



Future Energy Challenges

Peter Mather
Head of Country, UK & VP Europe

A photograph of an offshore oil rig at night, illuminated by warm yellow lights. The rig is a complex of steel structures, including a tall derrick and various platforms. The sea is dark blue, and the sky is a deep twilight blue. The rig is positioned in the center-left of the frame, with the ocean extending to the right.

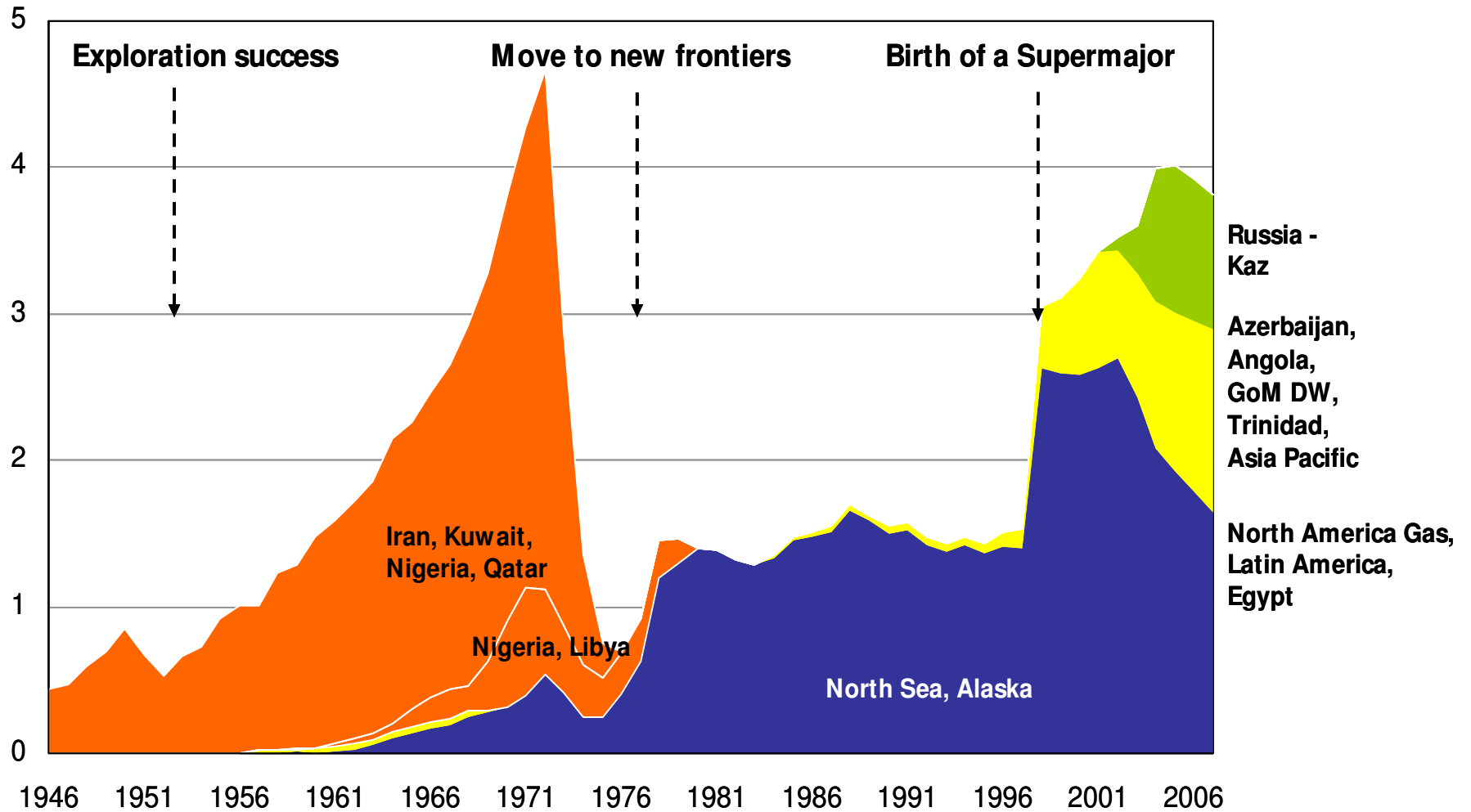
100 years
of operating
at the
frontiers

A long and illustrious history 1909 - 2009

The energy industry is no stranger to challenges



Million barrels of oil equivalent per day



Source: historic data from BP archives

The external environment is changing



Global

- Energy has become a public issue.
- Growth in world population and economic prosperity leading to sustained energy demand. Emergence of China and India as major energy consumers.
- Energy consumers were showing resilience to high energy prices. But changed economic environment will have an impact.
- Resource nationalism and religious fundamentalism on the rise.

