

# The role of natural gas in the future EU energy mix

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*Pathways to a renewable energy-based economy in 2050  
Greens/EFA workshop  
Brussels, 15 September 2010*



## Some background ... ... And three main themes

**Natural gas in Europe**

**Eurogas Outlook**

**Gas is Green**

**Gas is Abundant**

**Gas is Secure**

**Conclusions**



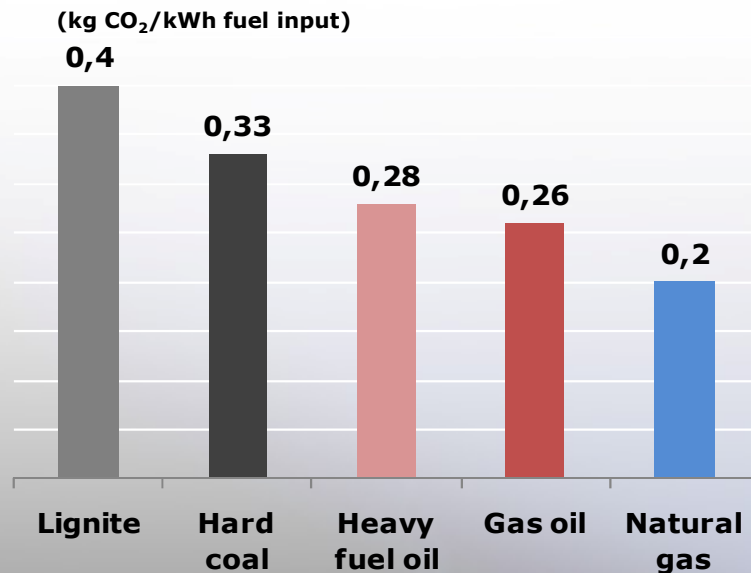
# Eurogas Members



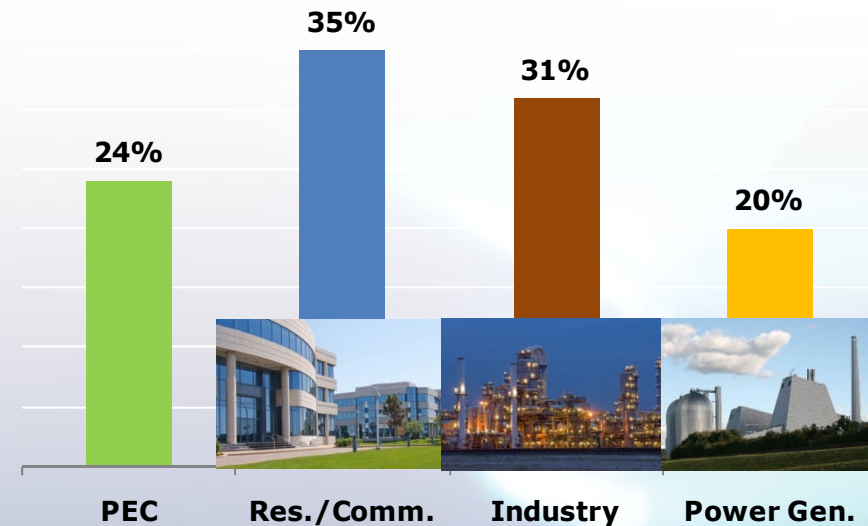
## The natural gas industry represents:

- **24% of primary energy consumption**
- **114 million customers**
- **255 000 employees**
- **2 million km of pipelines**
- **406 Mtoe (484 Bcm) natural gas consumption in 2009**

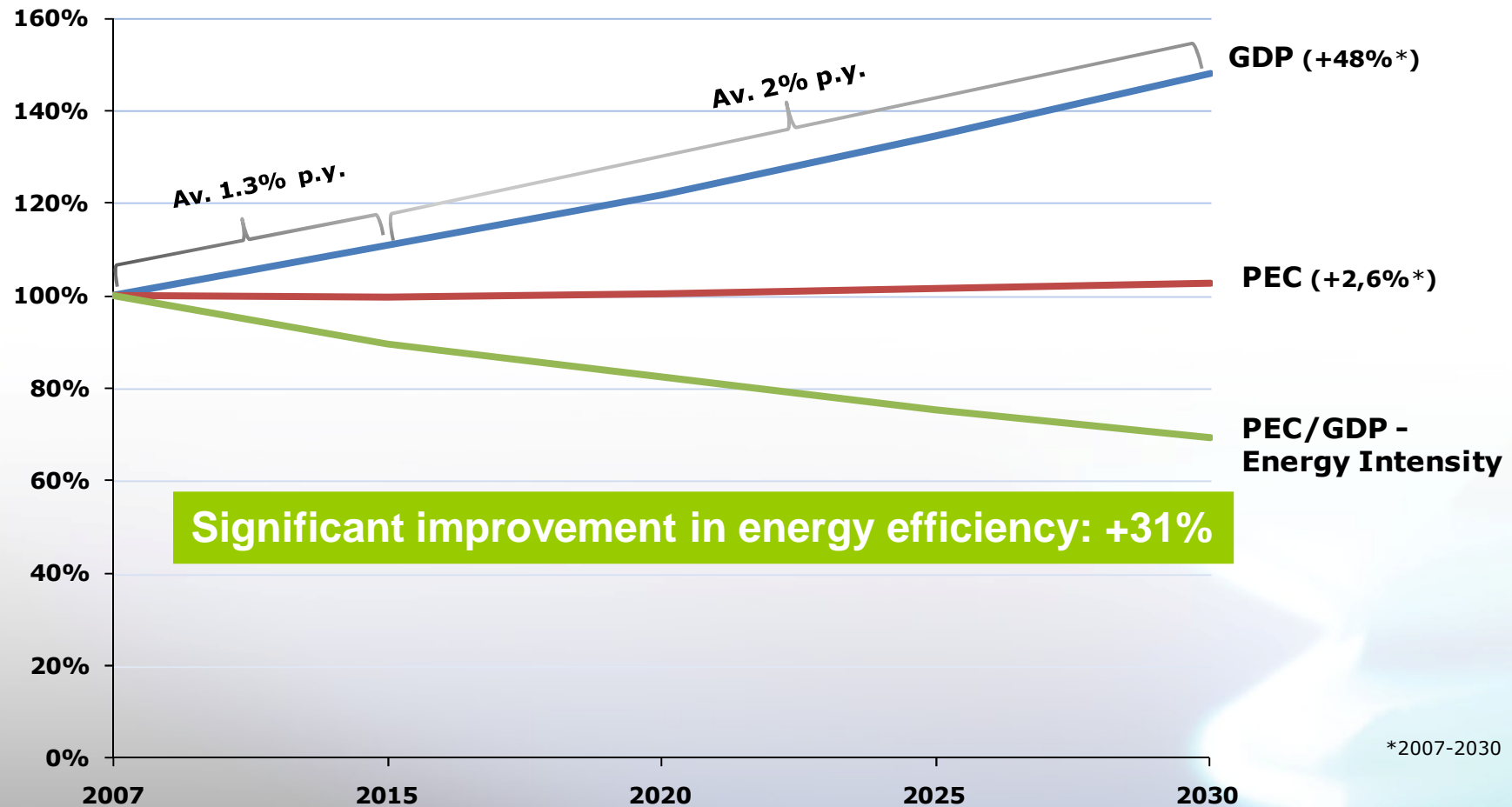
### CO<sub>2</sub> formed by the combustion of fossil fuels



