

Eurogas Roadmap 2050

MARCOGAS

GAS HEAT PUMPS WORKSHOP

01st & 02nd December 2011

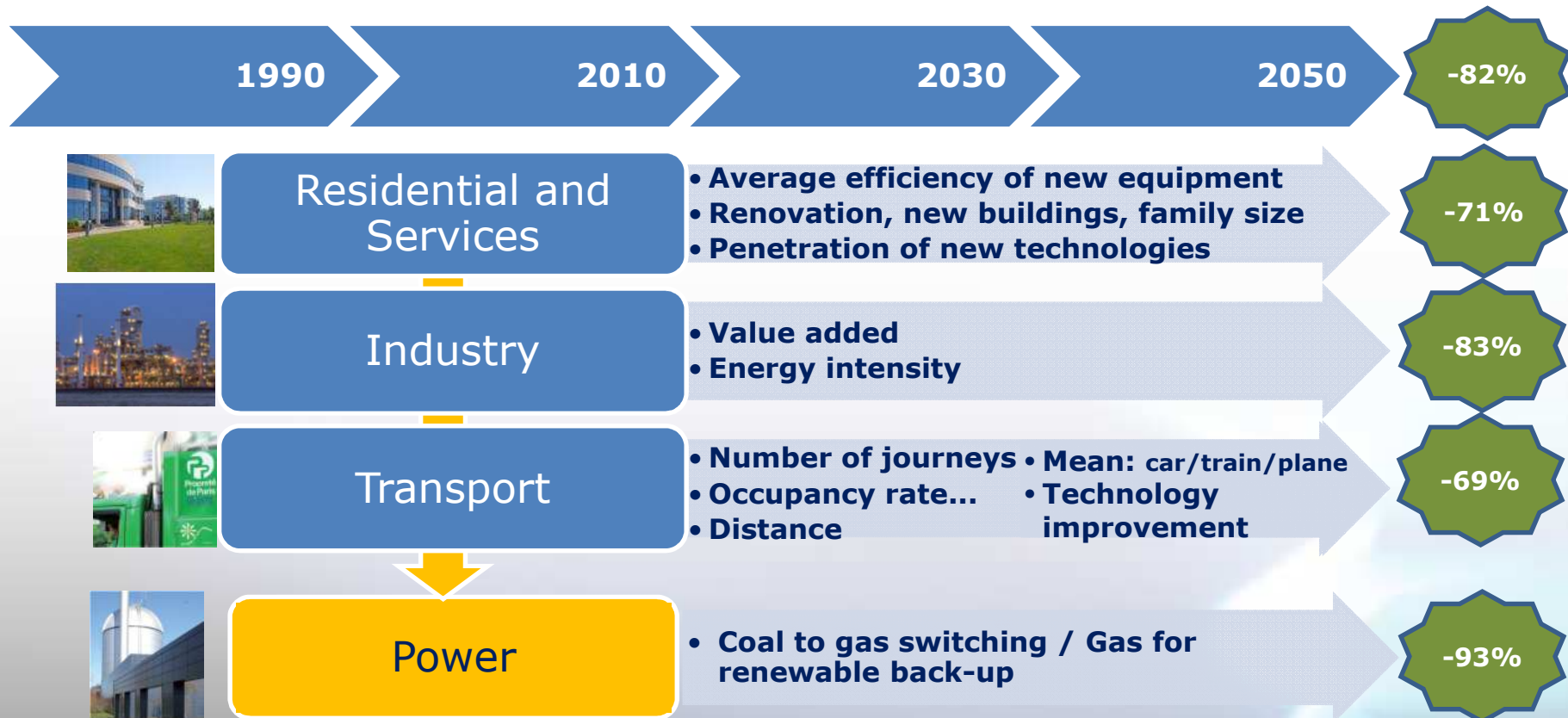
*Laurent David
Chairman of the Eurogas
Forecasting Task Force*

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

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.



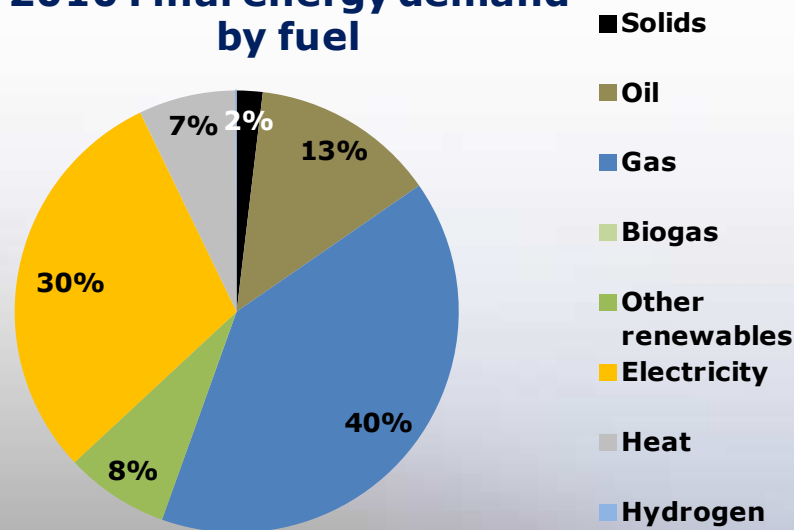
Residential & Services

Description of the sector in EU

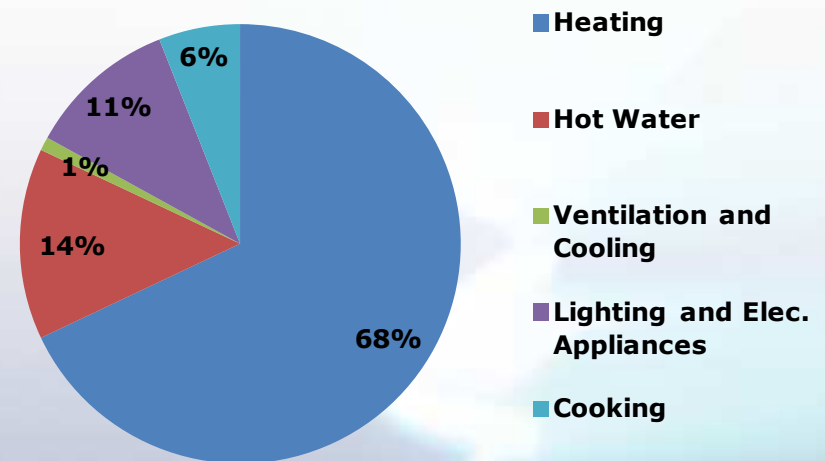


- 18% of CO₂ emissions
- 200 million households
- 5.5 billion m² of offices
- 70% of energy is used for heating
- Gas leader with about 40% of final energy demand

