



International  
Energy Agency

# Natural Gas in the IEA's 2°C Scenarios

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# The IEA at a glance

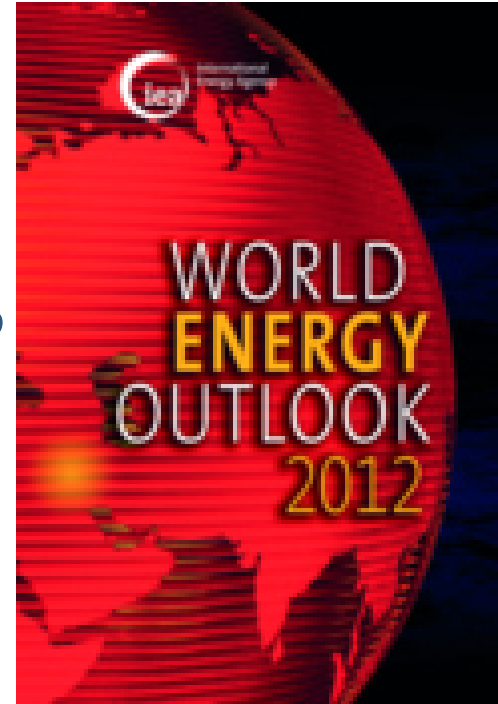
- Formed in the wake of the 1973 oil embargo with a mission to promote member country energy security
  
- Autonomous organisation affiliated with the OECD
  - Governing Board – decision-making body of senior officials from member countries (IEA Energy Ministers generally meet every two years – next anticipated in 2013)
  - Executive Director - reports to the Governing Board
  - Independent budget and policy making
  - Administrative support by OECD
  
- Staff of around 250 - primarily energy experts, economists and statisticians

## The IEA does:

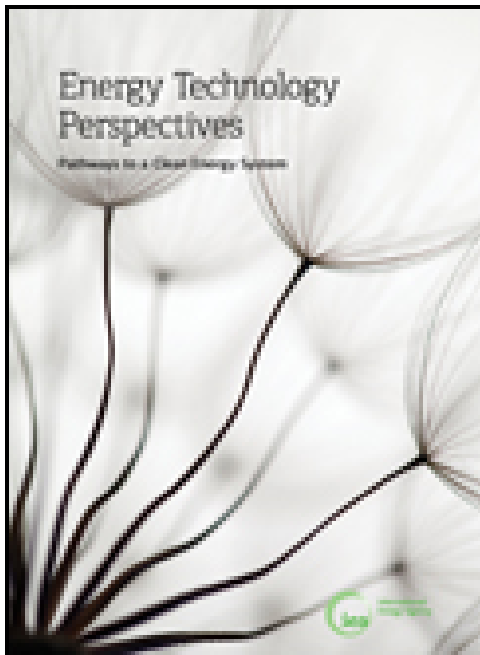
- Emergency Preparedness and Response
- Energy Data and Statistics
- Market Analysis: oil, gas, renewables, energy efficiency
- Economic Analysis (including *World Energy Outlook*)
- Energy Technology (including *Energy Technology Perspectives*)
- Low-carbon solutions: renewables, energy efficiency, climate policy
- Global co-operation