### Contribution of Natural Gas to the EU 27 Energy Supply

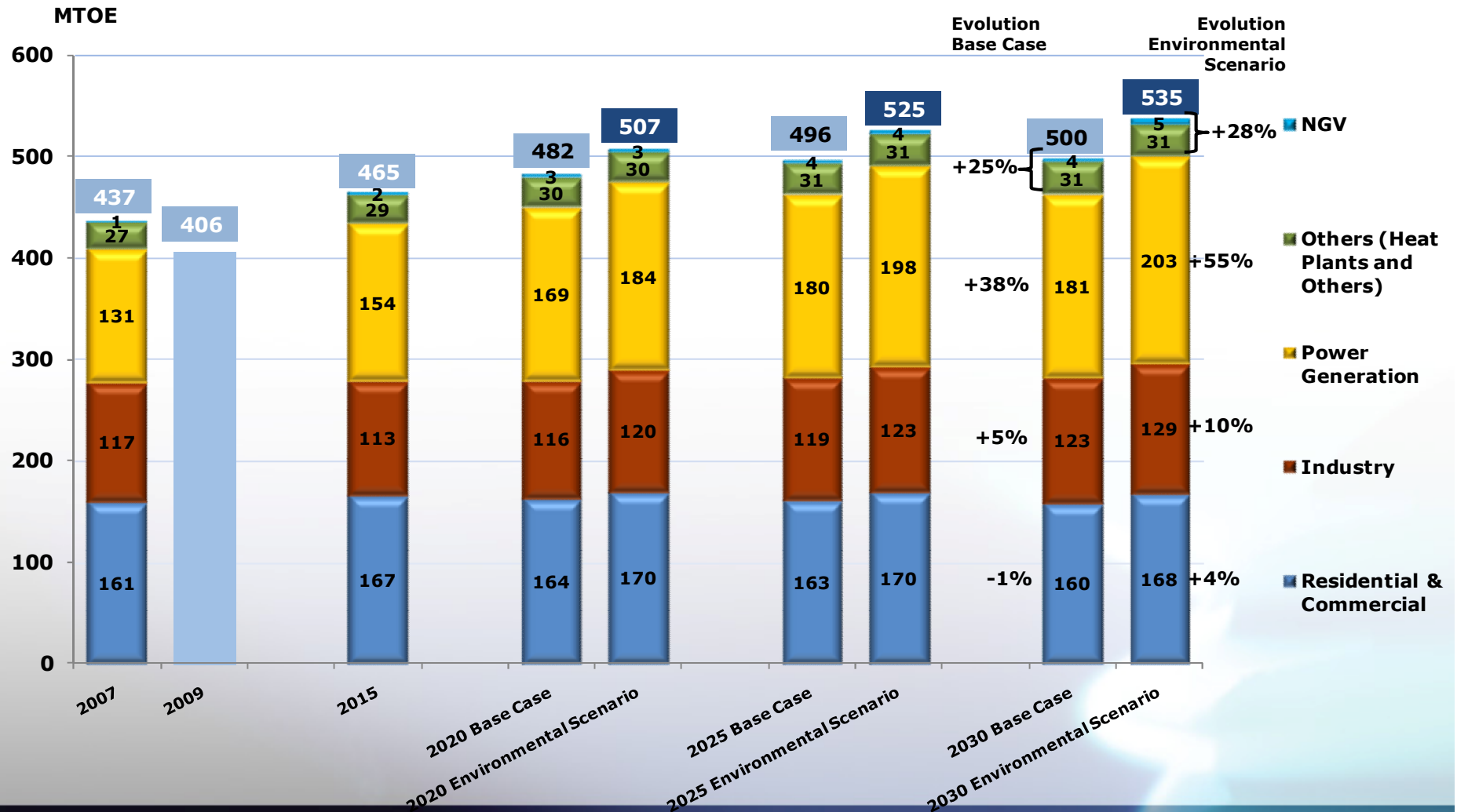


# Energy efficiency is a vital foundation ... ... but often we are running to stand still



# Natural Gas Demand Outlook per sector

Future growth mainly driven by the power sector

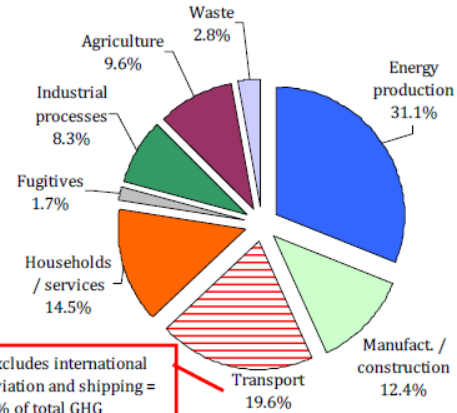


