

Energy Intensive Users Group

British Ceramic Confederation
Chemical Industries Association
Mineral Products Association
Major Energy Users Council
UK Steel

British Glass Manufacturers Confederation
EnergyQuote
Confederation of Paper Industries
Alcan; Anglesey Aluminium
BOC; Air Products

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International Federation of Industrial Energy Consumers

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Context :

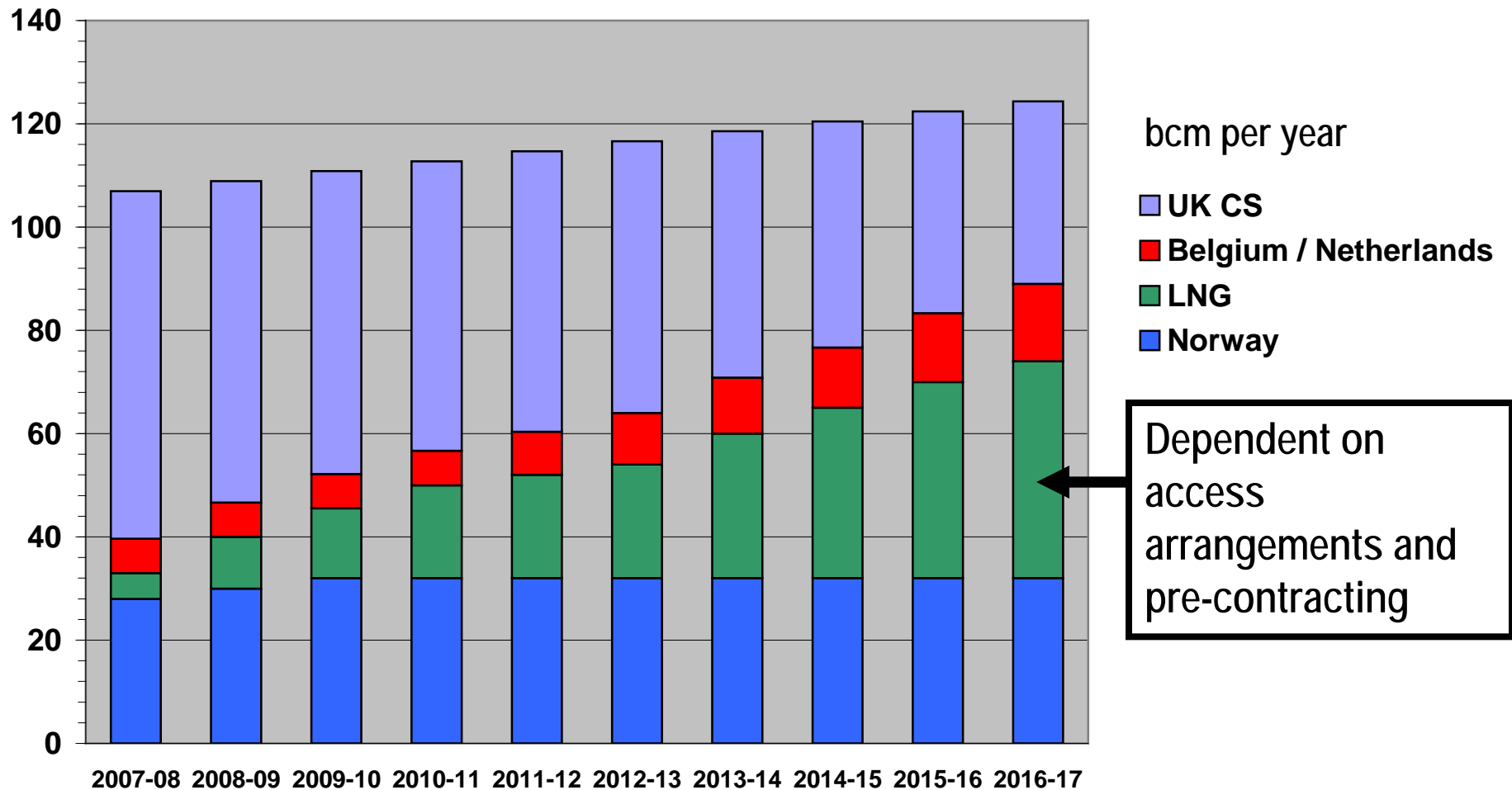
- c.12 GW oil & coal fired capacity to be retired by 2016 (LCPD)
- c.7GW nuclear capacity to retire by 2018 (absent AGR life extension)
- Concern over gas import security (UK c.70% import dependent by 2020)
- Major investment required in energy supply chain (c.£200bn by 2020)
- UK committed to *at least* 34% reduction in ghg emissions by 2018-22
- EU renewable target: 15% UK energy by 2020
 - Implies >30% electricity – mostly wind (intermittency issues)
- UK aspiration for 40% low carbon electricity by 2020
- Political resistance to new coal absent CCS (still at demonstration stage)

Key concern to consumers:

need to maintain secure, competitive/affordable power supplies

Gas Sources – growing import dependency:

Source: National Grid TBE 2008 (Base Case)