# IEA long-term 2°C scenarios

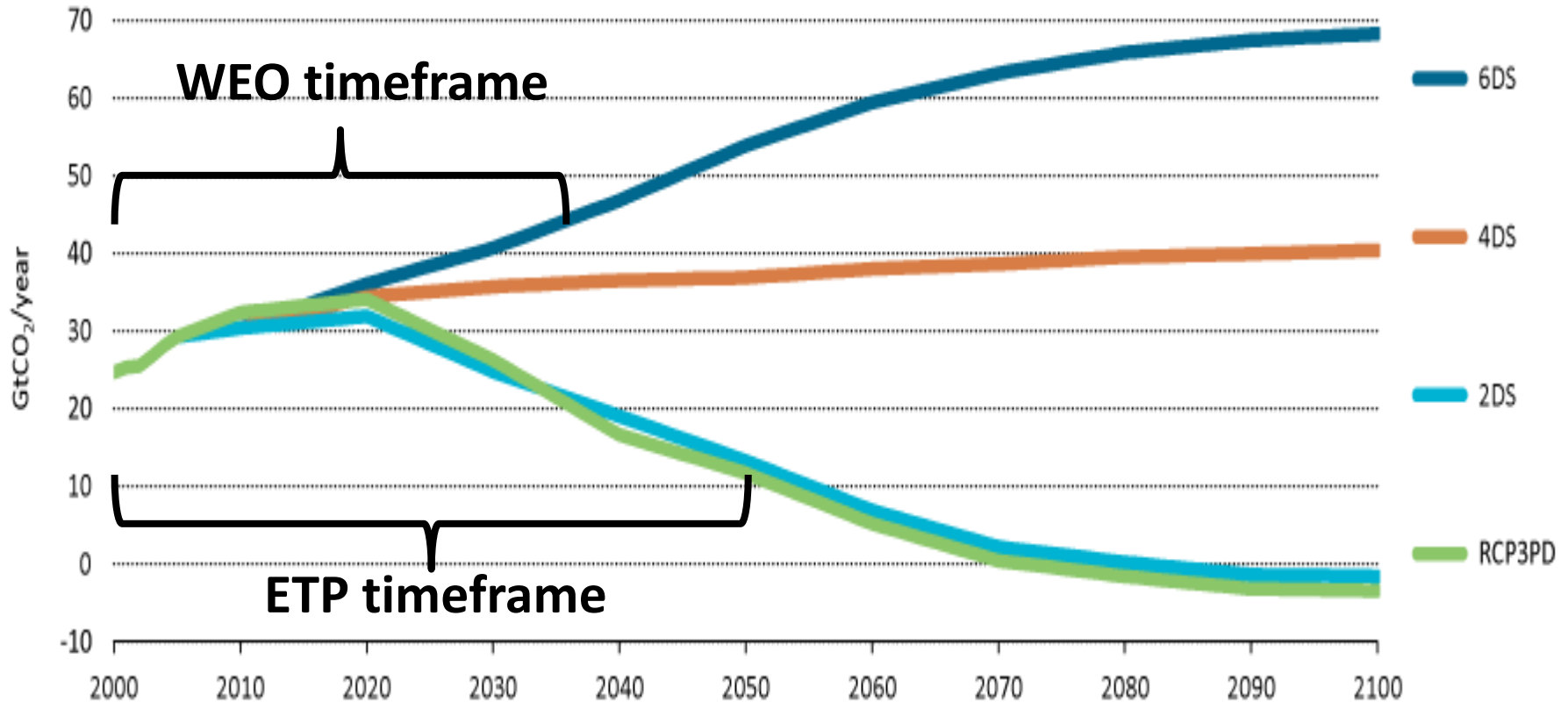
- World Energy Outlook (WEO) - since 1995
  - 450 scenario



