

Eurogas Roadmap 2050

Eurogas Annual Conference
Brussels
13 October 2011

Laurent David
Chairman of the Eurogas
Forecasting Task Force

euro  **gas**
THE EUROPEAN UNION OF THE NATURAL GAS INDUSTRY

Eurogas Roadmap 2050



Introduction

Residential & Services

Industry

Transport

Power Generation

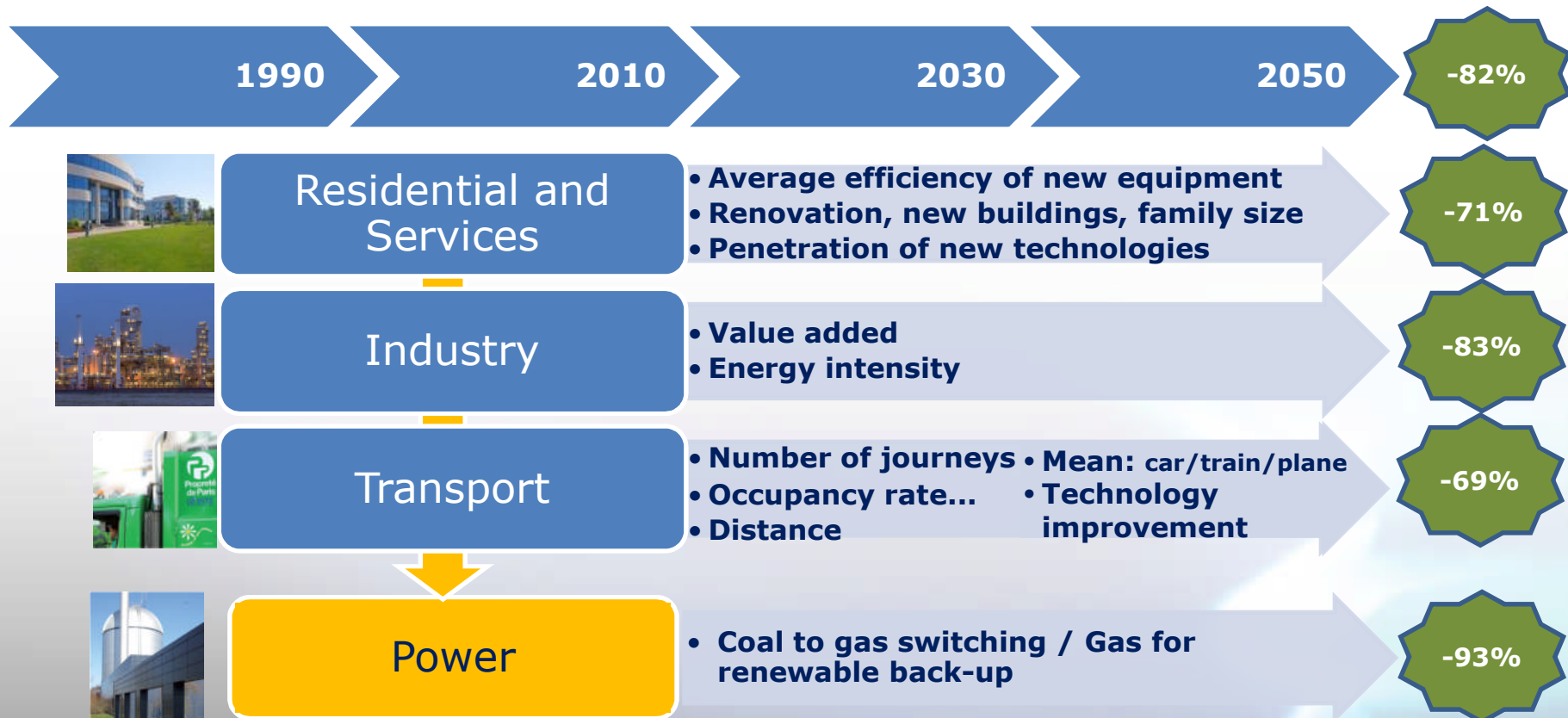
Conclusions



Introduction



The Eurogas Roadmap identifies the **potential of natural gas** use and technologies in all sectors as the best way of achieving GHG reduction compliant with the EC's target.

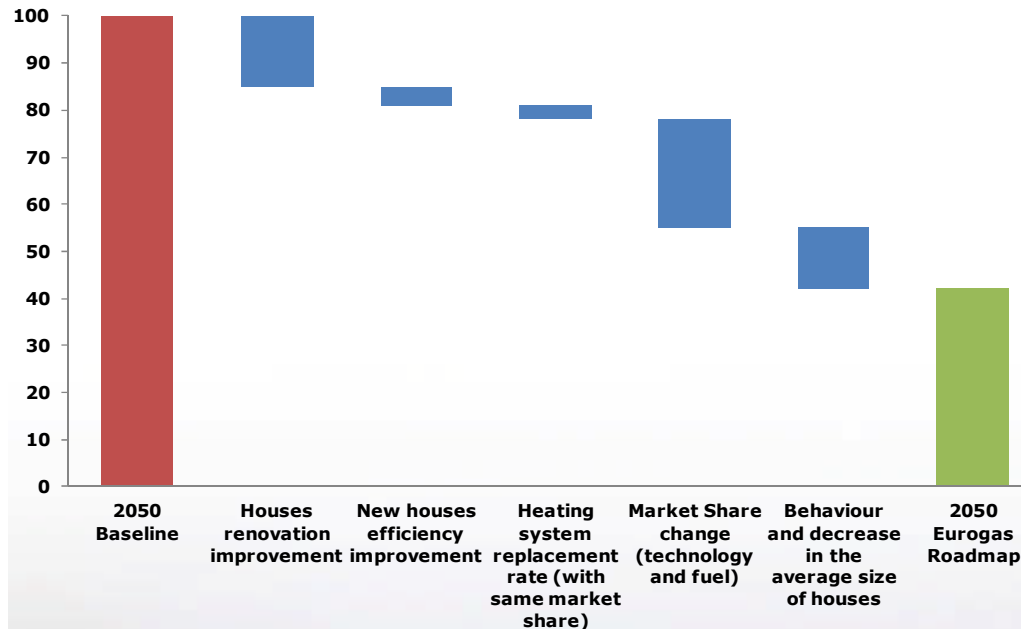


Residential & Services

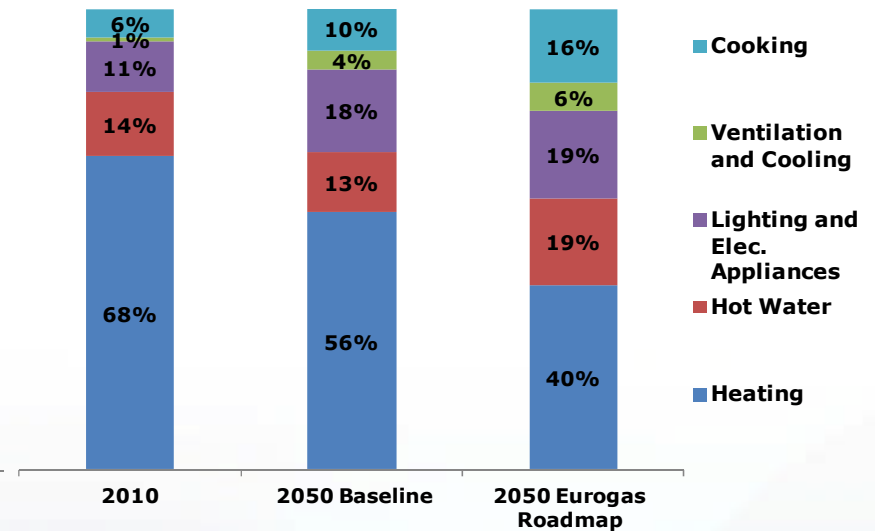


Energy efficiency, fuel switching and behavioural changes are the key drivers.

