REPORT BY THE UNITED KINGDOM ON ACHIEVEMENT OF THE INDICATIVE TARGET FOR ELECTRICITY GENERATION FROM RENEWABLE ENERGY SOURCES BY 2010

Report by the UK pursuant to Article 3 (3) of Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market.

"Member States shall publish, for the first time not later than 27 October 2003 and thereafter every two years, a report which includes an analysis of success in meeting the national indicative targets taking account, in particular, of climatic factors likely to affect the achievement of those targets and which indicates to what extent the measures taken are consistent with the national climate change commitment."

January 2010

INTRODUCTION

EU Directive 2001/77/EC required Member States to adopt national indicative targets for renewables that are consistent with reaching the overall EU target of 12 per cent of energy (22.1 per cent of electricity) from renewables by 2010. This Report meets the requirement in Article 3(3) of the Directive that Member States publish a report analysing its success in meeting their national indicative target and measures taken to deliver it every two years.

We are making steady progress toward our indicative target of 10 per cent of electricity from renewables by 2010, and the level of our ambition has now extended to include heat and transport. Through the comprehensive action plan set out in the UK Renewable Energy Strategy (RES) in July 2009, we are working to ensure that 15 per cent of the UK's energy, and 10 per cent of energy used in transport, are renewable by 2020, in accordance with the legally binding target set by Directive 2009/28/EC.

1. PROGRESS TO MEETING INDICATIVE TARGET FOR RENEWABLE ELECTRICITY

Tables 1-3 below show the growth in the proportion of UK electricity produced from renewable sources under the Renewables Obligation, Directive 2001/77/EC and international definitions.

N.B. Please note that the figures cited in this Report are for 2008, as those for 2009 are not available until July 2010.

Table 1: Percentages of UK electricity generation derived from renewable sources (Digest of Energy Statistics 2009)

	2002	2003	2004	2005	2006	2007	2008
Overall renewable percentage: Electricity generated from all renewables as a percentage of all electricity generated in the UK	2.9	2.7	3.6	4.3	4.6	4.9	5.5
Percentage on a Renewables Obligation basis: Electricity generated from renewables eligible for the Renewables Obligation as a percentage of electricity sales by licensed suppliers in the UK	1.8	2.2	3.1	4.0	4.5	4.8	5.4
Percentage on a Renewables Directive basis: Electricity generated from renewable sources eligible under the 2001/77/EC Directive as a percentage of UK electricity consumption	2.8	2.6	3.5	4.2	4.5	4.9	5.4

Progress in increasing the rate of deployment of renewables generation in the UK over the coming decade continues to be positive. Electricity generated from renewable sources eligible under the Renewables Obligation in 2008 was 11 per cent greater than in 2007. This compares with 6 per cent growth in 2007, 14 per cent growth in 2006 and 31 per cent growth in 2005.

Electricity generated in the UK from renewable sources eligible under the Renewables Directive in 2008 was 10 per cent greater than in 2007. This compares with year on year growth of 8 per cent in 2007, 7 per cent in 2006, and 20 per cent in 2005. For comparison, Figure 1 illustrates the growth since 1990 in electricity generation from renewable sources.

Table 2: Renewable generation on a Renewables Obligation basis (Digest of Energy Statistics 2009) (GWh)

	2004	2005	2006	2007	2008
Generation : Renewables Obligation basis					
Wind:					
Onshore *(1)*	1,736	2,501	3,574	4,491	5,792
Offshore *(2)*	199	403	651	783	1,305
Solar photovoltaics	4	8	11	14r	17
Hydro:					
Small scale *(1)*	283	444	478	534	568
Other hydro including refurbished large scale	1,353	1,542r	1,969r	1,912r	1,794
Biomass:					
Landfill gas	4,004	4,290	4,424	4,677	4,757
Sewage sludge digestion	440	470	456	496r	564
Co-firing with fossil fuels	1,022	2,533	2,528	1,956	1,613
Animal Biomass *(3)*	565	468	434	555	587
Plant Biomass *(4)*	362	382	363	409	568
Total biomass	6,393	8,143	8,204	8,092r	8,090
Total renewables generation on an obligation basis	**9,968**	**13,040r**	**14,887r**	**15,826r**	**17,566**