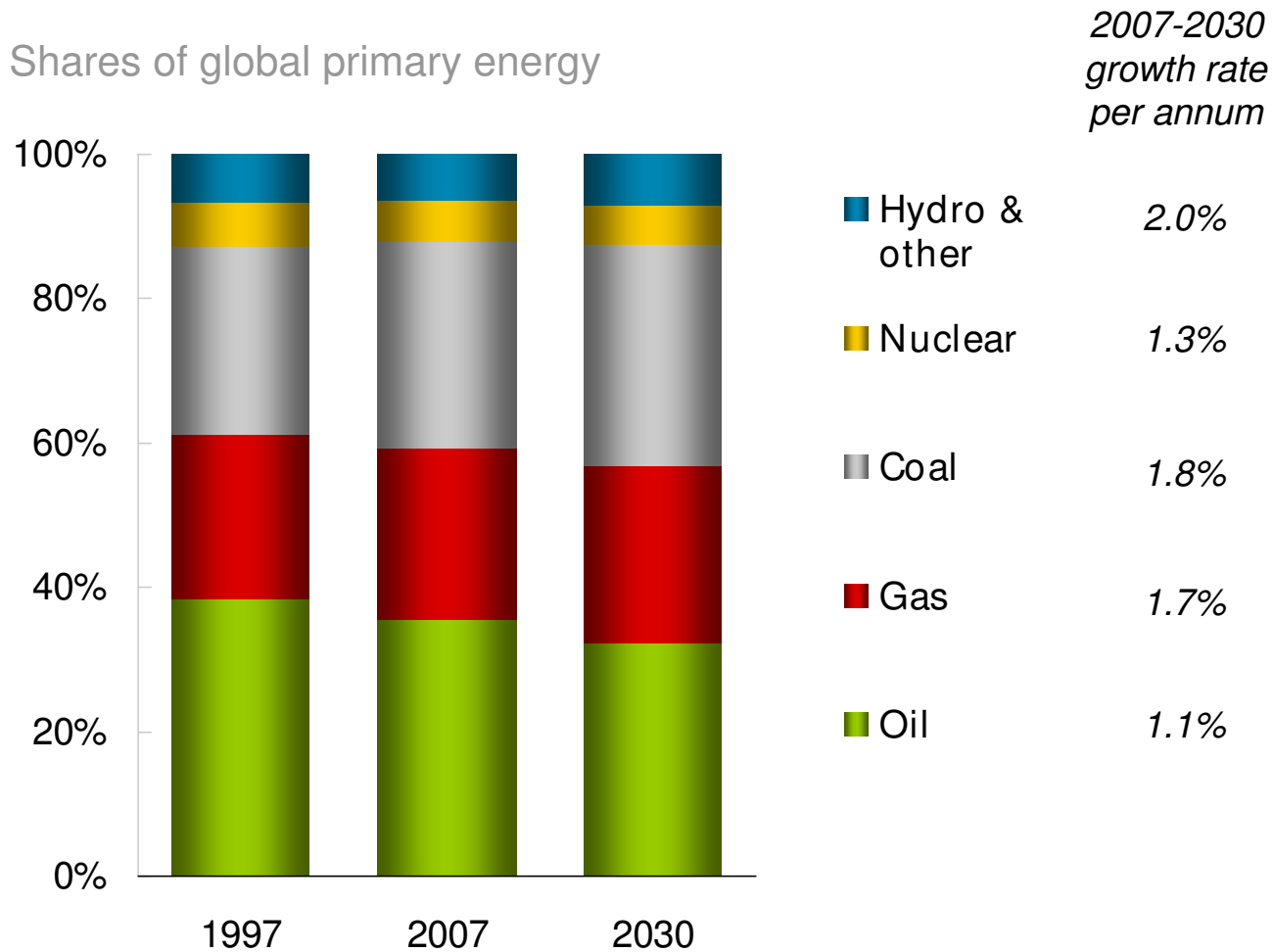
Industry

- Increasing concerns about security of supply driving market behaviour.
- Politics remain stubbornly national. States and NOCs playing an important role in access to resources.
- Increasing scientific evidence on climate change leading to policy imperatives.
- Unconventional energy gaining importance on the basis of security of supply agenda.
- Industry reputation remains vulnerable despite lowering prices.

The carbon challenge



Shares of global primary energy

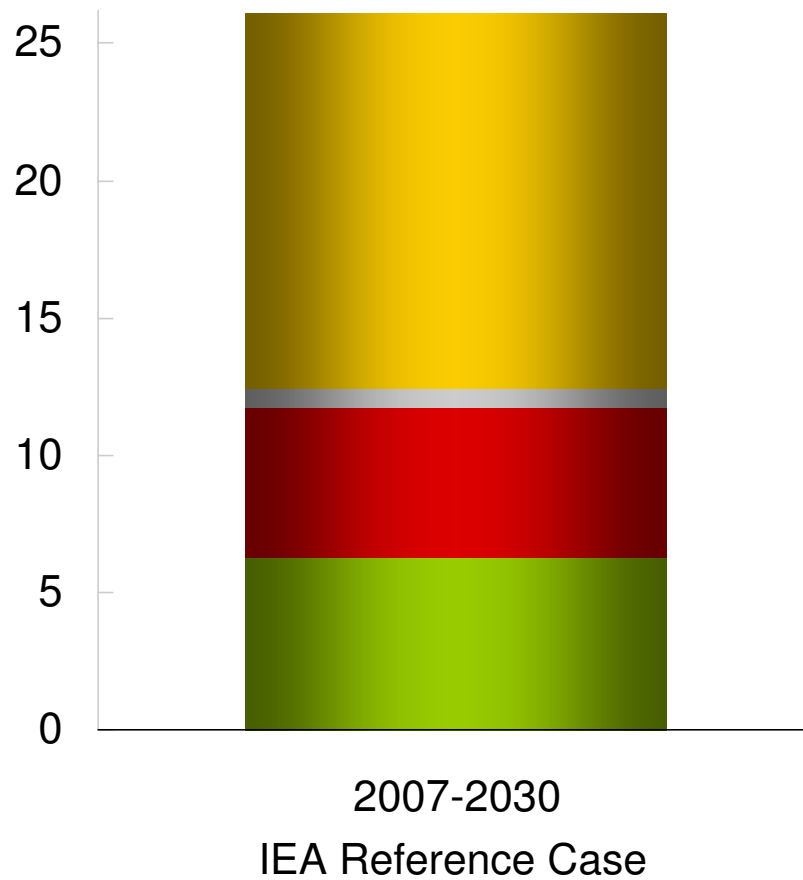


Note: 2030 forecasts are a simple average of IEA and EIA reference case scenarios