Emission reduction contributions



Final demand by end use



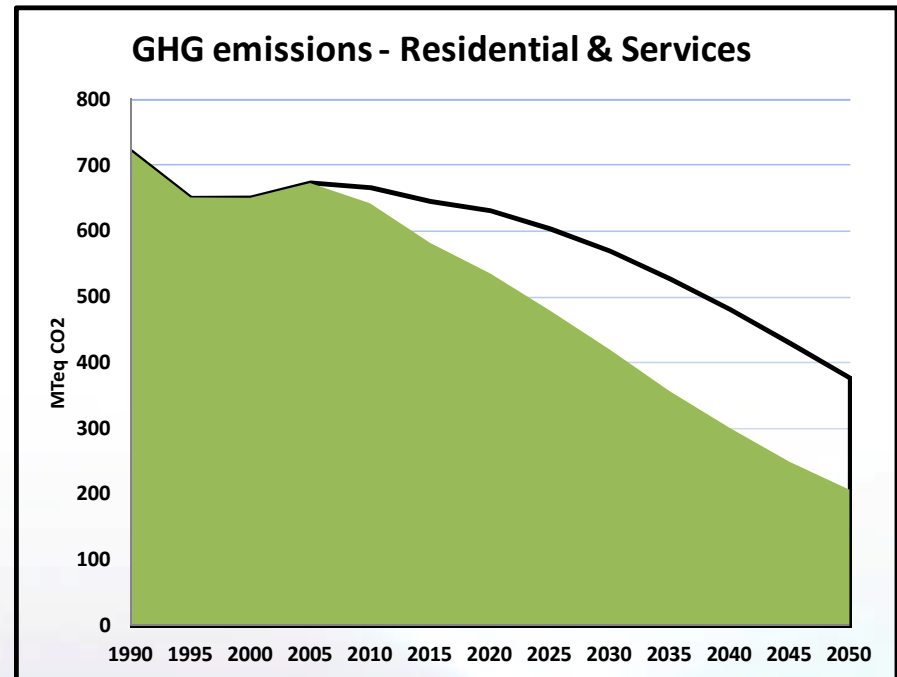
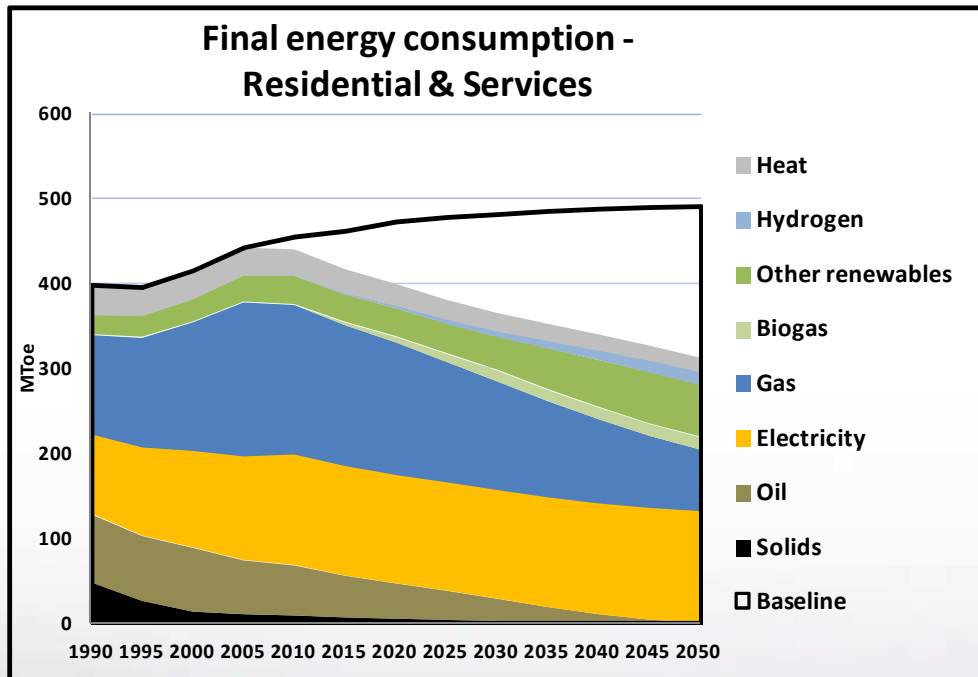
Preconditions

- Support for renovation
- R&D in new efficient technologies
- Replacing existing equipment
- Switch to less polluting fuels
- Roll-out of hybrid technologies
- More rational use of existing equipment
- Stricter energy efficiency
- Active awareness campaigns

Residential & Services



Growth of renewables and energy efficiency allow a quick and significant CO₂ emissions reduction.