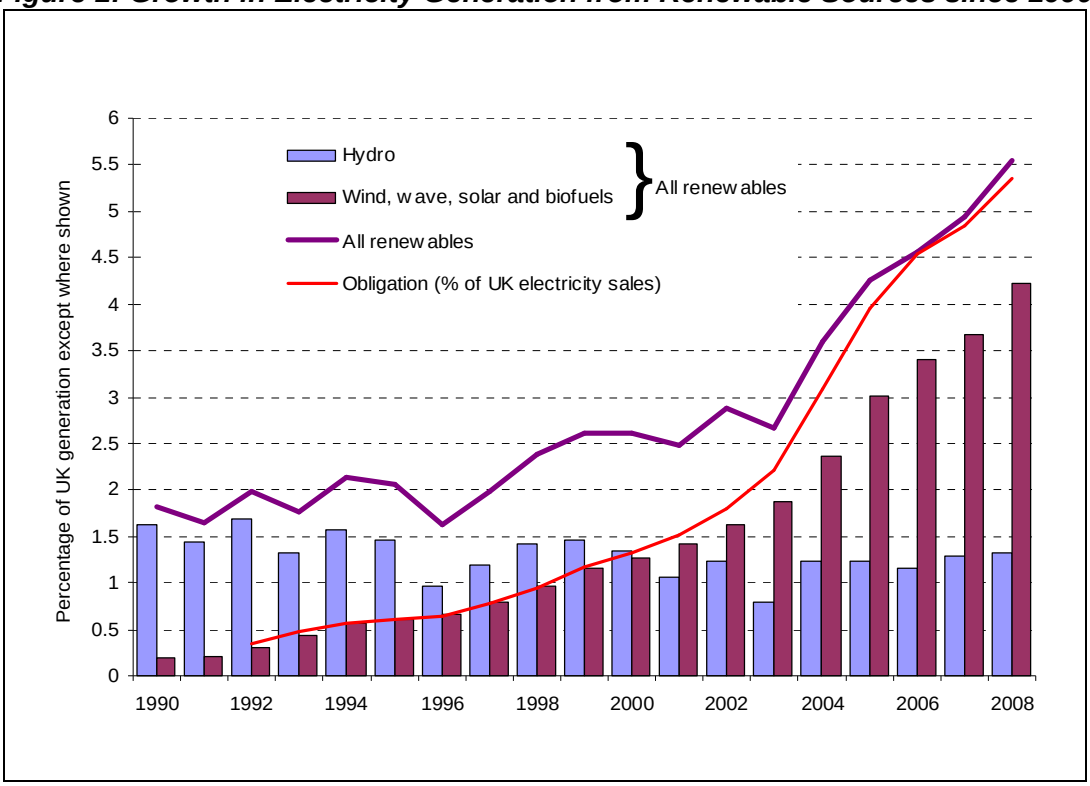
(1) Actual generation figures are given where available, but otherwise are estimated using a typical load factor or the design load factor, where known.
(2) Includes electricity from shoreline wave but this amounts to less than 0.05 GWh.
(3) Includes the use of farm waste digestion, poultry litter combustion and meat and bone combustion.
(4) Includes the use of straw and energy crops.

