Overview: Applying Policy Instruments

For the Domestic Transport Sector

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OUTLINE

- Transport plays a minor role in global mitigation policies despite the agreed prospect to become the biggest emitter
  - Scenarios
  - Project allocations
- Climate policies in transport depend on a broad policy agenda
  - Carbon pricing alone does not lead to change
  - Synergies with other external transport costs lead to a greater policy intensity and make mitigation in transport effective.






OUTLINE

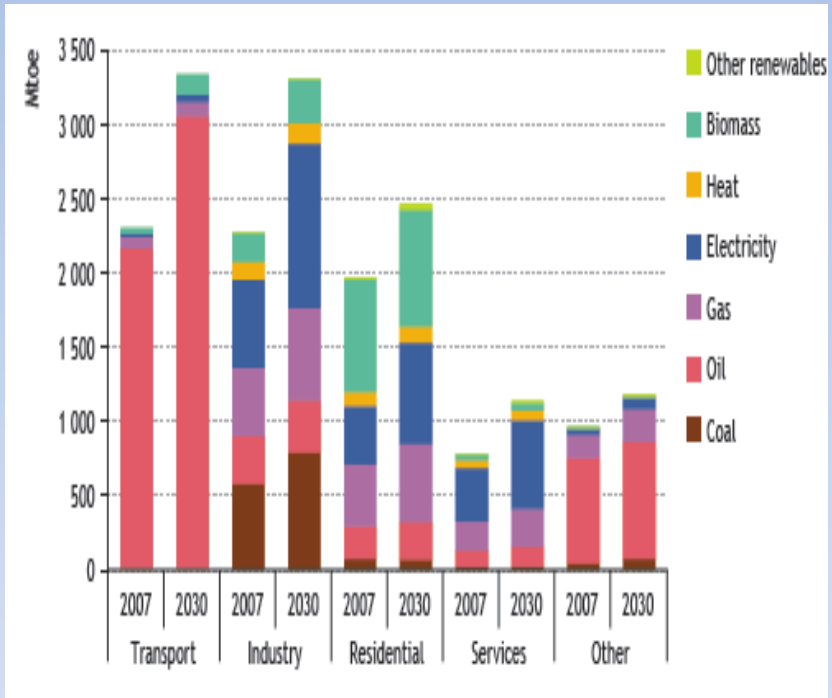
- Limits to emission trading in domestic transport
- Limits to crediting mechanisms
- Charges for external costs and financing the transition to low-emission transport