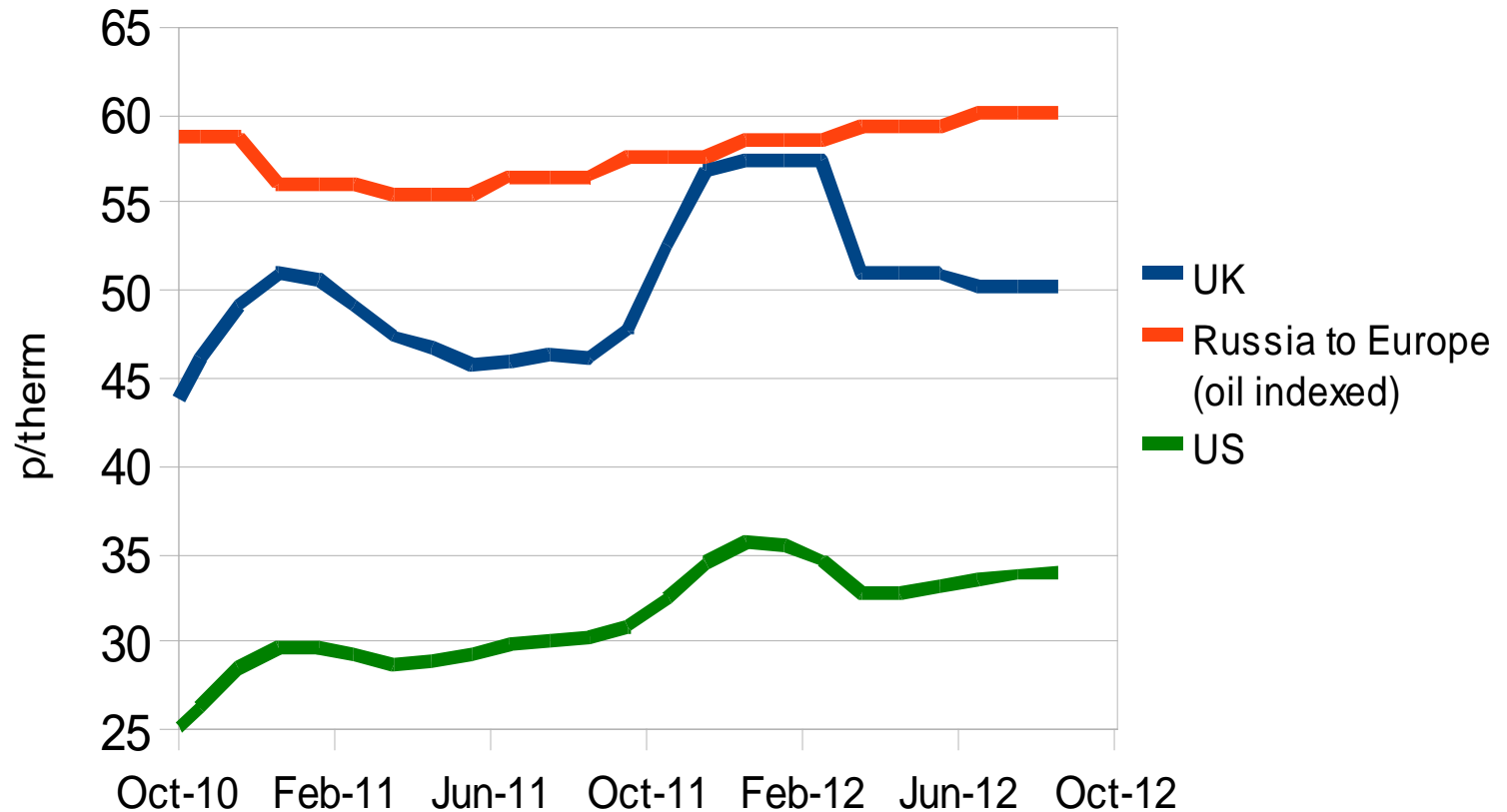


Gas Storage – not nearly enough:

Storage Capacity	% Annual Demand
Germany	19%
Italy	16%
France	24%
UK	4%
EU 25	13%
North America	20%

*Source: International Energy Agency –
date unclear (pre 2006)*

Gas Forward Prices: UK, US, European (oil indexed)

