Can Europe have it all? What should Europe want from its future Energy Mix?

Dieter Helm
Professor of Energy Policy, University of Oxford, UK
ONS Conference, Stavanger, 29th August 2012

Questions

- What is the rationale for the EU 2020 – 20 – 20 climate package?
  - Are fossil fuel prices going ever upwards?
  - Is gas inevitably linked to oil?
  - Is Kyoto making any difference?
  - Why are global emissions continuing to rise?
- Does the EU 2050 Roadmap provide a way forward?
- What is likely to happen in the UK and Germany?

The 2020 – 20 – 20 Climate Package

- Short term answer to long term problem
- Based on *current* renewables
- Claimed to meet *competitiveness* objectives, and be *sustainable* and increase *energy security*
- Assumes EUETS works

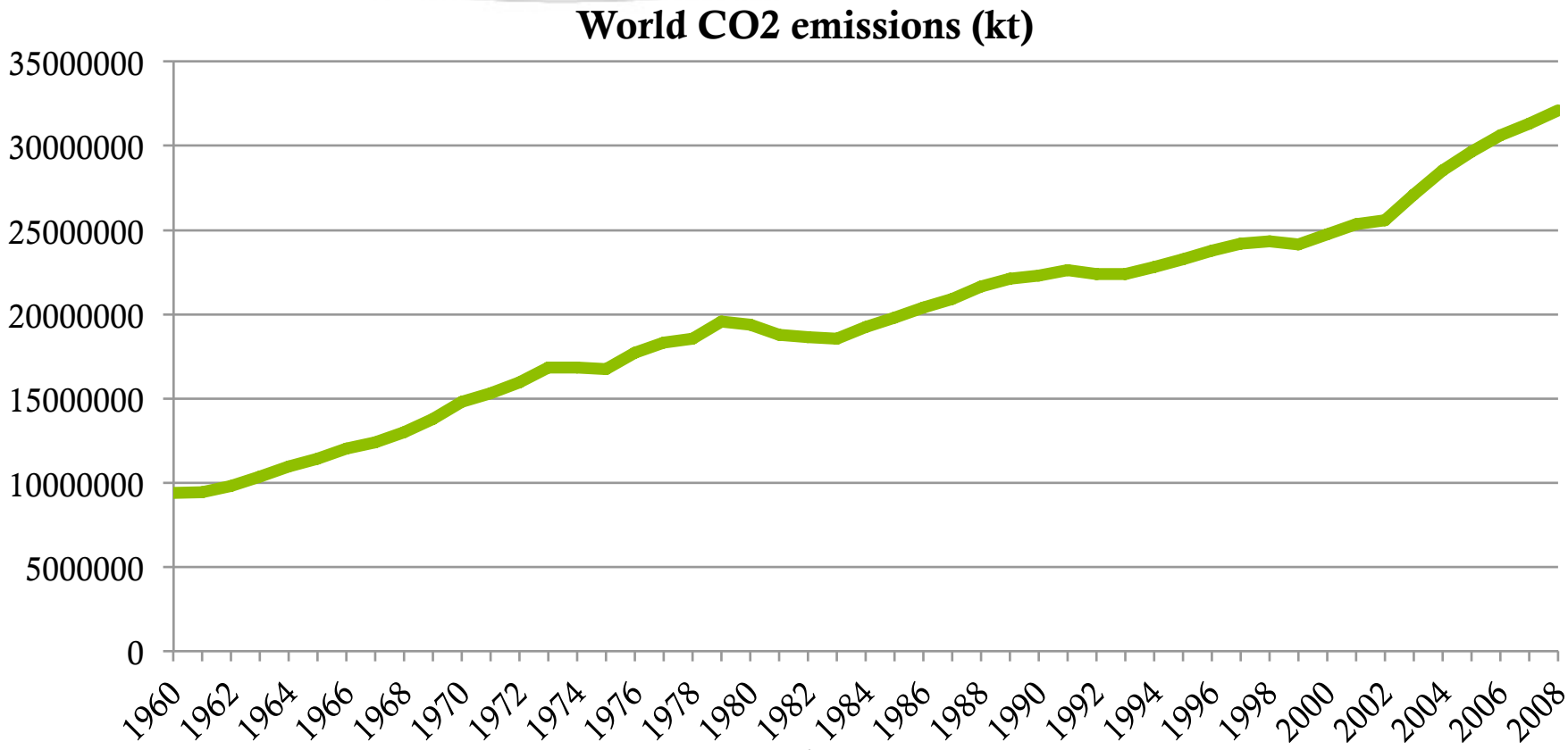
Based on the conventional view of climate change

- KYOTO
  - Carbon production NOT consumption
  - Europe-driven and European leadership
  - Copenhagen, Durban