2010 Final energy demand by fuel



2010 Final demand by end use



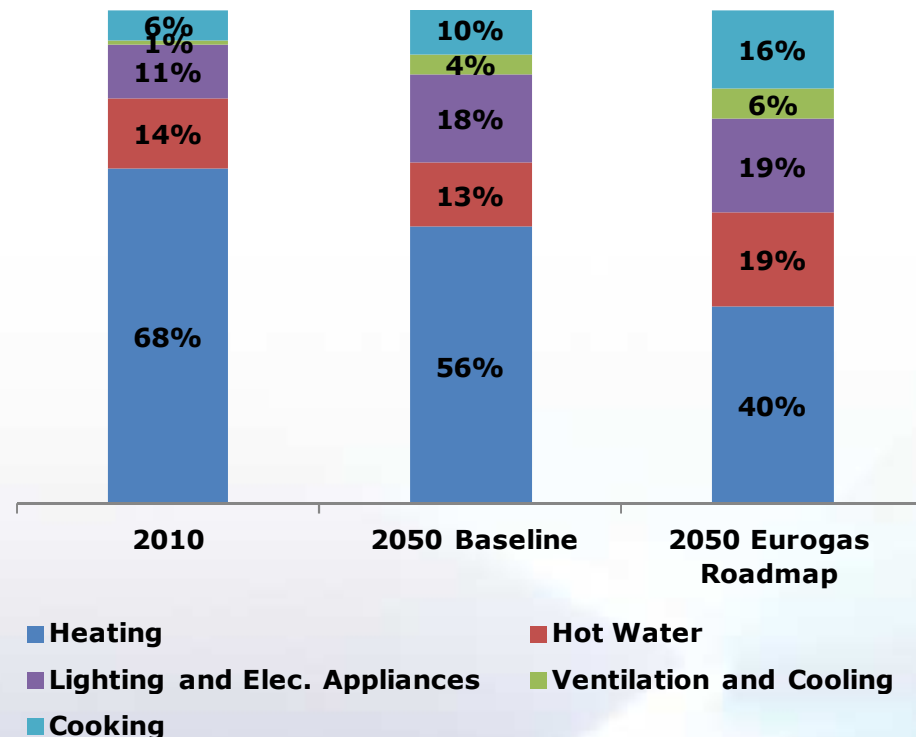
Residential & Services

Main assumptions (1/2)



- Renovation of buildings
 - From 1 to 3% per year
 - Energy savings from 15% to 40%-50%
- Behaviour
 - Smaller spaces
 - Average temperature of dwellings: 19°C - 20°C
 - Switch to less polluting fuel

Final demand by end use



Residential & Services

Main assumptions (2/2)

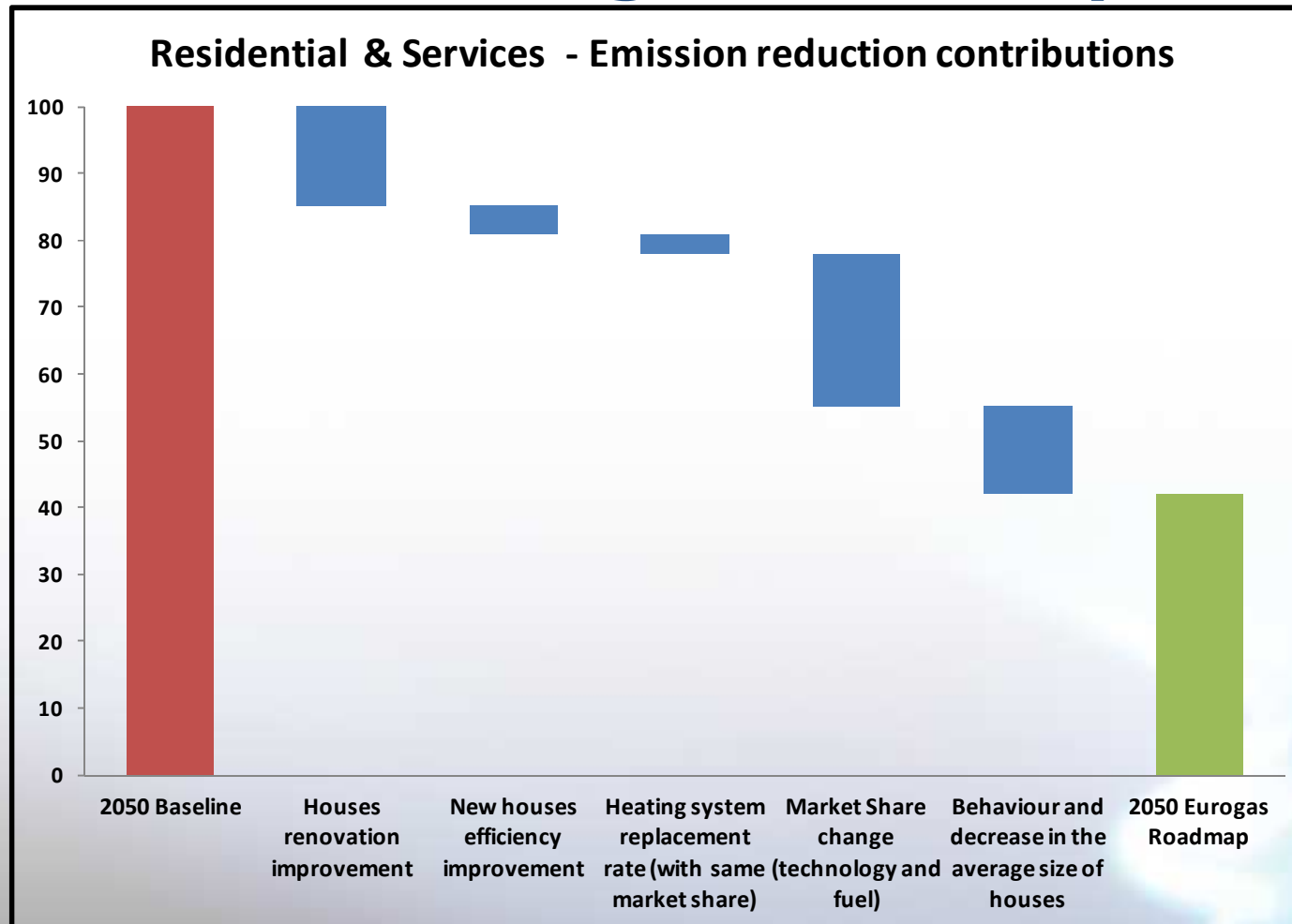


- New equipments and fuel switch
 - More efficient equipments and hybrid installations
 - Highly efficient heating technologies
 - Switch to less polluting fuels