**GAS IS GREEN...**

# How are we doing on Kyoto? National GHG reductions: 2008 vs 1990

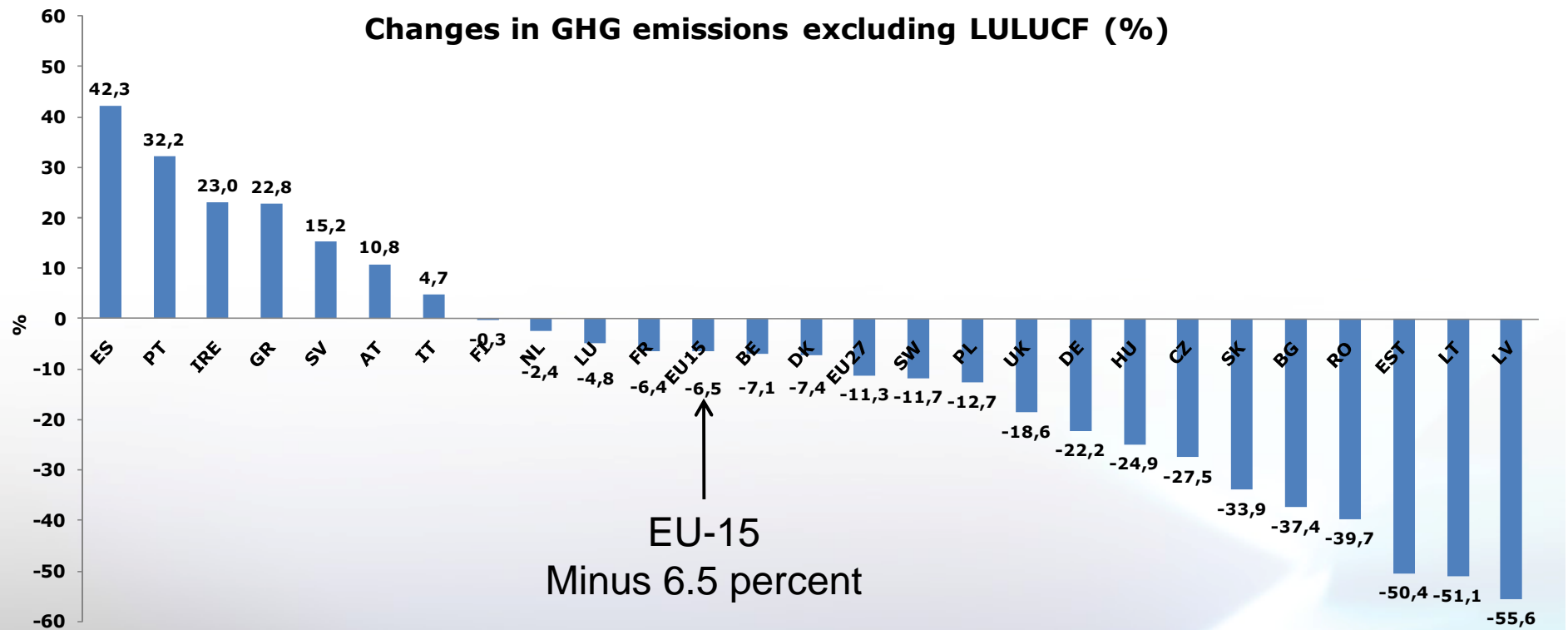


Total greenhouse gas emissions by sector in EU-27, 2008

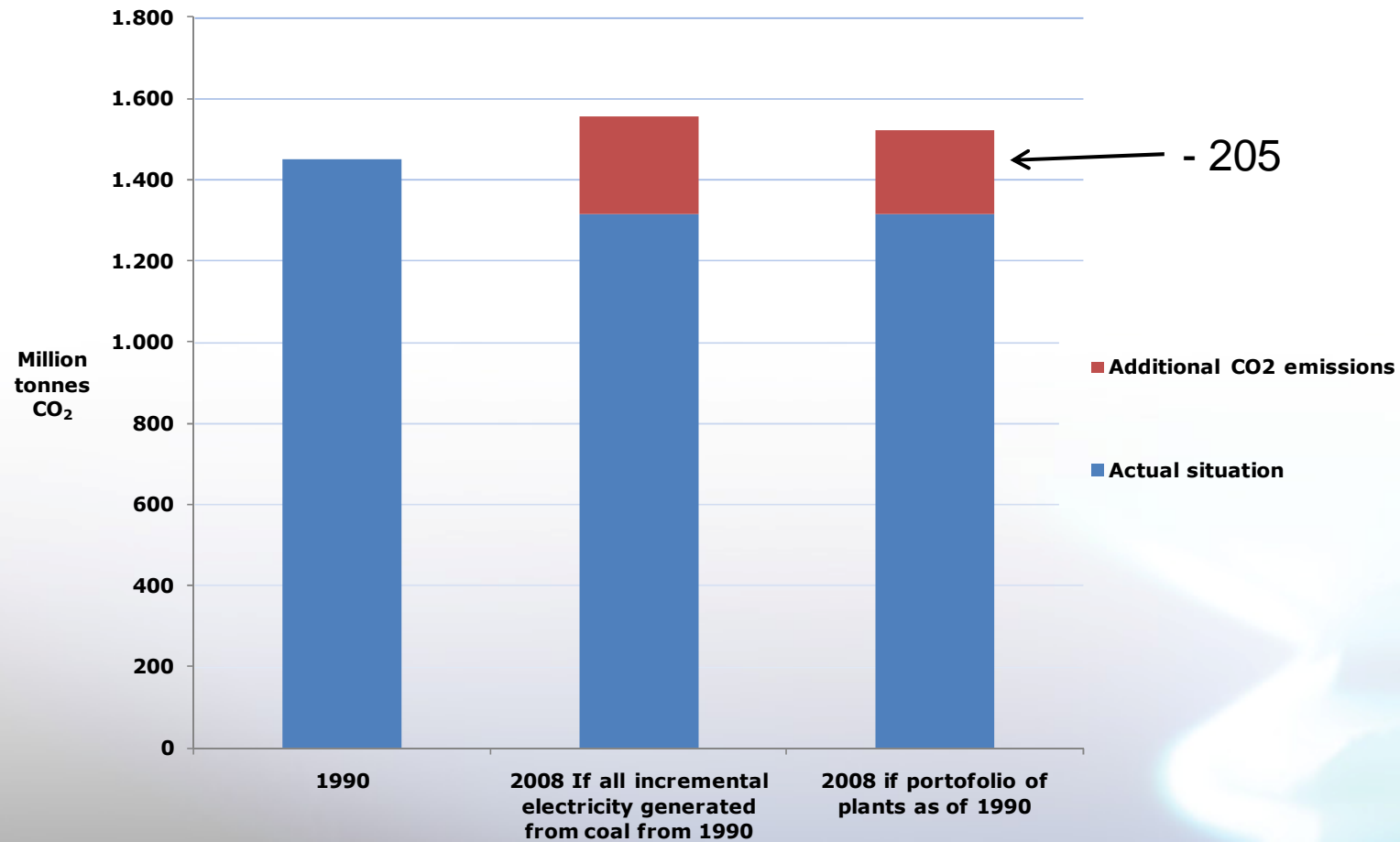


Source: European Environment Agency / GHG data excl. LULUCF

... or in percentage terms ...  
 against the Kyoto target of minus 8 percent

