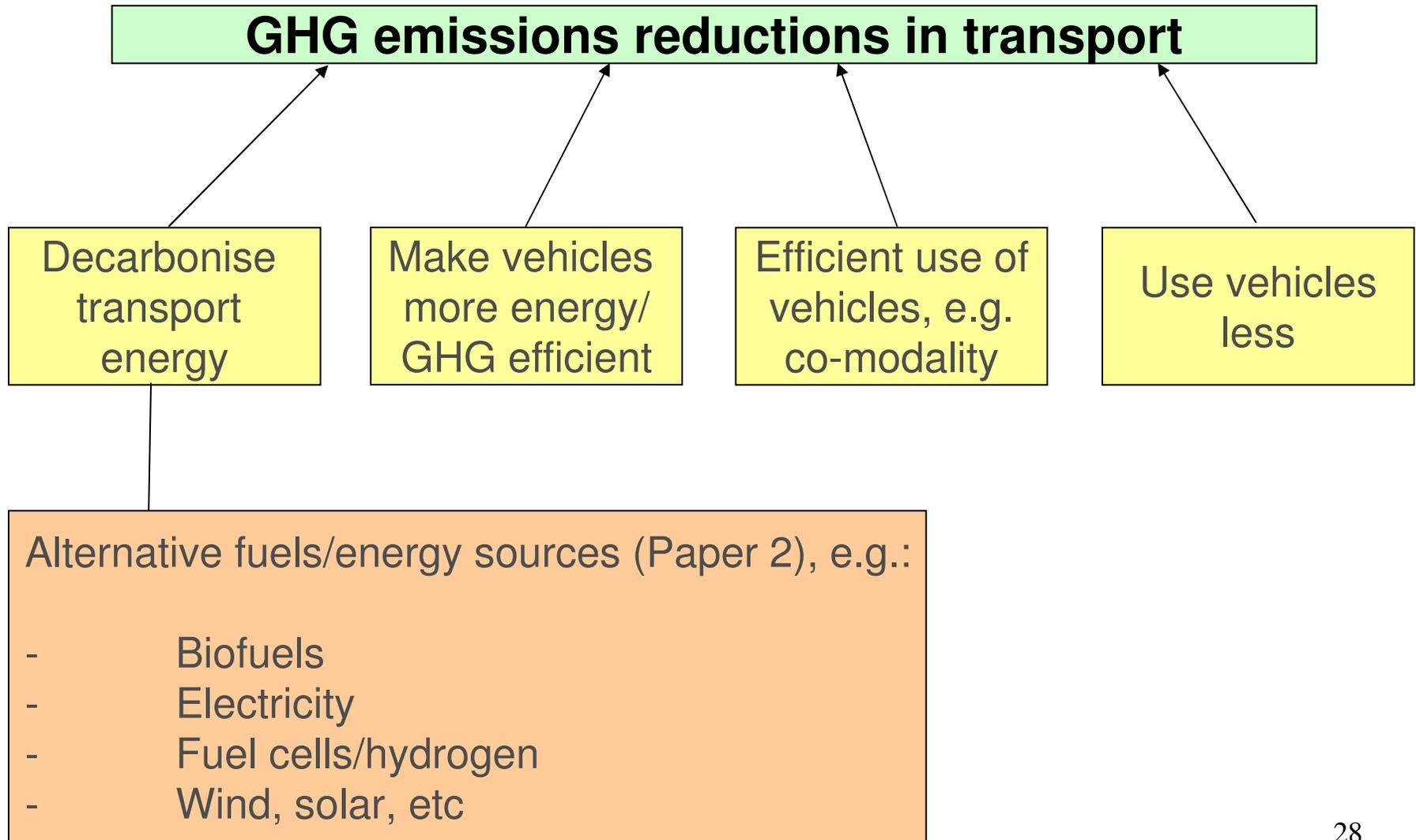
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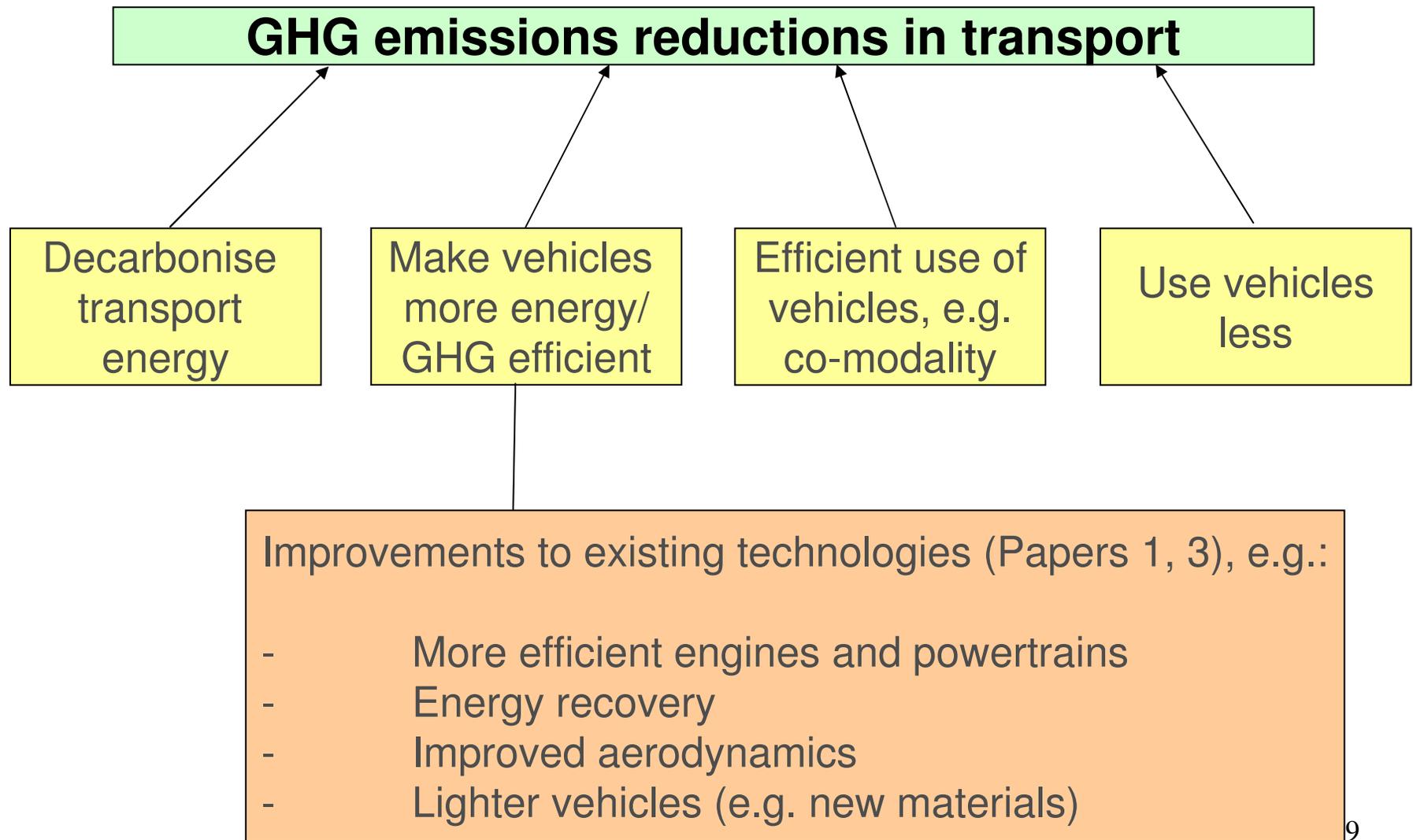
Part I: Options for reducing transport's GHG emissions...