- Energy Technology Perspectives (ETP)
  - 2DS Scenario



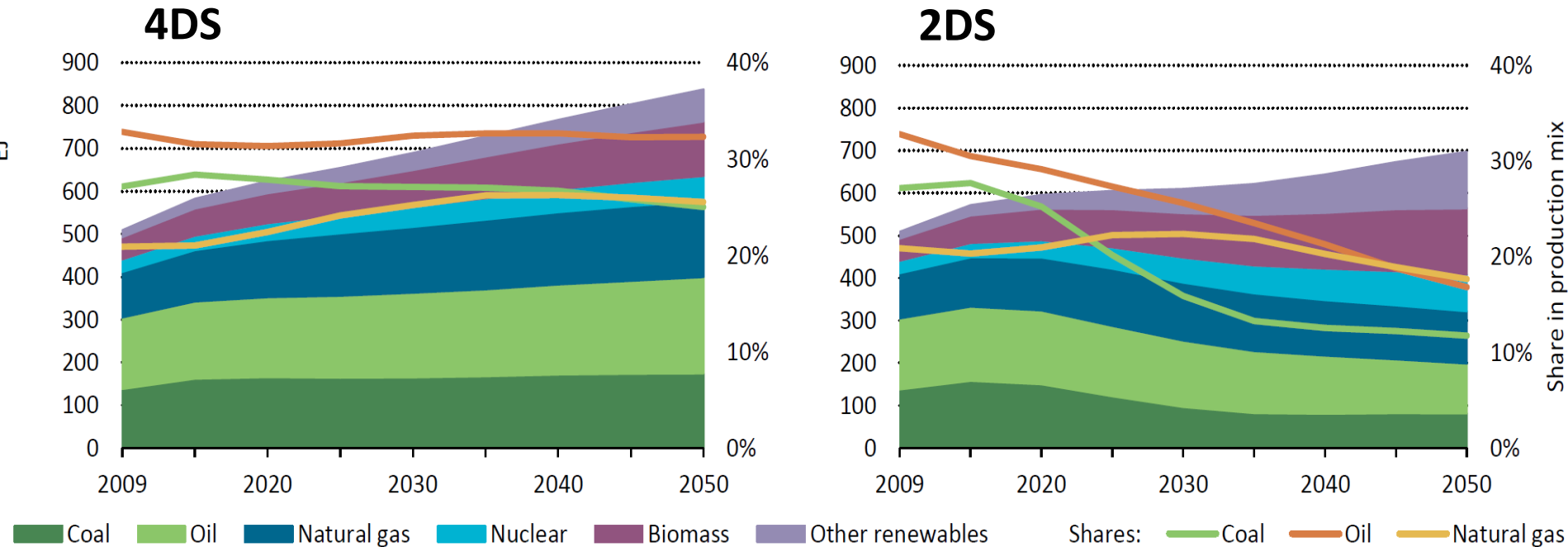
# What long-term CO<sub>2</sub> reductions are needed?



Source: Energy Technology Perspectives 2012

*ETP 2012 2DS is broadly consistent with a long term 2°C scenario (RCP3PD) that has zero CO<sub>2</sub> emissions by 2075*