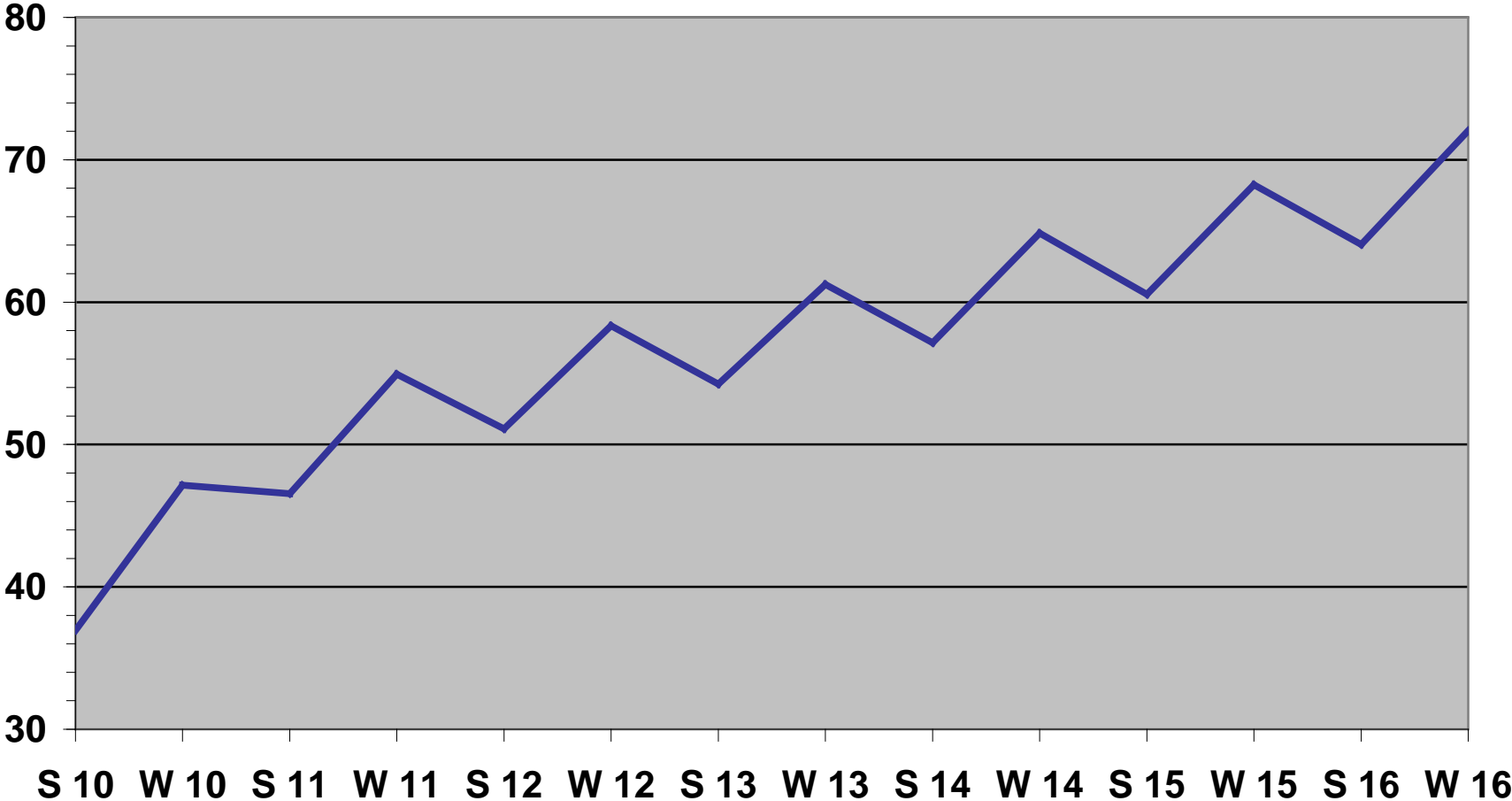


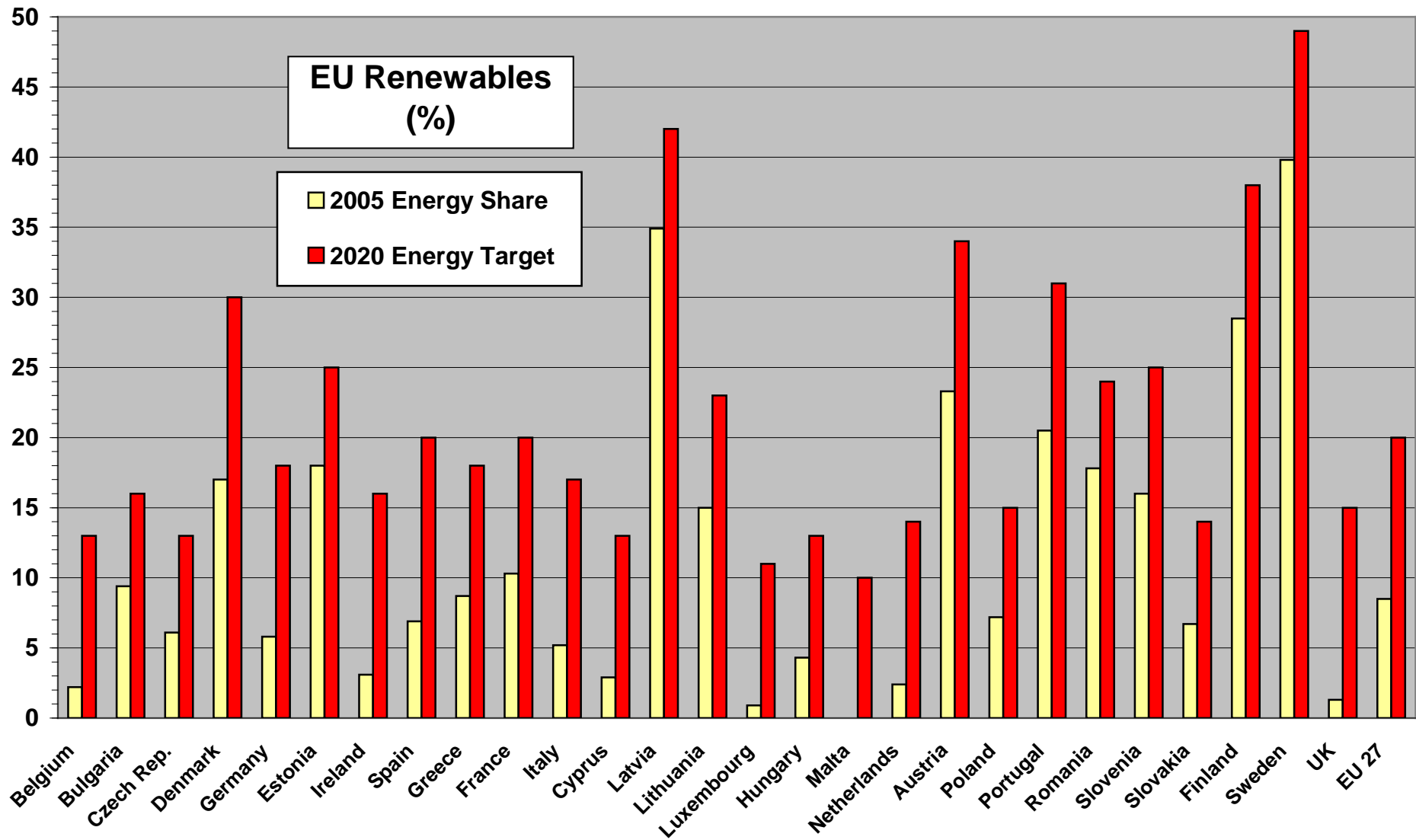
Wholesale Gas Prices: UK (NBP) / EU (oil-indexed) / US (Henry Hub)