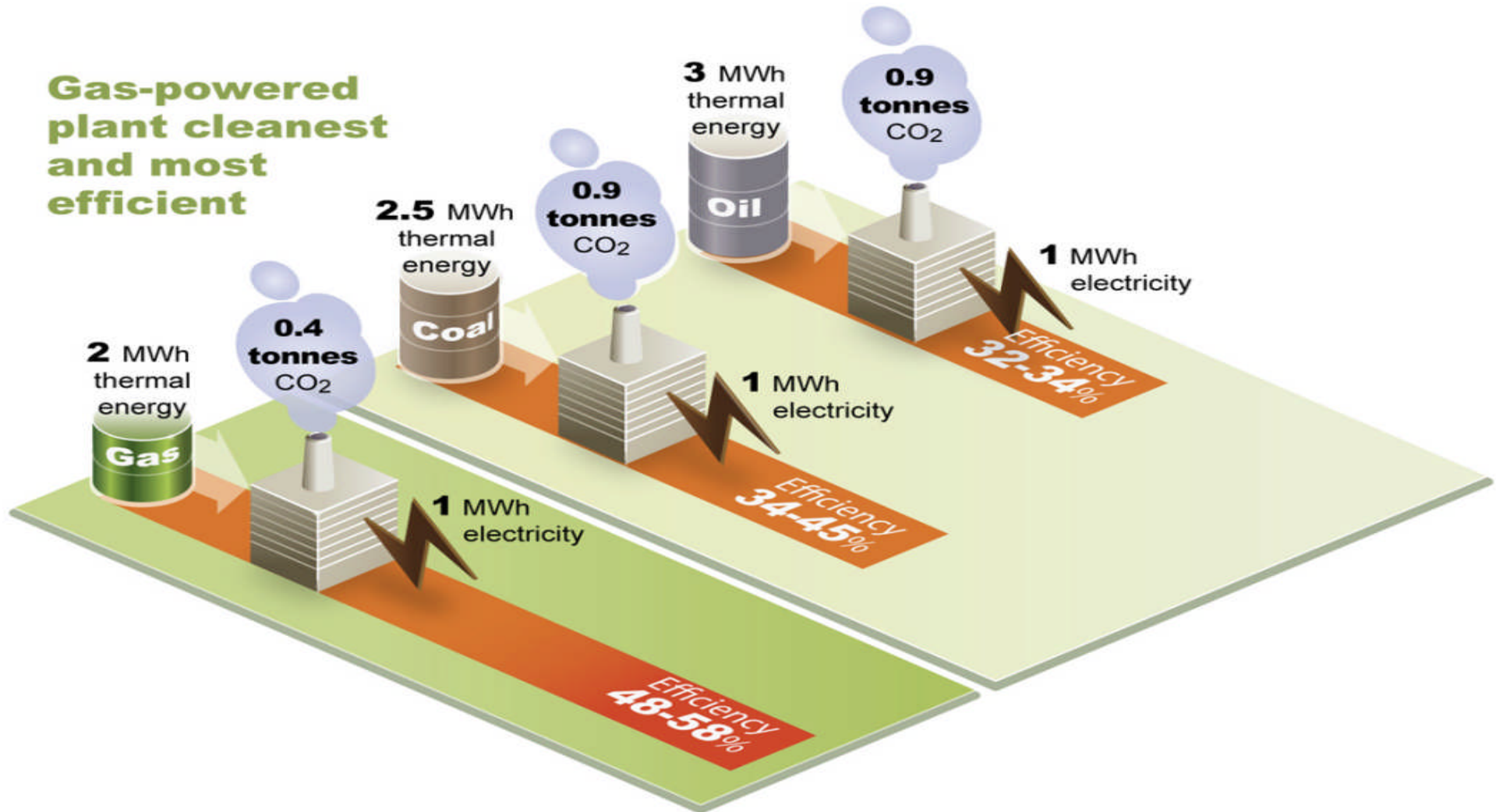


## How much did the growth of gas in electricity generation contribute to reducing CO2 emissions?



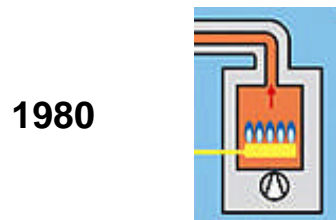
... And why?

**Gas-powered plant cleanest and most efficient**



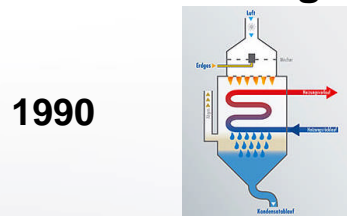