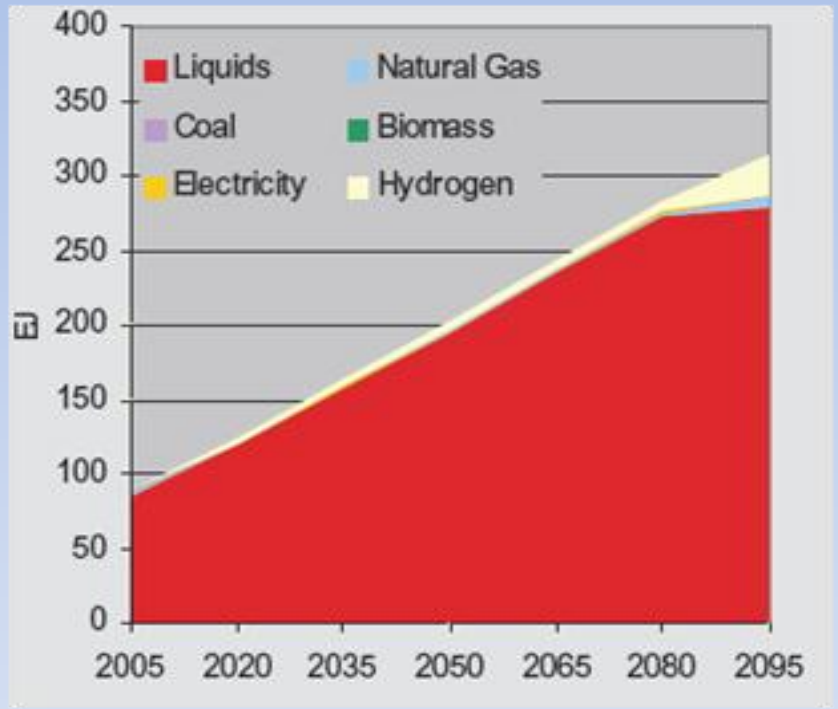






TRANSPORT AS THE PROSPECTIVE BIGGEST EMITTER: BAU

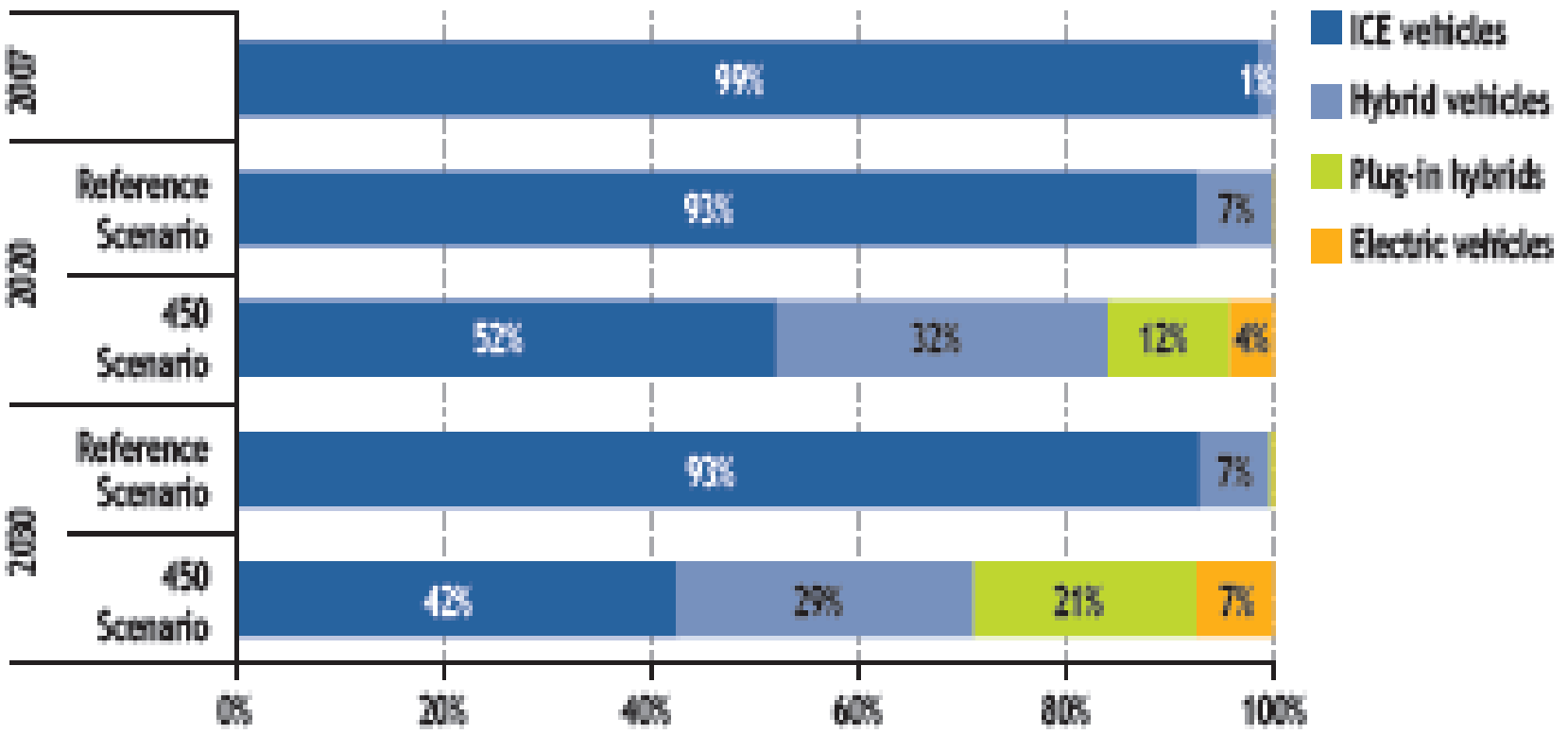




POLICY SCENARIO I: TECHNICAL STANDARDS, IEA

- Technical standards will do the transition
  - Assumed global agreement on technical standards in engine technologies
  - Corresponds to a policy preference for technical standards, potentially conflicting with market instruments not only in transport
  - Based on an engine technology optimism