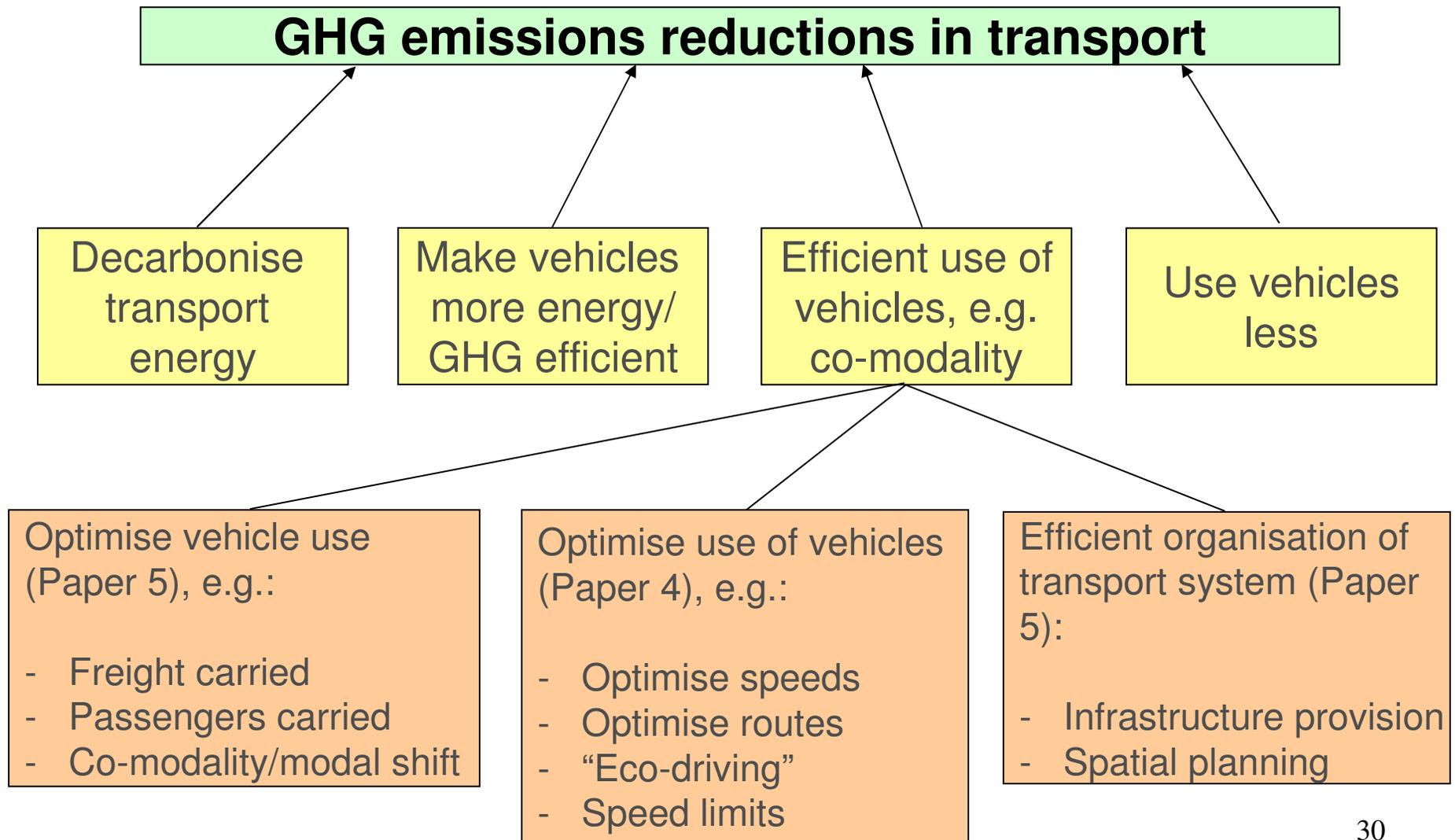
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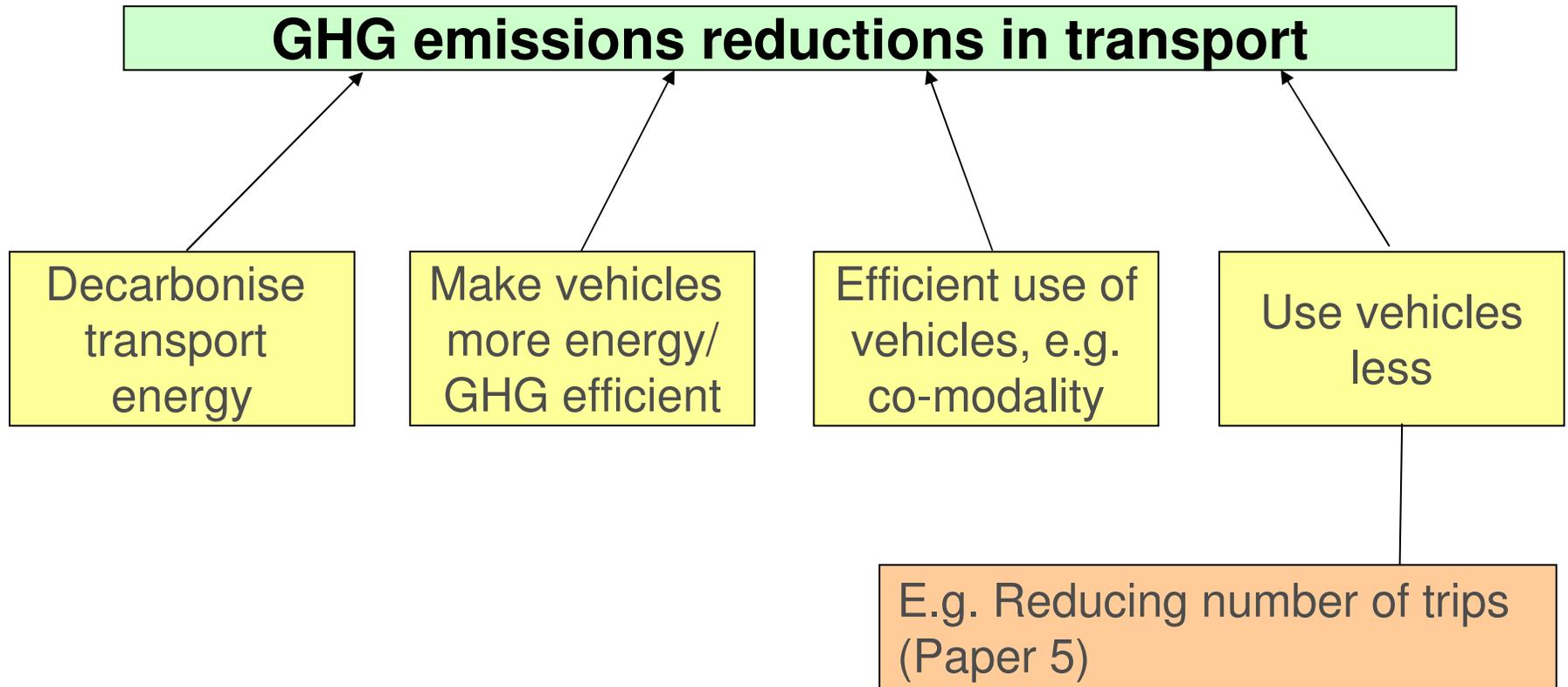