The investment challenge



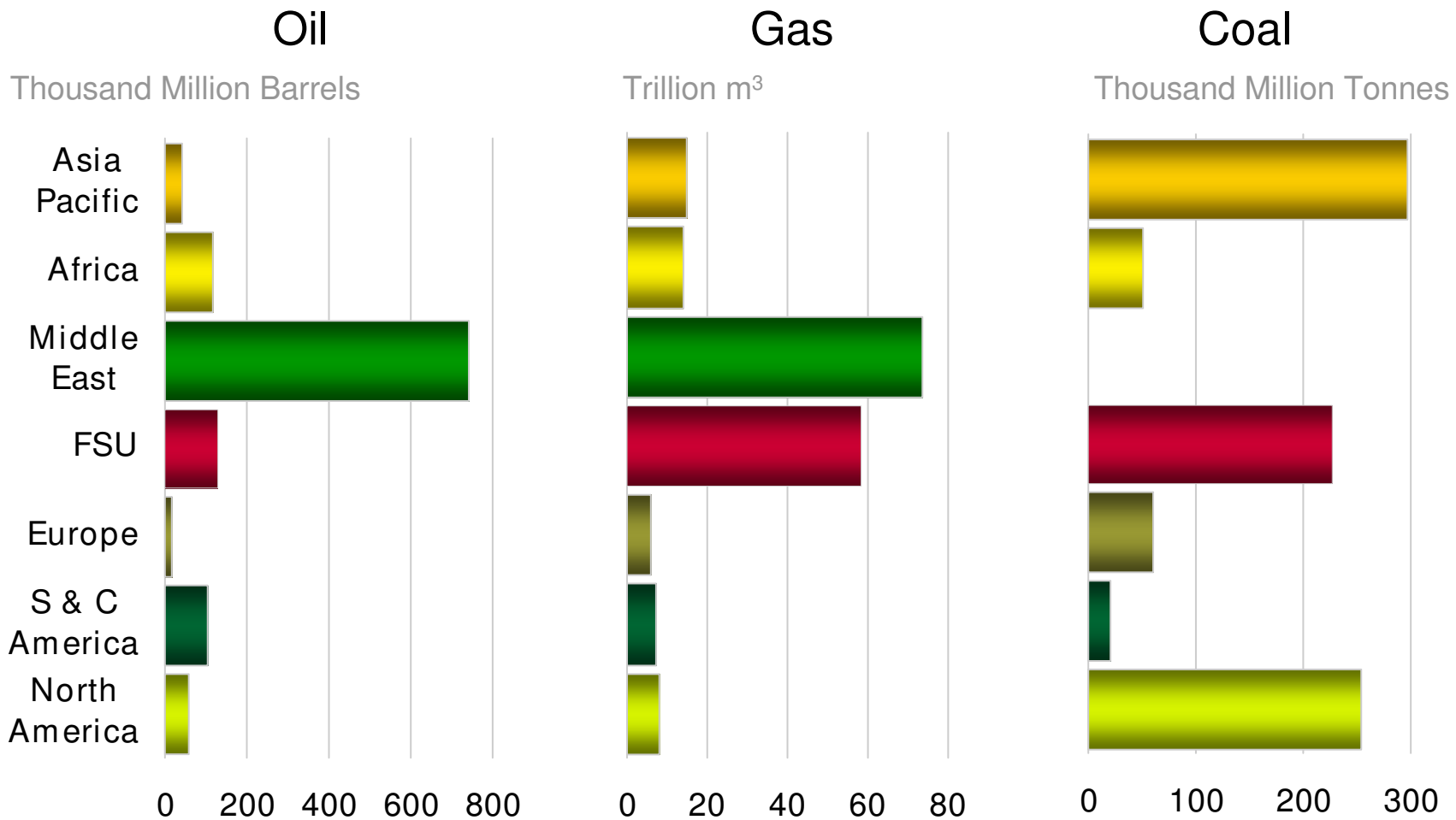
Cumulative investment in energy supply
US\$ trillion, 2007 prices



*Investment
per annum*

■ Power	<i>\$591 bn</i>
■ Coal	<i>\$32 bn</i>
■ Gas	<i>\$237 bn</i>
■ Oil	<i>\$274 bn</i>
<hr/>	
Total	<i>\$1,134 bn</i>

