



Is there a role for wind energy in Bath?

BetterBath Forum

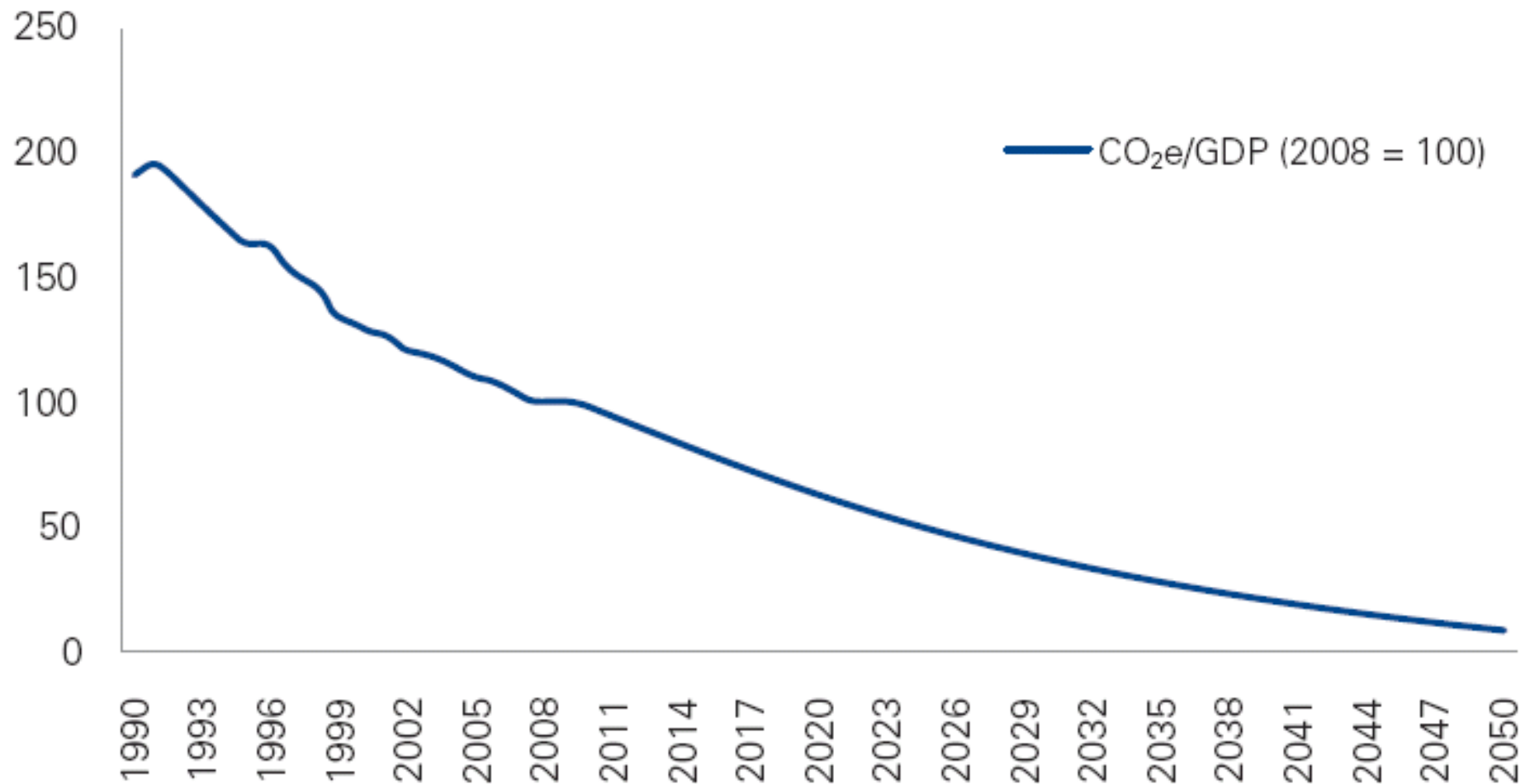
Monday, 1 March 2010

St Michael's Church, Broad Street, Bath BA1 5LJ

Cutting carbon emissions

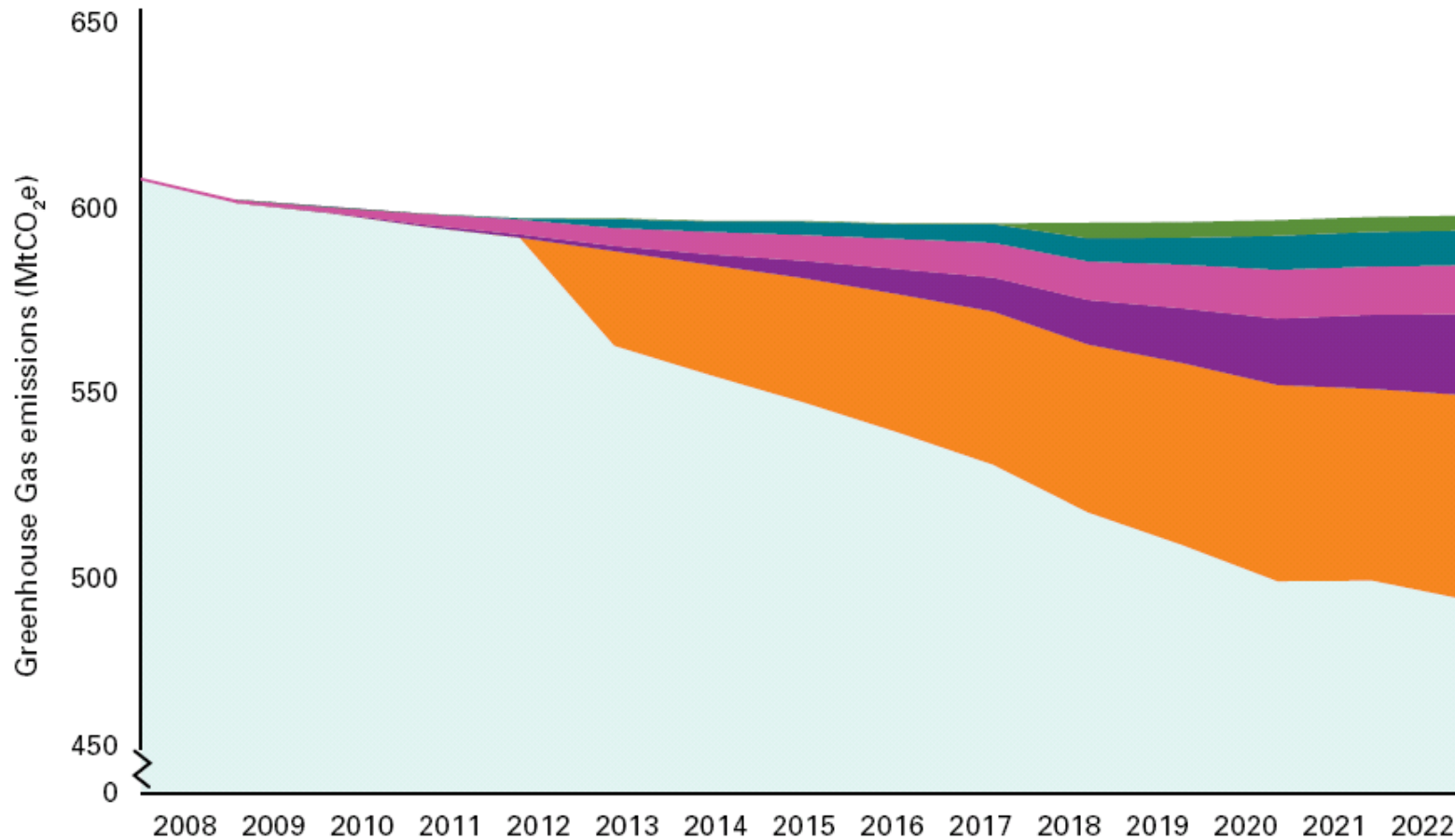


Historic and illustrative future trajectory for UK GHG emissions intensity of output (1990 – 2050)



Source: Analytical Annex: The UK Low Carbon Transition Plan 2009
Available at: www.decc.gov.uk