Table 3: Generation: Directive basis (Digest of Energy Statistics 2009) (GWh)

	2004	2005	2006	2007	2008
Wind					
Onshore *(1)*	1,736	2,501	3,574	4,491	5,792
Offshore *(2)*	199	403	651	783	1,305
Solar photovoltaics	4	8	11	14r	17
Hydro:					
Small scale	283	444	478	534	568
Large scale *(3)*	4,561	4,478	4,115	4,554	4,600
Biomass:					
Landfill gas	4,004	4,290	4,424	4,677	4,757
Sewage sludge digestion	440	470	456	496r	564
Municipal solid waste combustion *(4)*	971	964	1,083	1,177	1,226
Co-firing with fossil fuels	1,022	2,533	2,528	1,956	1,613
Animal Biomass *(5)*	565	468	434	555	587
Plant Biomass *(6)*	362	382	363	409	568
Total biomass	7,364	9,107	9,288	9,270r	9,315
Total generation	**14,147**	**16,940**	**18,116**	**19,646r**	**21,597**

(1) Actual generation figures are given where available, but otherwise are estimated using a typical load factor or the design load factor, where known.
(2) Latest years include electricity from shoreline wave but this amounts to less than 0.05 GWh. Generation by Beatrice (10MW) excluded as in 2007 and 2008 it which was only supplying an offshore oil platform.
(3) Excluding pumped storage stations. Capacities are as at the end of December.
(4) Biodegradable part only.
(5) Includes the use of farm waste digestion, poultry litter combustion and meat and bone combustion.
(6) Includes the use of straw and energy crops.

Figure 1: Growth in Electricity Generation from Renewable Sources since 1990

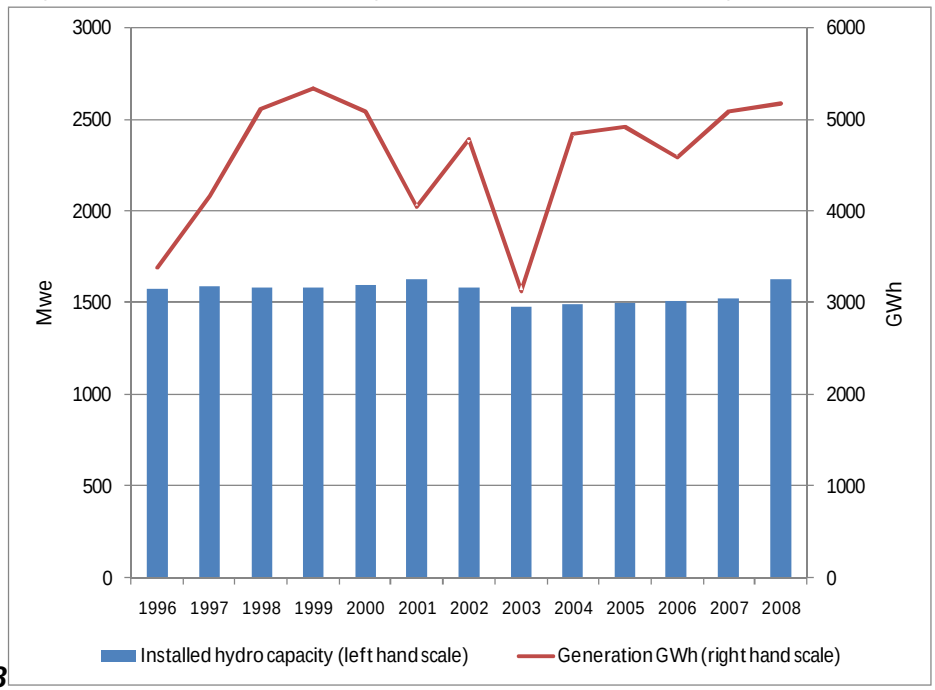


2. PROGRESS TO MEETING INDICATIVE TARGET BY TECHNOLOGY

Hydropower

In 2008, 24 per cent of the UK's renewable electricity was produced by hydro (5,168GWh), of which 21 per cent was from large scale hydro and 3 per cent from small scale.