# Natural gas still plays a key role in 2050

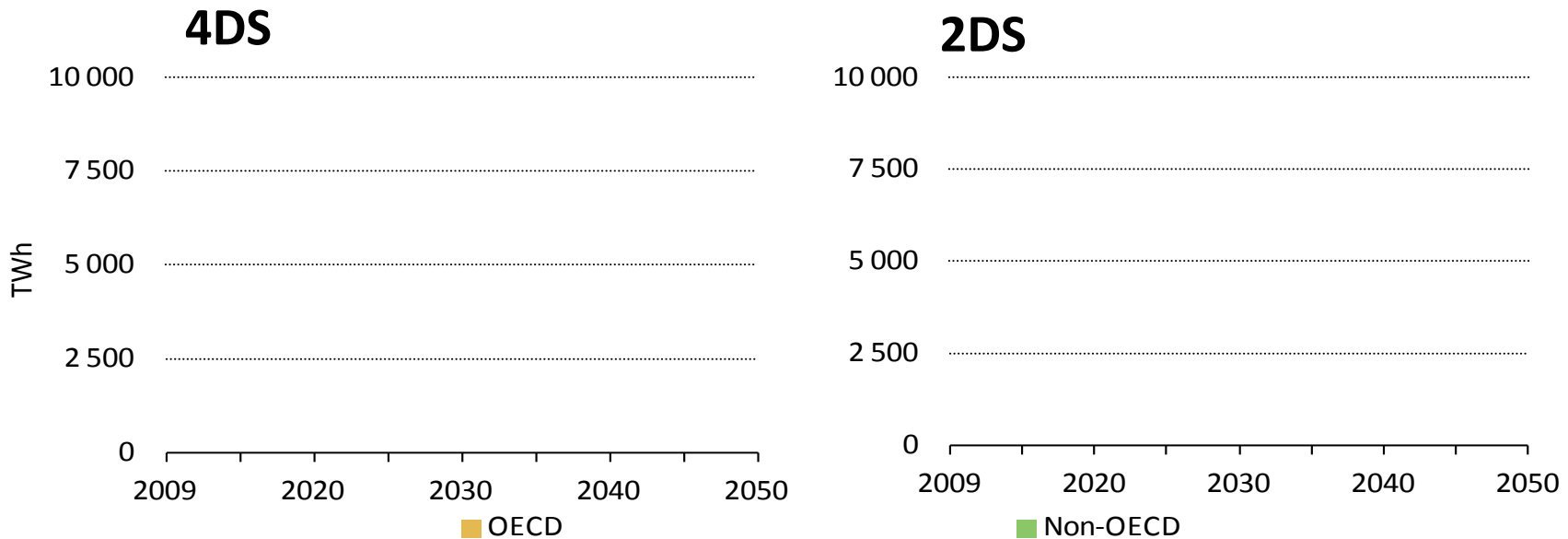


Source: Energy Technology Perspectives 2012

**Although the share of fossil fuels in total primary energy production declines by 2050, the share of natural gas declines least.**

# Natural gas as a transitional fuel in the power sector

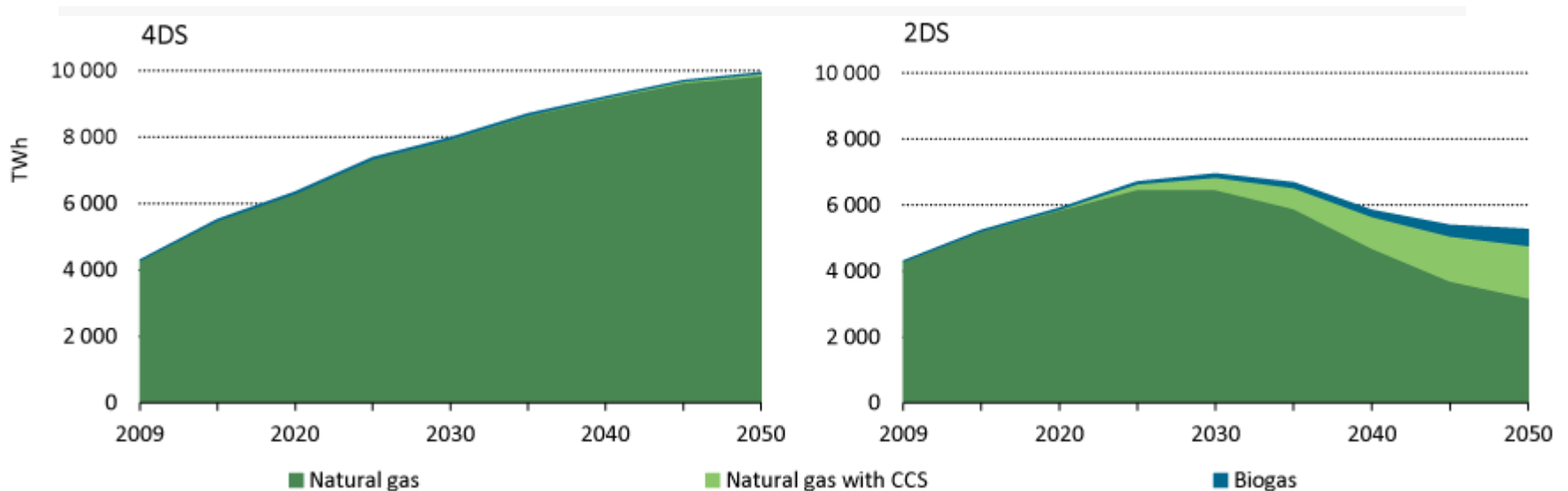
- Power generation from natural gas increases to 2030 in the 2DS and the 4DS.
- From 2030 to 2050, generation differs markedly.