Cutting carbon emissions

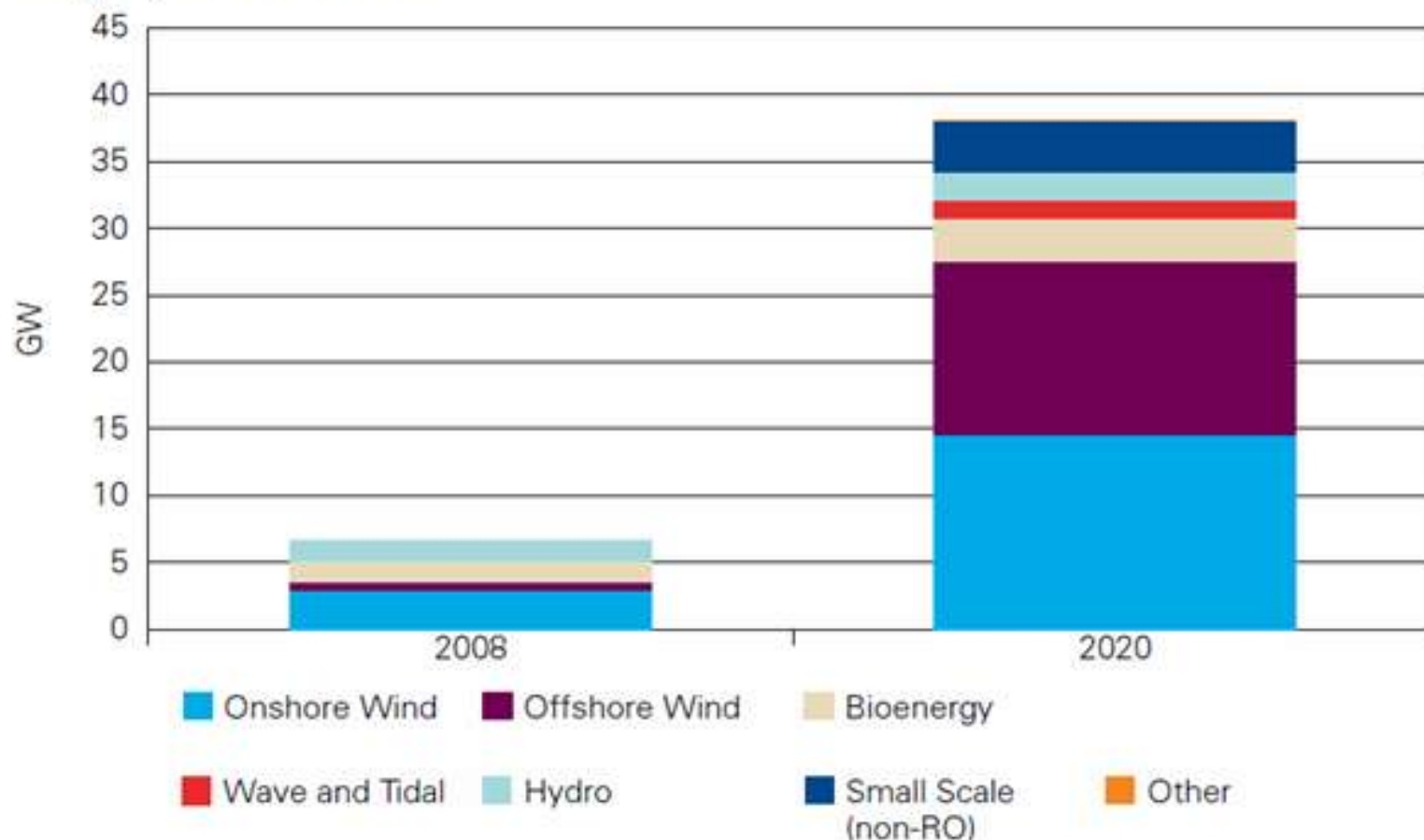


- Power and heavy industry
- Transport
- Homes and communities
- Workplaces and jobs
- Farming, land and waste

Source: *The UK Low Carbon Transition Plan 2009*
Available at: www.decc.gov.uk

The scale of the challenge

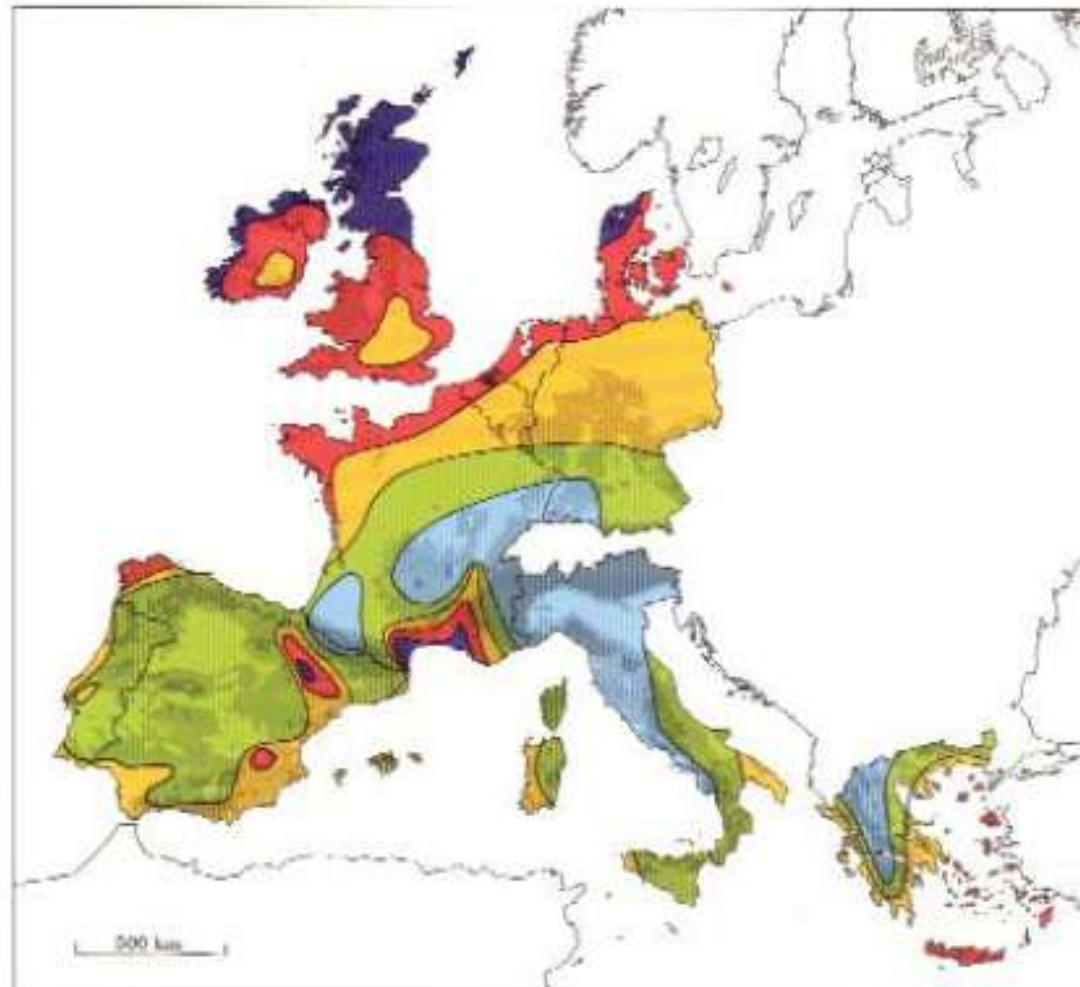
Renewable electricity technologies – comparison between 2008 and projected to 2020



Source: Energy Trends (June 2009) and DECC analysis based on Redpoint/Trilemma (2009) and Element/Pöyry (2009)