# Gas technology will offer gains in efficiency in home heating in the next 20 years ...

## standard boiler



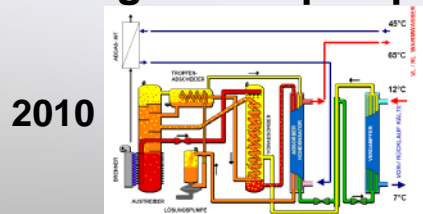
1 kWh natural gas  $\Rightarrow$  0.75 kWh heat

## condensing boiler



1 kWh natural gas  $\Rightarrow$  1.00 kWh heat

## gas heat pump



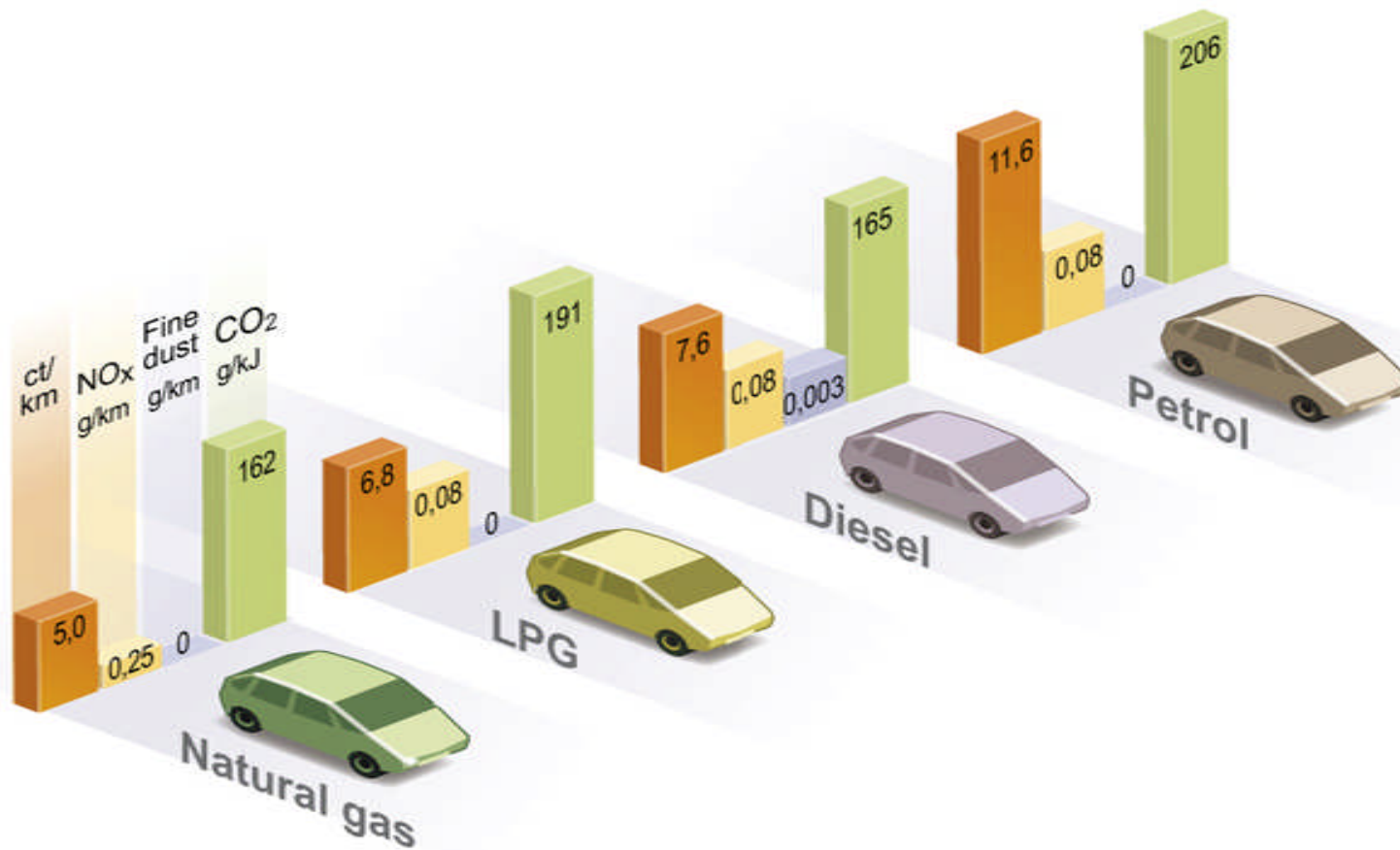
1 kWh natural gas  $\Rightarrow$  1.30 kWh heat