Source: Energy Technology Perspectives 2012

**Natural gas-fired power generation must decrease after 2030 to meet the CO<sub>2</sub> emissions projected in the 2DS scenario.**

# Biogas and CCS are essential components of a low-carbon future

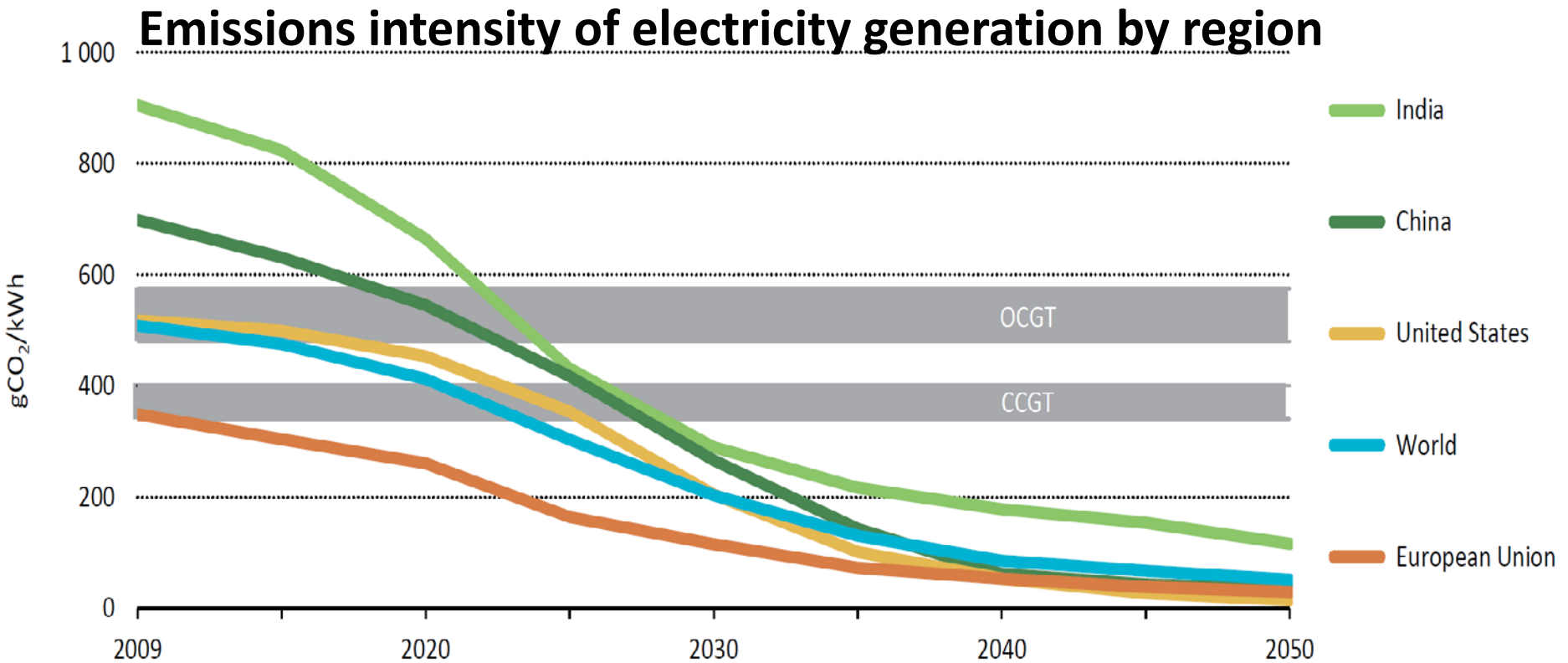


Source: Energy Technology Perspectives 2012

*In the 2DS, 40% of the electricity generated from gas comes from natural gas with CCS and biogas.*