Reserves aren't necessarily where you want them



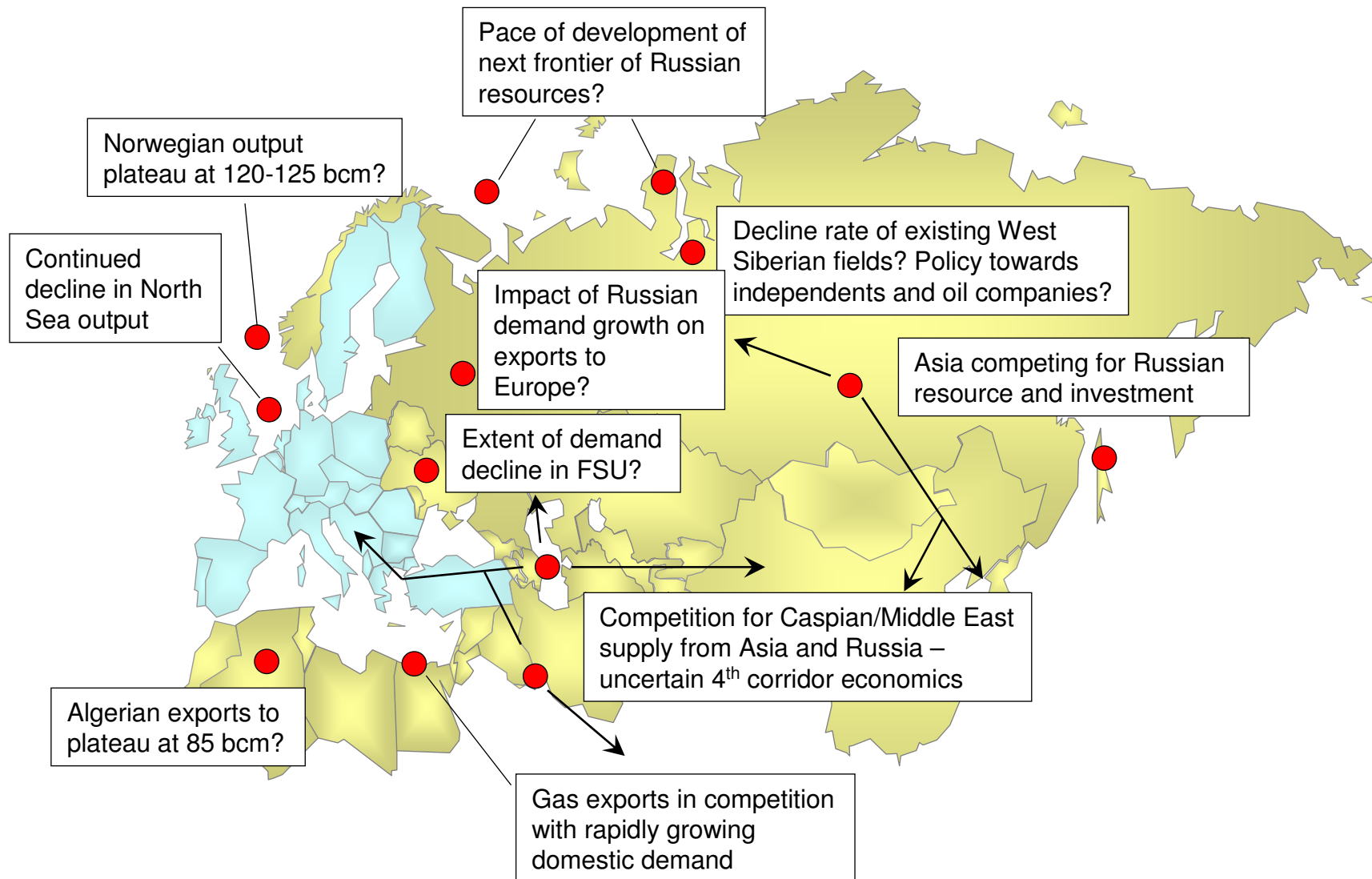
Concentration ratios (3 largest reserve holding countries):