Note: Small-scale electricity not separately identified in 2008

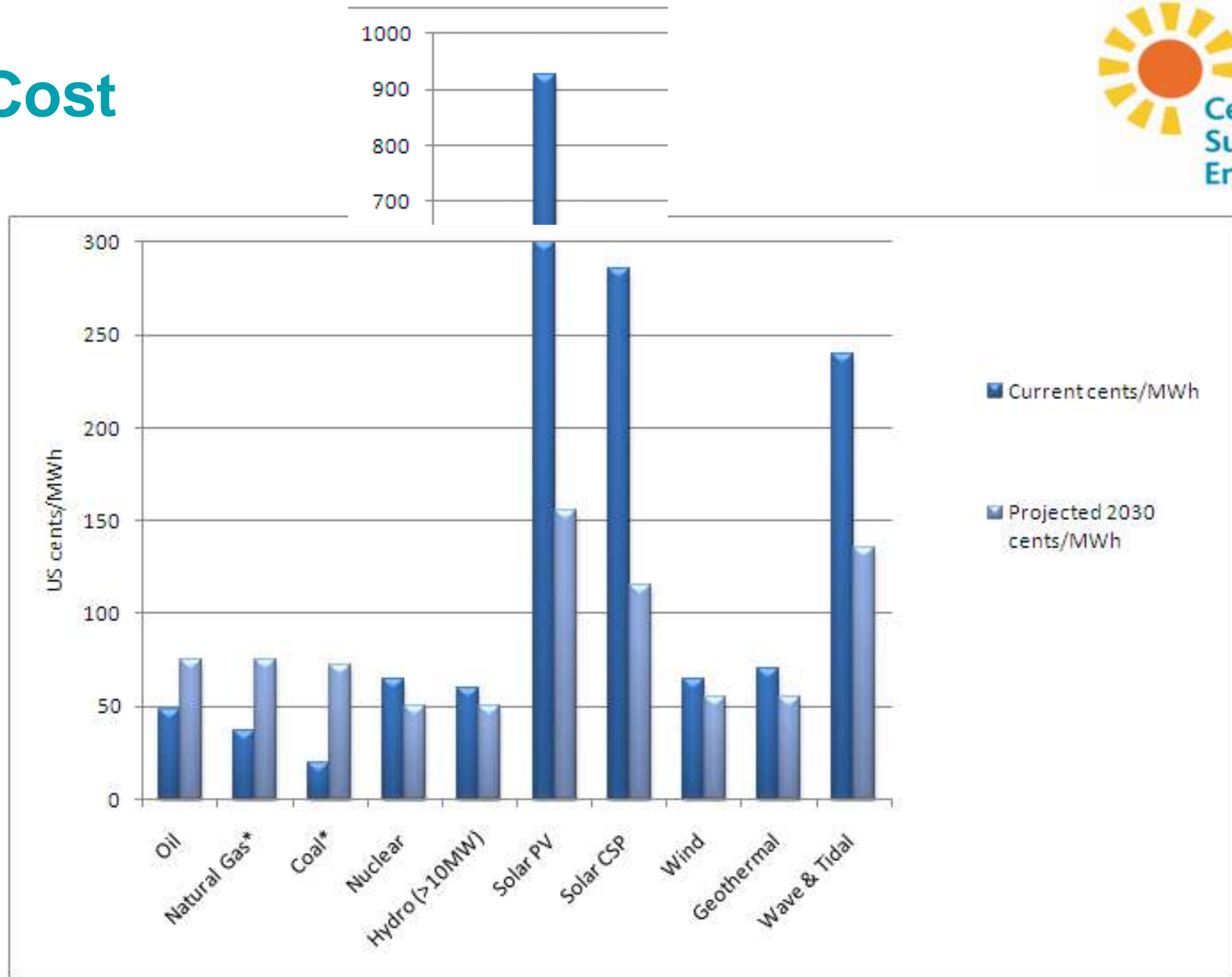
Why wind energy?



Wind resources¹ at 50 metres above ground level for five different topographic conditions

Sheltered terrain ¹		Open plain ²		At a sea coast ⁴		Open sea ²		Hills and ridges ²	
ms ⁻¹	Wm ⁻²	ms ⁻²	Wm ⁻²	ms ⁻¹	Wm ⁻²	ms ⁻¹	Wm ⁻²	ms ⁻¹	Wm ⁻²
> 8.0	> 350	> 7.5	> 500	> 8.0	> 700	> 9.0	> 800	> 11.5	> 1800
5.0-6.0	150-250	6.5-7.5	300-500	7.0-8.5	400-700	8.0-9.0	600-800	10.0-11.5	1200-1800
4.5-5.0	100-150	5.5-6.5	200-300	6.0-7.0	250-400	7.0-8.0	400-600	8.5-10.0	700-1200
3.5-4.5	50-100	4.5-5.5	100-200	5.0-6.0	150-250	5.5-7.0	200-400	7.0-8.5	400-700
< 3.0	< 50	< 4.0	< 100	< 5.0	< 150	< 5.5	< 200	< 7.0	< 600