Versus 1990

Final energy consumption

CO₂ emissions

2030

-8%

-42%

2050

-22%

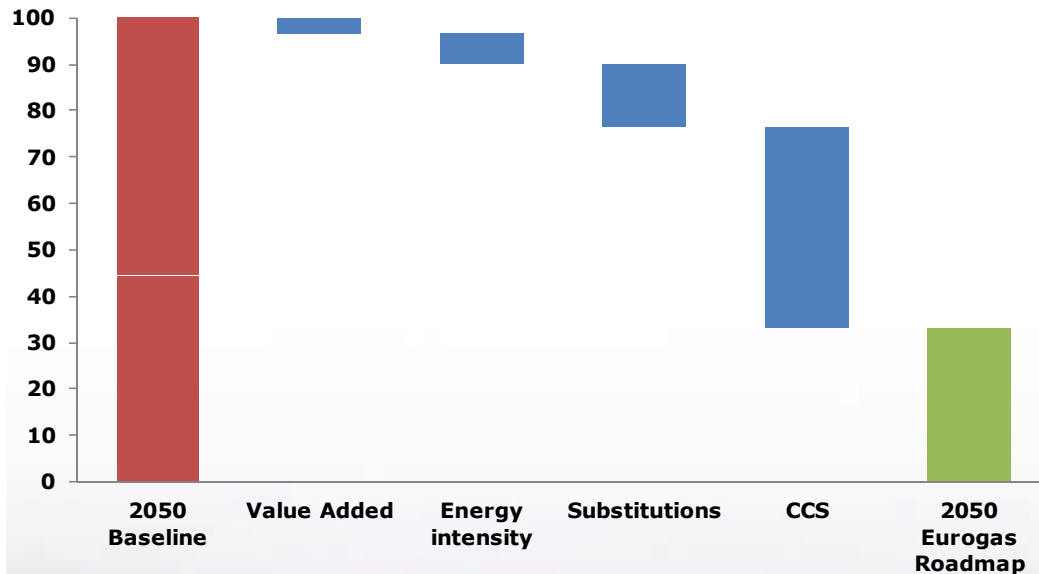
-71%

Industry

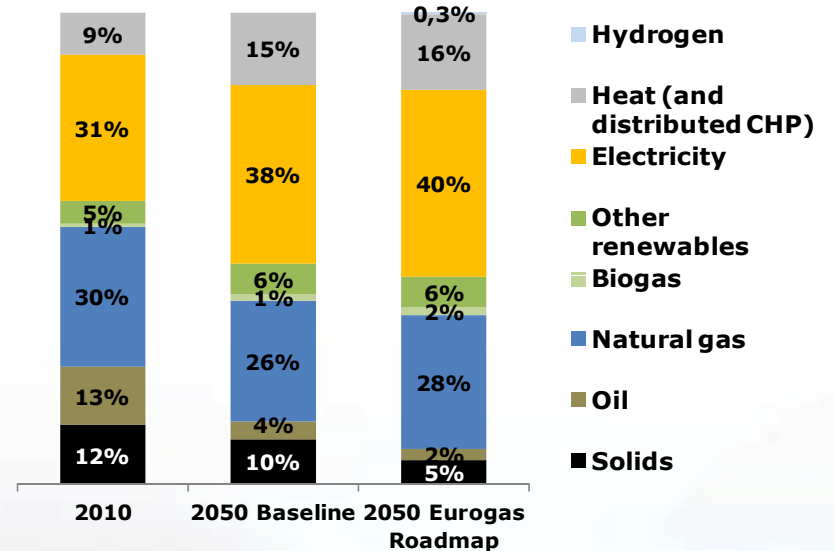


Fuel switching, and CCS after 2030, are the key drivers.

Emission reduction contributions



Final energy demand by fuel



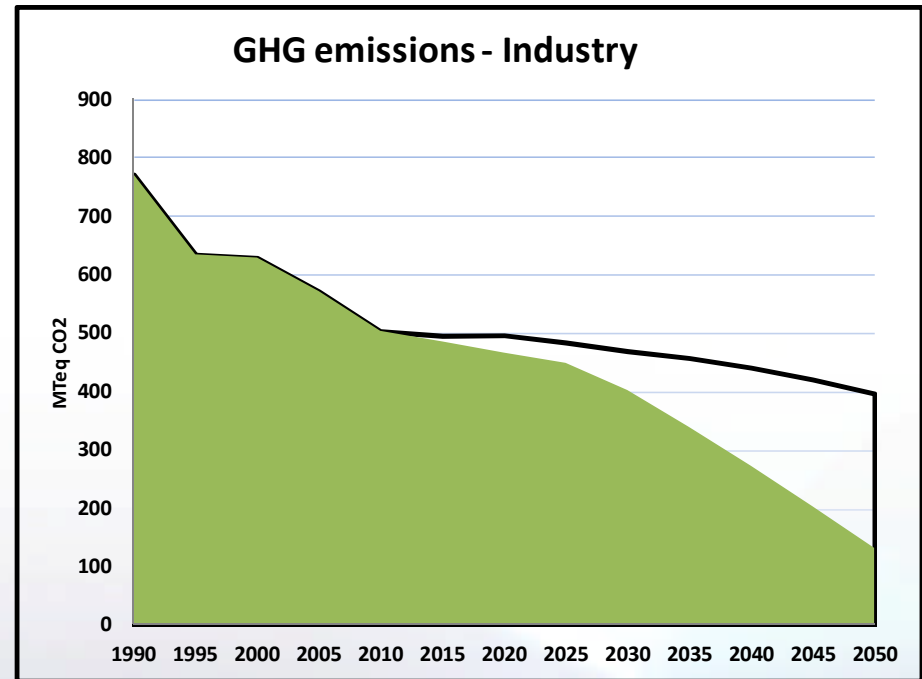
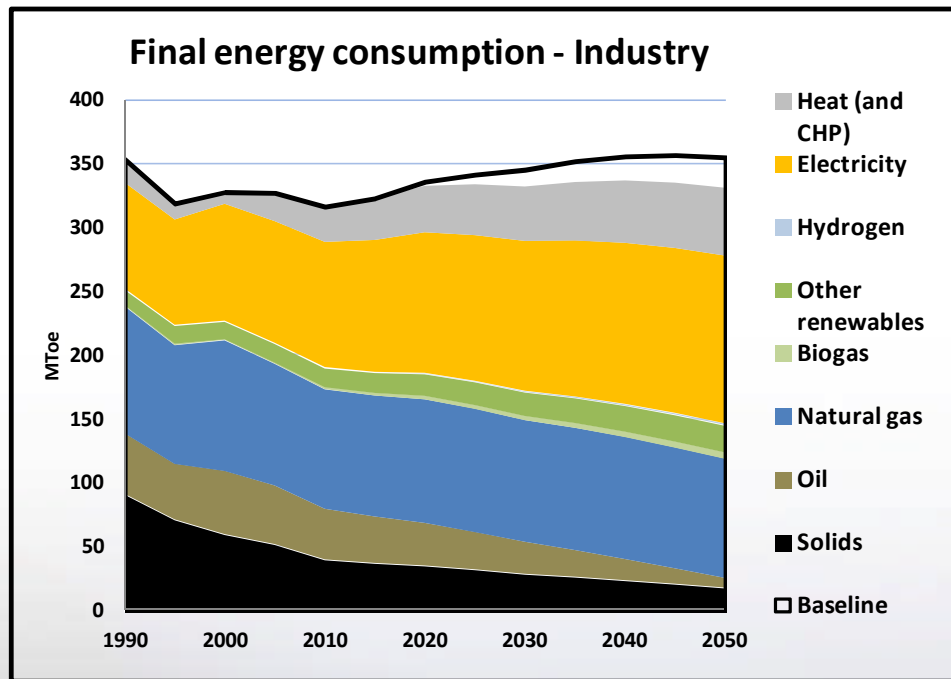
Preconditions

- Role and competitiveness of EU Industry
- Roll-out of hybrid technologies
- R&D in CCS
- Development of heat recovery

Industry



Energy Intensity offers limited potential for reduction. Reduction in CO₂ emissions is expected mainly after 2030 as a result of CCS.