SHORT RUN SCENARIO, IEA

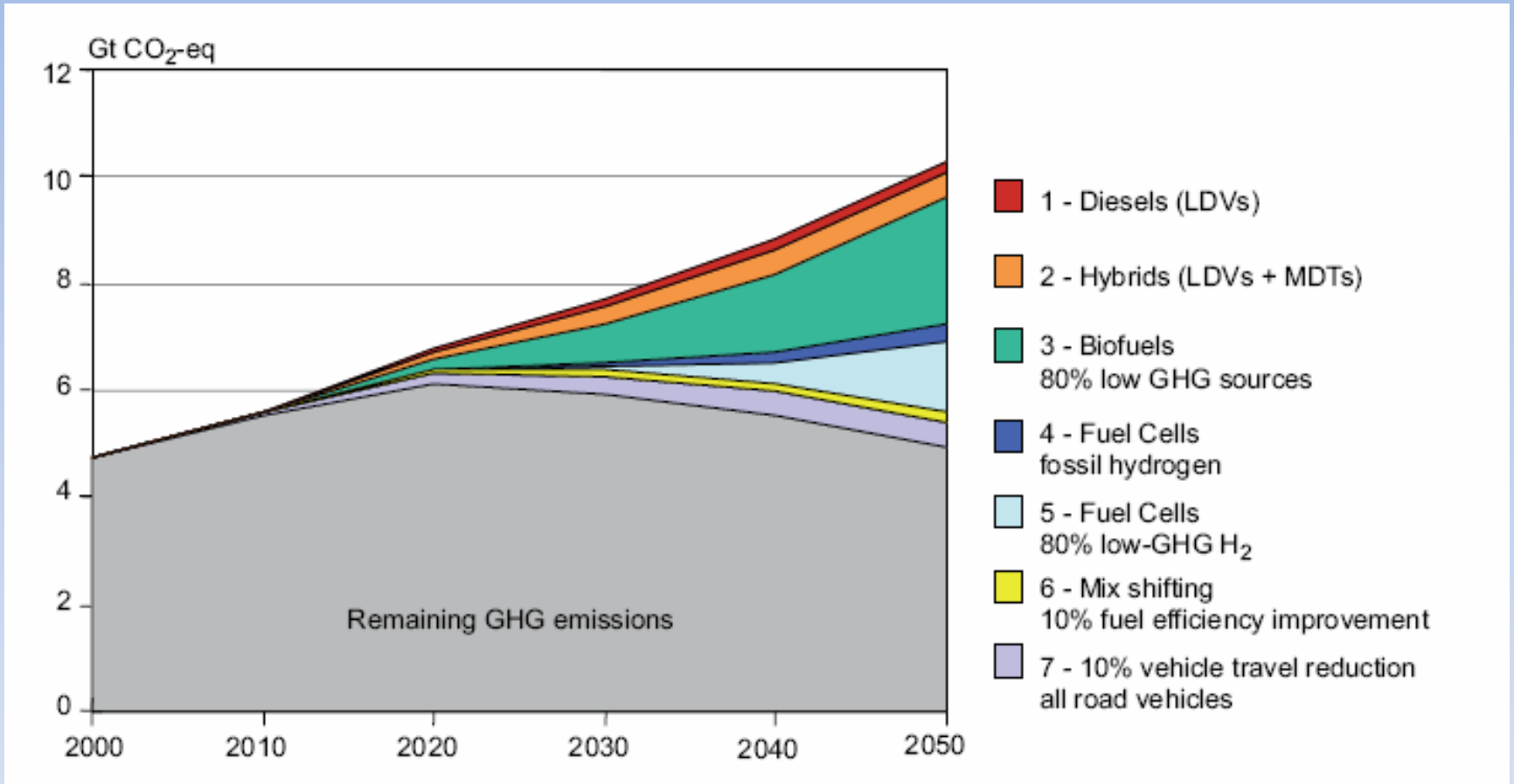




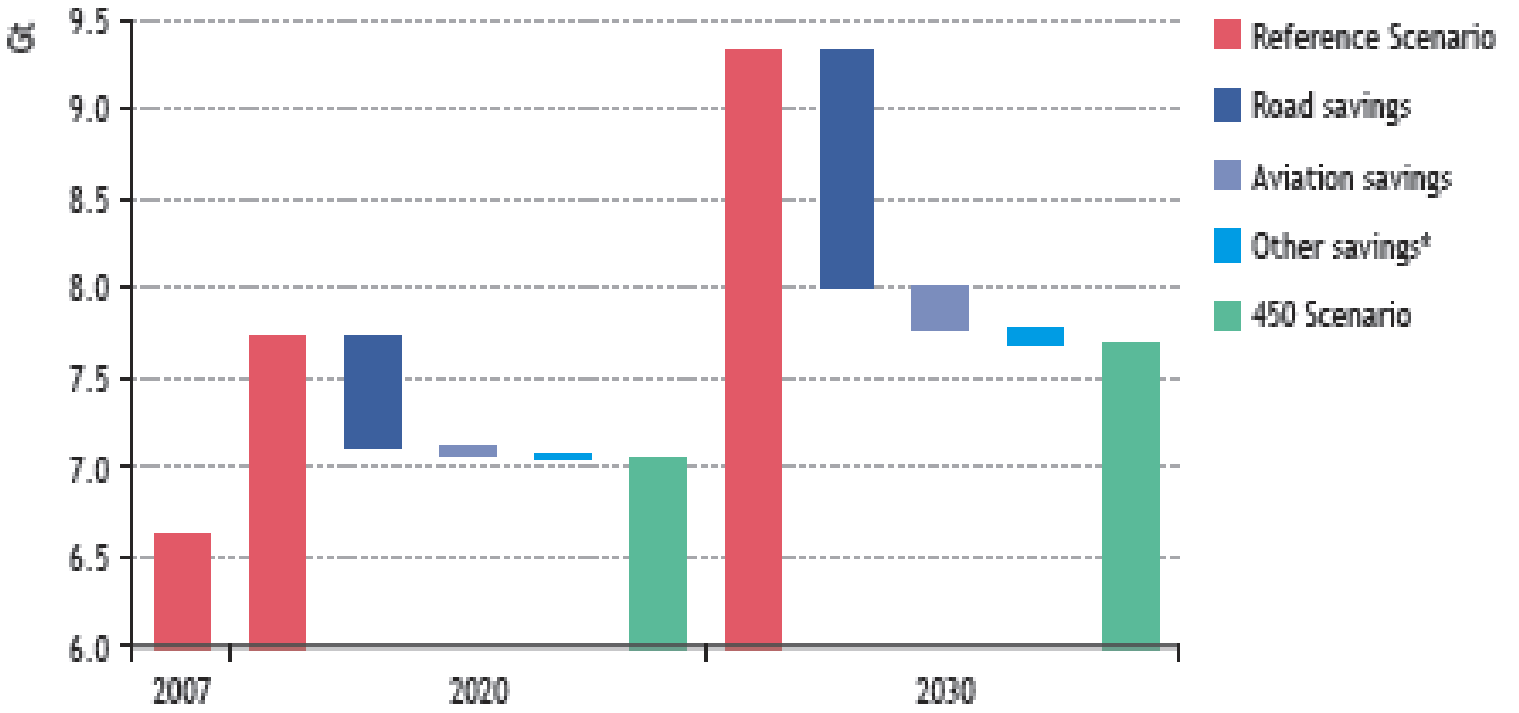




LONG RUN SCENARIO, IPCC



Absolute Emissions will Increase even under technology Optimism



*Includes rail, pipeline, domestic navigation, international marine bunkers and other non-specified transport.






Outcomes of Regulatory Policy Regime

⇒reduction of fossil fuel use by 30 per cent in 2030

⇒fleet renewal costs at estimated $ 4.1 trillion (IEA), meaning high transport costs in DCs.

⇒Very high demand for road infrastructure.