Equipment market shares in the residential sector in the Eurogas Roadmap



Residential & Services *Contribution of actions foreseen in the Eurogas Roadmap*



Residential & Services

Preconditions

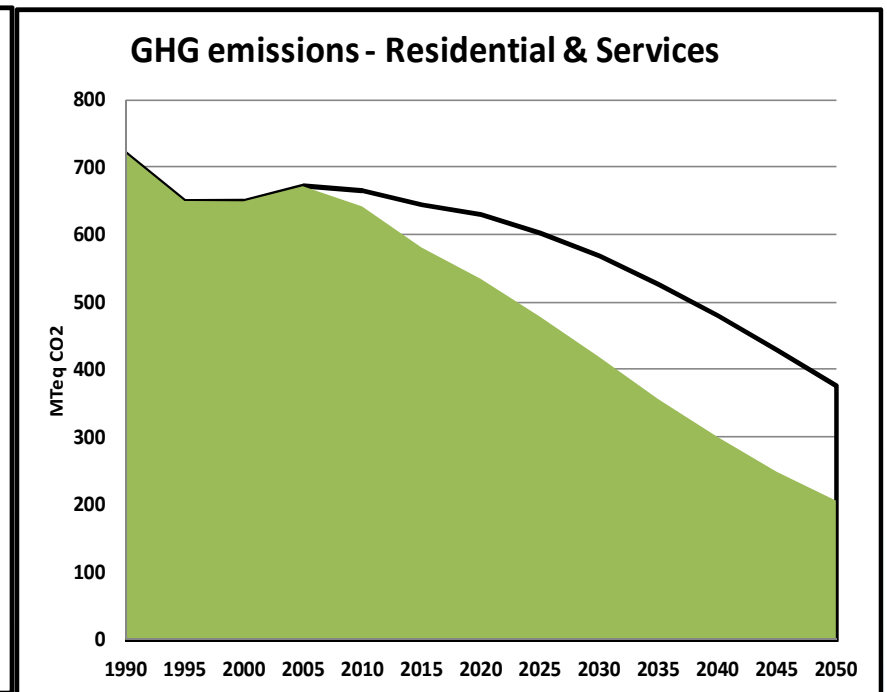
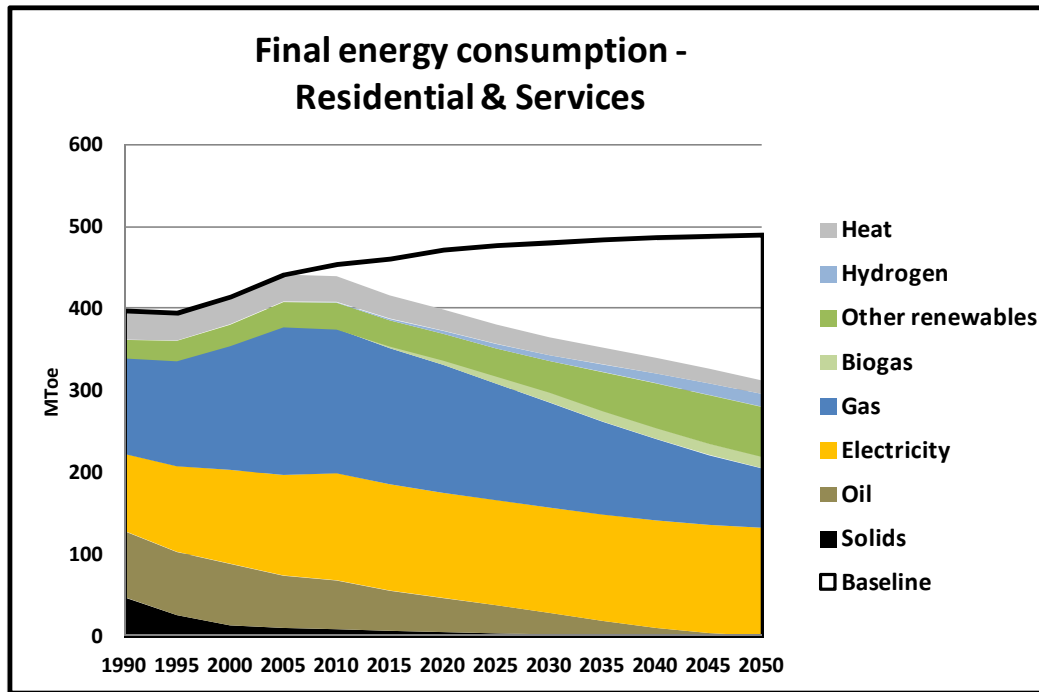


- Incentives and policy **support for renovation** of buildings;
- **Research and development** in new efficient technologies;
- Incentives to **replace existing equipment** by promoting more efficient equipment, such as gas heat pumps, gas condensing boilers and hybrid solutions;
- Incentives to **use less polluting fuels**, such as gas, biogas and biomass;
- Investment in **rollout of hybrid technologies** (gas and renewables);
- More **rational use of existing equipment** in dwellings;
- Stricter **energy efficiency standards** for electric appliances;
- Active **awareness campaigns** to influence people's behaviour.