But Kyoto has made little difference

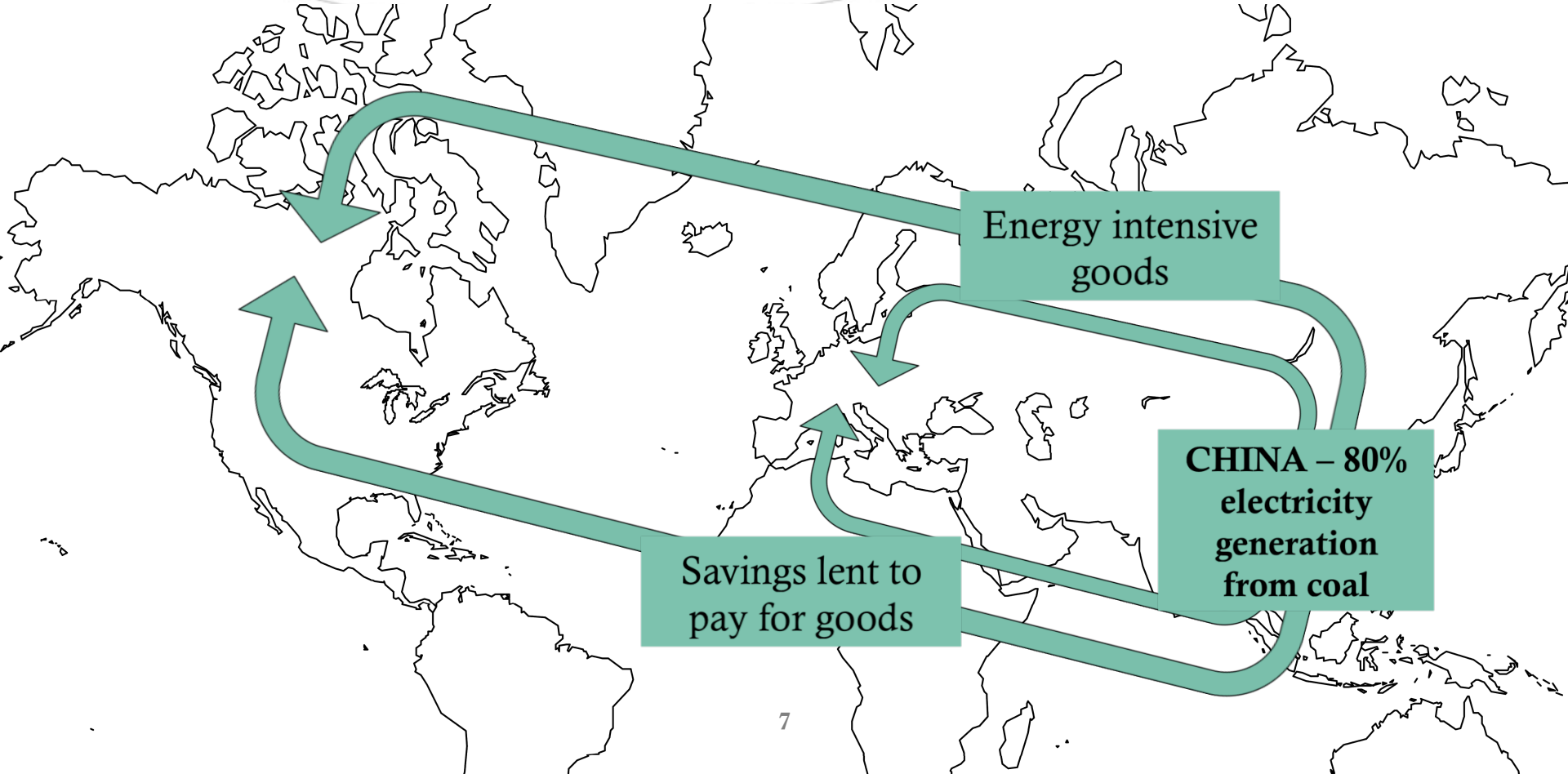
- Emissions keep going up
- Why?
  - Coal, coal, coal
  - China's economic growth
- How could European meet Kyoto targets and yet increase emissions?
  - Carbon *consumption* NOT carbon *production*

CO2 emissions 1960-2008 (kt)