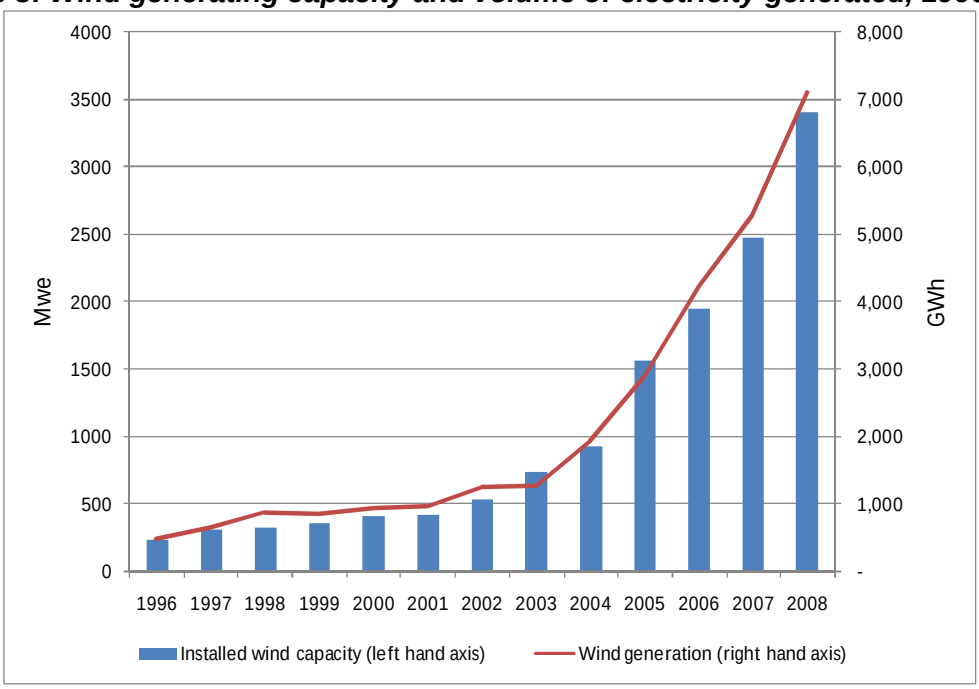
Figure 2: Hydro generating capacity and volume of electricity generated, 1996-2008



Generation from hydro increased by 80GWh between 2007 and 2008, although as a proportion of renewable electricity the contribution from hydro fell (from 26 per cent of renewable electricity produced by hydro in 2008 to 24 per cent in 2008). This is due to the increasing contribution from wind. Although there is limited prospect for further generation of large scale projects due to environmental concerns and commercial viability, there remain good opportunities to exploit hydropower resources for micro and small-scale hydro development.

Wind Power

Figure 3: Wind generating capacity and volume of electricity generated, 1996-2008



Generation from wind (both onshore and offshore) was the largest renewables technology in output terms in 2008, with 33 per cent of the electricity generated from renewables being wind (27 per cent from onshore and 6 per cent from offshore). From 2007 to 2008, electricity generation from onshore wind saw an increase of 1,301 GWh (29 per cent), whilst generation from offshore wind rose by 523 GWh (67 per cent).

The UK has some of the largest potential wind energy resource in Europe. Recent exercises by the Crown Estate through Rounds 1, 2 and 3 of offshore windfarm leasing, along with Scottish Territorial Waters programme, could enable nearly 50GW wind by 2020. In 2008 the UK was operating more than 3.3 GW of wind, on and offshore.