Oil:
43%

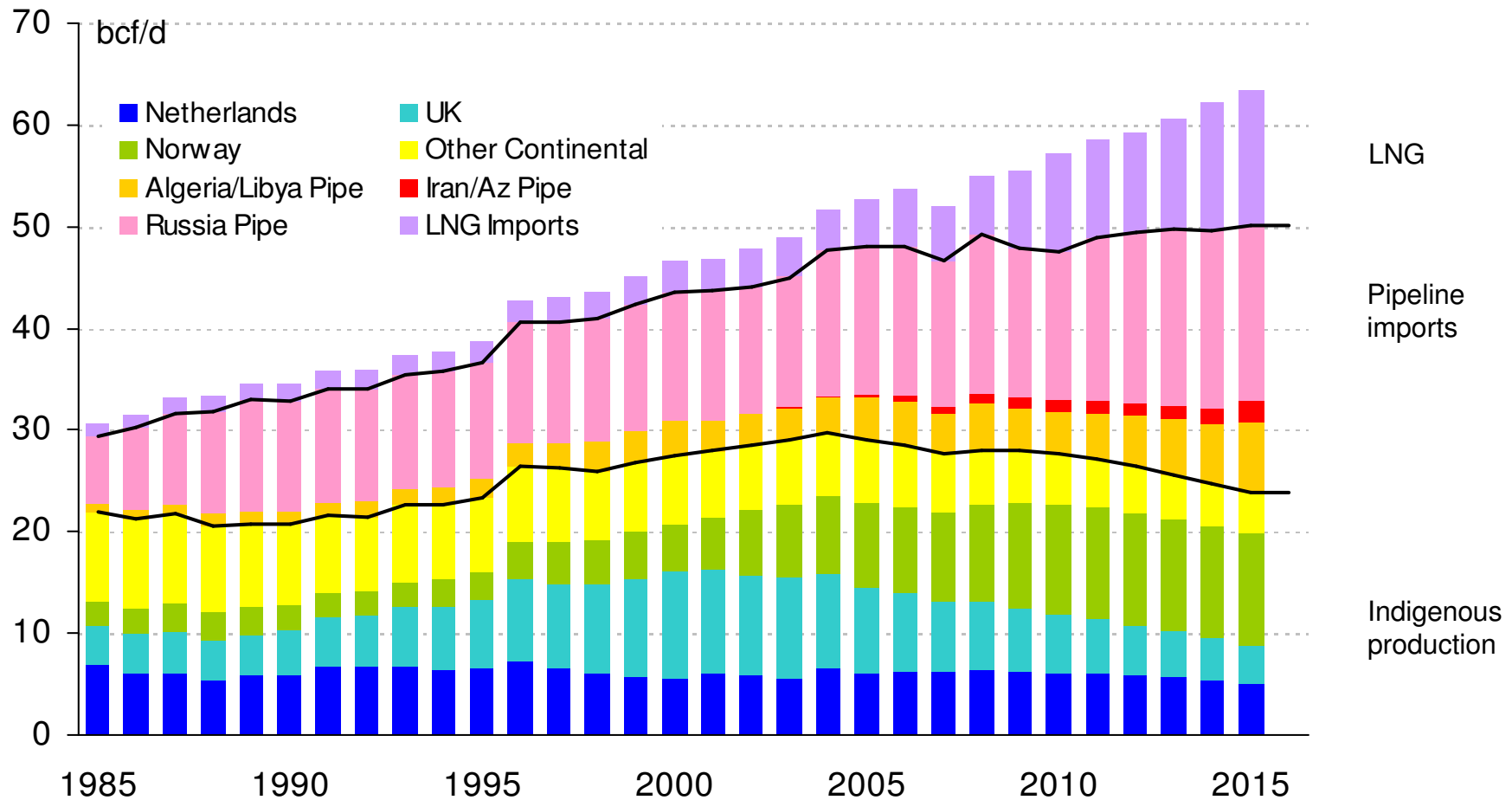
Gas:
56%

Coal:
57%

The supply of gas to Europe has its own challenges



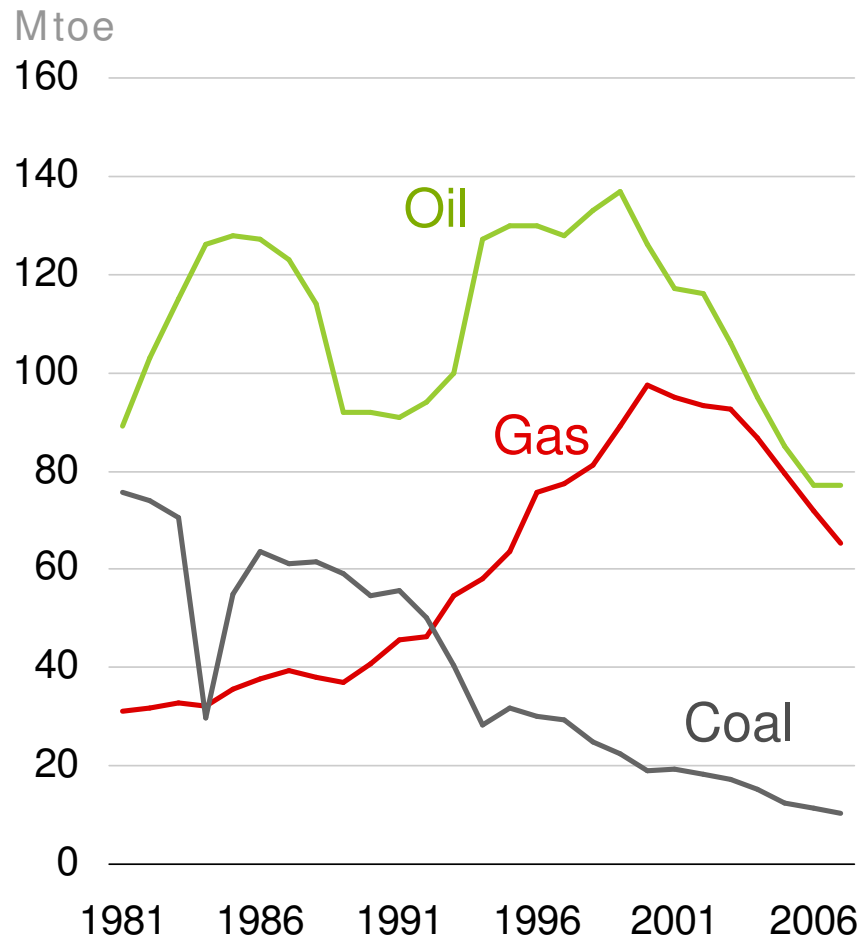
Europe faces a major gas supply deficit by 2015 – enter LNG ?



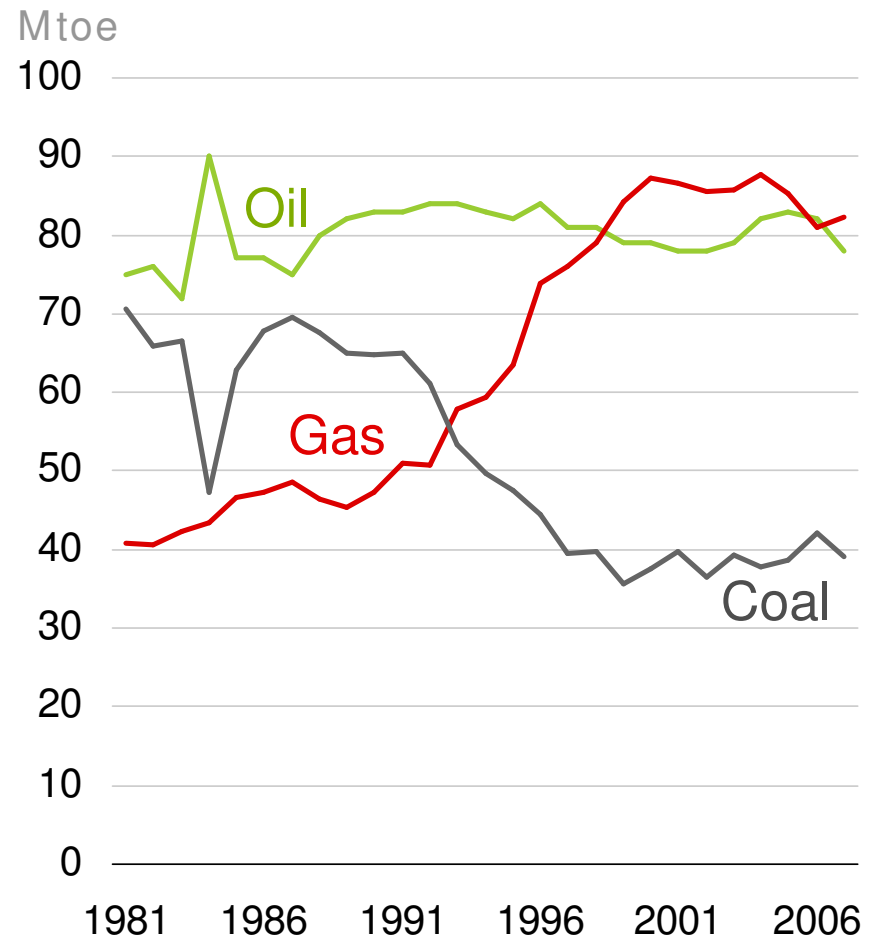
So what about the UK?