Versus 1990

Final energy consumption

CO₂ emissions

2030

-6%

-48%

2050

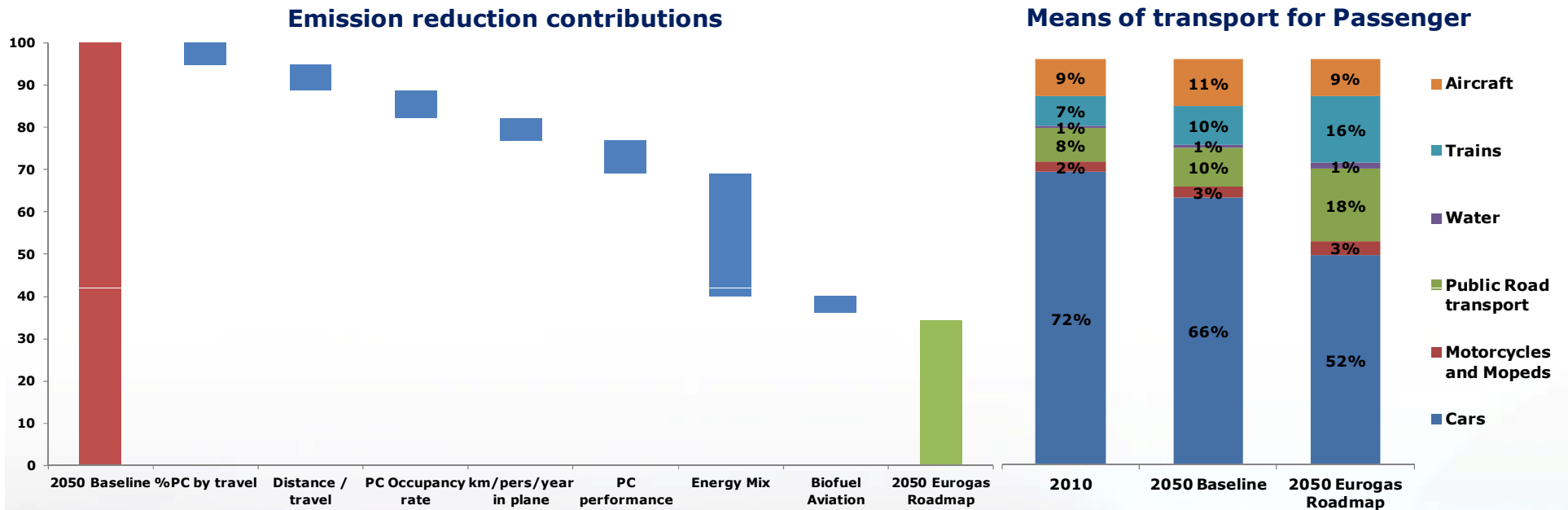
-7%

-83%

Passenger Transport



Fuel switching and modal changes are key drivers.



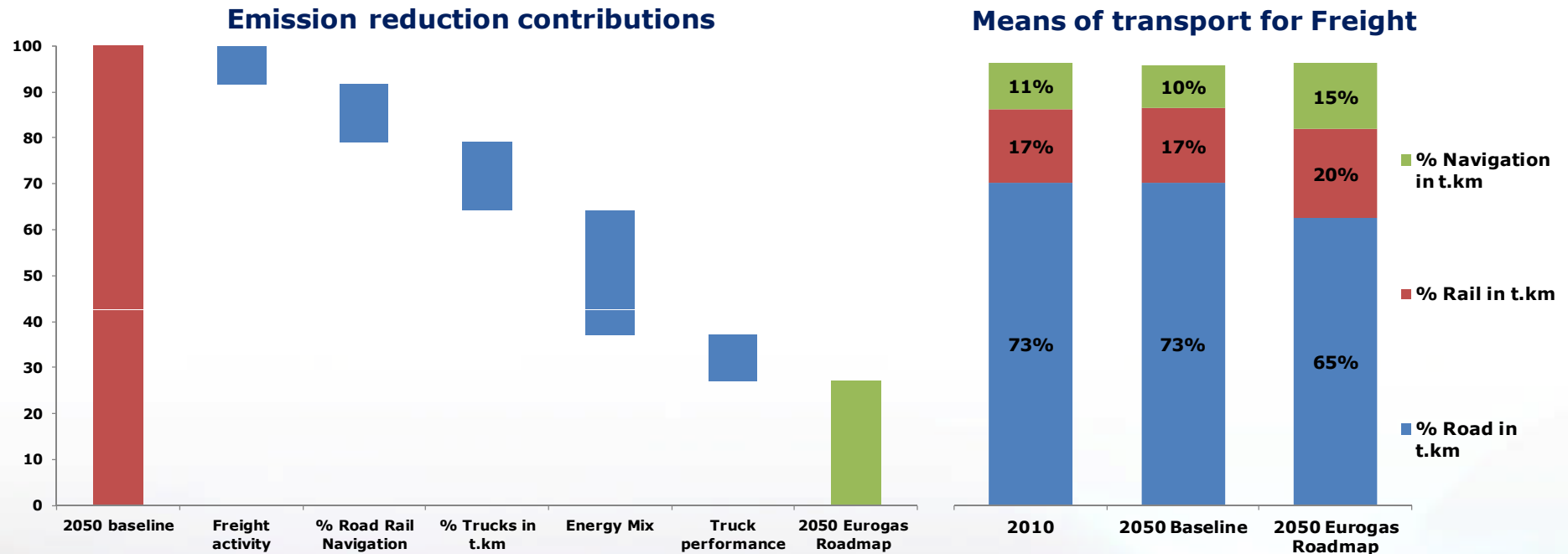
Preconditions

- R&D for engines and fuel
- Focus on the reduction of particulates, NOx and noise
- Urbanism policy
- Public transport & car sharing

Freight Transport



Fuel switching and modal changes are key drivers.



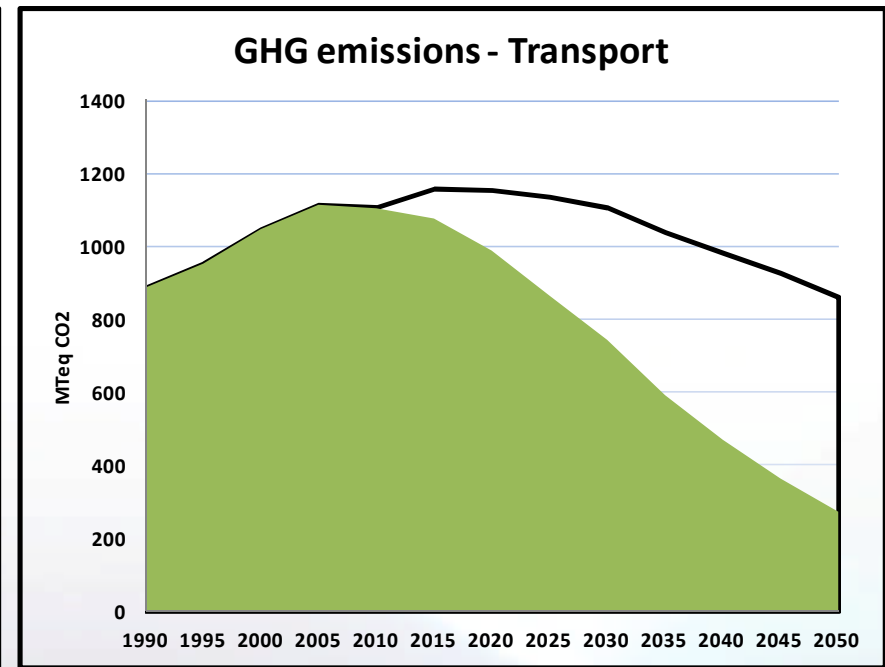
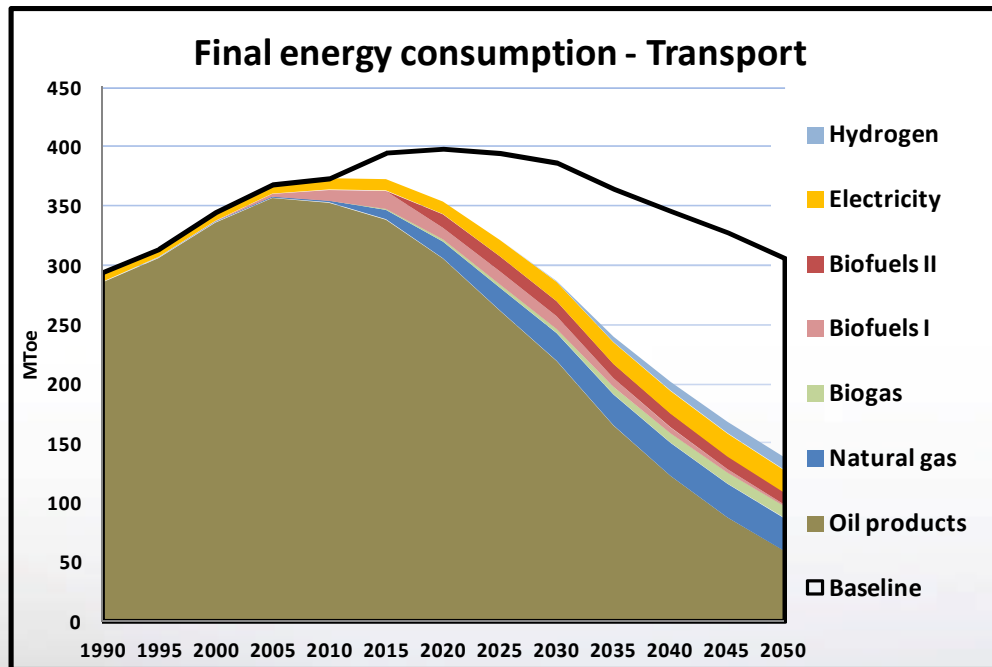
Preconditions