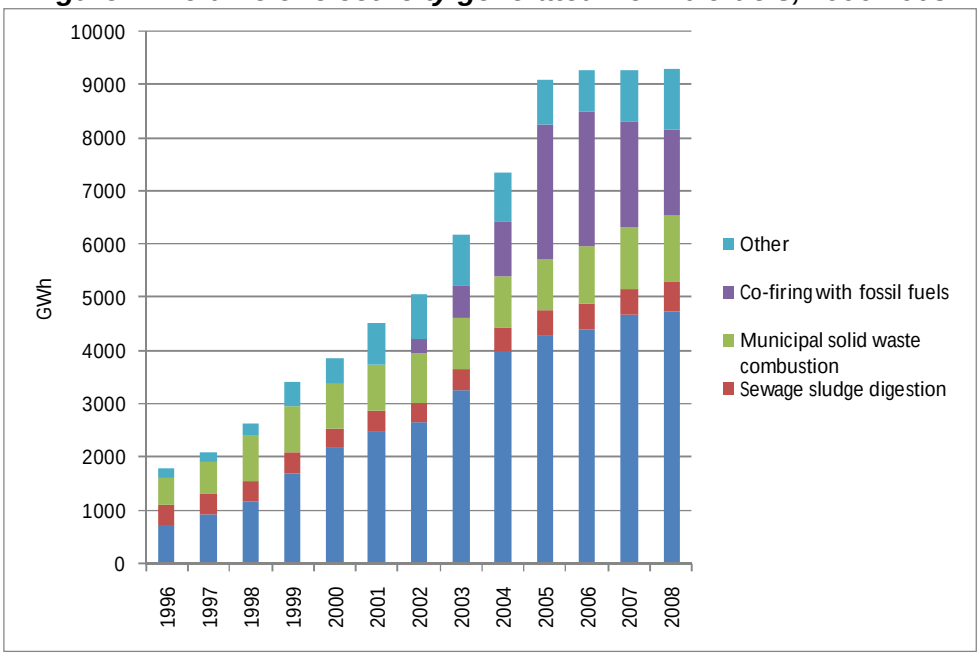
Wave and Tidal Power

The UK has a huge marine energy resource available in its waters. The Carbon Trust has estimated a practically exploitable wave resource of around 50 TWh/y of electricity a year and a practically exploitable tidal stream resource of around 18 TWh/y. We are continuing to invest in UK marine energy infrastructure and technology, including wave and tidal energy testing centres around the country.

We are also confirming the schemes under consideration to generate energy from the Severn Estuary this year. Once completed, we will be making a decision on whether to harness the potential of Severn tidal power which could supply up to 5 per cent of the UK's electricity needs.

Bioenergy

Figure 4: Volume of electricity generated from biofuels, 1996-2008



Electricity generation from plant biomass increased by 39 per cent from 2007 to 2008, whilst generation from landfill gas increased by 2 per cent, with sewage sludge digestion generation increasing by 14 per cent, and from municipal solid waste combustion by 4 per cent.

In order to improve the deployment of bioenergy, we are working to increase bioenergy supply and investing in UK research capacity, whilst strongly advocating the need to ensure sustainability through better accounting for the sustainability of biomass and biofuels.

3. ACCELERATING DEPLOYMENT OF RENEWABLES GENERATION

While the rate of deployment of renewable generation in the UK is increasing, we have a much greater level of ambition over the coming decade.

In addition to meeting the indicative target of 10 per cent of electricity from renewables by 2010 under Directive 2001/77/EC, our objectives have extended to include heat and transport. We are working to ensure that 15 per cent of the UK's energy and 10 per cent of energy used in transport are from renewable sources by 2020.

The lead scenario in our Renewable Energy Strategy (RES) suggests that by 2020 around 30 per cent of all our electricity (about 117 TWh) – both centralised and small-scale generation – could come from renewable sources, compared to around 5.5 per cent in 2008.

We expect the majority of this growth to come from wind power, through the deployment of more onshore and offshore wind turbines. Bioenergy used in electricity is also likely to make an important contribution of about 22 per cent of renewable electricity generation (7 per cent of total electricity demand) .

Furthermore, we expect small-scale generation to play a role. Although small-scale renewable electricity technologies tend have a greater cost than large-scale technologies, they can be easier to deploy and minimise system losses as they are located close to the point of demand. Small-scale generation therefore has the potential to play an important part in engaging households and communities into making a real contribution to a low-carbon economy.