increase  
by 70%

(basis: lower heating value)

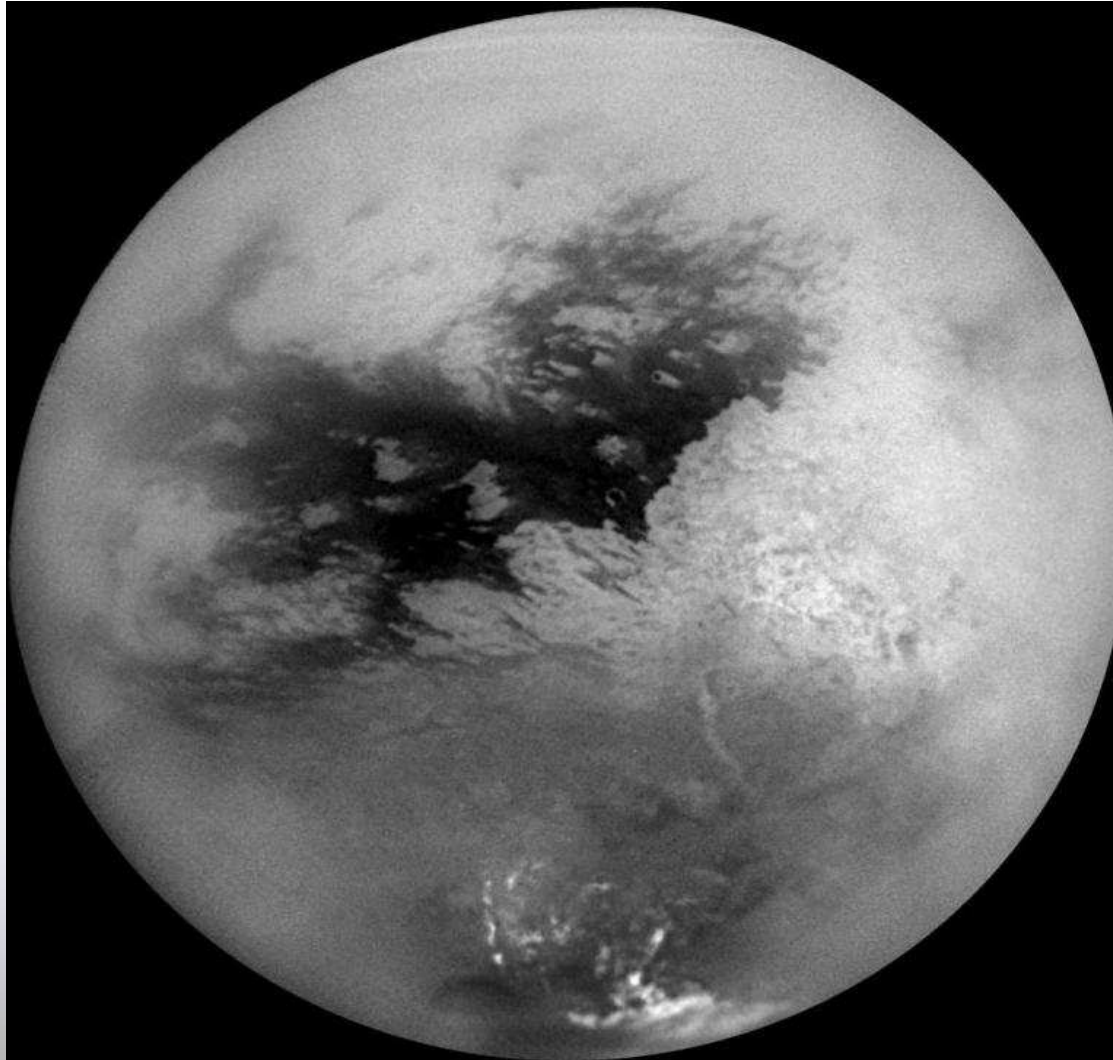
**... And possibly in transport too:**

*Today around 800 000 NGVs in EU – possibly five times as many in 2030 if the right political environment and support of all stakeholders are in place*



**GAS IS ABUNDANT...**

## Titan, a Moon of Saturn



## Forget what you learnt in primary school ...

- **That natural gas (like oil) is found in dome-shaped structures of sandstone rock**
- **That we have to find those domes, and puncture them with vertical wells ...**
- **... then the gas (or oil) comes rushing out from the pores in the rock**