- Infrastructure development
- LNG use for HDV and maritime use
- Supply chain optimization
- Development of biogas

Transport



Efficiency and development of alternative fuels bring an important reduction in CO₂ emissions.



Versus 1990

Final energy consumption

CO₂ emissions

2030

-3%

-16%

2050

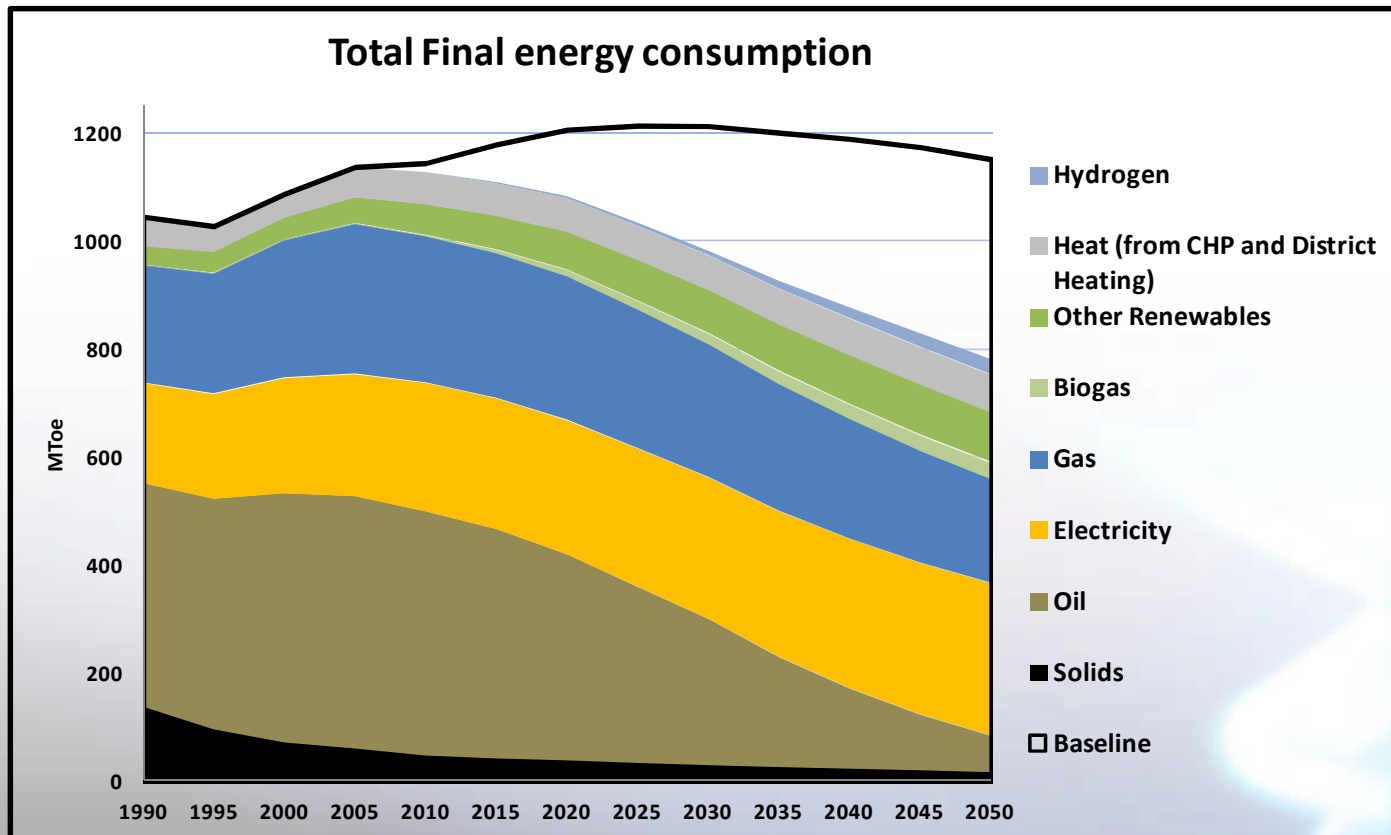
-53%

-69%

Final Energy Consumption

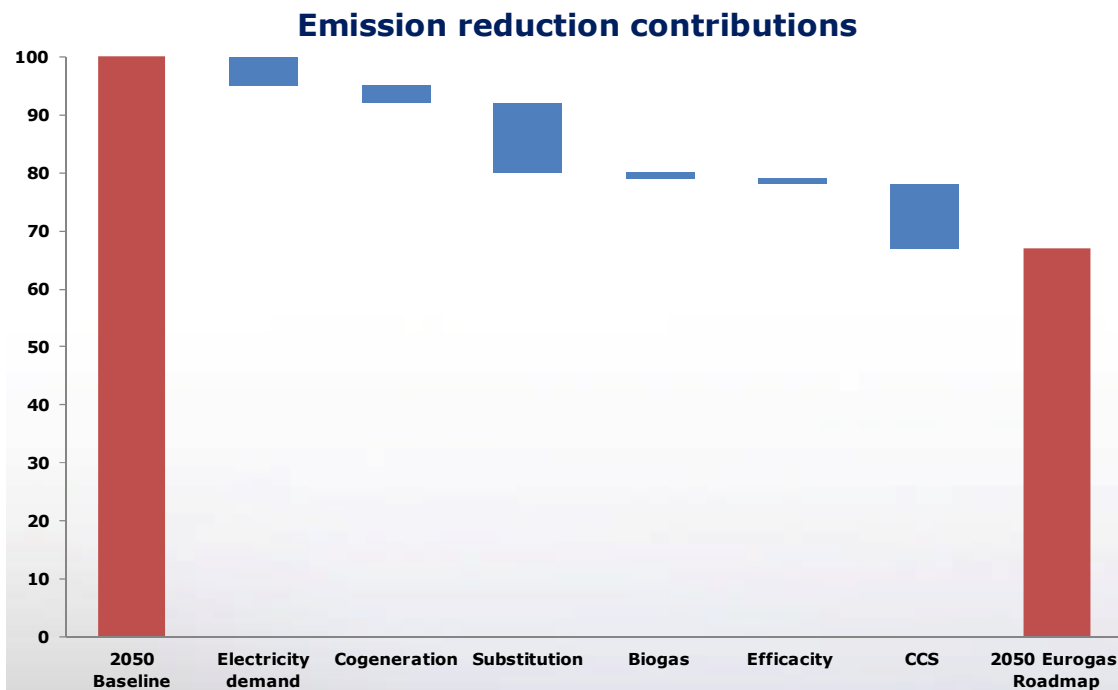


Compared with 2010, FEC decreases by **30%** by 2050, mainly due to the introduction of new technologies, improved energy efficiency and a change in behaviour.