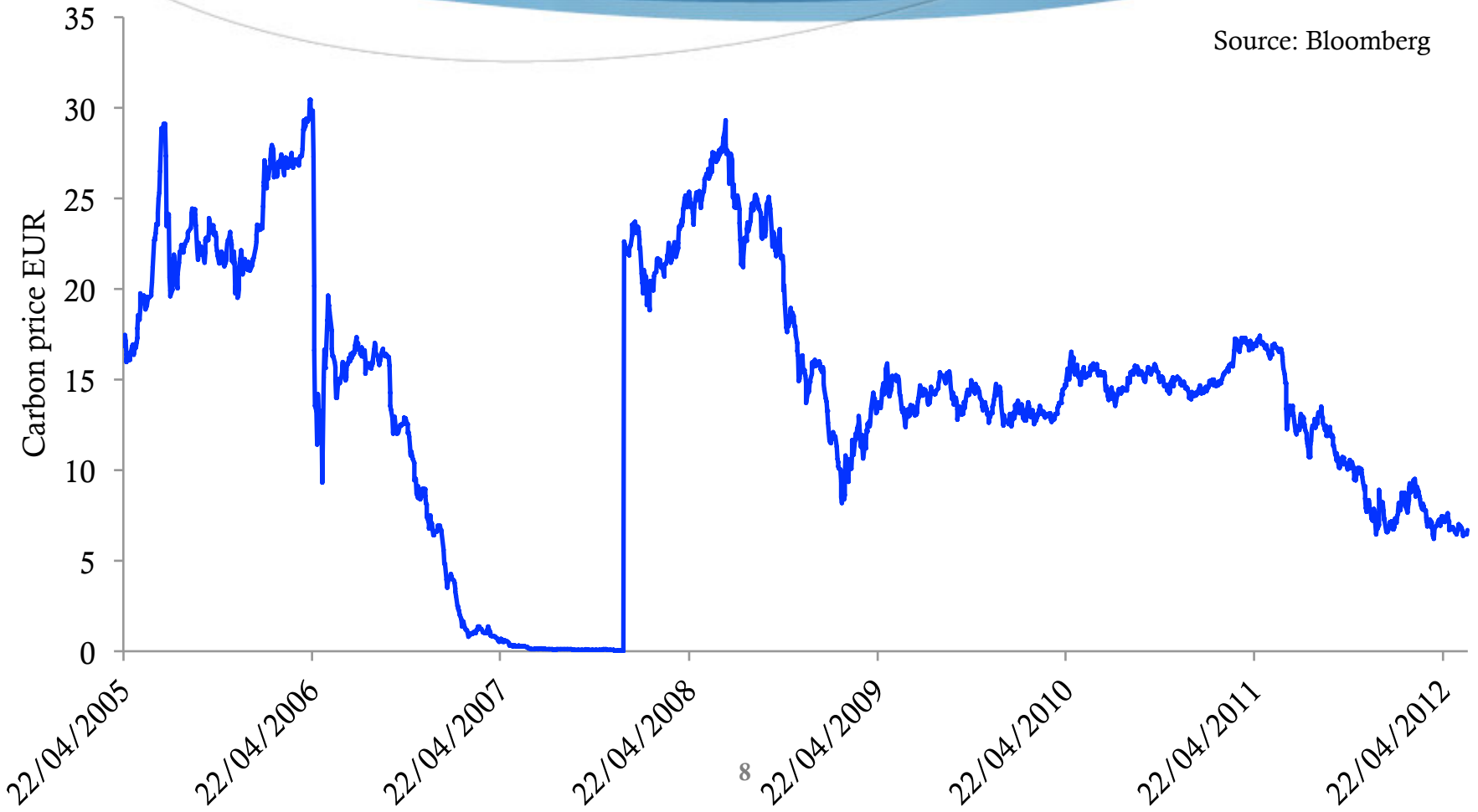


Source: World Bank World Development Indicators Database

What is really going on?



EUETS futures prices



The conventional view of gas in Europe

UK

1959 – British Gas Council demonstrates transportation of LNG over long distances at sea

1965 – Natural gas reserves discovered in North sea

1980s – 'Town gas' productions ceases in Europe

1990-2000 – first 'dash-for-gas'

1998 – UK gas network linked to Belgium

1998-2000 – UK moratorium on gas power stations

Germany

2000 – Putin elected President of Russia

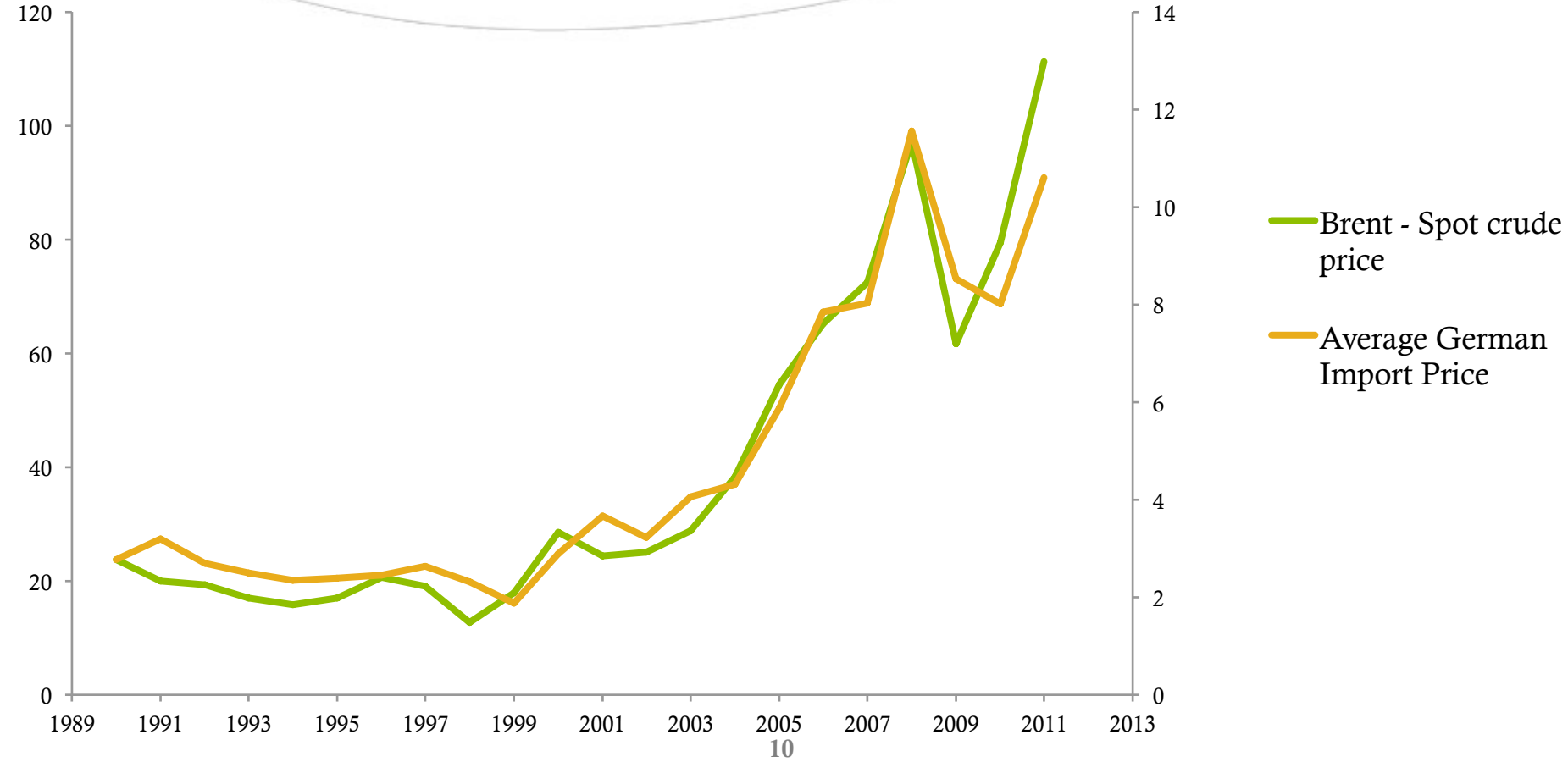
2006 1st Jan – Russia cuts off all gas through Ukraine