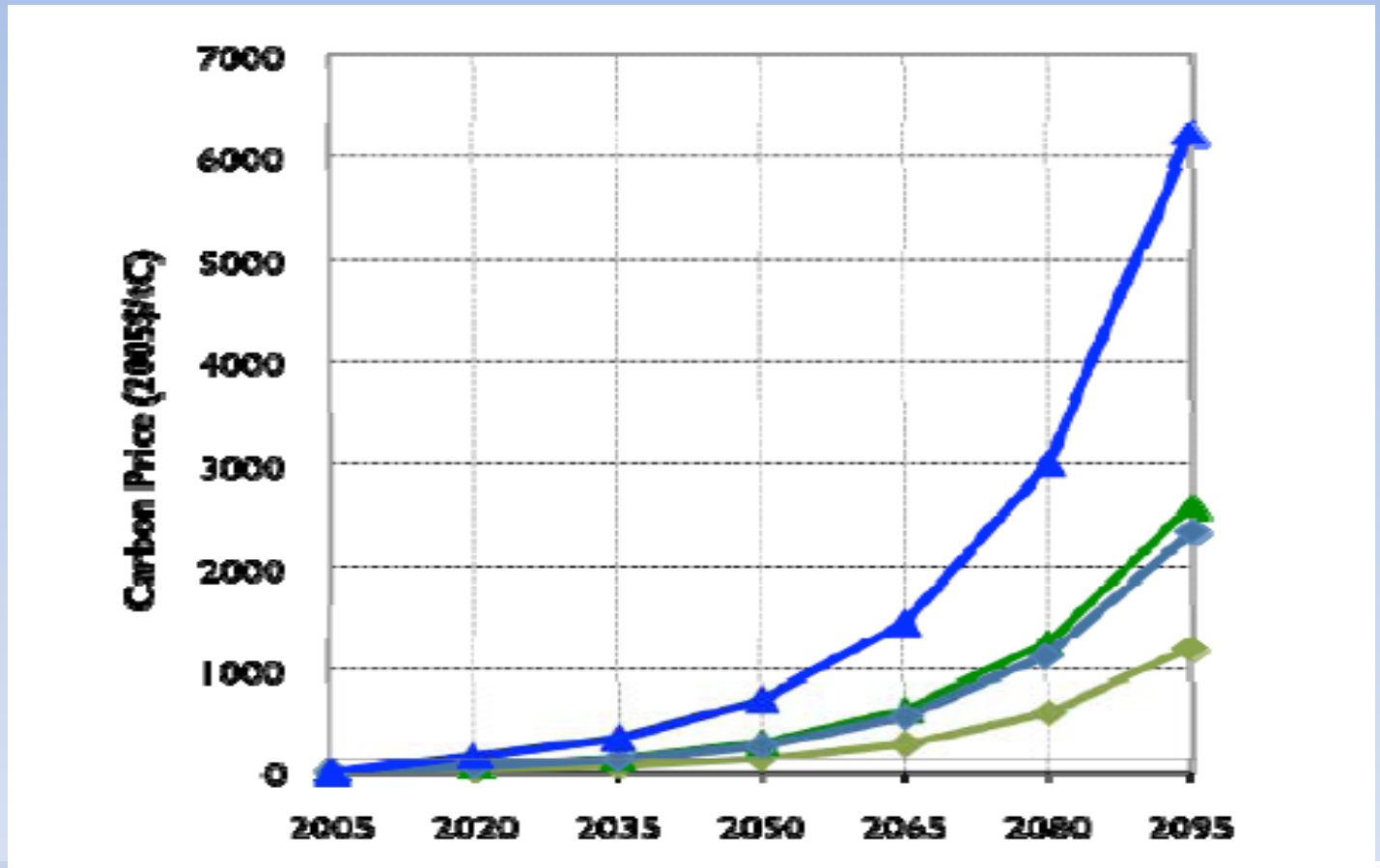






Policy scenario II: Stabilization by Implementing a Carbon Price, PNNL

Stabilization to 2° world, depending on electricity production

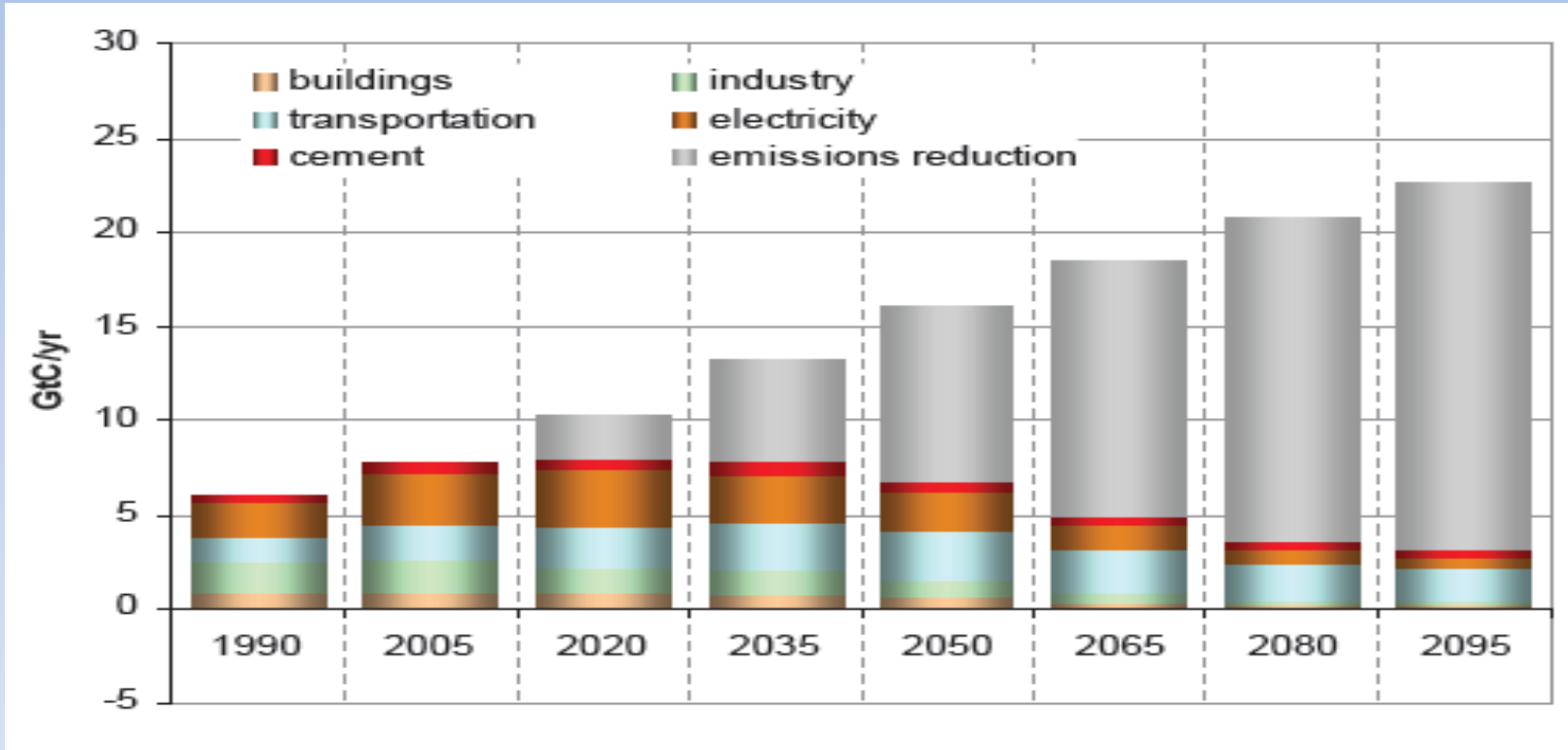







POLICY SCENARIO II: STABILIZATION BY IMPLEMENTING A CARBON PRICE

Transport as largest emitter: emission reduction scenario < 2°, with CCS; conventional fuel use will increase by 45 percent by 2050



Carbon Price alone will not Lead to Much Change

- Current price on carbon markets < $ 10 t/CO
- Carbon price derived from expected damages are derived from Integrated Assessment Models
  - differ not in climate scenario but in discounting
  - median price estimate about $ 50 t/CO
  - in absence of discounting (Stern review) $ 300 t/CO.
- Implementation of 'Stern price' leads to a gasoline price change of about 70 cents/gallon.

SYNERGIES WITH OTHER EXTERNAL TRANSPORT COSTS LEAD TO A GREATER POLICY INTENSITY AND MAKE MITIGATION IN TRANSPORT EFFECTIVE.

- Neglected external costs:
  - Congestion costs
  - Health costs of local air pollution
  - Accident costs, road safety
  - *On top of* Climate change effects