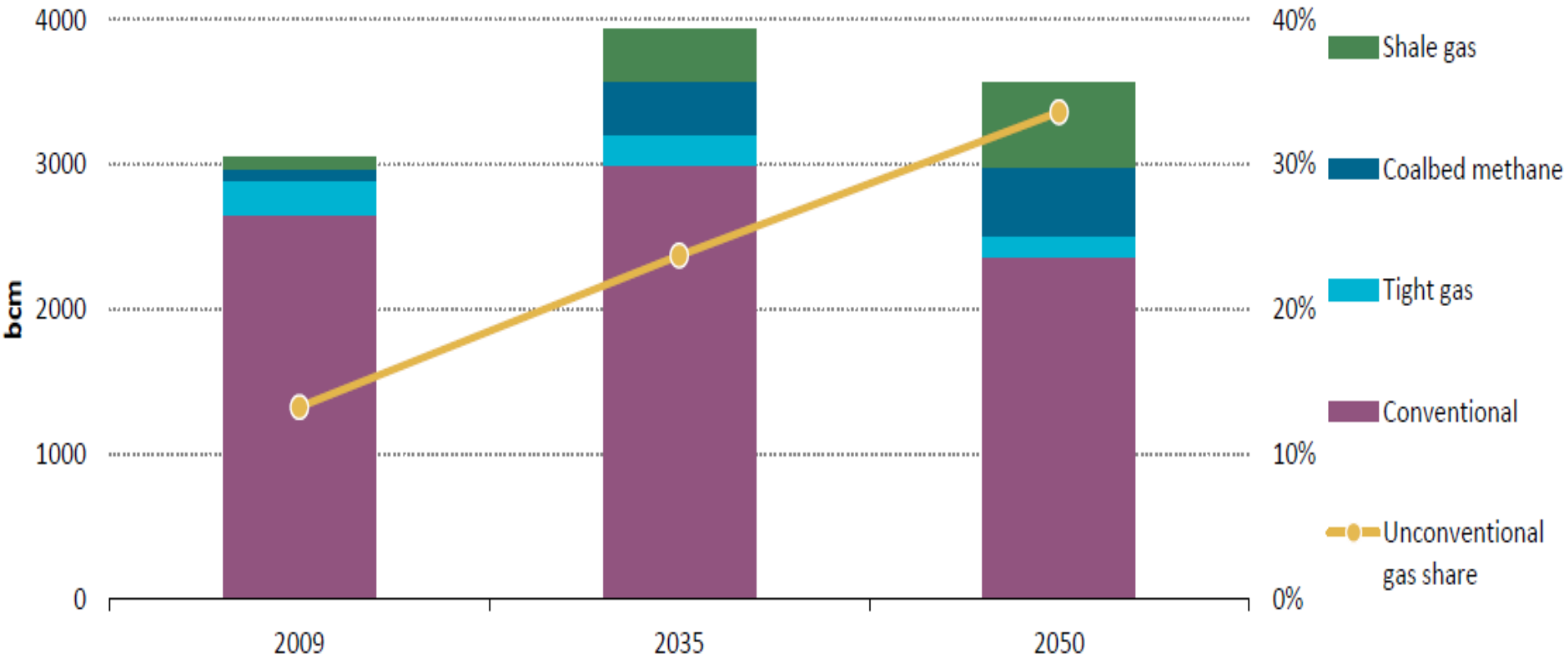
# In 2DS, natural gas becomes a 'high-carbon fuel' after 2025



Source: Energy Technology Perspectives 2012

**The global average CO2 intensity from natural gas-fired power generation falls below the carbon intensity of CCGTs in 2025.**