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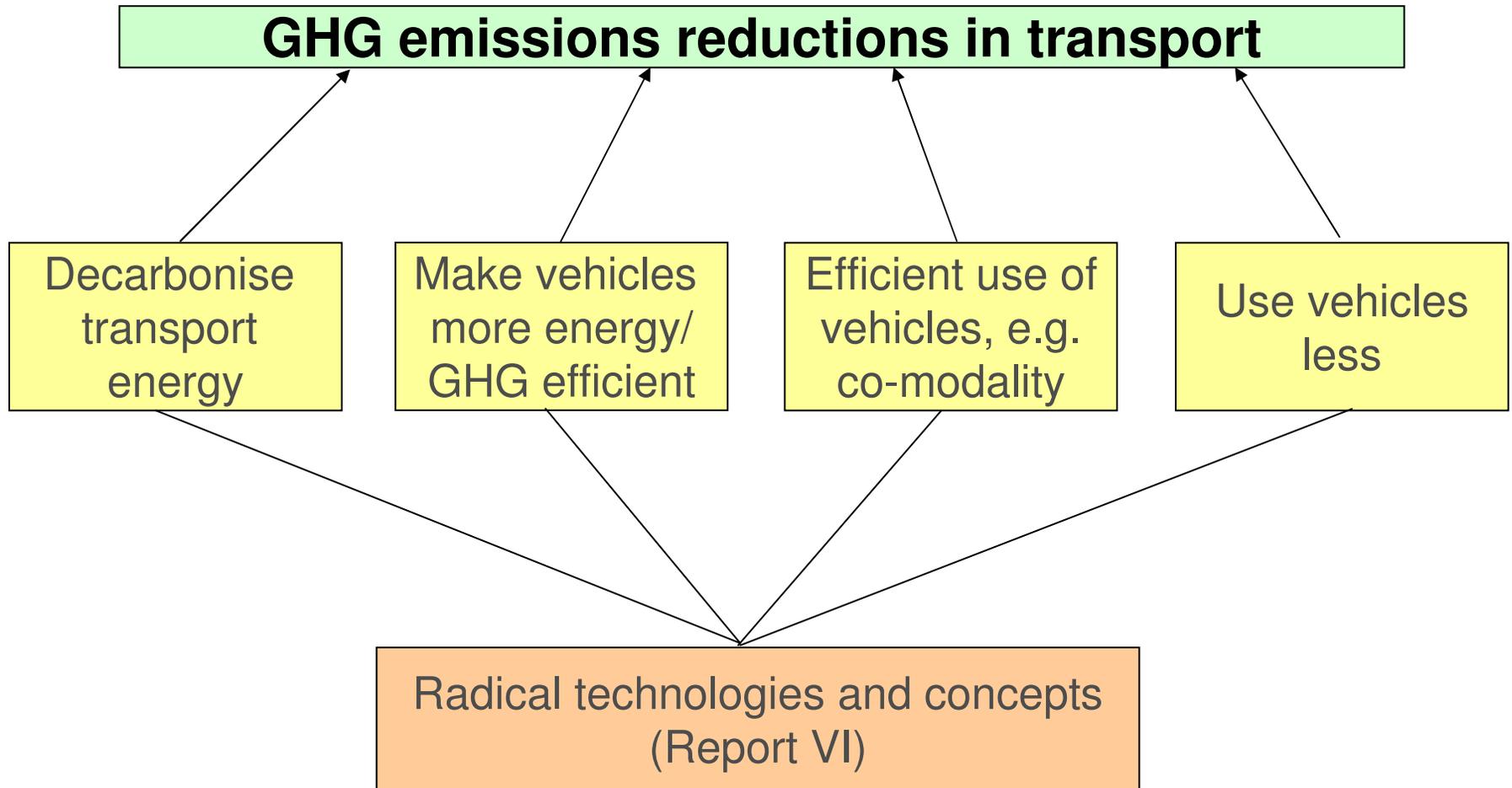