Residential & Services Results: Roadmap/Baseline



- Final Demand
- CO₂ Emissions



Vs 1990

Final energy consumption

CO₂ emissions

2030

-8%

-42%

2050

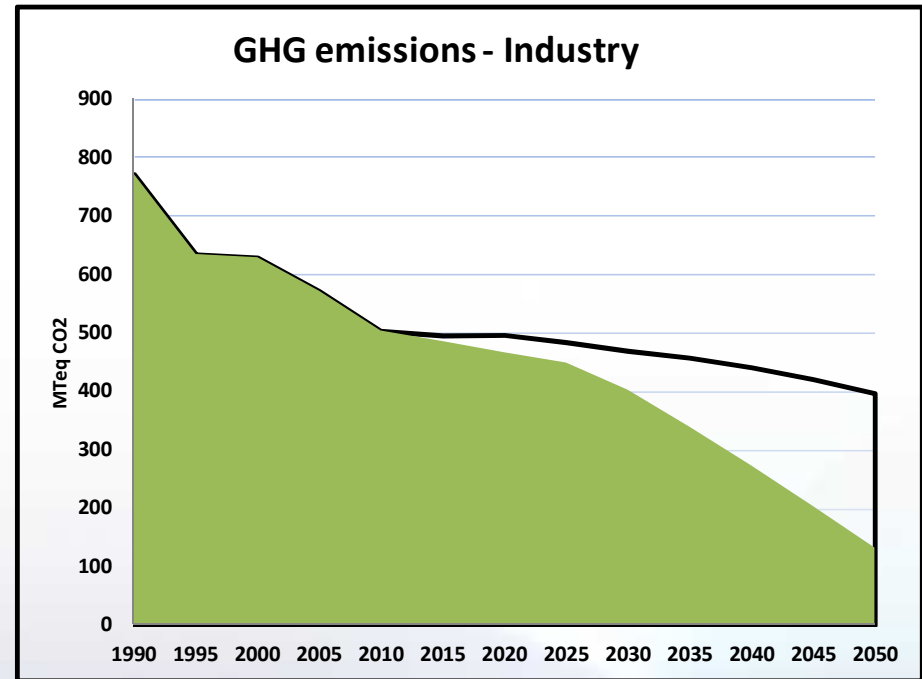
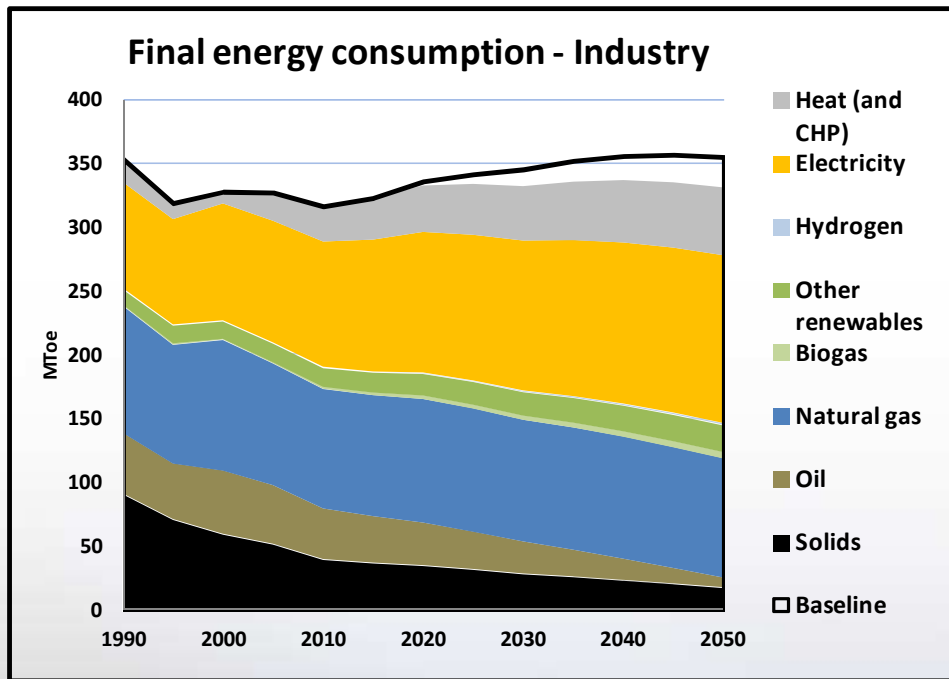
-22%

-71%

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

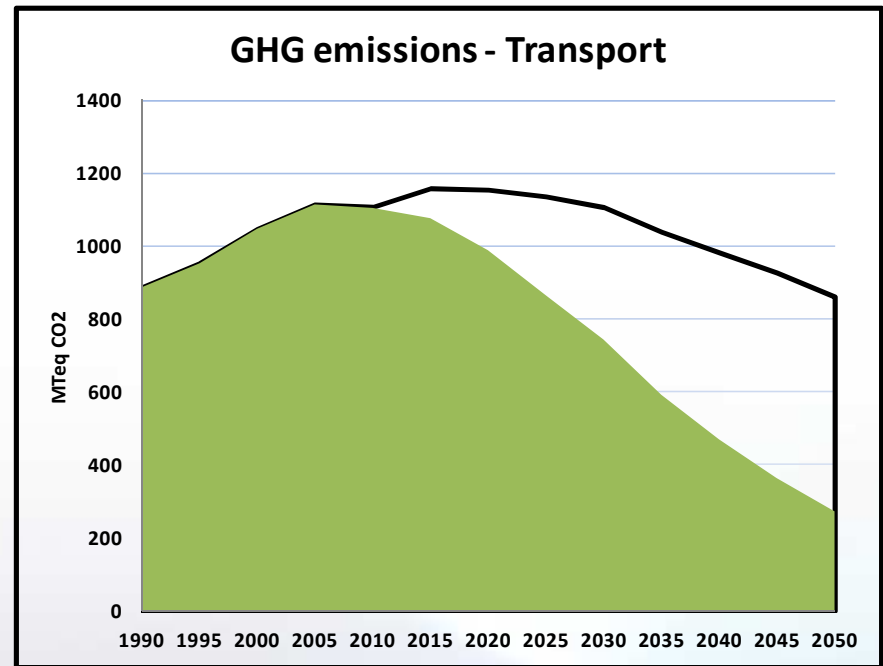
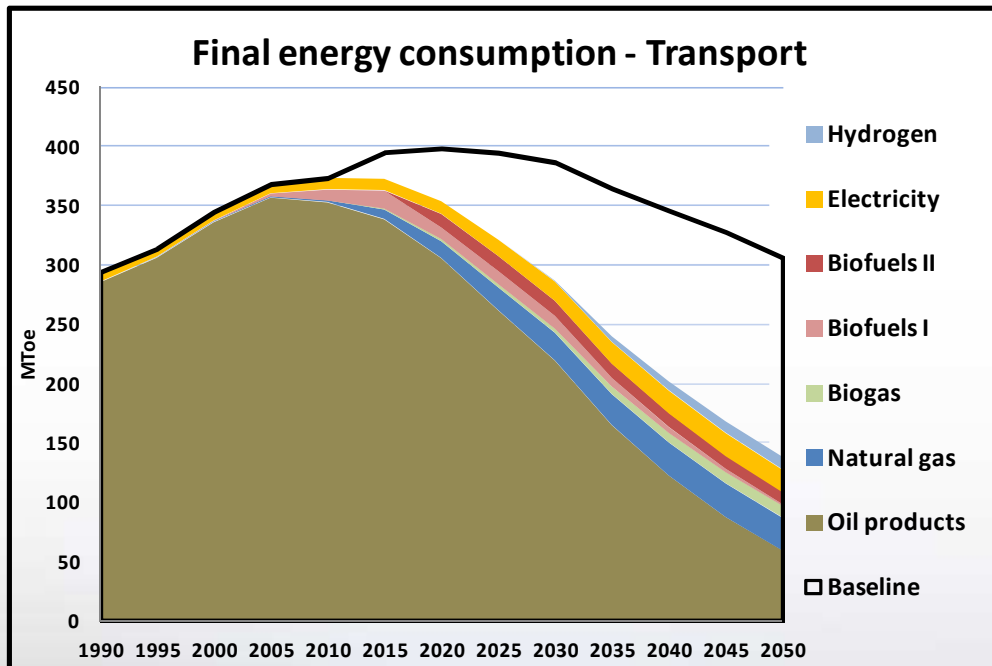
-7%