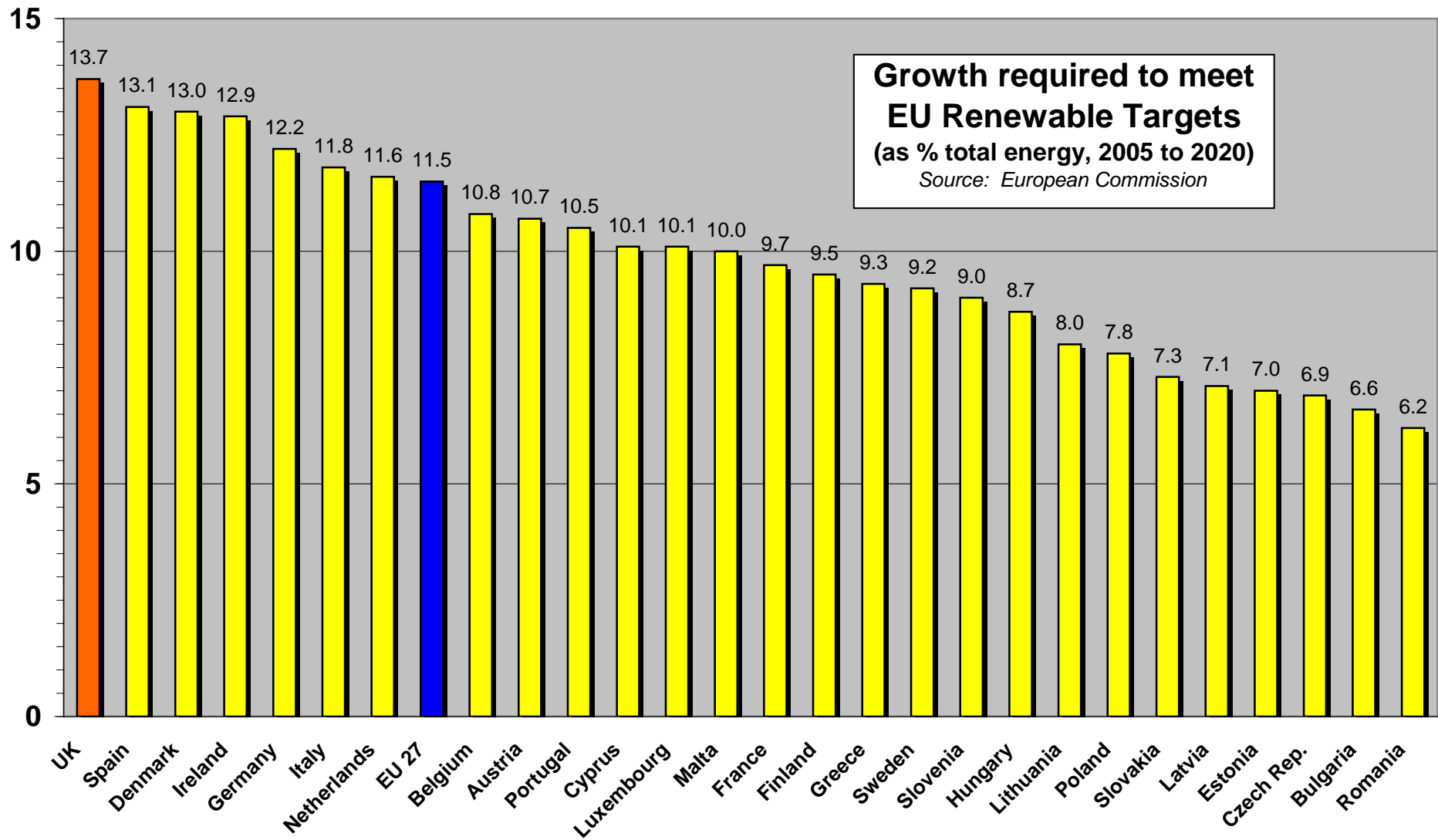
Source: EPSL, 2 September 2010

Forward Wholesale Gas Prices: Summer & Winter 2010-16

UK NBP Offer - p/therm
Source: Spectron 21 September 2010



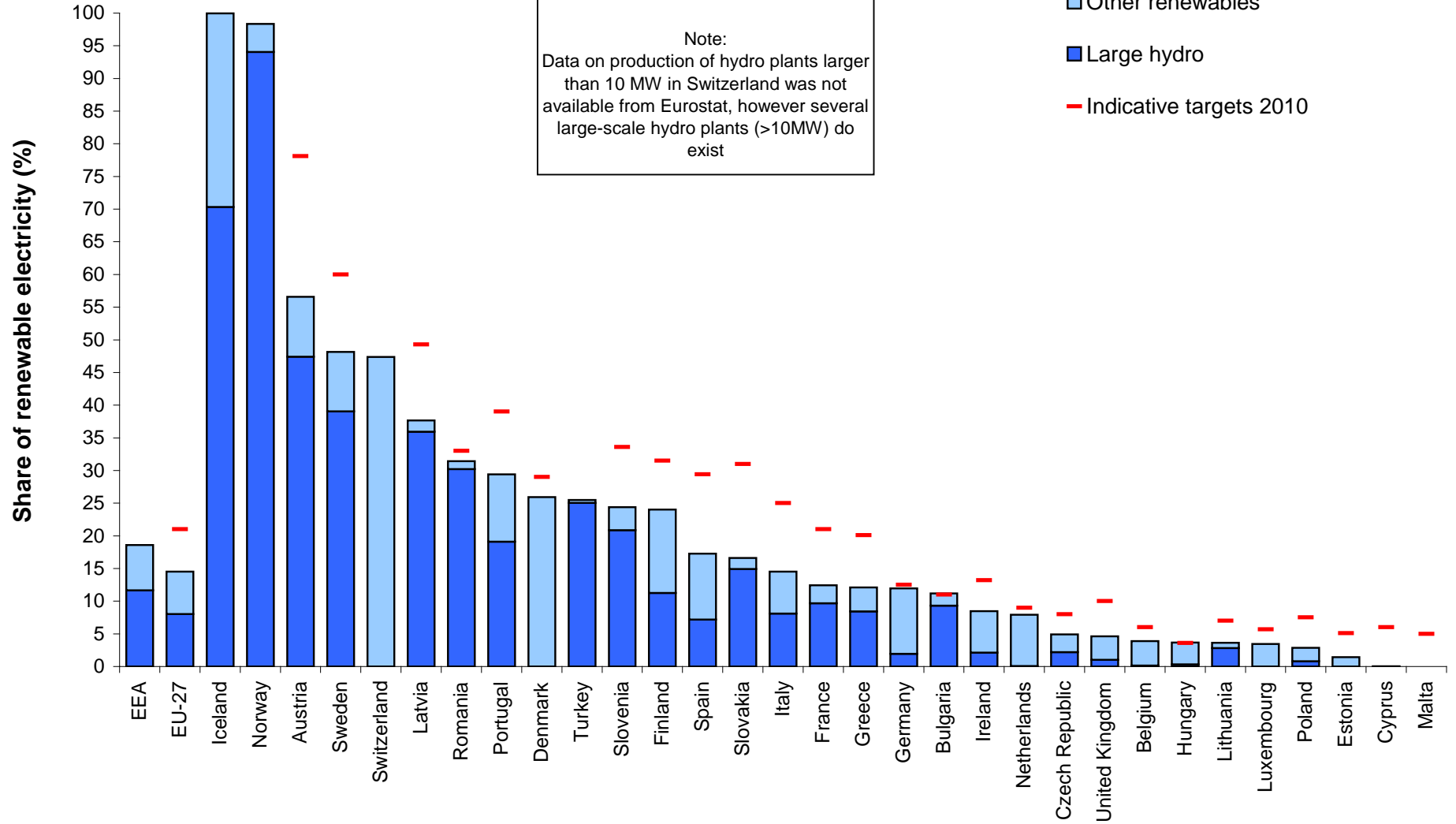




Source Data: Eurostat 2006

Note:
Data on production of hydro plants larger than 10 MW in Switzerland was not available from Eurostat, however several large-scale hydro plants (>10MW) do exist

- Other renewables
- Large hydro
- Indicative targets 2010



UK Renewable Energy Strategy: Consultation Document

Chapter 10 - Wider impacts - Page 231-2:

10.5.3. On the industrial side, for an average medium-sized consumer, the RO, EU ETS & CCL together contribute around **21%** to industrial electricity bills and about **4%** to gas bills.

10.5.7 Our existing climate change policies are projected to add around 18% to annual domestic electricity bills and around **55%** to industrial electricity bills by 2020

Additional impact of Renewable Energy Strategy measures by 2020:

Table 10.1 Industrial Electricity Bills: **10 to 16%**

Table 10.2 Industrial Gas Bills: **24 to 49%**

(NB impact on household bills will be around half this level)

CIVITAS Report:

“British energy policy and the threat to manufacturing industry”

Ruth Lea and Jeremy Nicholson

Online Report: April 2010

<http://www.civitas.org.uk/pdf/EnergyPolicyApril2010.pdf>