It's different now

# The amount of gas reserves can no longer be calculated ...

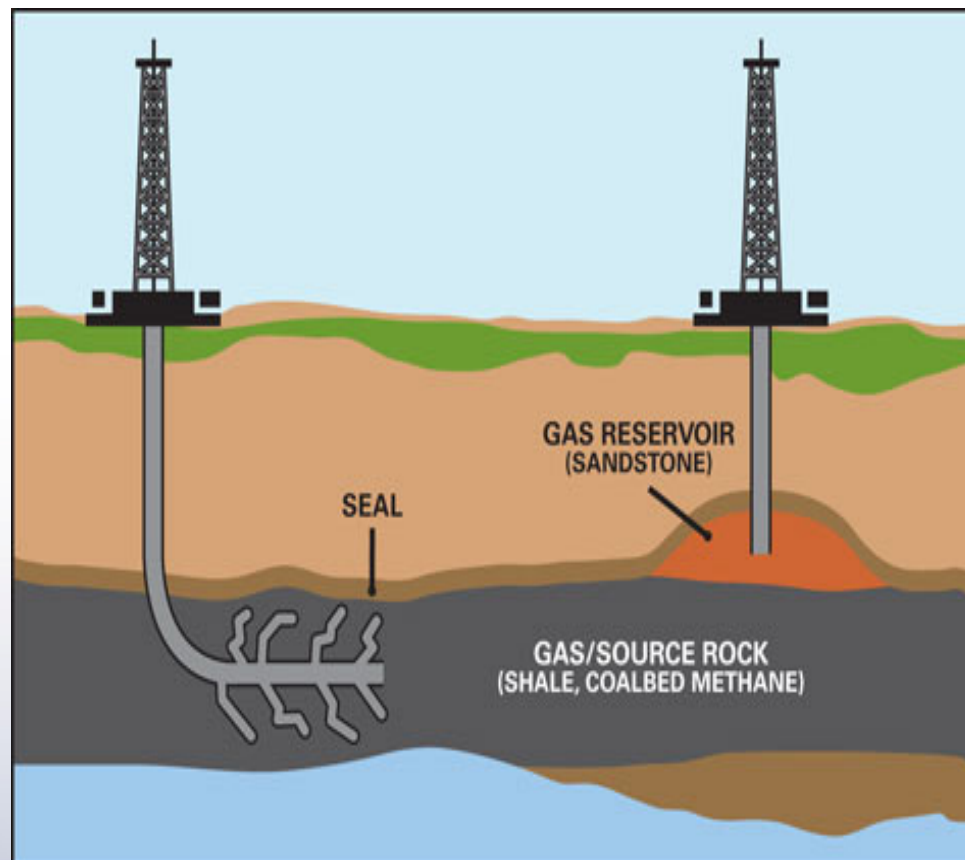
## Unconventional      Conventional

### Conventional gas

- Typically vertical wells with wide spacing

### Unconventional gas

- Horizontal wells
- Repeated fractures ('fracking')
- Fibre optics and IT

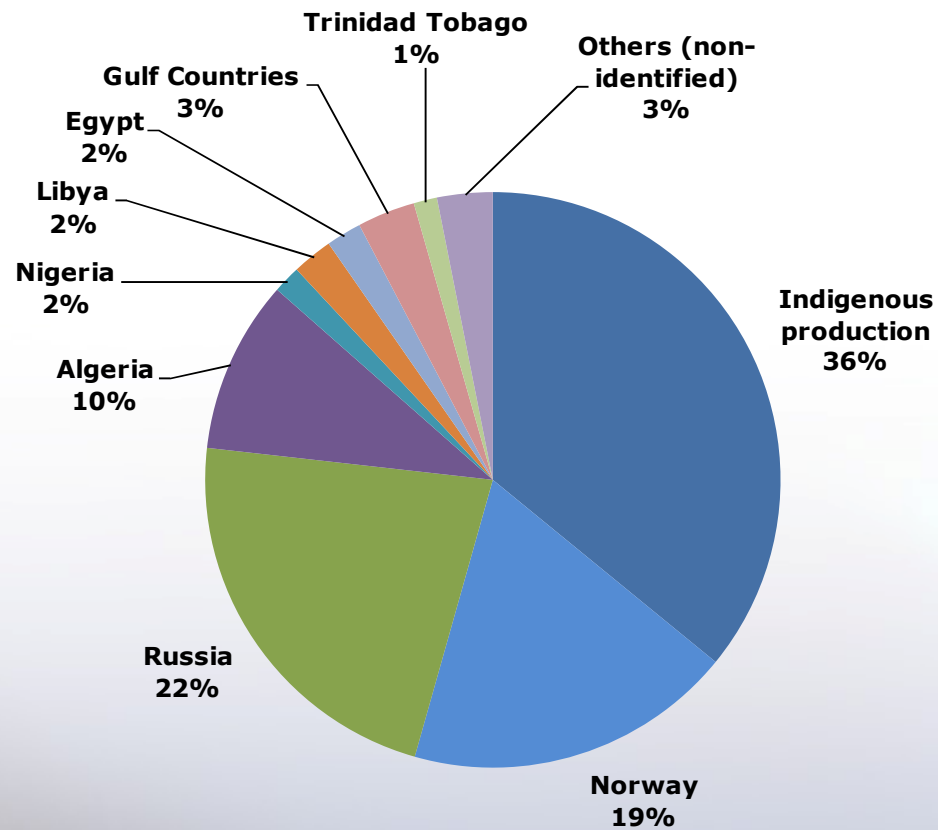


**GAS IS SECURE...**

## The Diversity of our Natural Gas Supplies

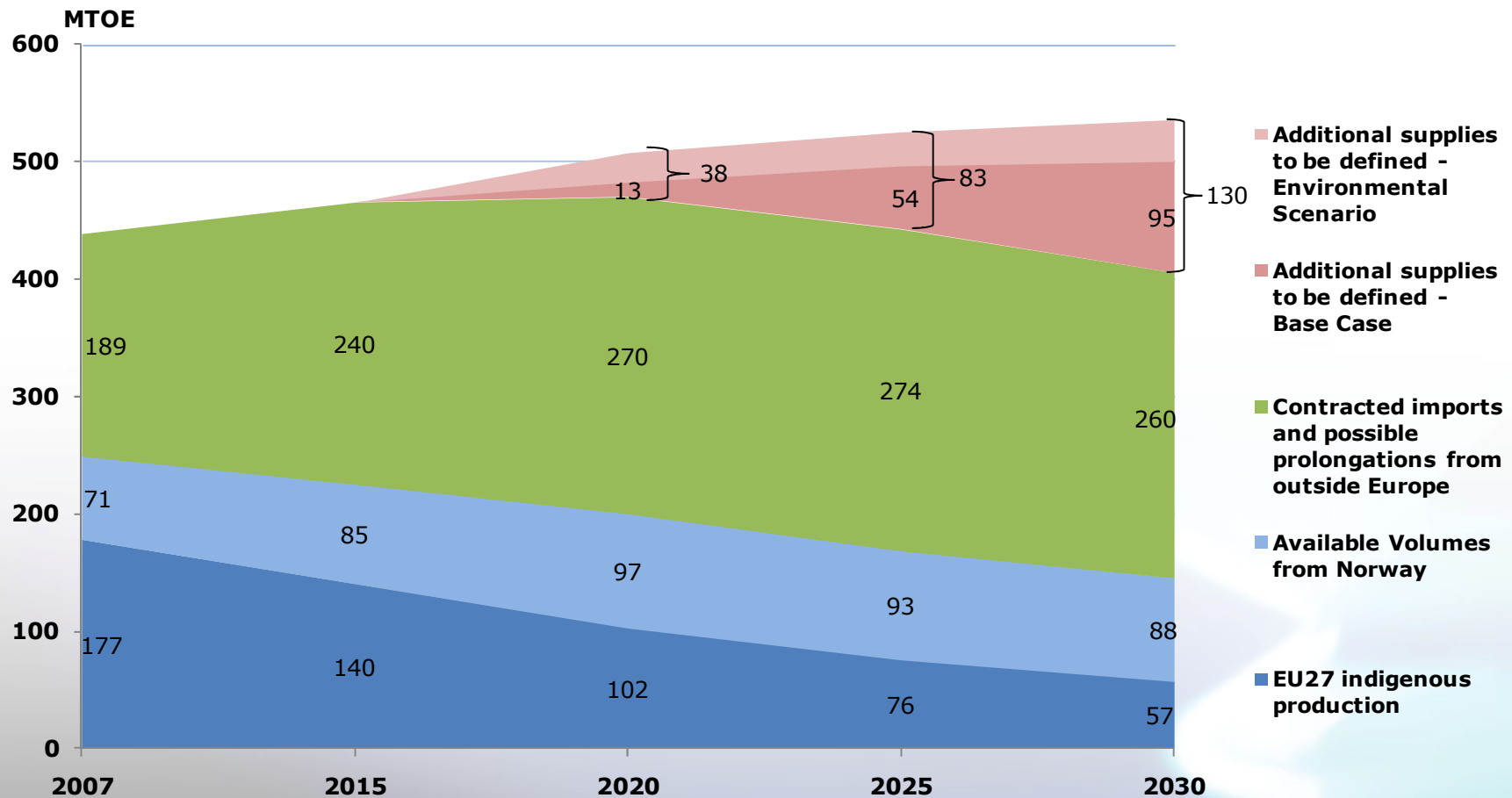
EU-27 2009

« Safety and certainty in oil lie in variety and variety alone » *W. Churchill, 1912*



## EU 27 Supply/Demand Outlook

The scale of new imports—even if EU production continues to decline—is manageable



# EU Demand and Supply outlook 2030 – Assumptions

## General Policy and Market Environment Assumptions:

- EU-wide regulatory pressure for intensifying competition (gas & electricity),
- In most countries, long-term contracts remain the main basis for supplies,
- Oil prices are the leading indicator in the energy market ,
- Continuation of EU Emission trading with full auctioning beyond 2012,
- Continuation and further development of energy policies and measures in place.

<u>Base Case</u>	<u>“Environmental scenario”</u>
<ul style="list-style-type: none"> <li>•Continued economic growth of 2% p.a. after the economic crisis has been overcome,</li> <li>•Near stable population,</li> <li>•Environmental awareness,</li> <li>•Trend to save energy &amp; improve energy efficiency,</li> <li>•Deliberations at the national level to use nuclear energy and expand the use of renewables.</li> </ul>	<ul style="list-style-type: none"> <li>•Faster economic recovery and GDP growth,</li> <li>•Increased environmental awareness,</li> <li>•Growing trend to save energy &amp; improve energy efficiency,</li> <li>•More favourable energy policies towards natural gas,</li> <li>•Natural gas prices competitiveness is ensured,</li> <li>•CO<sub>2</sub> prices at the upper end of the assumed range.</li> </ul>

International fuel prices	2009 (Q1)	2015	2030
Oil (\$/bbl)	50	60-70	80-100
Coal (€/t)	60	60-70	70-90
CO <sub>2</sub> (€/t)	15	20-30	40-50

## Conclusions

Natural gas has a key role in a realistic EU climate policy:

- Green
- Abundant
- Secure