-83%

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

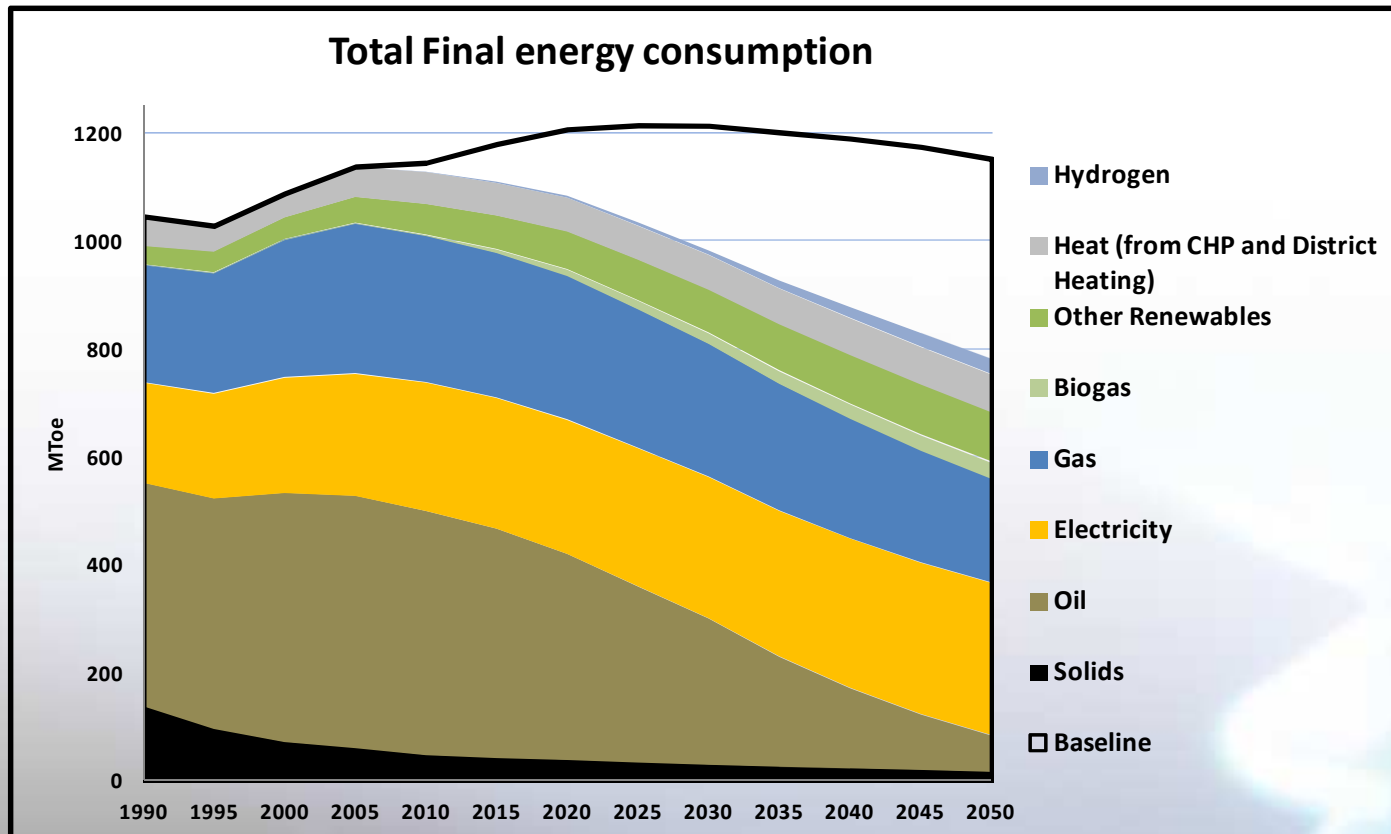
-53%

-69%

Final Energy Consumption



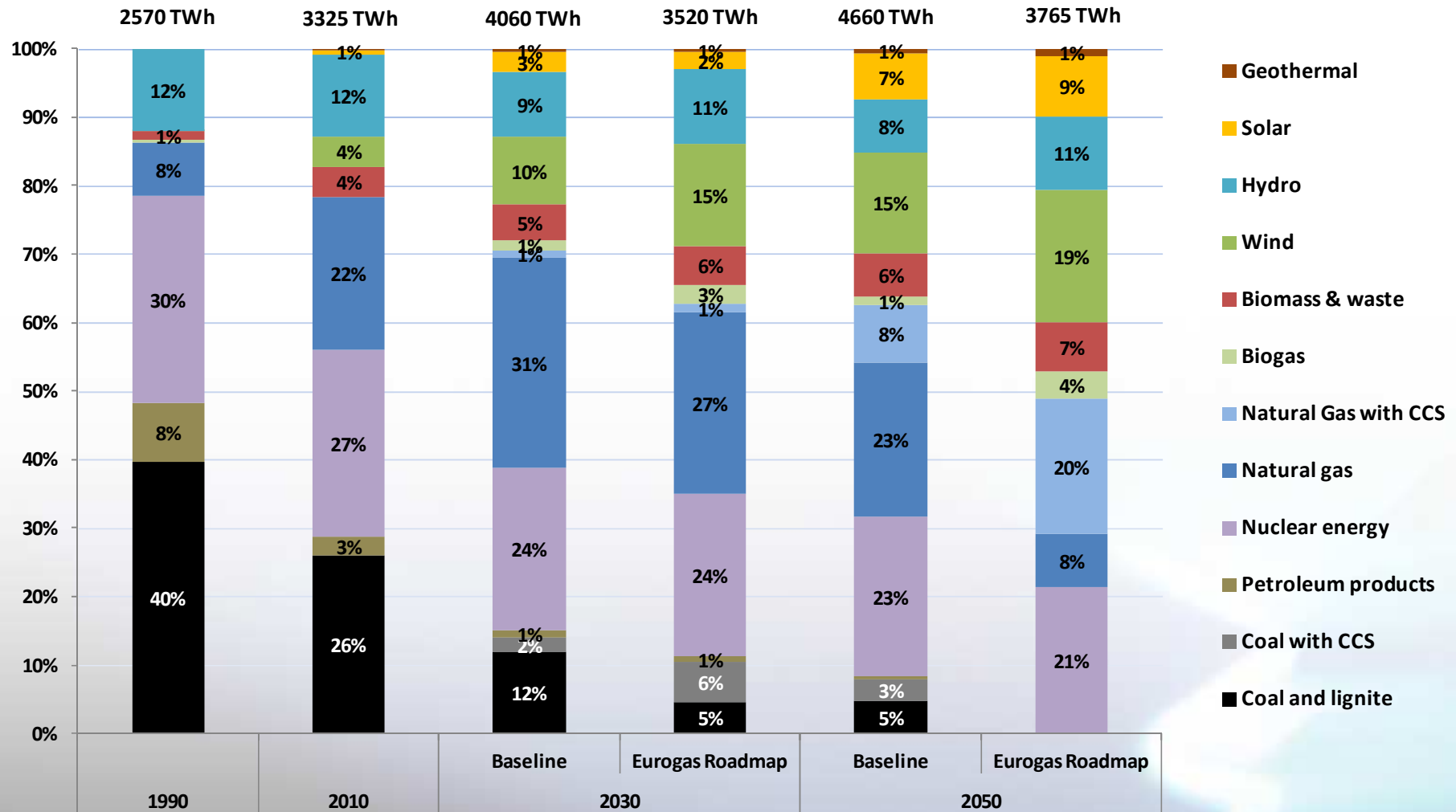
Compared with 2010, FEC decreases by **30%** by 2050, mainly due to the