Parliamentary Group for Energy Studies: 23rd November

UK's National Renewable Energy Plan (1)

As submitted to European Commission 30 June 2020

http://ec.europa.eu/energy/renewables/transparency_platform/doc/national_renewable_energy_action_plan_uk_en.pdf

Table 1: Expected gross final energy consumption of the UK in heating and cooling, electricity and transport up to 2020 taking into account the effects of energy efficiency and energy saving measures 2010 – 2020 (ktoe)

	2005	2010		2020	
	Base Year	reference scenario	additional energy efficiency	reference scenario	additional energy efficiency
Heating and cooling	66900	60000	60000	54800	51500

Table 6 - Estimated share of renewable energy in the building sector (%)

	2005	2000	2015	2020
Residential	*	*	1	4
Commercial / Public	*	*	3	12
Industrial	*	*	2	9
Total			2	8

UK's National Renewable Energy Plan (2)

As submitted to European Commission 30 June 2020

http://ec.europa.eu/energy/renewables/transparency_platform/doc/national_renewable_energy_action_plan_uk_en.pdf

Table 10: Estimation of total contribution (installed capacity, gross electricity generation) expected from each renewable energy technology in the UK to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity 2010-2014

	2005		2010		2020	
	MW	GWh	MW	GWh	MW	GWh
PV	11	8	50	40	2,680	2,240
Wind - Onshore	1,351	2,501	4,040	9,520	14,890	34,150
Wind - Offshore	214	403	1,390	4,630	12,990	44,120