# Unconventional gas rises in importance

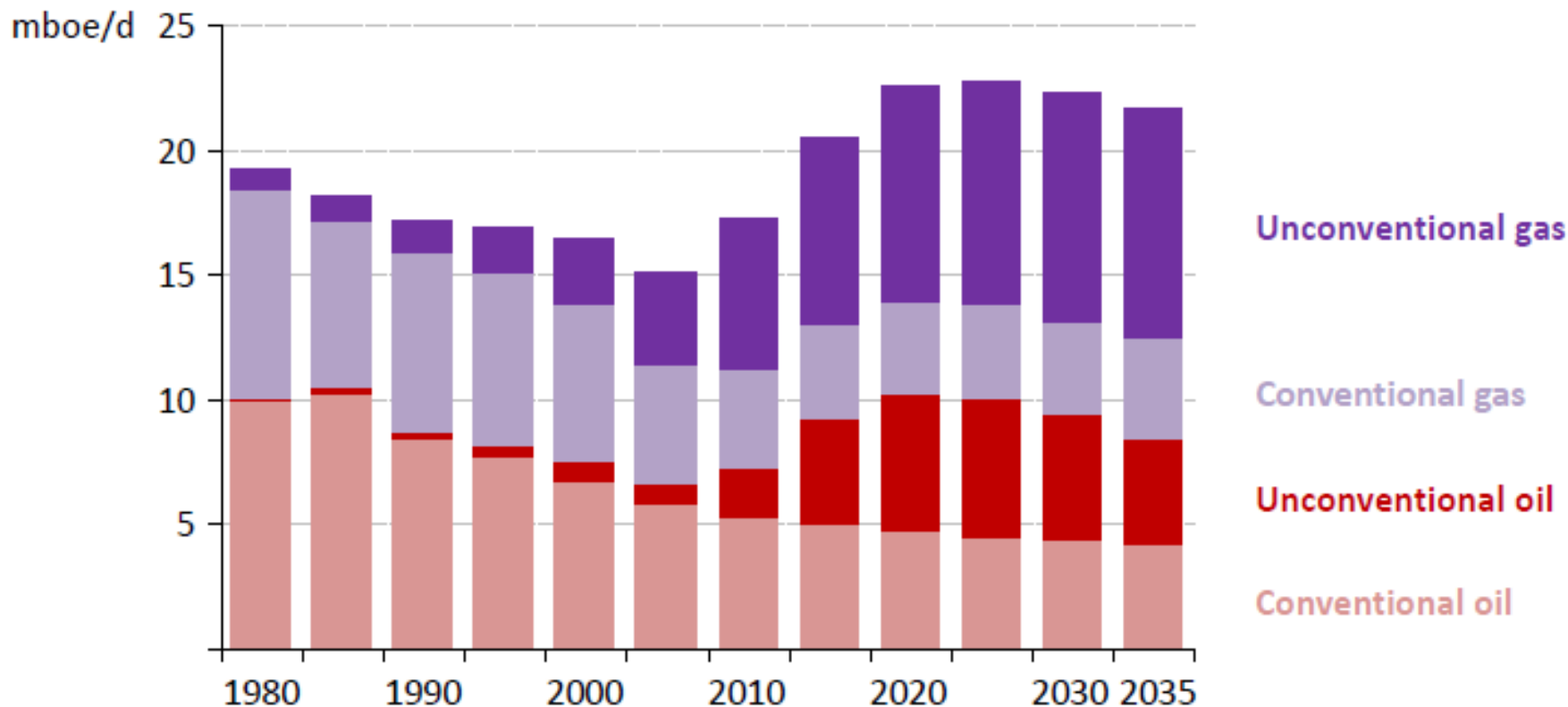


Source: Energy Technology Perspectives 2012

*The share of unconventional gas of total gas supply continues to increase in both 4DS and 2DS.*