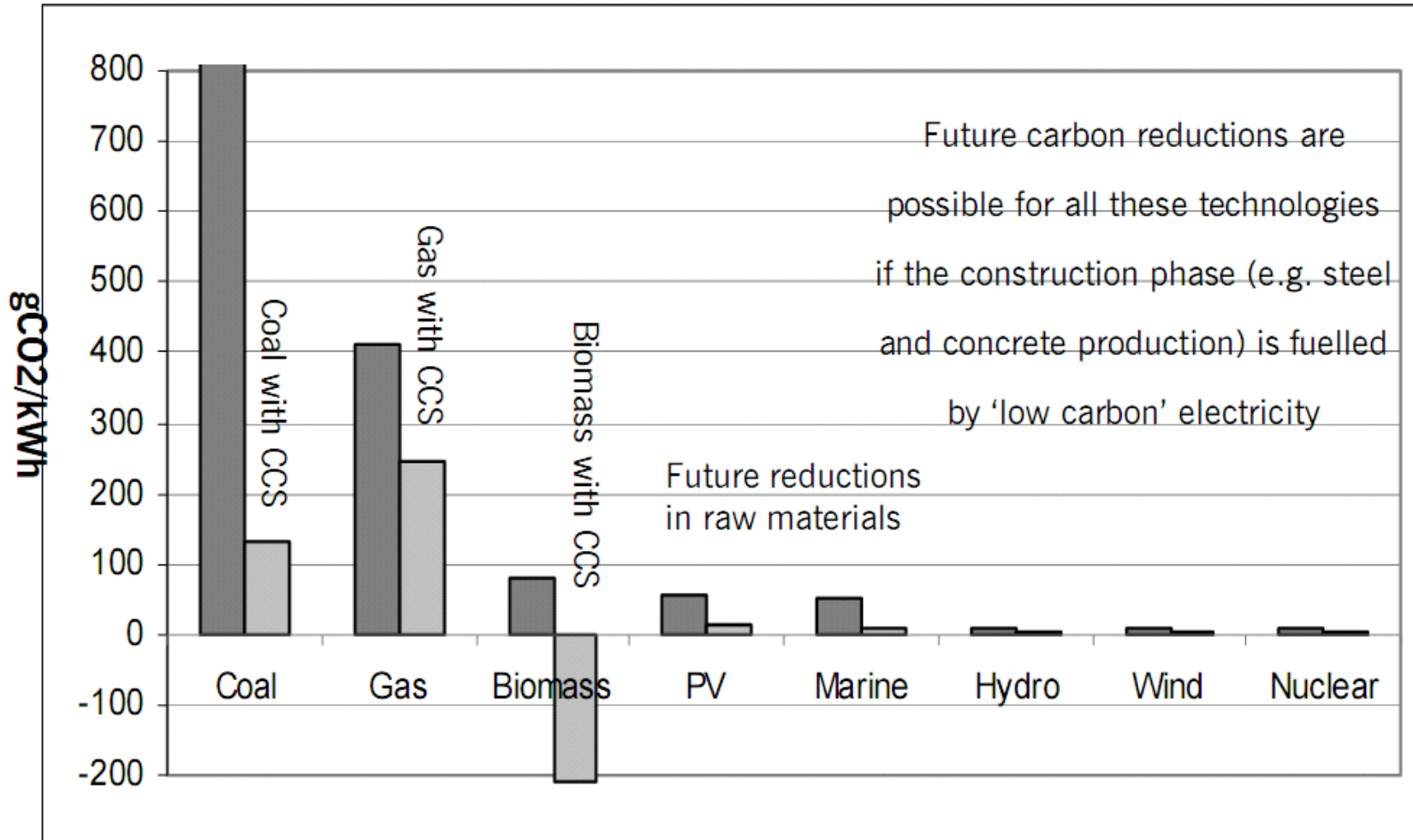
Cost



SOURCE: International Panel on Climate Change, Fourth Assessment Report 2007, Working Group III, Mitigation of Climate Change Cost Analyses, Table 4.7 (averages)