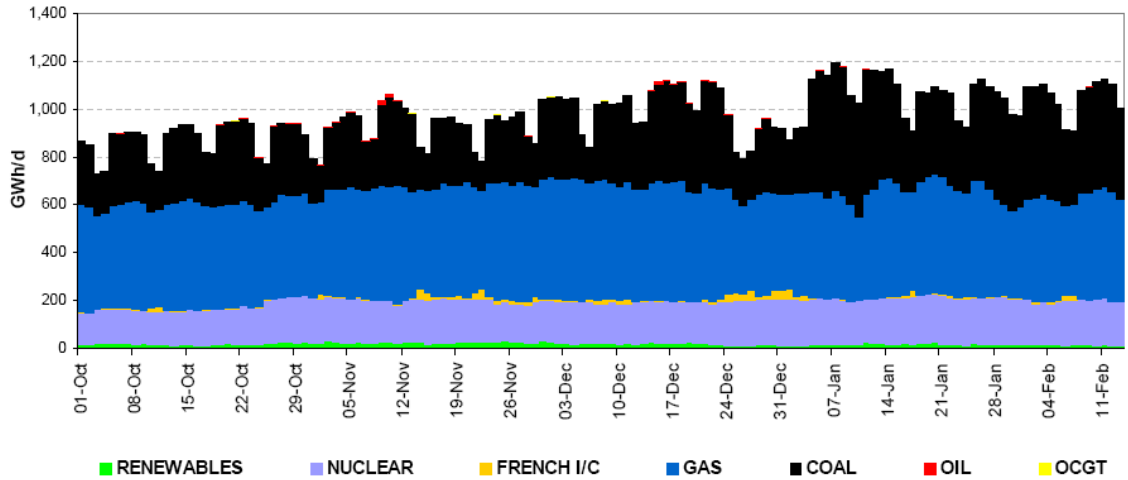
Generation By Fuel Type (table)

Generating Plant	Current		Last Half Hour (12:30-13:00)		Last 24 Hours (13:00-13:00)	
	MW	%age	MW	%age	MWh	%age
CCGT	20895	39.3%	20879	39.2%	460744	38.9%
OCGT	0	0.0%	0	0.0%	1401	0.1%
OIL	1395	2.6%	1433	2.7%	18919	1.6%
COAL	24684	46.4%	24649	46.3%	547220	46.2%
NUCLEAR	5114	9.6%	5117	9.6%	121898	10.3%
WIND	378	0.7%	389	0.7%	6023	0.5%
PS	347	0.7%	412	0.8%	14841	1.3%
NPSHYD	351	0.7%	370	0.7%	9537	0.8%
OTHER	0	0.0%	0	0.0%	0	0.0%
Interconnectors	MW	%age	MW	%age	MWh	%age
INTFR	0	0.0%	0	0.0%	2658	0.2%
INTIRL	16	0.0%	16	0.0%	129	0.0%
TOTAL	53180	100%	53265	100%	1183371	100%

Data last updated:2009-01-06 13:25:00 (GMT)