- A broad reform agenda changes the picture.
- With a broad reform agenda the transition to a low-carbon sector is no longer more expensive than in other sectors.



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Summary of External Costs in Transport, Washington Example

Marginal external costs

Fuel-related costs	cents/gallon	cents/mile
Greenhouse warming	6	0.3
Oil dependency	12	0.6
Distance-related costs		
Local pollution	42	2
Congestion	105	5
Accidents	63	3

Source: Parry et al. 2007 (RFF)






LIMITS TO EMISSION TRADING IN DOMESTIC TRANSPORT

- High transaction costs: A high share of the consumers are "producers" of transport services, and potential emission traders
- Markets multiply with inclusion of "co-benefits", with small geographical scope
- Demand volatility may lead to high price volatility
  - High annual volatility of demand
  - High sensitivity to business cycles
- Political preference for technical standards threatens the functioning of trading systems






LIMITS TO CREDITING SYSTEMS IN DOMESTIC TRANSPORT

- Supply-side action does not change behavior, risks a mismatch of supply and demand
- Demand side intervention is perceived as uncertain and risks duplication of policies
- Crediting favors narrow agendas (only one dimension of pollution reduction counts), and transport mitigation looks costly






Limits to Carbon Charges in domestic transport

- Policy aversion: Existing fuel taxes perceived as existing carbon pricing
- Revenue use subject to policy biases
- Earmarking helps acceptability as 'fee for service', but may involve risk of misallocation of public funds
- But
  - provides less uncertainty for innovation and adoption of new technologies,
  - provides opportunities for financing the transition and tax reform.






Summary

- Mitigation action in domestic transport is important to avoid transport's emission to grow dramatically.
- Market based mechanisms in transport suffer from policy preference for technical standards.
- Emission trading has severe limitations in sectors with an atomistic supply structure.
- Implementing fiscal measures based on charges for all external costs generates local benefits, a local fiscal surplus and avoids a mismatch of supply and demand






Thank you!