Electricity

Fuel switch towards renewable and natural gas until 2030 and then CCS deployment are key drivers.



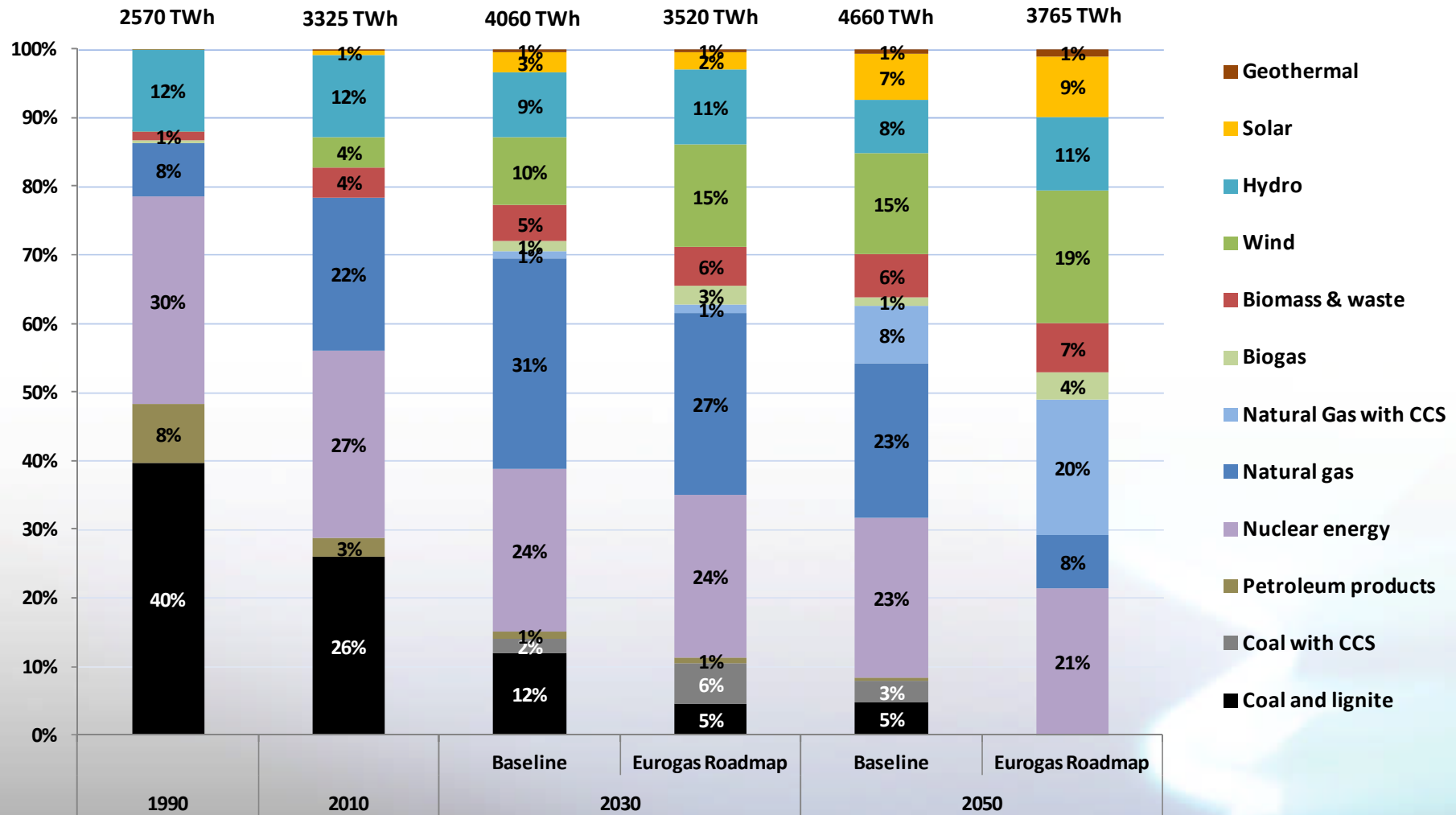
Preconditions

- Renewable development
- Incentives for investments in gas-fired back-up capacity
- Supporting measures for CCS
- Improvements in power plant efficiency
- Technological progress in the optimization of electricity system support and dispatch
- Development of cogeneration

Electricity Generation mix



Gross Electricity generation by fuel type (in %)