Hydro-carbon Production

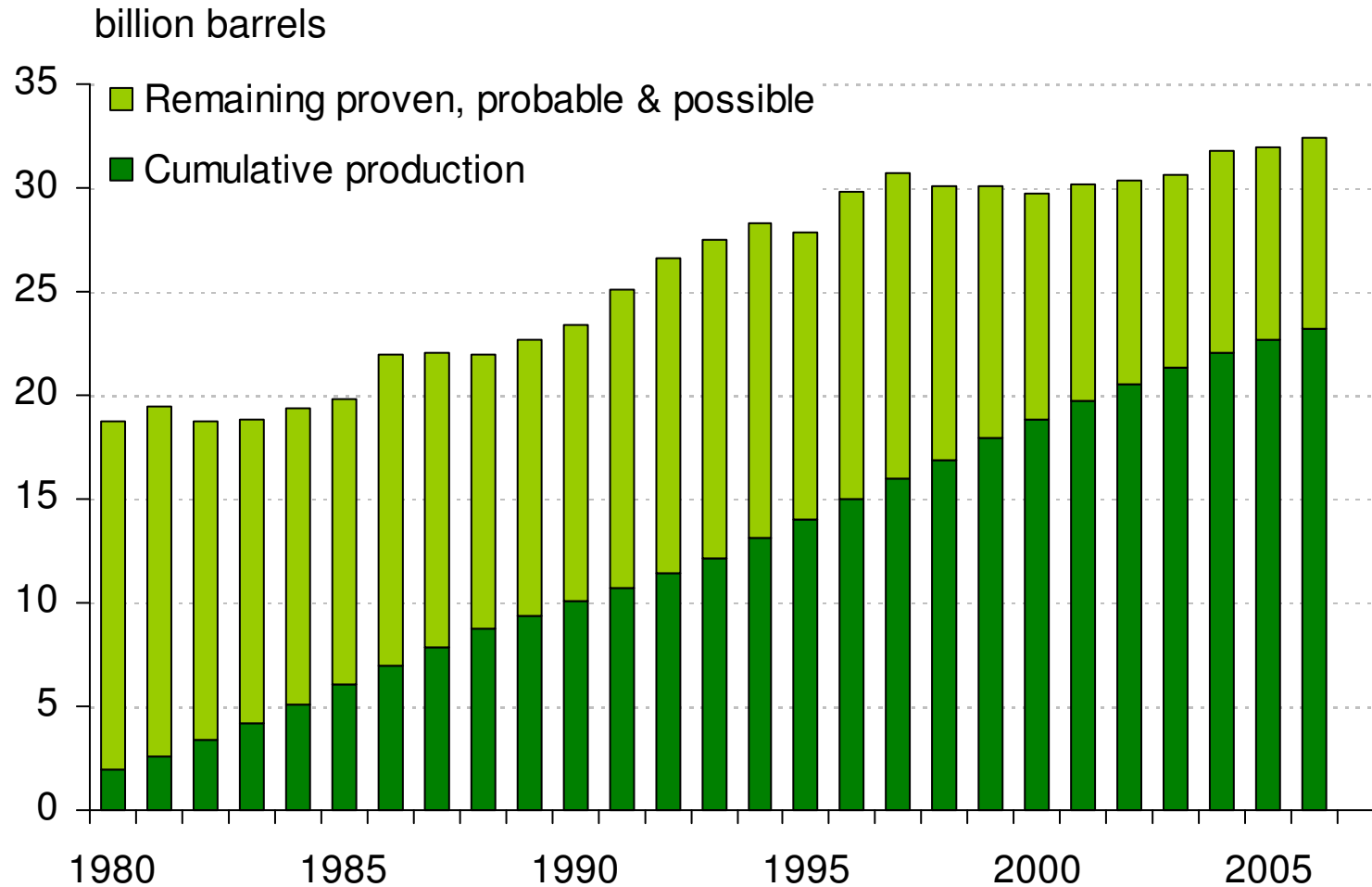


Hydro-carbon Consumption



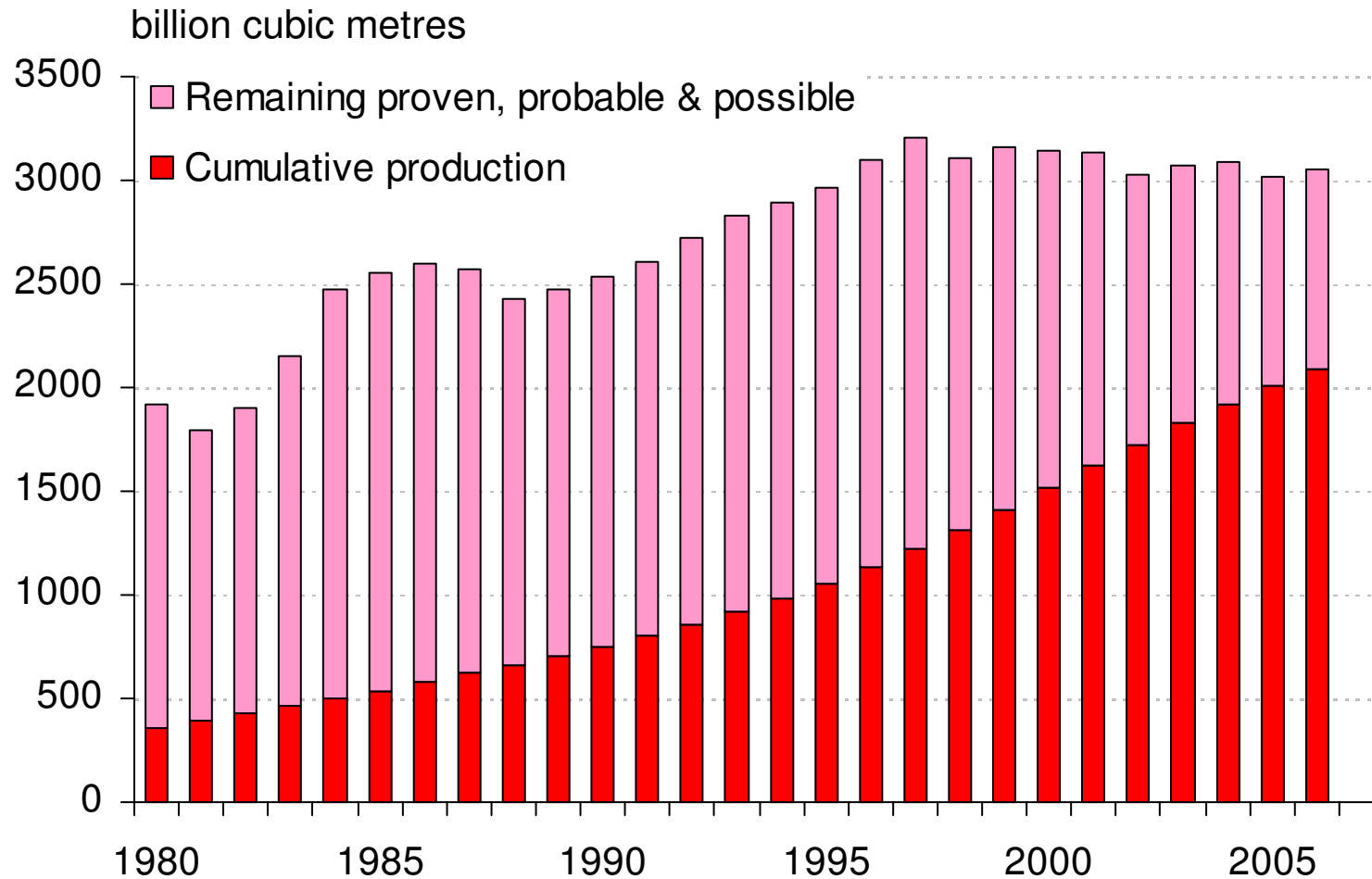
Source: BP Statistical Review of World Energy