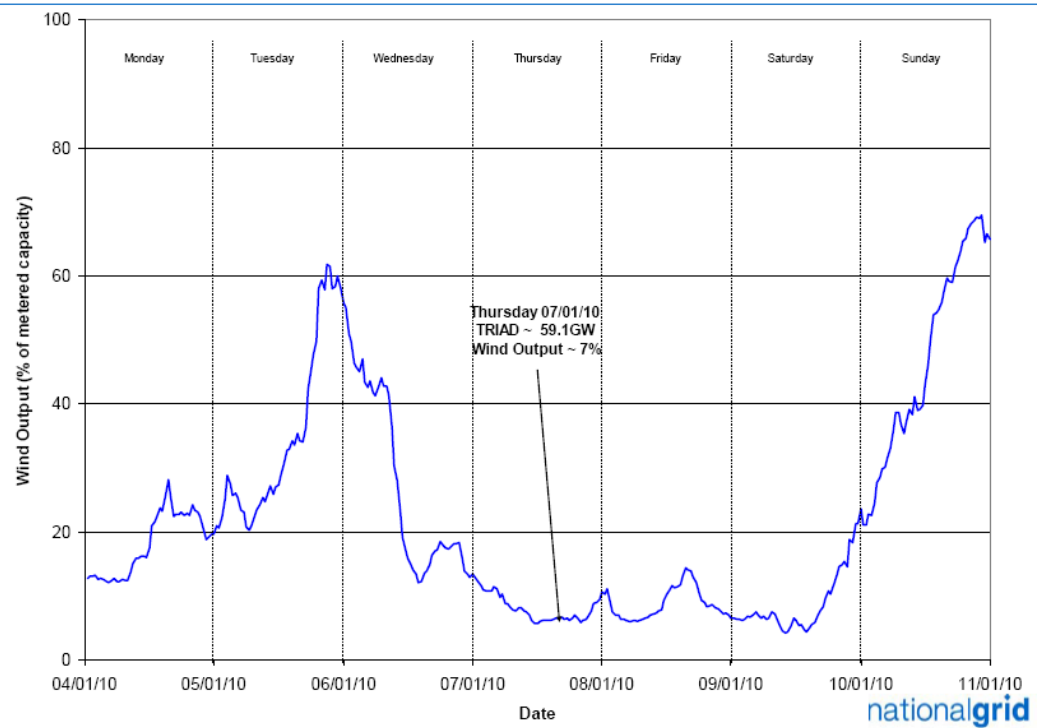
www.bmreports.com/bsp_home.htm

Generation Mix

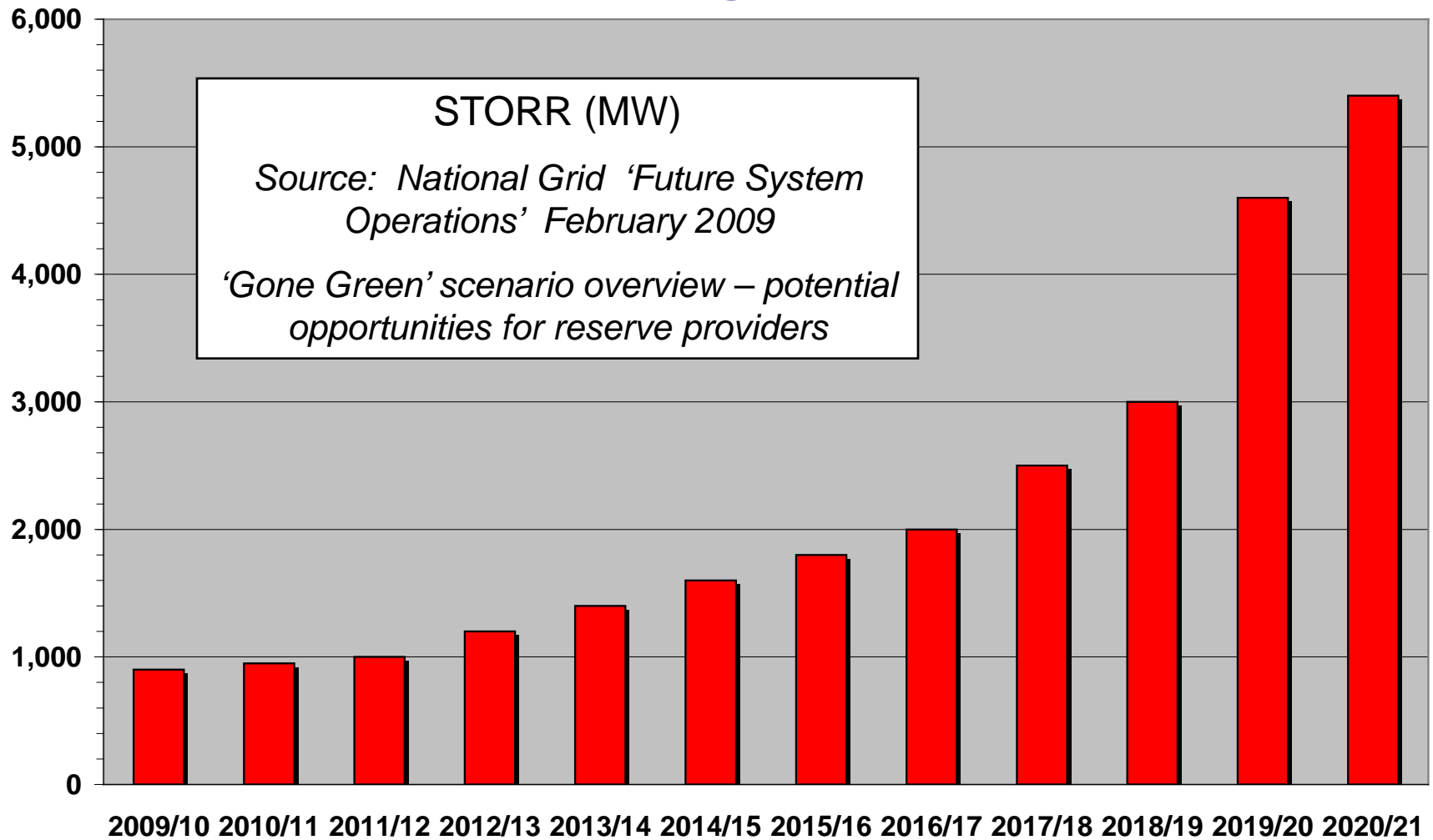


nationalgrid
 The power of action.

Wind output over peak demand



Managing intermittency – implications for reserve (backup generation)