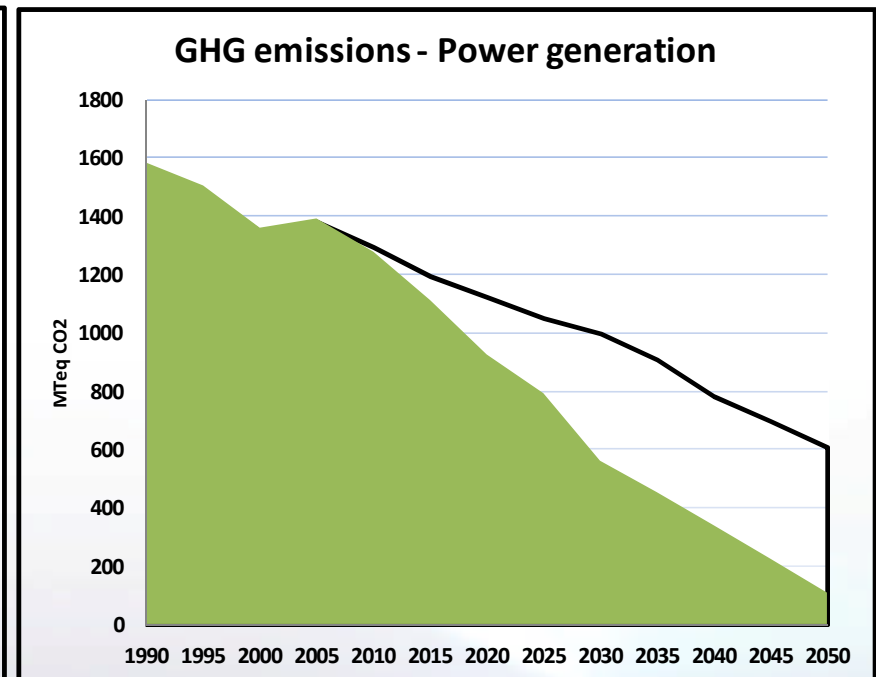
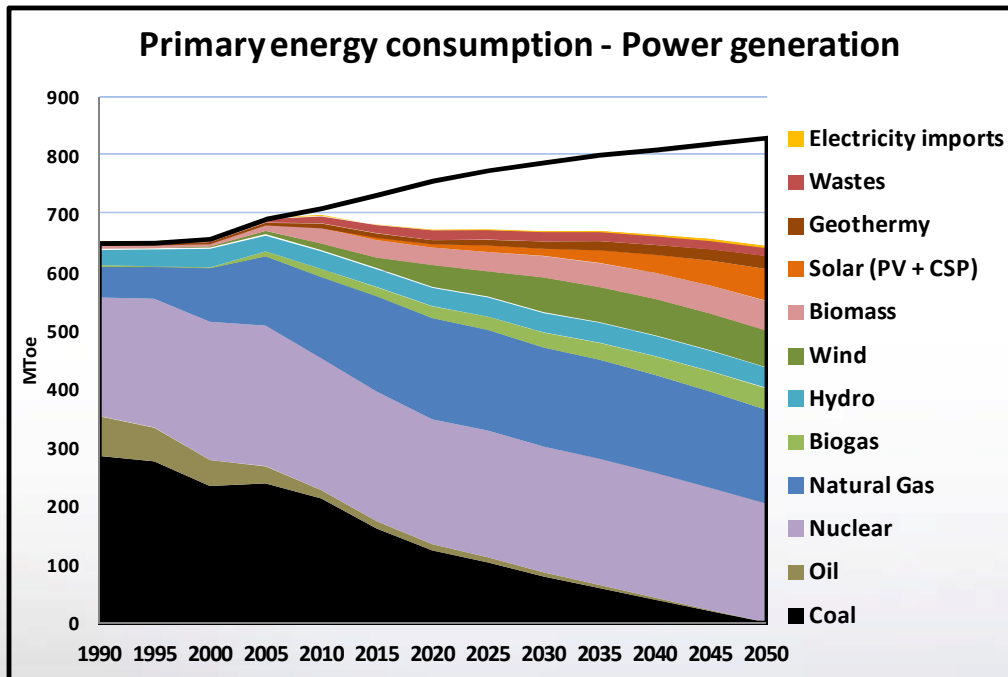


Data for 2010 are estimates

Electricity



Emission reduction through reduced energy consumption, renewables development and substitution of other fuels by gas.



Versus 1990

Primary energy consumption

CO₂ emissions

2030

2%

-65%

2050

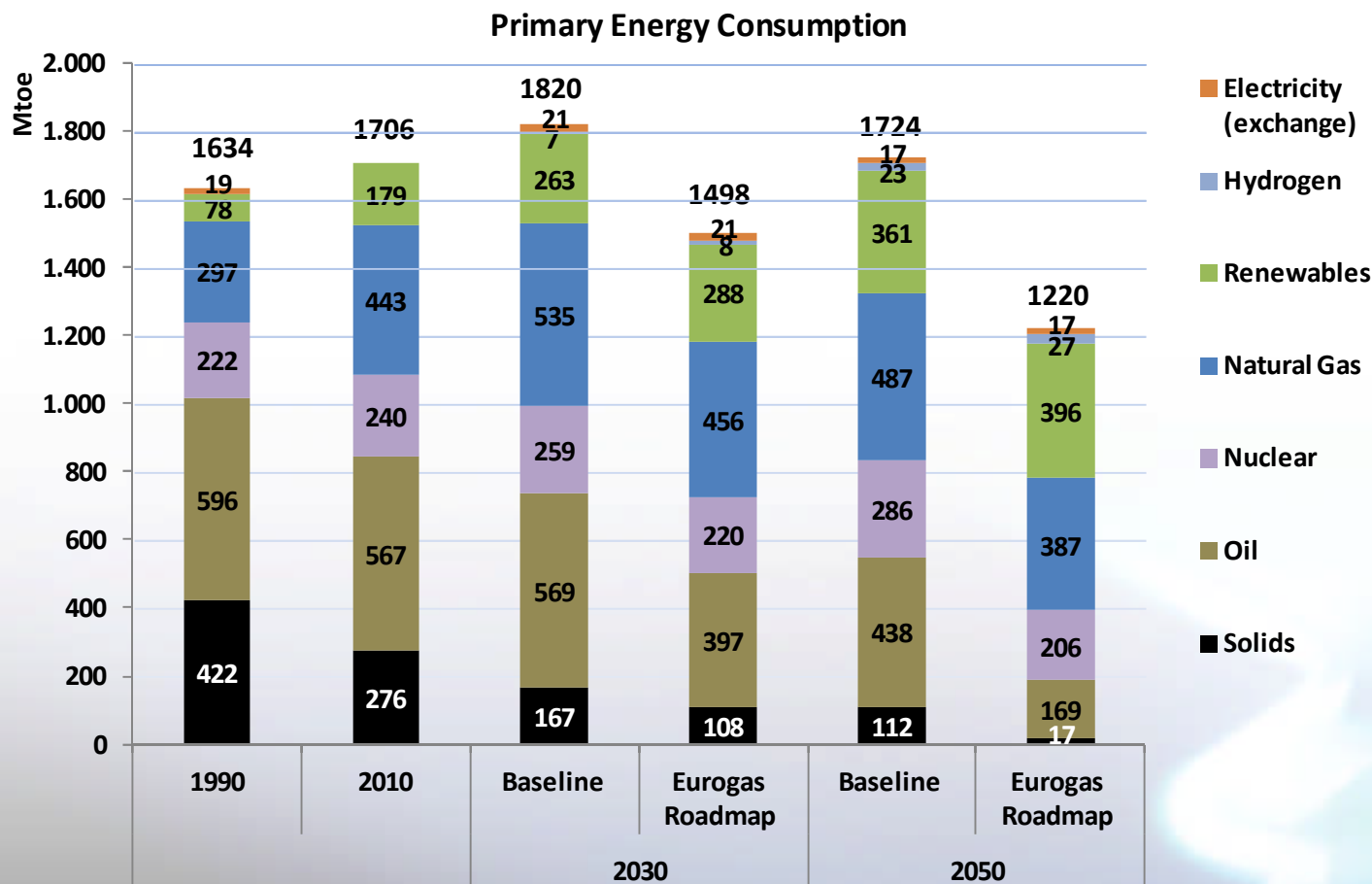
-2%

-93%

Primary Energy Consumption



Due to increased efficiency and renewables development, **PEC decreases 28% by 2050**, compared with 2010