There is limited upside - 70% of identified resource base already produced



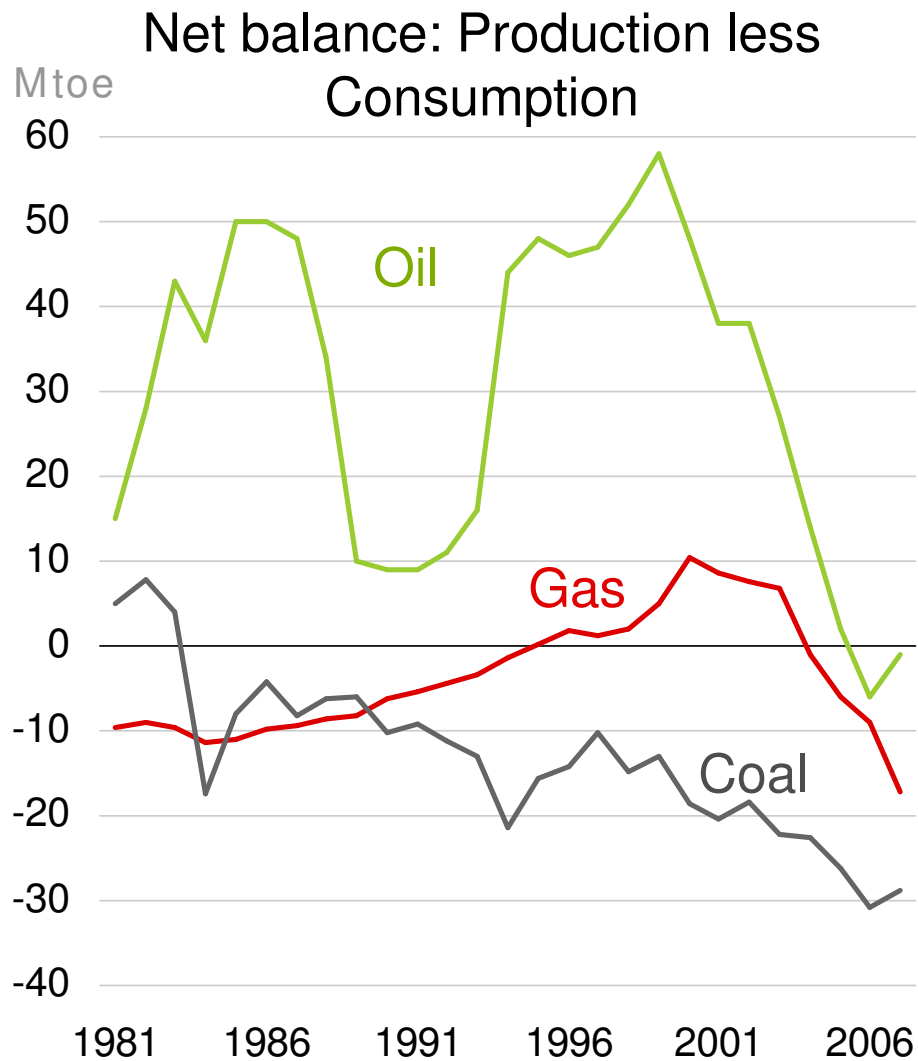
Source: BERR

A similar story for gas - 70% of identified resource base already produced

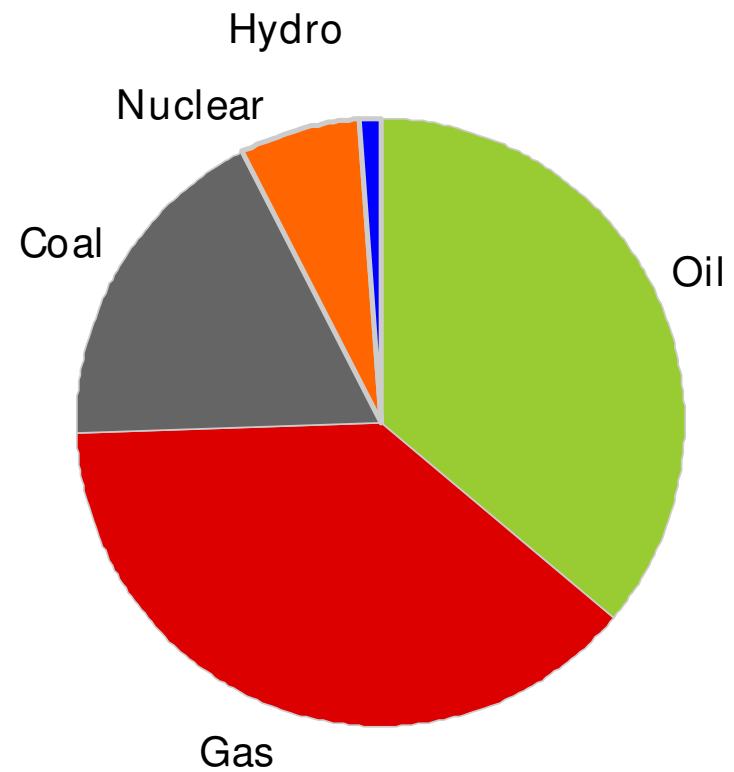


Source: BERR

Renewables have a long way to go



Shares of Consumption



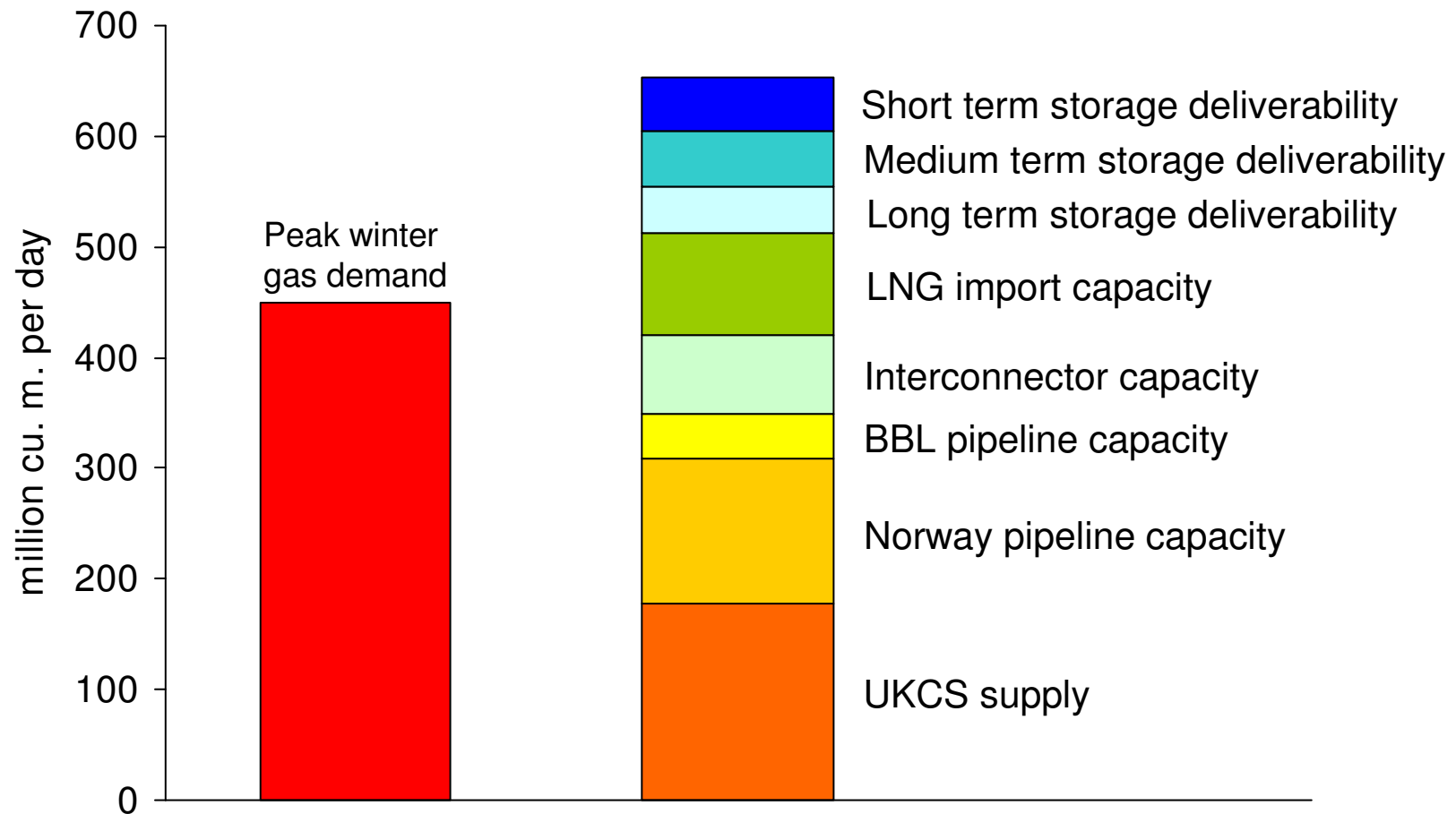
Source: BP Statistical Review of World Energy

The UK issues are now centre stage



- The market has prevailed to date
- But we are now a net importer
- Energy policy – emissions targets versus keeping the lights on
- Infrastructure investment – grid, pipelines, LNG terminals, storage facilities, CCS
- Fiscal encouragement for the North Sea
- Where's the money going to come from?

There's no immediate problem for the 2009/10 winter



Source: National Grid Transco

Concluding Remarks



- Energy has become a massive public issue
- Trade-offs will have to be made
- Higher levels of investment than we have been used to are inevitable
- Hydrocarbons will become obsolete before they become extinct
- National and international collaboration and partnerships are key