* Includes estimates of Carbon Capture & Storage costs

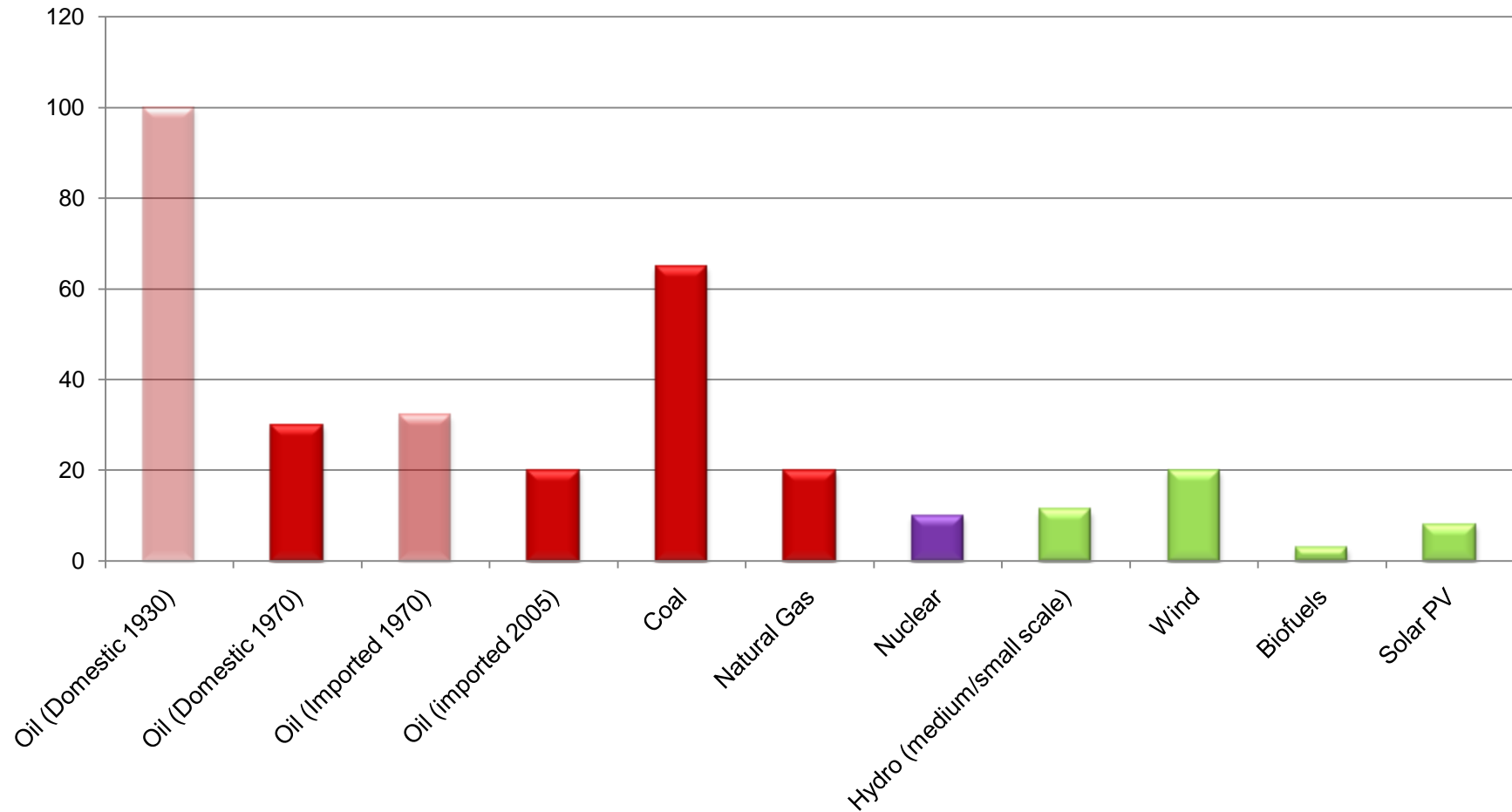
Cutting carbon with renewables



Current lowest footprint
 Future lowest footprint

Source: Parliamentary Office for Science and Technology POST
 Note (No 268) 'Carbon Footprint of Electricity Generation'
 Available at: www.parliament.uk/documents/upload/postpn268.pdf