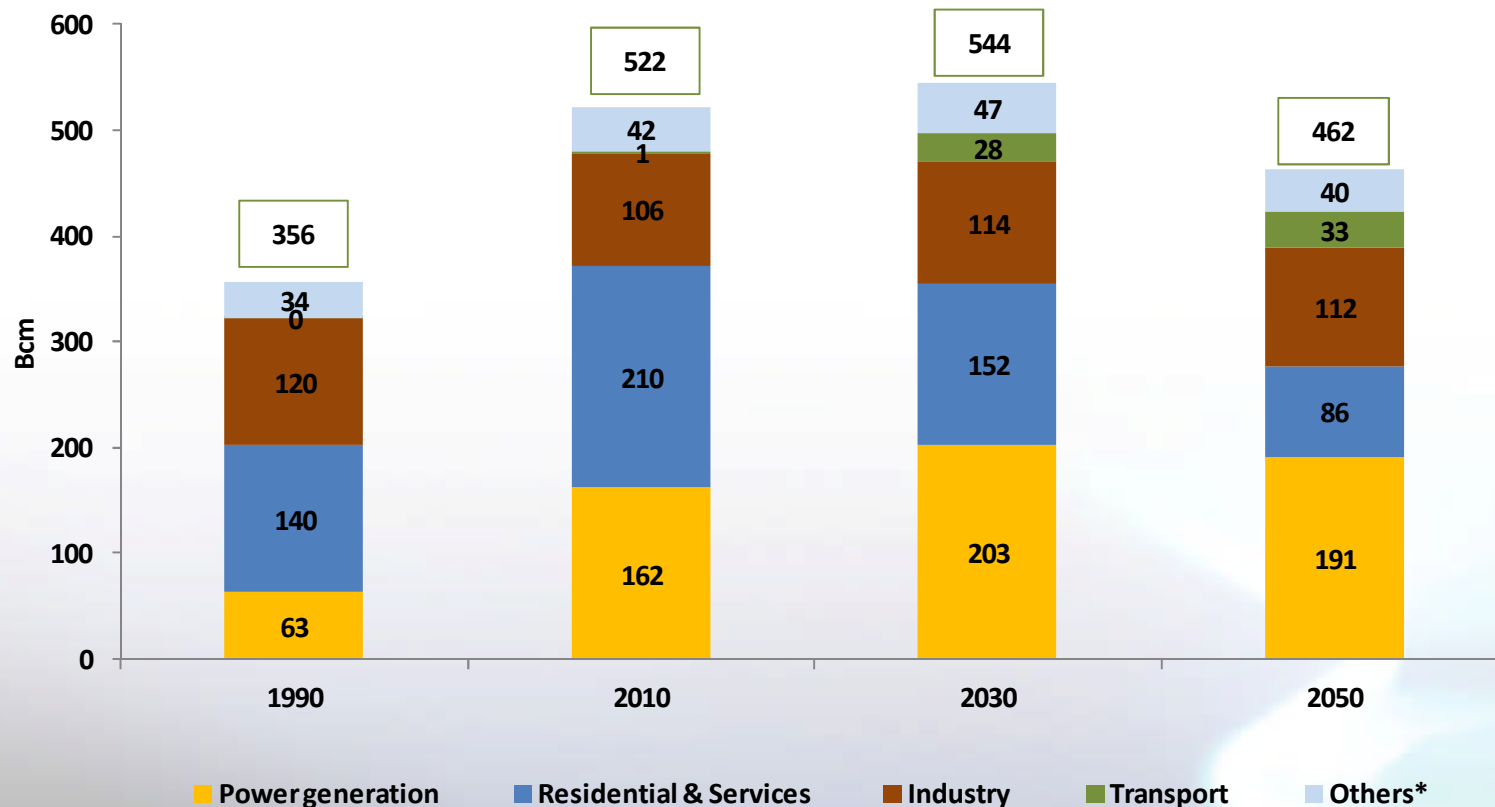


Primary Energy Consumption



Gas enables progress to a low-carbon economy.

Primary Energy Consumption in EU 27 - Eurogas Roadmap
Natural Gas

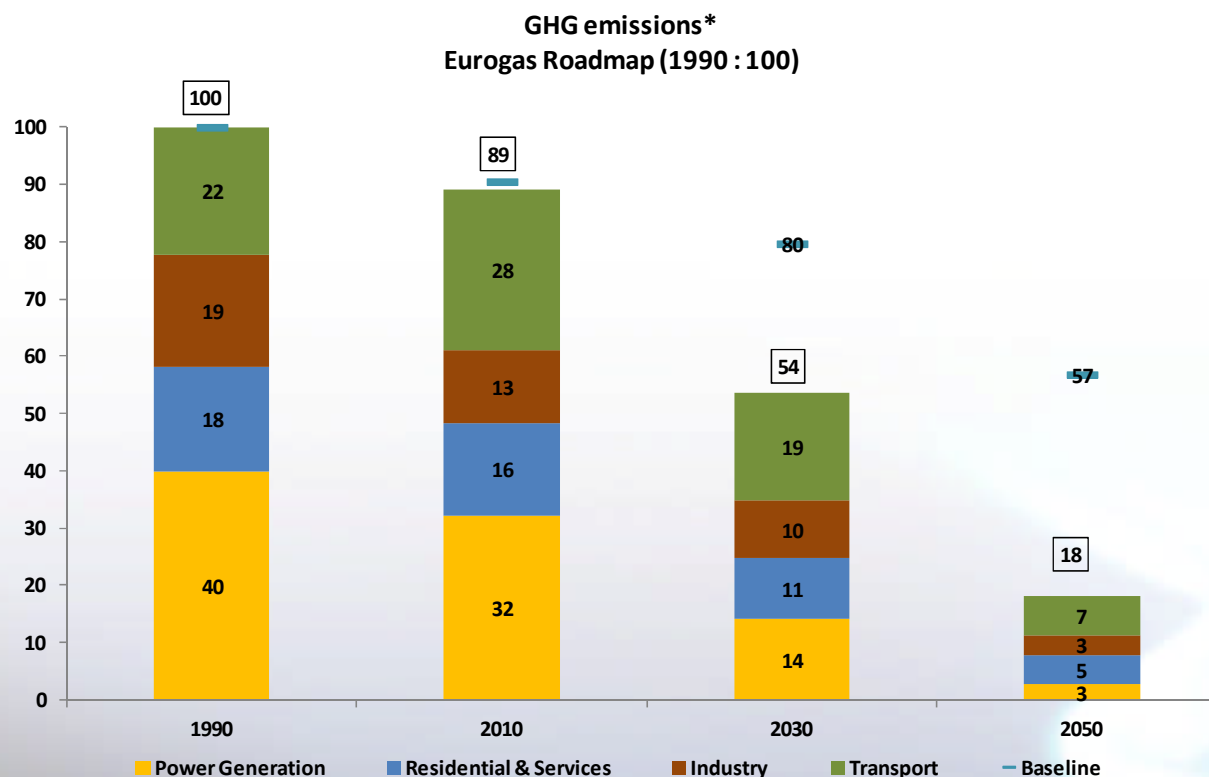


*including district heating, raw material and energy branch

Emissions



In the short and medium term emissions reduction can be achieved by using gas instead of high carbon fuels and by increased energy efficiency.



*The study addressed energy related CO₂ emissions by sector. Industrial processes and agriculture have not been considered.

Conclusions



A responsible pathway to achieving 80% emissions reduction.

- In all areas of the energy supply chain gas plays a key role in a realistic EU climate policy;
- **Until 2030:** natural gas is the fastest way to reduce emissions;
- **2030-2050:** technological progress , including CCS, and changes in behaviour will further favour natural gas uses;
- **Today versus 2050:** Overall decrease of energy needs and a larger share of natural gas in PEC (from 26% to 32%).

A pragmatic view of the path to follow towards a more sustainable energy future should lead policy-makers to reflect more seriously on the main advantages of natural gas, namely its cleanliness, flexibility and availability.

Thank you for your attention