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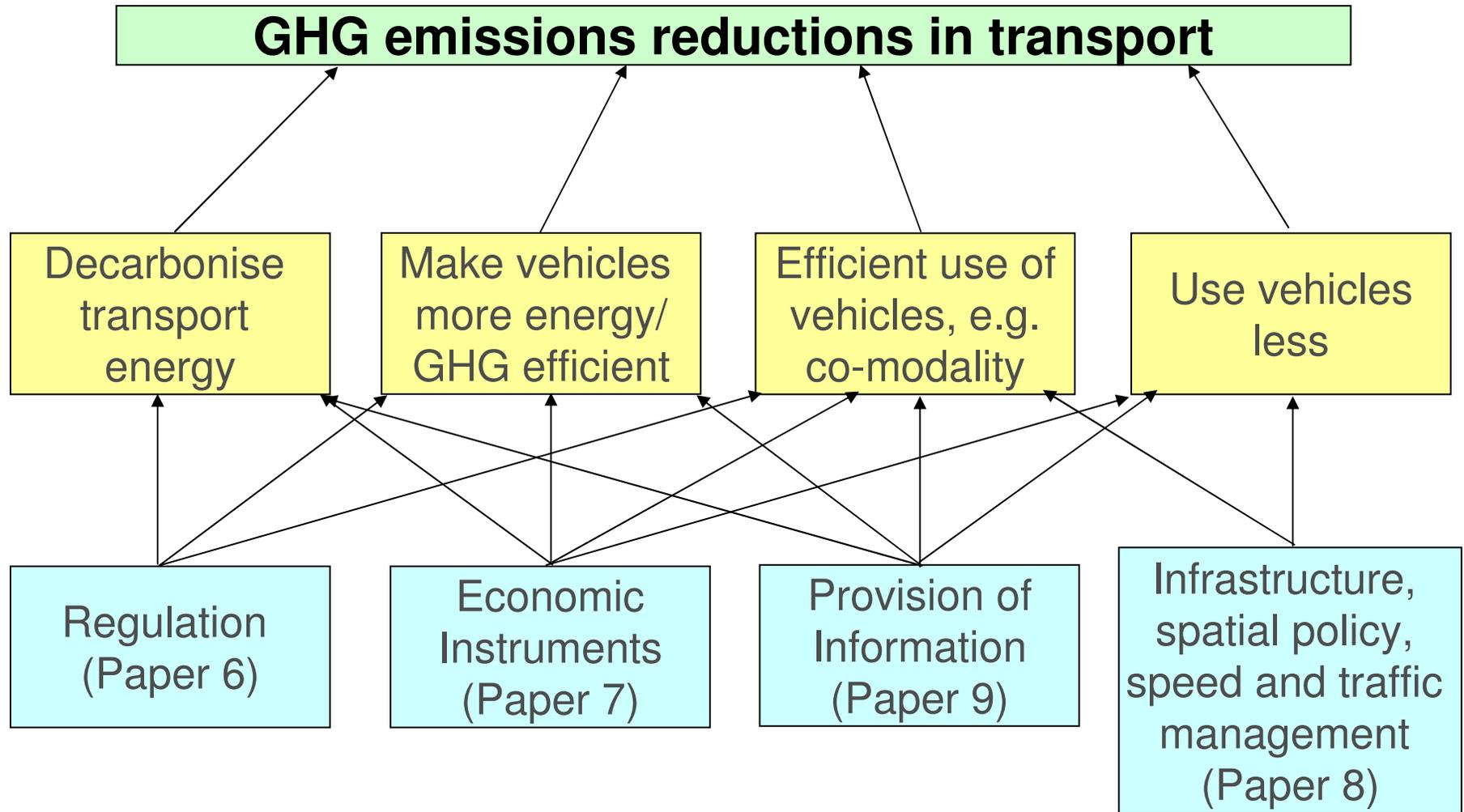
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