2006 August – German/Russian long-term contracts signed between EON and Ruhrgas for 2020 – 2035

2009 – Further Russia/Ukraine supply interruptions

2011 Nordstream pipeline opens

Natural Gas vs. German Oil import price 1990 – 2011 (US$)



Source: BP Statistical Review of World Energy 2012

Natural Gas vs. Crude Oil 1990 – 2011 (US$)

Source: BP Statistical Review of World Energy 2012

Peak oil/gas nonsense

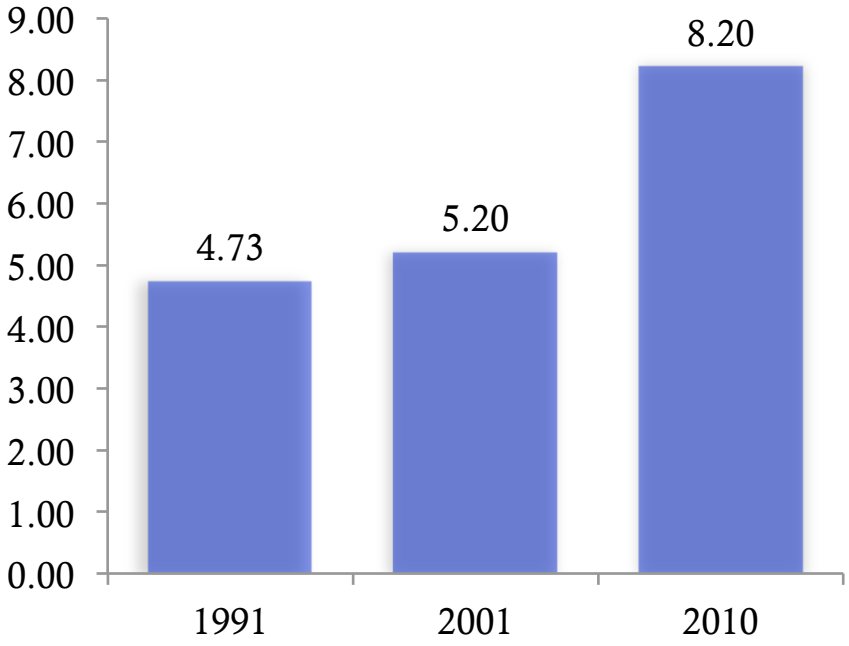
- Production has not peaked
- Conventional and unconventional reserves ↑