Through the action plan set out in the RES, we are working to tackle the challenges of financing, planning, grid connection, which can slow the deployment of renewables.

Greater Financial Support

We have established mechanisms to provide financial support for renewable electricity and heat.

The primary policy mechanism for incentivising renewable electricity in the UK is the Renewables Obligation (RO), which requires electricity suppliers to source a specified and increasing proportion of their electricity from renewable sources.

Since its introduction in 2002, the RO has increased RO-eligible renewable electricity generation in the UK from 1.8 per cent of our electricity in 2002 to 5.4 per cent in 2008. In light of this success, we are extending and expanding the RO in order to ensure continuing support for large-scale renewable electricity projects.

We are also introducing Feed-In Tariffs (FITs) in April 2010 to provide guaranteed payments for small-scale renewable electricity and heat generation - incentivising greater deployment of a range of small-scale technologies (including wind; solar photovoltaic (PV); hydro; anaerobic digestion; biomass and biomass combined heat and power (CHP); and non-renewable micro-CHP). FITs will provide an accessible financial support mechanism for private individuals and communities, as well as energy businesses and professional investors such as property developers and utilities.

Better Planning for Delivery

Through the Planning Act 2008 we are now able to develop a more consistent, transparent, timely and effective planning application process.

We are streamlining the planning process through the creation of an independent Infrastructure Planning Commission (IPC), which will take decisions on nationally significant projects in England and Wales. The IPC will provide clear guidance for planners that recognises the national need for renewables, and will shorten the overall timescale from application to final decision on consent.

Offshore, we completed a full Strategic Environmental Assessment, and in January 2010, the Crown Estate, owner of the UK's coastal seabeds, granted rights to energy companies to develop a significant expansion of wind energy. This announcement has the potential to see an additional 32GW of clean electricity feeding into the UK grid, on top of the 8GW from previous rounds. 32GW is enough offshore wind energy to supply nearly all the homes in the UK.

We continue to support skills development and capacity-building within the planning community locally and regionally, and work to develop solutions to mitigate the impacts of renewable technologies, particularly air quality, environmental, navigational and aviation radar impacts.

Quicker, Smarter Grid Connection

We have taken urgent action to improve existing connection arrangements to ensure that the substantial new renewable electricity generation can connect to the grid once it comes online.

We have launched an entirely new offshore transmission regulatory regime to connect the potential 39 GW of offshore wind in UK waters in the most cost-effective and efficient manner to provide.

We now also have an interim 'connect and manage' approach to grid access to ensure new generators can connect to the grid. The regime means that projects are able to advance connection to the grid by a number of years. So far, around 450 MW of renewable projects in Scotland have had their connection date advanced, and 900 MW more are in the process of advancing. We have taken powers in the Energy Act 2008 to implement an enduring 'connect and manage' regime, which we intend to implement by June 2010.

In December 2009 the UK Government also produced a paper "Smarter Grids - The Opportunity" which outlined how a Smarter Grid would help manage the variability of renewable sources, save energy and better manage peak demands.

New Resources and Technologies

To broaden and strengthen the UK supply base and create conditions for innovation, we are aligning demand-side measures (such as enhanced financial support for technologies through carbon pricing and the banded Renewables Obligation) with funding grants for research, development and demonstration.

There are substantial investments being made within the 'technology families', such as marine energy, where we are develop a Marine Action Plan and are increasing investment to help accelerate development and deployment in wave and tidal generation. We are also supporting offshore wind and advanced biofuels through dedicated grant funding for R&D and demonstration.

Through our Renewable Energy Strategy, we are investing in development of new renewable technologies and financial incentives, as well as streamlining the planning process and improving grid connection to increase renewables deployment in the UK.

These actions are enabling the UK to realise our ambition that 15 per cent of our energy is sourced from renewables by 2020, and to make significant advances towards reaching its indicative targets under EU Directive 2001/77/EC.