Citigroup Global Markets

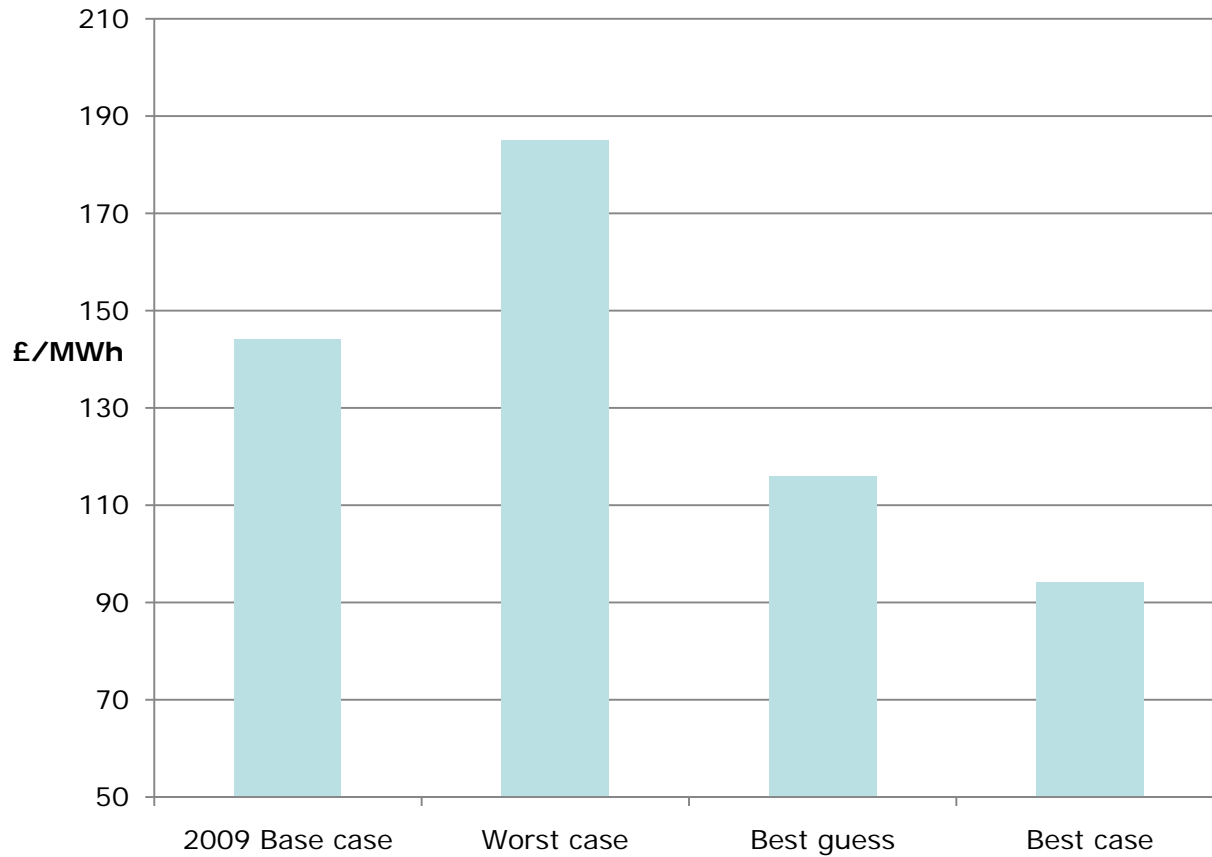
3 February 2010

'The extraordinary investment levels identified by Ofgem – **£200bn over 10 years** – is driven by the UK's commitment to the renewable energy target. We fully agree with Ofgem's cost assessment. The UK power and gas utilities are currently investing around £7bn per year, so will need to increase that investment rate to £20bn per annum – **that is 2 London Olympics every year!**'

'without the environmental targets, we calculate that the UK would need to invest only between **£30-40bn** in new power generation assets to replace and renew plant that is coming to the end of its engineering life and secure reliable generation and gas supplies'

'in our view, bills will need to rise by around **100%** if £200bn of new assets are really to be built. But the consumer is guaranteed one thing. The UK seems to be setting out to create an electricity system that is substantially more expensive, less efficient, and less robust than the current system'

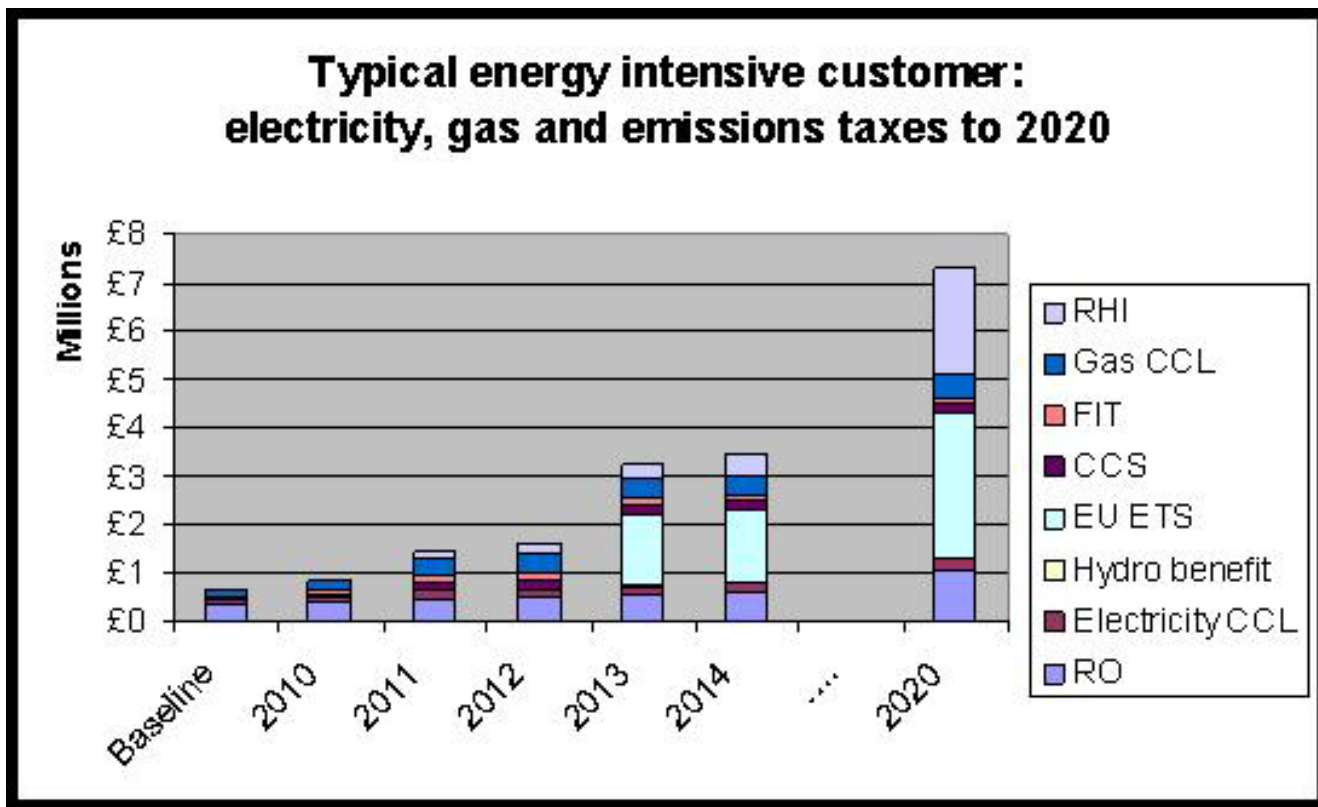
Offshore wind levelised costs projections (mid 2020s)



UK ERC - Great expectations: The cost of offshore wind in UK waters - September 2010

WWA Report for EIUG & TUC, July 2010:

“The Cumulative Impact of Climate Change Policies on UK Energy Intensive Industries – Are Policies Effectively Focussed?”



EIUG / TUC presentation to Parliament: 9th November

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