⇉ Technology breakthroughs

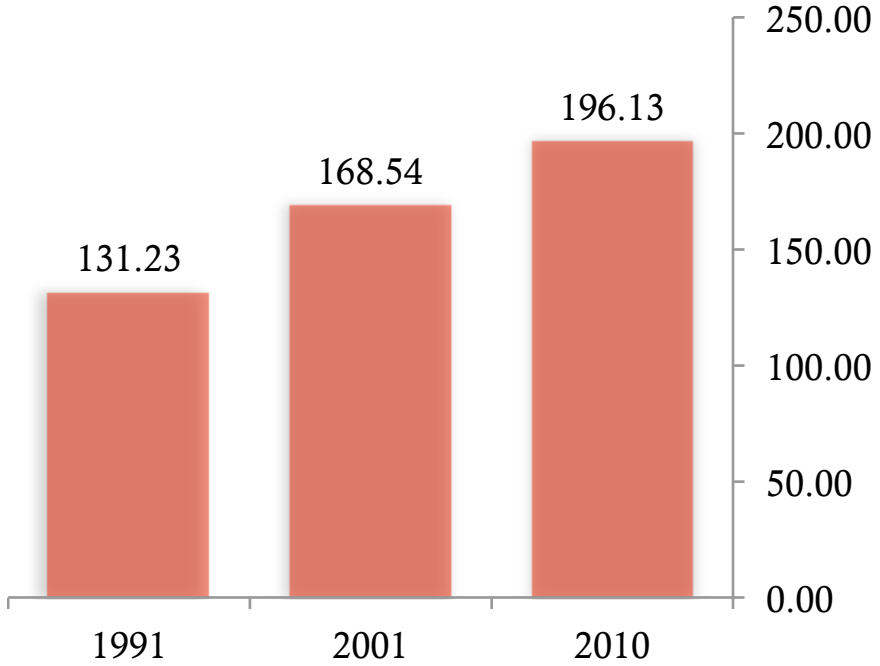
⇉ Widely distributed reserves

And for reserves…

US gas reserves 1991-2010
(trillion cubic metres)

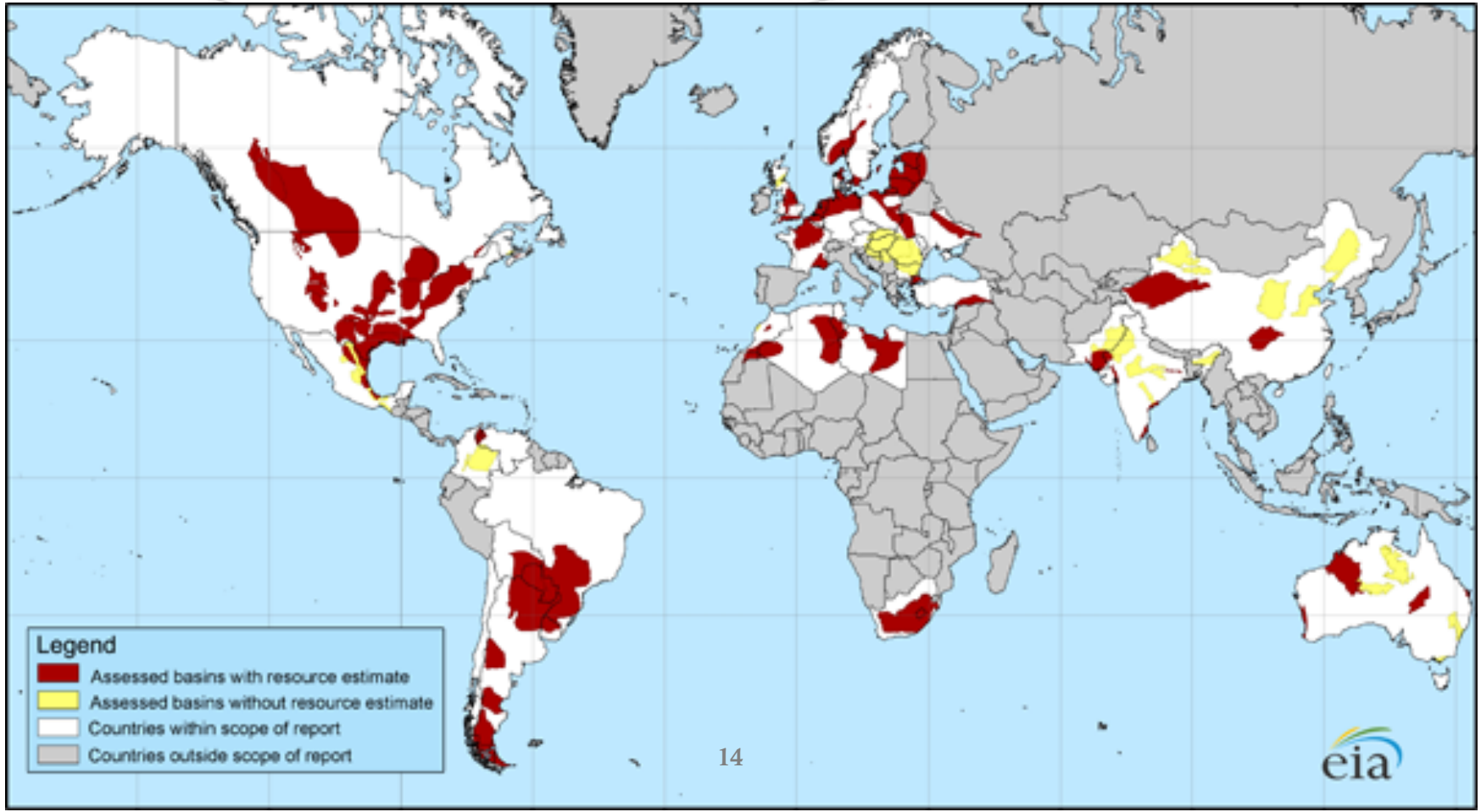


World gas reserves 1991-2010
(trillion cubic metres)