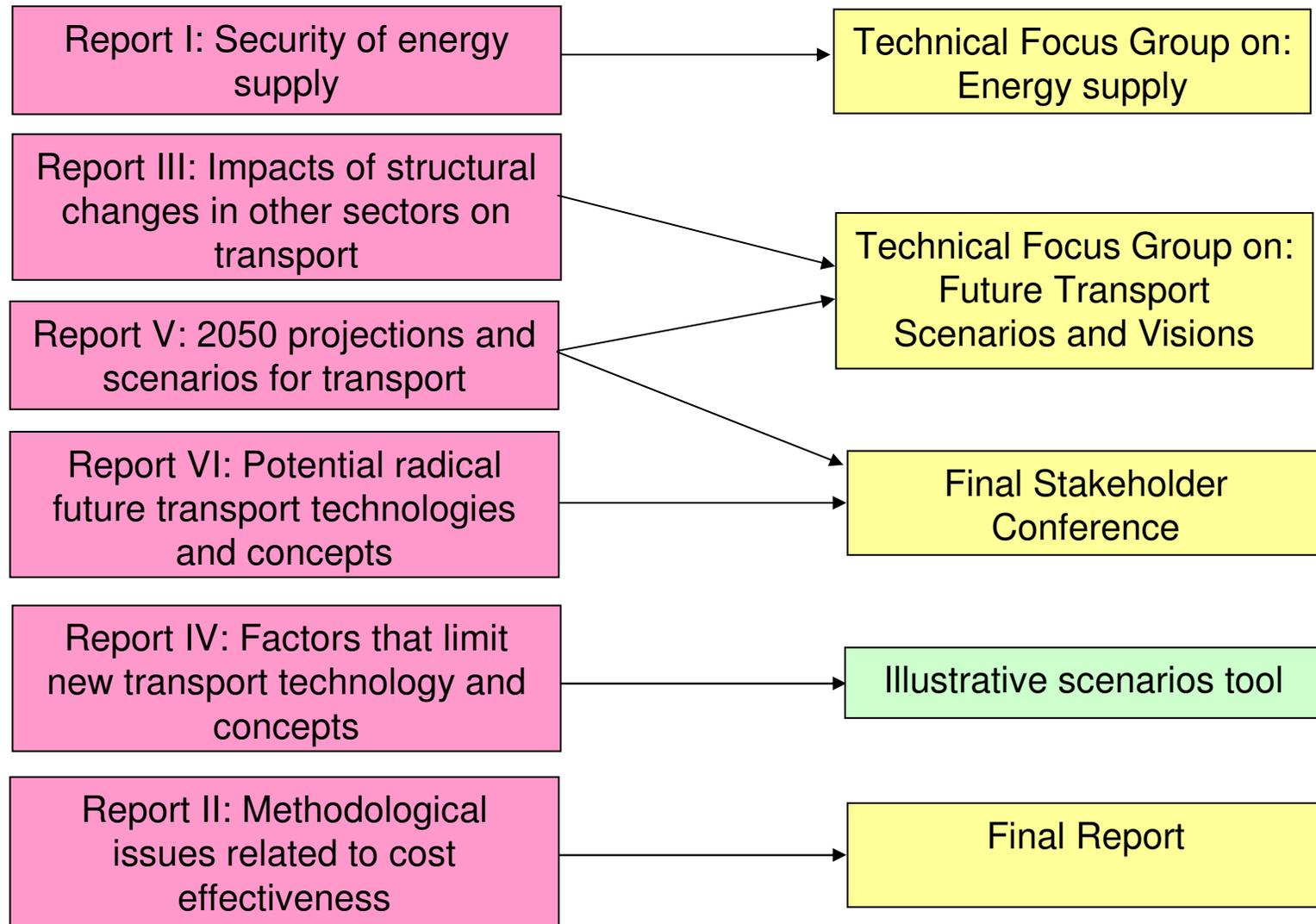
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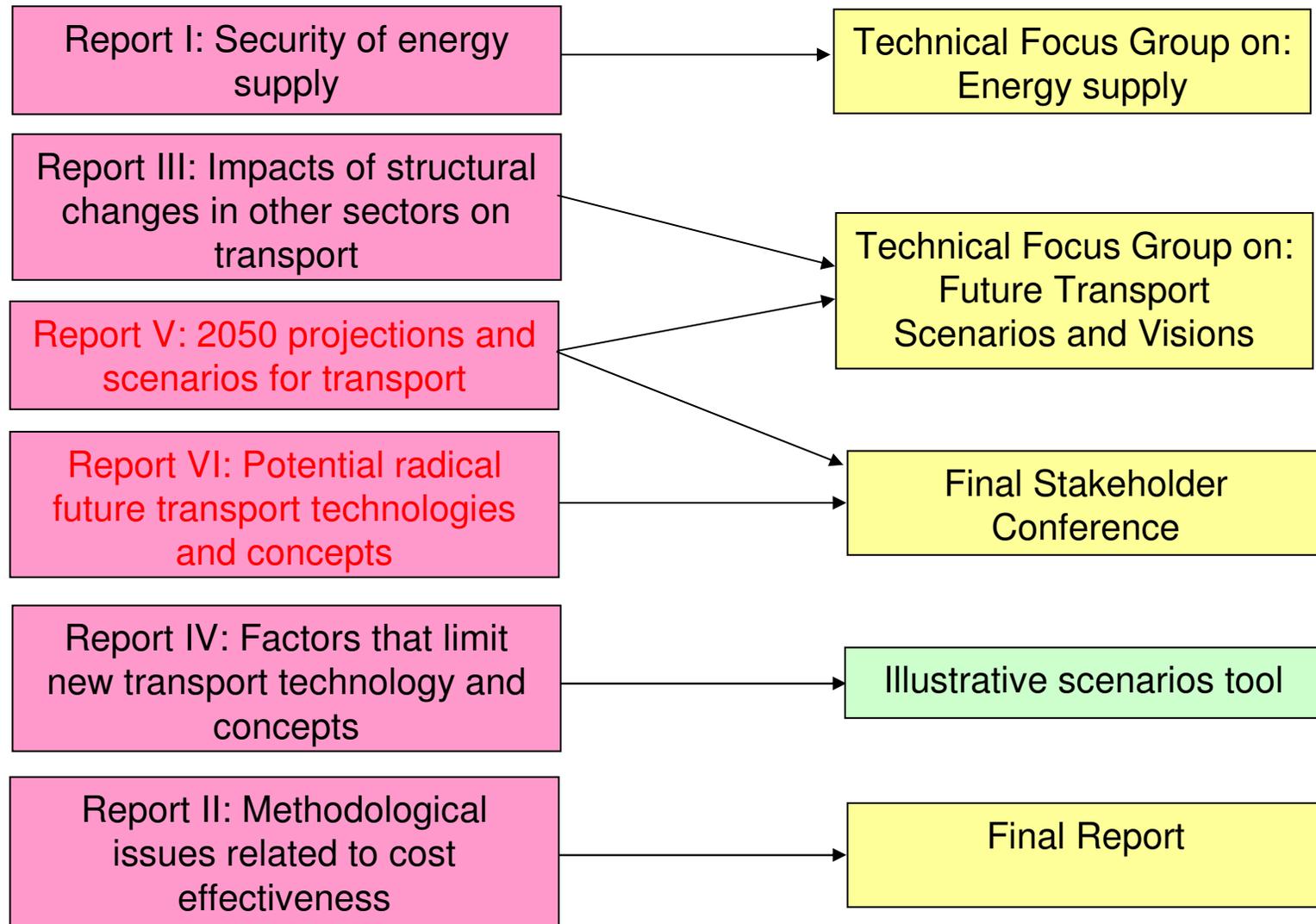
Part I: Policy instruments for stimulating take up of options that reduce transport's GHG emissions...