introduction of new technologies, improved energy efficiency and a change in behaviour.



Electricity Generation mix



Gross Electricity generation by fuel type (in %)

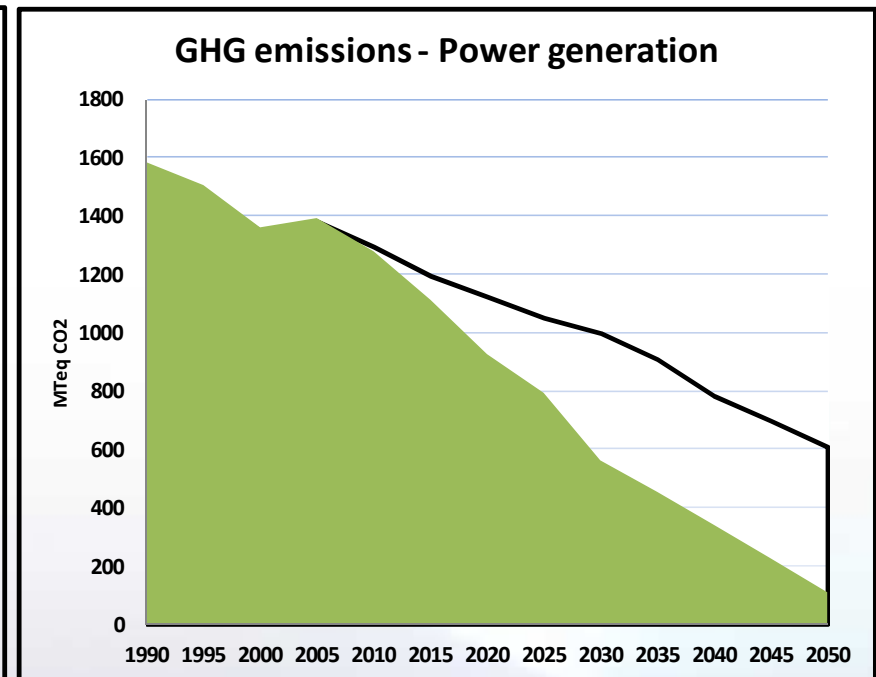
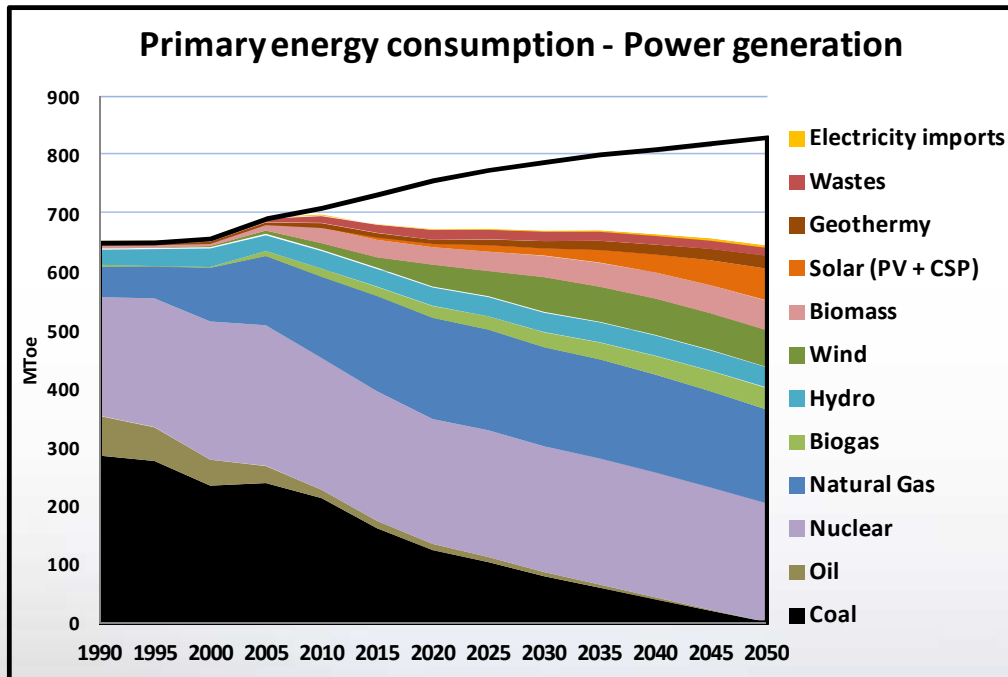