# A United States oil & gas transformation

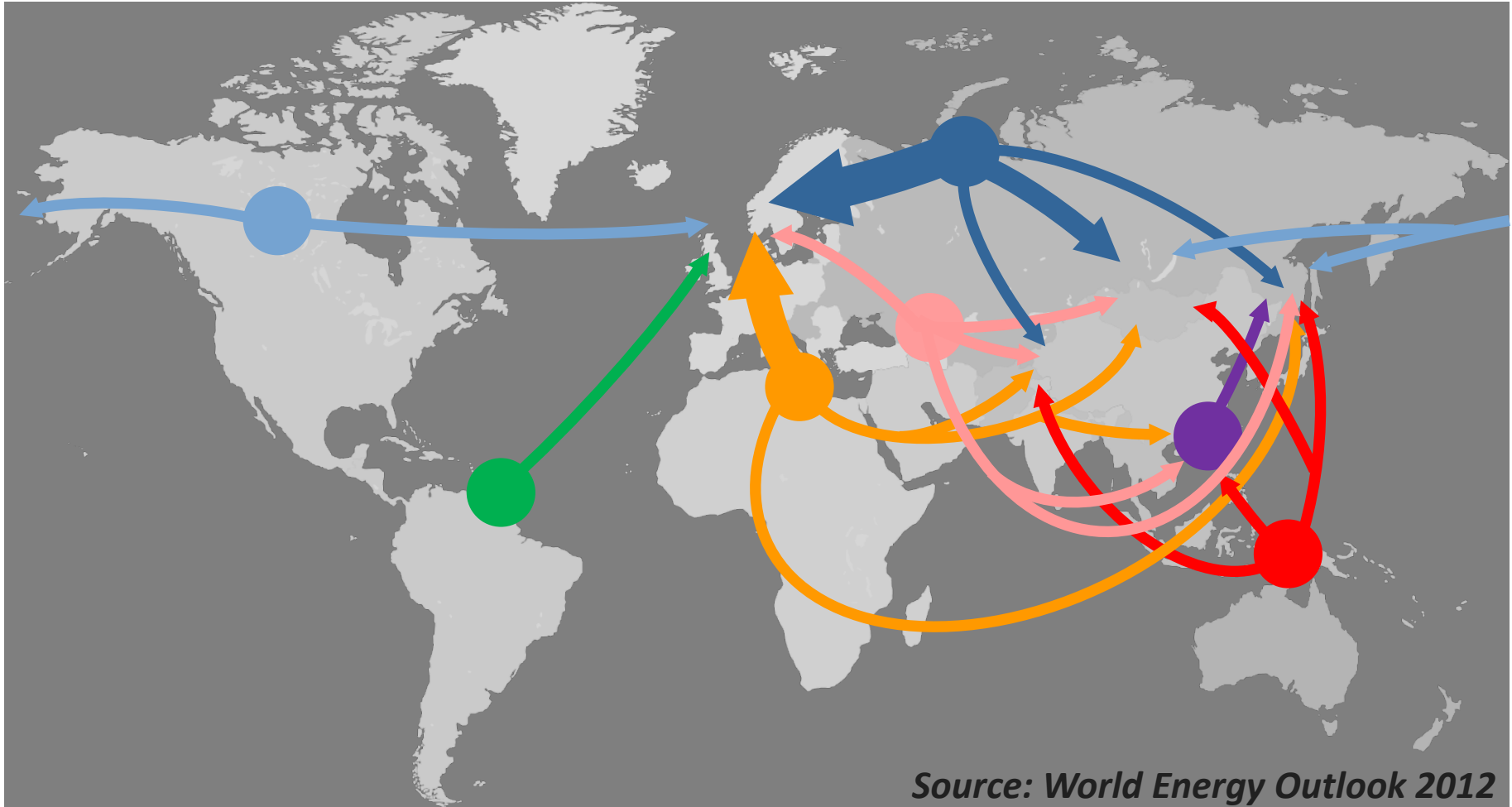
## US oil and gas production



Source: World Energy Outlook 2012

**The surge in unconventional oil & gas production has implications well beyond the United States**

# Major global gas trade flows 2035



*Rising supplies of unconventional gas & LNG help to diversify trade flows, putting pressure on conventional gas suppliers & oil-linked pricing mechanisms.*

## ETP 2012: Natural Gas

- Increasing production of unconventional gas leads to an improvement in energy security in many regions.
- Regulation to mitigate the potential for environmental risks associated with production of unconventional gas must be introduced.
- Over the next ten years, gas will displace significant coal-fired power generation. Gas-fired technologies to provide flexibility for power generation will be essential over the short term.
- First-generation, large-scale gas plants with CCS need to be demonstrated and deployed.

## ETP2012: Natural Gas in the 2DS

- Natural gas will retain an important role in the power, buildings and industry sectors to 2050.
- The share of natural gas in total primary energy demand declines more slowly – and later (after 2030) – than other fossil fuels.
- Natural gas acts as a transitional fuel towards a low-carbon electricity system.



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Thank you for your attention

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