Other reports developed in the project



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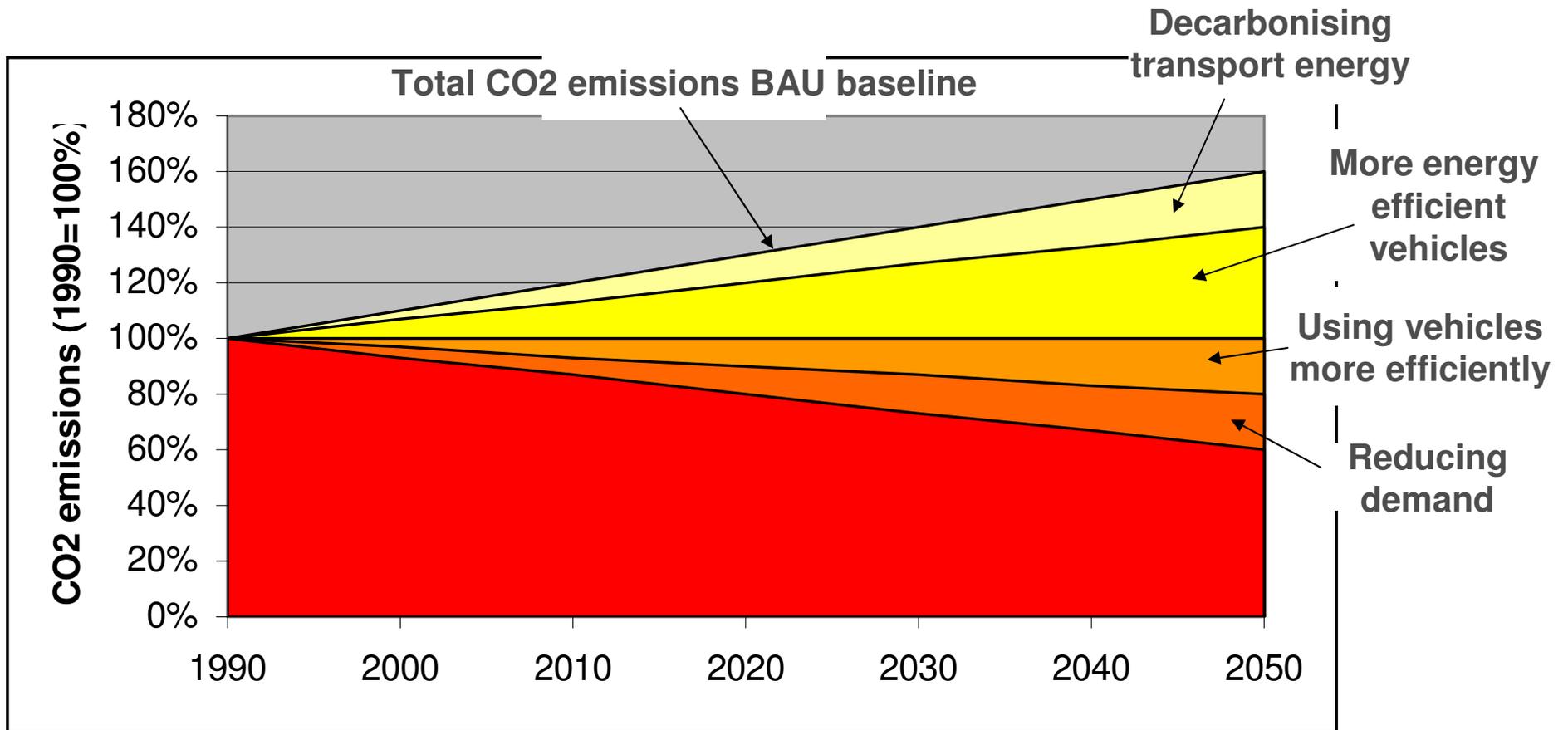
Part II: Developing the illustrative scenarios tool