Data for 2010 are estimates

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

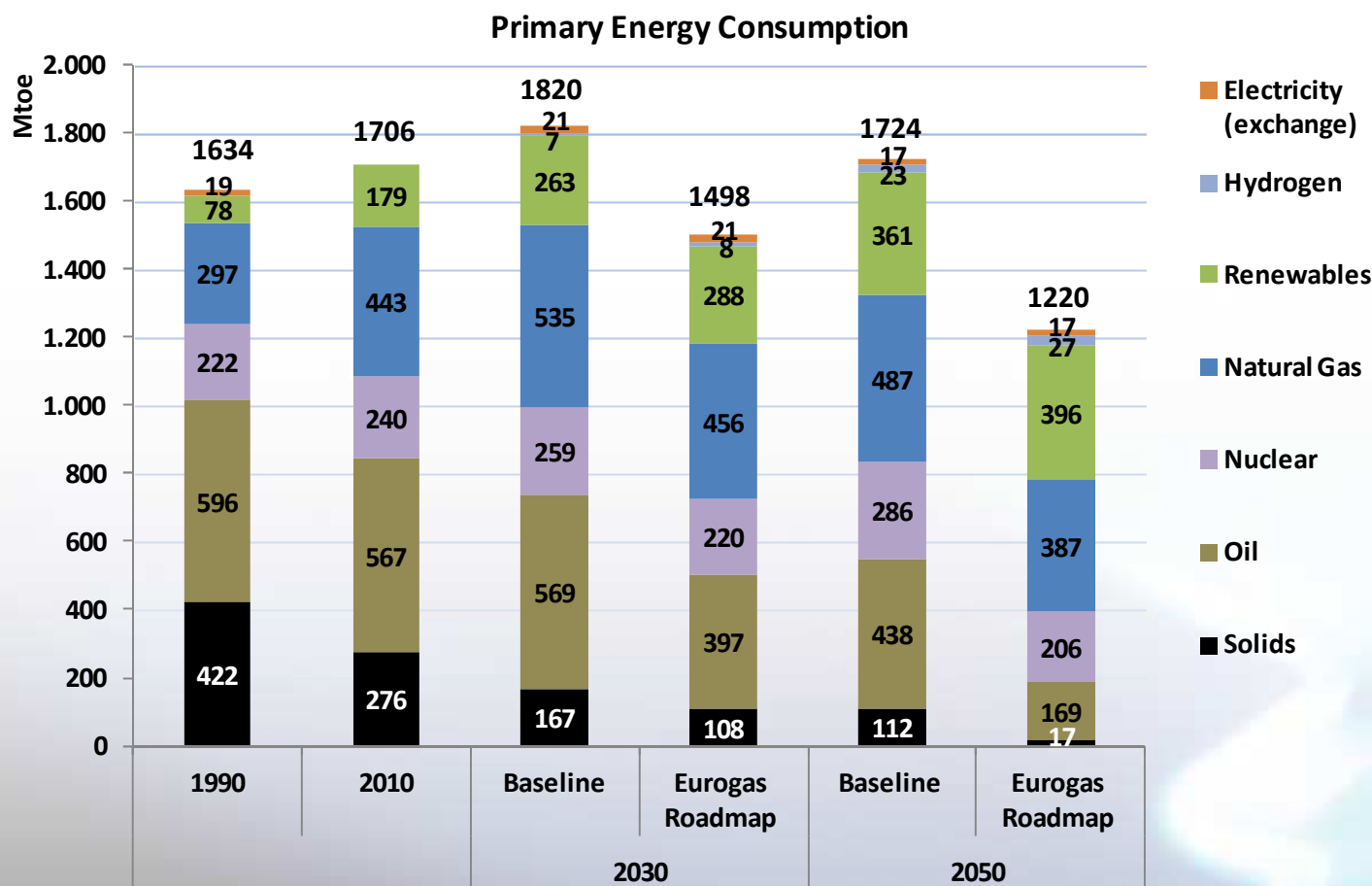
-2%

-93%

Primary Energy Consumption



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



Slide 14

AB1

This graph is probably too small for participants sitting in the back of the room.