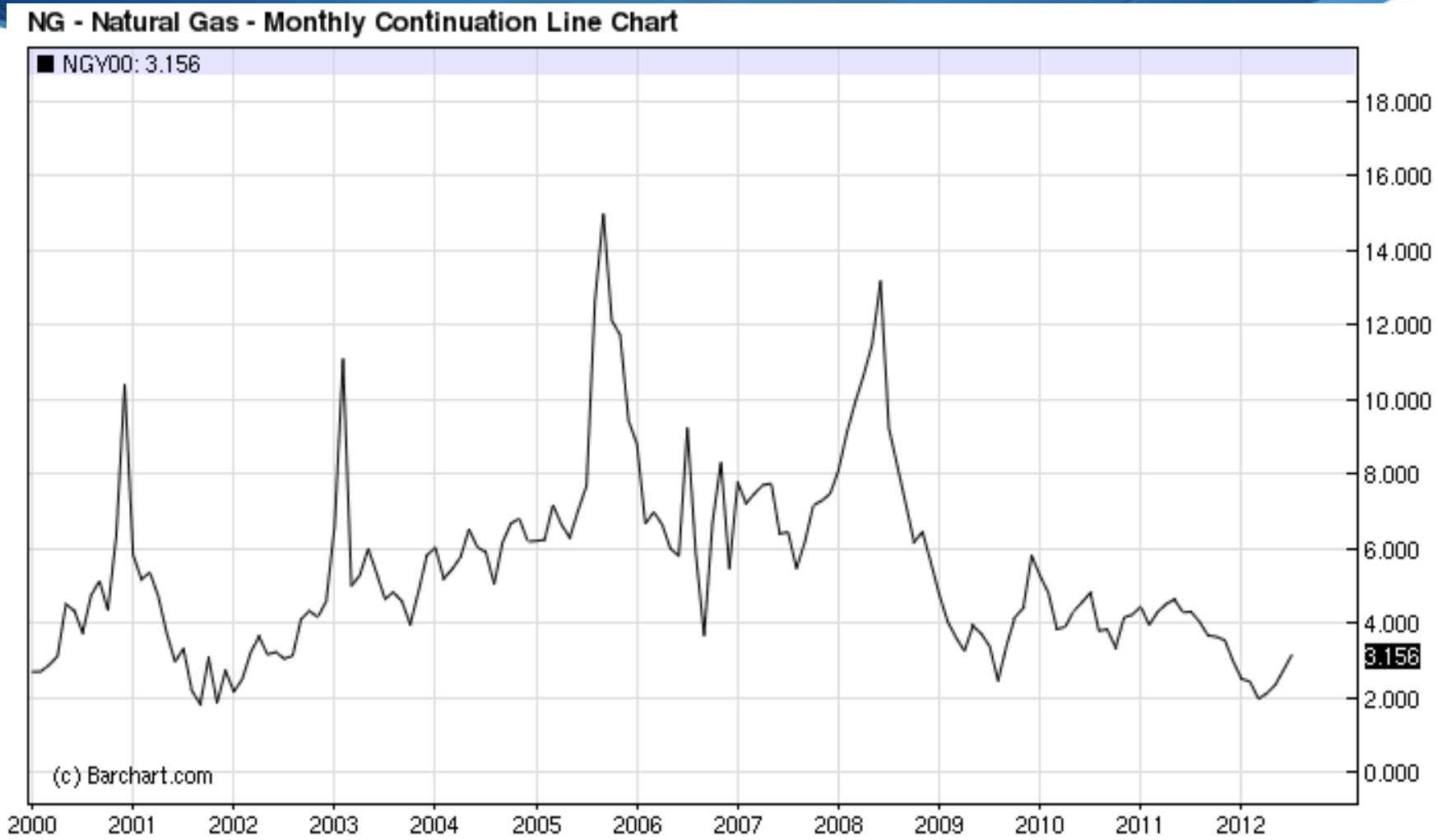


Source: BP Statistical review of world energy 2012

World shale gas & oil reserves

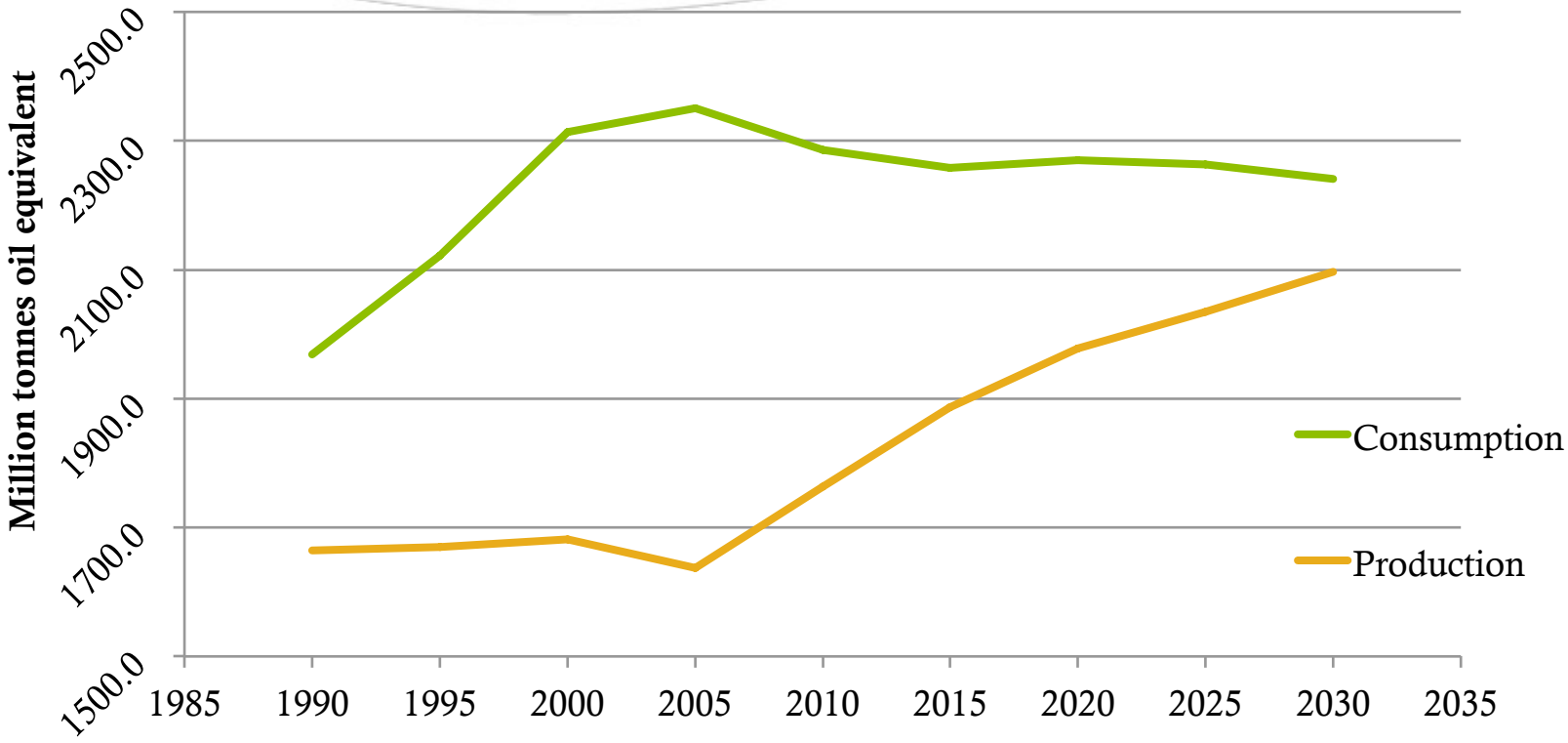


US Natural Gas Prices 2000 - 2012



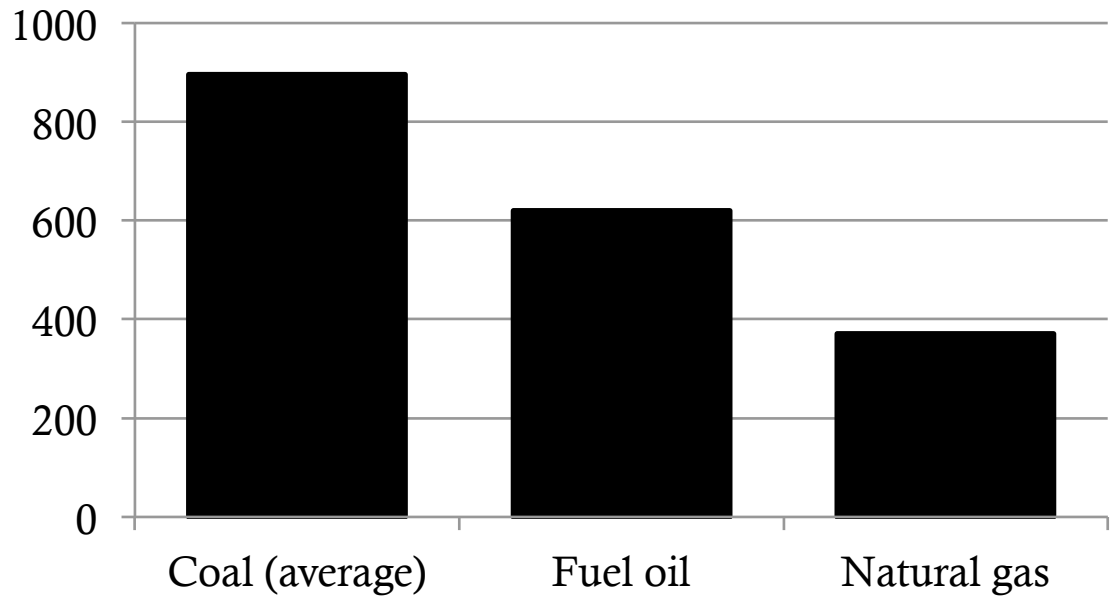
Source: New York Mercantile Exchange

The long term path to US energy independence



Source: BP energy outlook 2030, Jan 2012

Fossil fuel emissions



Approximate CO_2 emissions: grammes of CO_2 per KwH of electricity generated
Source: International Energy Agency "CO_2 emissions from fuel combustion highlights 2011"