- Options and policy instruments papers provided us with overview of:
 - Reduction potential of various options by mode
 - Potential policy instruments for stimulating uptake of these options
 - Issues, risks and limitations associated with these options and instruments
- Developed “illustrative scenarios tool” to:
 - Identify what these meant for potential GHG emission reduction potential in transport
 - Enable everyone to see in a transparent way the assumptions we had made
 - Enable everyone to see what their own assumptions might deliver
- Review of other studies to:
 - Identify their assumptions re options and policy instruments
 - Inform the development of our illustrative scenarios

Part II: Developing alternative policy frameworks

- “Policy frameworks” aim to set out potential strategic approaches that might be adopted to address the challenge of reducing transport’s GHG emissions
- Policy frameworks could focus on:
 - Technical options to test whether challenge could be addressed by:
 - Decarbonising transport energy
 - Improving efficiency of transport vehicles
 - Non-technical options to test extent to which meeting the challenge needs:
 - Improvements in way transport system is used (i.e. efficiency of transport system)
 - Demand to be addressed
- Cost-effectiveness is important:
 - Important to remember that most cost-effective solution might not be technical
 - Also, wider co-benefits need to be included in cost-effectiveness assessment

What is the potential contribution of different policy frameworks to reaching long term goals?





High level findings

Findings on technical options

- Potential technical improvements to existing technologies for all modes
- Improved energy efficiency (compared to current new vehicles) of up to 50% by 2050 from:
 - Electrification of drivetrains, recovery of energy
 - Improved aerodynamics, lighter vehicles
- Higher reduction potential from using alternative fuels/energy:
 - Fully electric vehicles for (short-distance) road vehicles and trains
 - Hybridisation of vehicles on other road applications
 - Biofuels (in longer-term) for long distance road freight, aviation, inland waterways?
 - Fuel cells/hydrogen: Specialised road (fleets, urban buses) and rail applications
 - Wind and Liquefied Natural Gas for maritime ships

Findings on non-technical options

- Similar non-technical options applicable across modes
- Optimisation of speeds and routes:
 - Speeds: Limits and enforcement
 - Eco-driving/improved driving behaviour - 10%?
 - Routes: Voyage optimisation, air traffic management
- Improved maintenance and vehicle optimisation
- Optimised utilisation of freight and passenger transport
- Co-modality/modal shift – GHG benefits depend on:
 - Difference in carbon intensity of the modes concerned; and
 - Potential volumes/passenger that can be shifted
- Improved structure and planning of transport system
- Mobility and demand management measures
- Potential role of Intelligent Transport Systems
- Reduction potential highly dependent on specific circumstances, e.g. products being transported

Findings on policy instruments

- Similar policy instruments applicable across modes
- Regulation to set standards, e.g.
 - For vehicle fuel efficiency/CO2 emissions; or
 - Fuel carbon intensity.
- Economic instruments to, e.g.:
 - Increase the cost of use
 - Incentivise different patterns of purchase or use
 - Removal of subsidies and perverse incentives
- Spatial planning/infrastructure provision to:
 - Minimise need for travel
 - Enable use of least carbon intensive modes
- Information policies to increase awareness of, e.g.:
 - Climate change reduction options
 - Travel options available
 - New transport technologies
- Ultimate GHG reduction potential of policy instruments depends on their scale, scope and level of ambition



Overview of the Conference

Remainder of the morning...

Each session will include a presentation, followed by questions.

Next: Coffee break

11.30: Introduction to, and findings from, the illustrative scenarios tool

12.10: Review of other transport scenarios

12.45: Lunch

This afternoon...

Each session will include a presentation, followed by questions.

14.00: Policy framework for reducing GHG emissions by decarbonising transport fuels and improving vehicle efficiency

15.00: Radical future transport technologies and concepts

15.45: Coffee break

16.15: Policy framework for reducing transport's GHG emissions by improving the efficiency of the transport system and addressing demand

17.15: Conclusions on reducing transport's GHG emissions to 2050

18.00: Conference close



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Thank you for listening

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