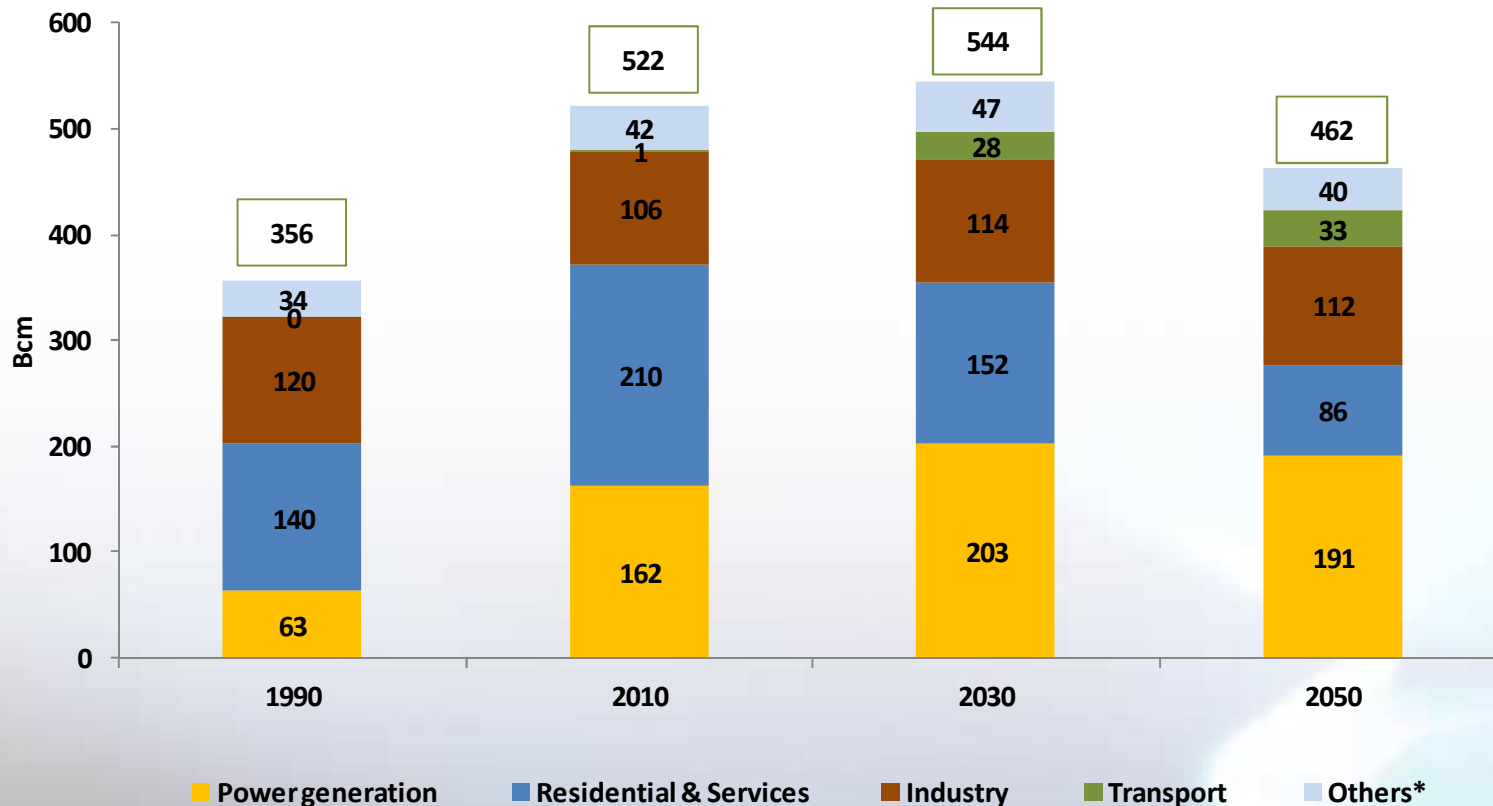
Anton Buijs; 7-10-2011

Primary Energy Consumption



Gas enables progress to a low-carbon economy.

Primary Energy Consumption in EU 27 - Eurogas Roadmap
Natural Gas

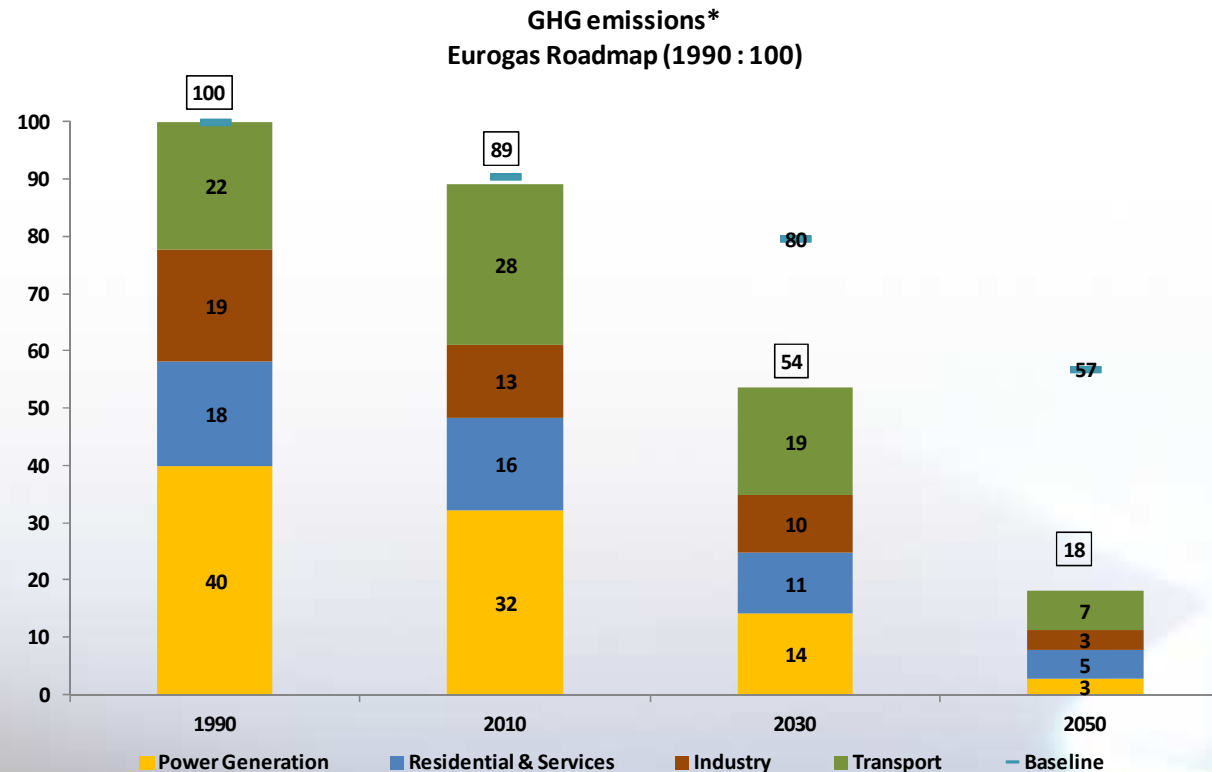


*including district heating, raw material and energy branch

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