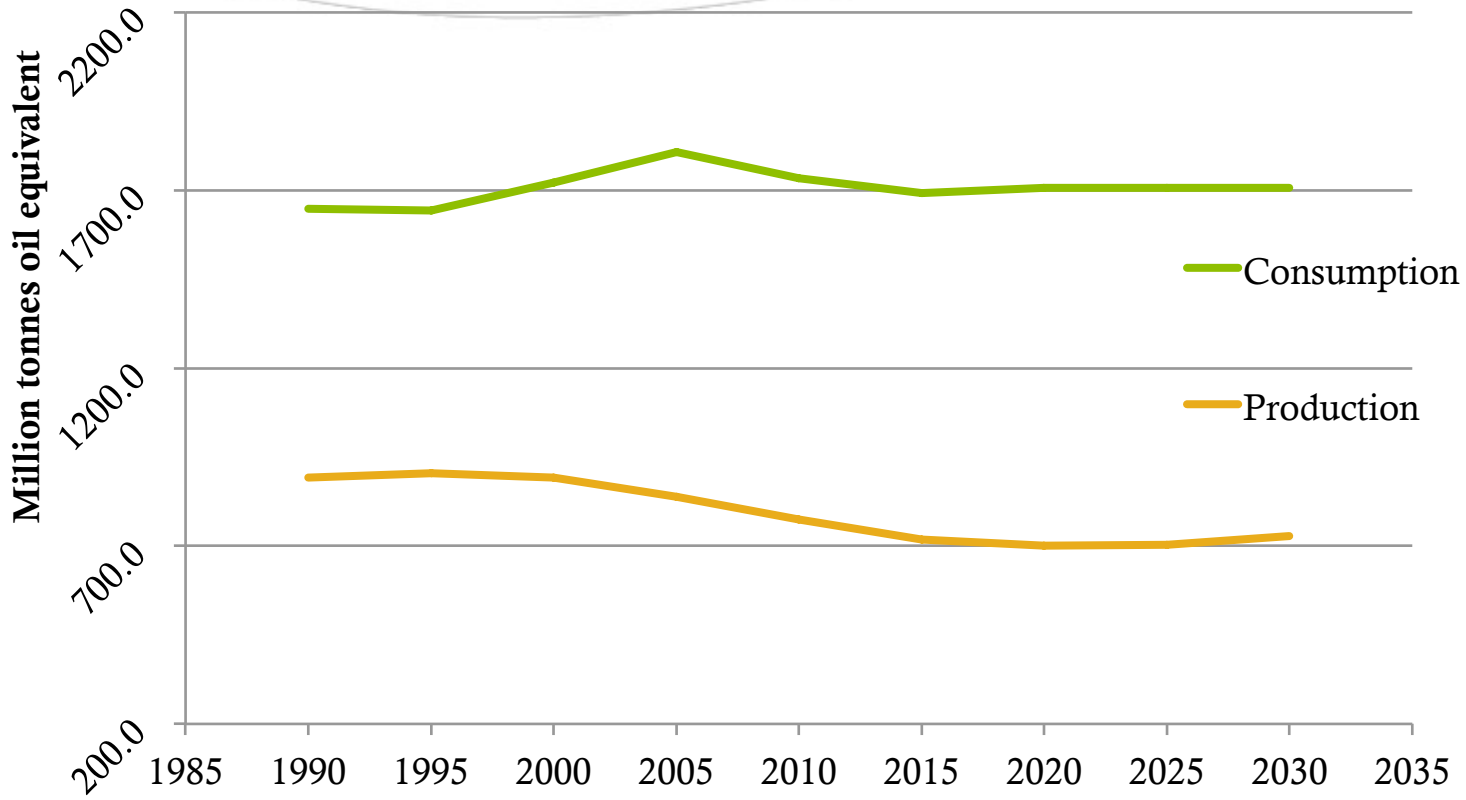
Europe left on the sidelines

- Carbon consumption ↑
- World carbon leadership has not worked
- Current renewables very expensive

BUT… EU 2050 Roadmap

- More *current* renewables
- German (& British) nuclear exit
- National approaches undermine the IEM

And European energy dependence?



Source: BP energy outlook 2030, Jan 2012

NOW

- Gas is abundant
- Gas is cheap
- Gas has half the emissions of coal
- But it is still carbon intensive

What comes next?

- UK, Germany and others debating “energie wende”
- UK : gas review, 4th carbon budget review
- Germany: more pollution, higher costs

- Everywhere renewables subsidies are being cut

Conclusion (1)

- Europe cannot "have it all"
- Europe's competitiveness in energy is falling
- Europe's security of supply is not increasing because of renewables
- Europe's carbon footprint is getting bigger

And…. Eurozone crisis… low growth

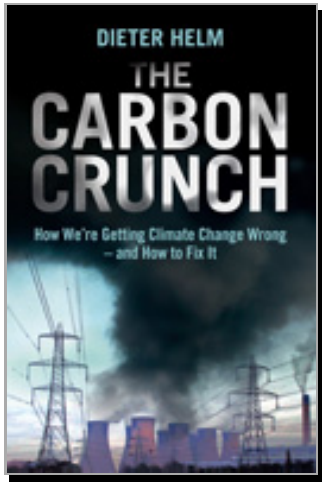
Whilst…. US energy-intensive expansion

Conclusion (2)

- A better way forward:
  - Carbon border pricing
  - Coal → gas substitution
  - R&D and the future renewables

⇉ A solution to the *Carbon Crunch*

FORTHCOMING
YALE U.P.



Enlarge Image

The Carbon Crunch

How We're Getting Climate Change Wrong - and How to Fix it

Dieter Helm

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