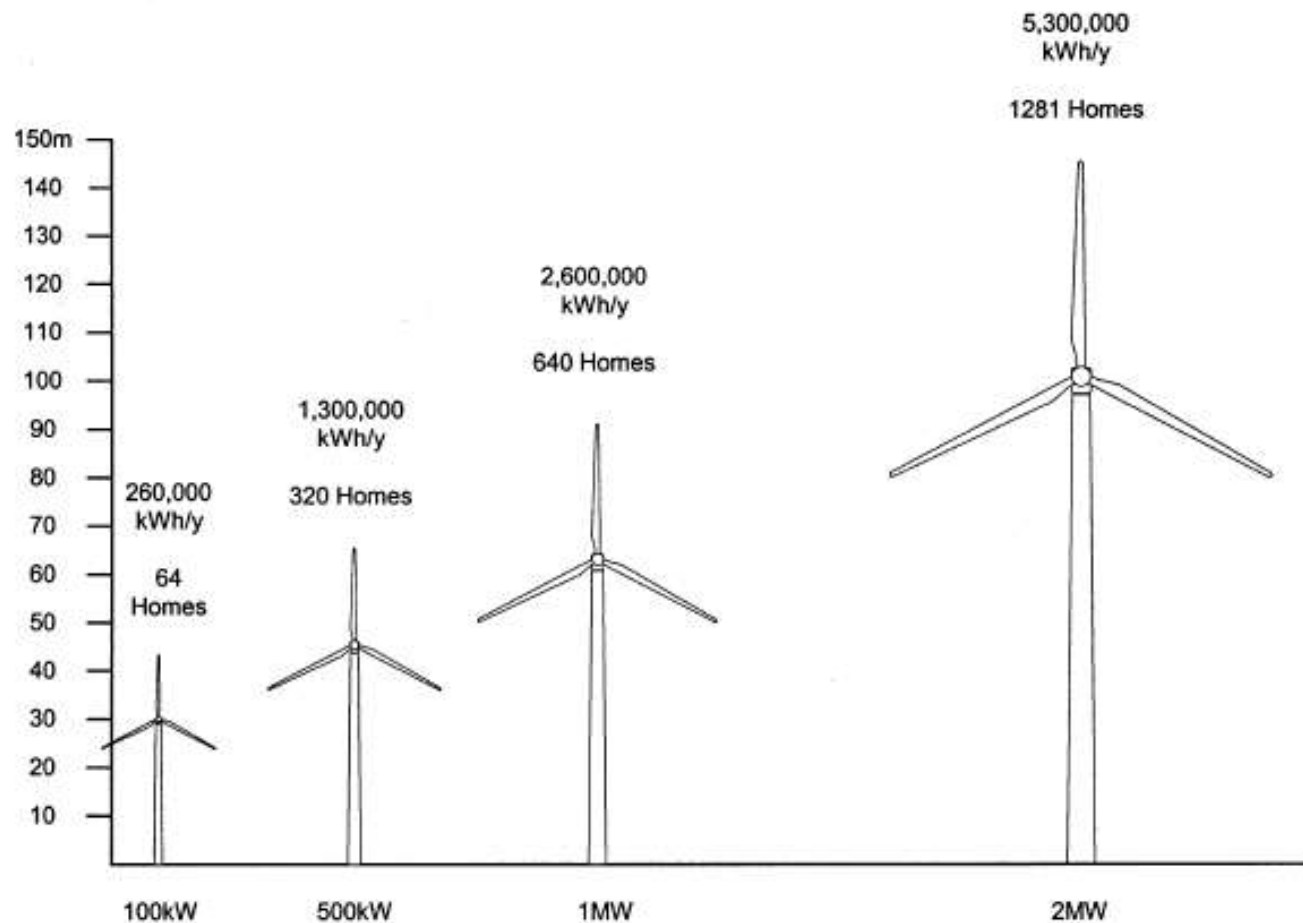
Energy return on energy invested



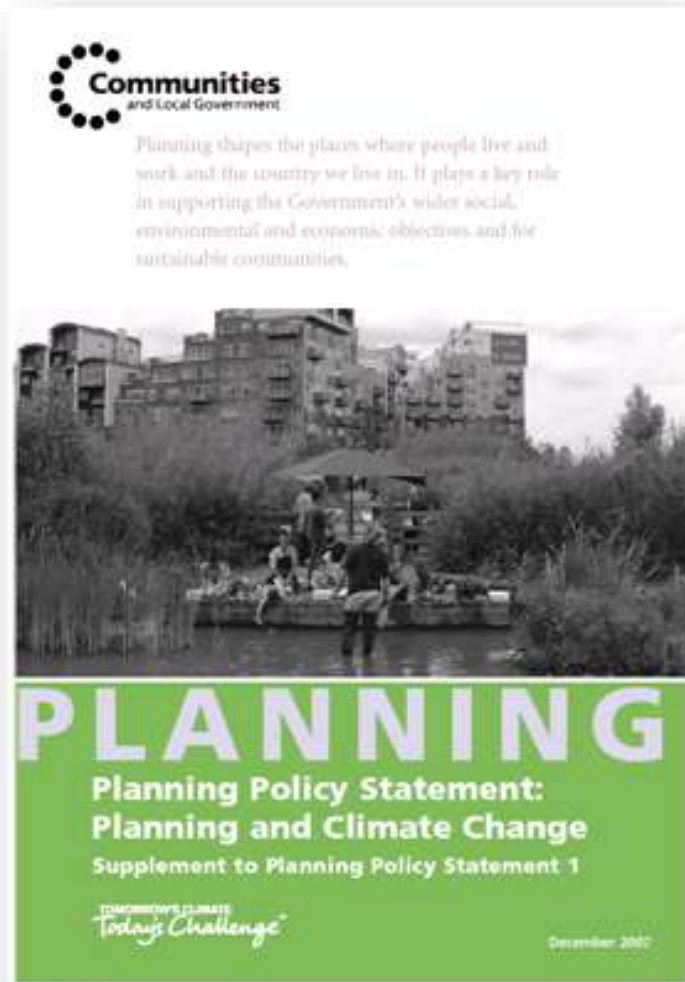
SOURCE: 'Net Energy limits and the Fate of Industrial Society', 2009, average EROEIs from Pg 28, data compiled by Professor Charles Hall, State University of New York.

Why large-scale wind?

Figure 1 Approximate sizes of typical three-bladed turbines by installed capacity, also showing approximate annual energy output based on an average capacity factor of 0.3, the figure for the number of homes supplied is based on the average UK household consumption of 4100 kWh/year (OFGEM)



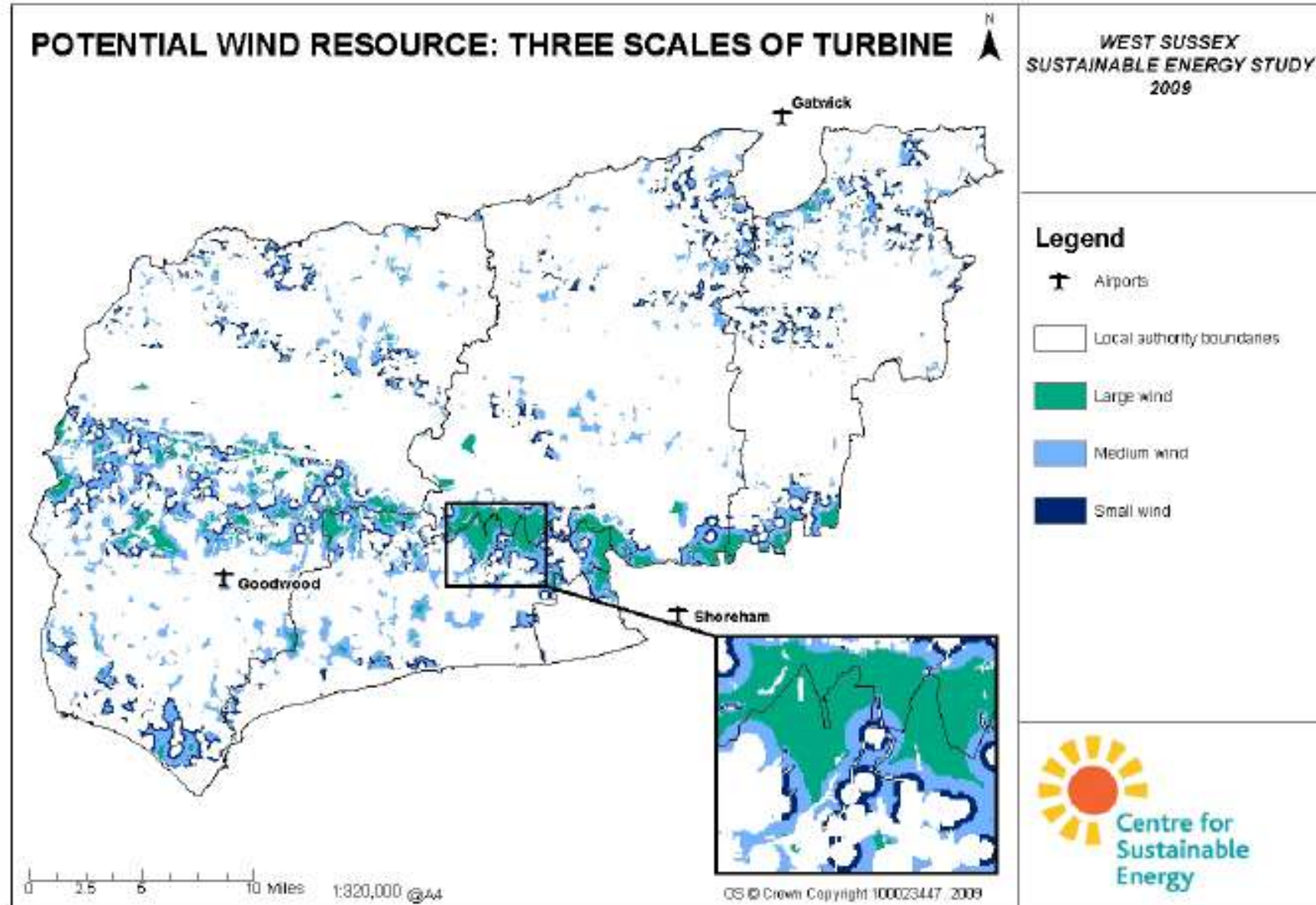
Planning and Climate Change



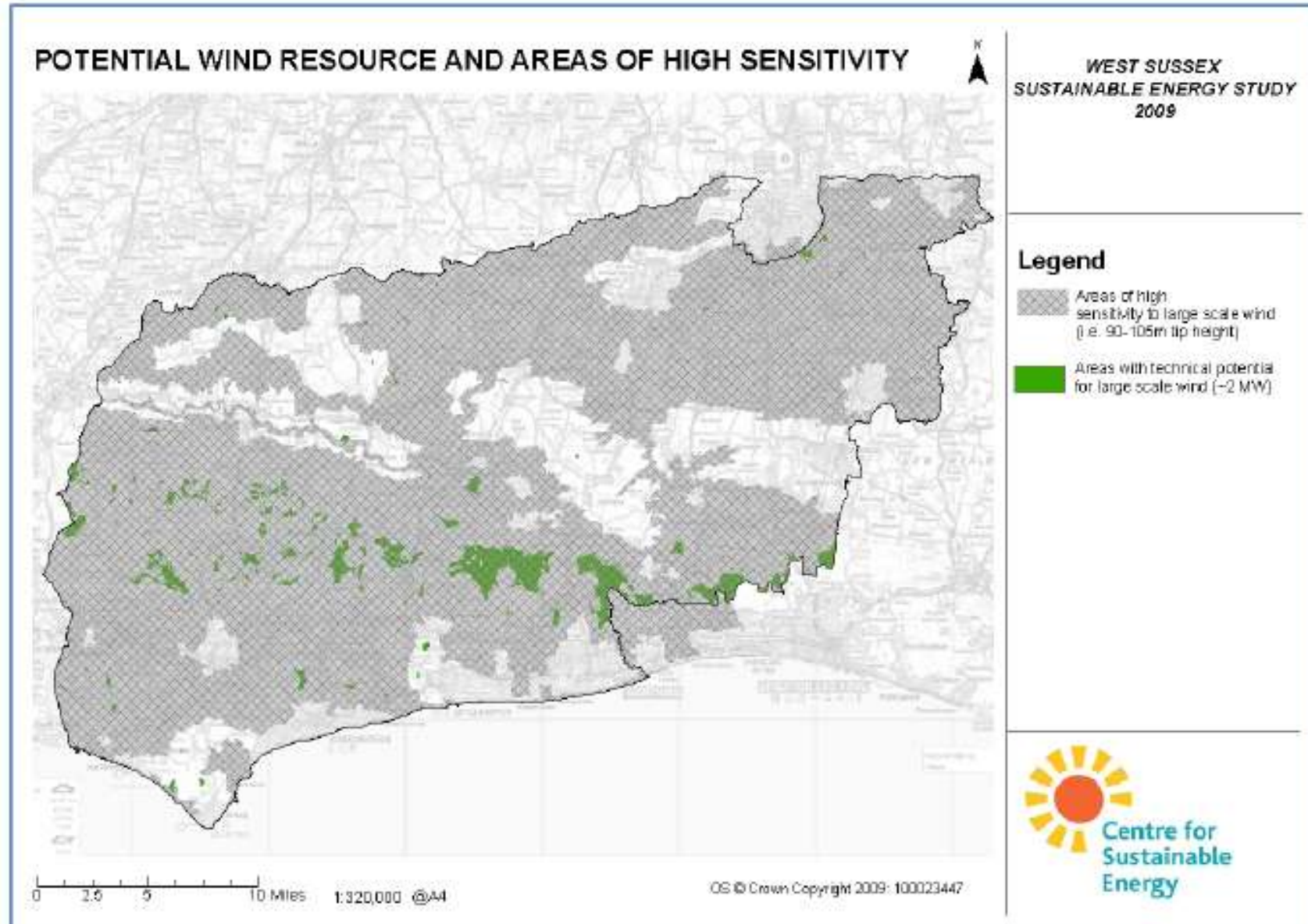
...local planning authorities should prepare, and deliver, spatial strategies that make a full contribution to delivering the Government's Climate Change Programme and energy policies

... authorities should consider identifying suitable areas for renewable and low-carbon sources...avoid stifling innovation...by rejecting proposals solely because they are outside areas identified for energy generation...“

Potential resources...



... and constraints



**“Is there a role for wind energy
in Bath?”**

**“What role will wind energy
have in reducing carbon
emissions in Bath?”**