



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

Report by the UK on Article 17, Annex 1 of Directive 2001/77/EC to the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources and on related electricity matters

Minister: State of the Union for the year ending on 27 October 2006 and thereafter every two years a report which includes an analysis on progress in meeting the national indicative targets taking account, in particular, of all the factors likely to affect the achievement of those targets and which indicate to what extent the measures taken are consistent with the national climate change contribution

London, May 2006



1. Introduction

Sustainable, competitive and secure energy form the backbone of the UK Government's policy approach to energy. Our primary objective is to protect the energy supply for the future, whilst ensuring that ecological integrity is maintained and economic growth unhindered.

The 2003 Energy White Paper, *'Our energy future – creating a low carbon economy'*, set out the UK Government's domestic policy on renewable energy, which is to increase significantly the proportion of energy supply from renewable energies as to protect finite resources, diversify supply and safeguard and protect the environment. The UK Government signalled its commitment to renewable development by establishing a target that, by 2010, 10 per cent of electricity should come from Renewable Obligation eligible sources of renewable energy and an aspiration that this figure will increase to 20% by 2020 – subject to the cost being acceptable to the consumer (exact wording in the EWP). The Government's aim is to make core renewable technologies competitive in the liberalised market in the medium and long term.

A cornerstone of the Energy White Paper is to cut the UK's carbon dioxide emissions by 20% (against 1990 levels) by 2010, in order to put the UK on the path to achieving longer term carbon dioxide reductions of 60 per cent by 2050 (against 1997 levels). This is consistent with the Kyoto objectives laid down in the Kyoto protocol to the UN Framework Convention.

The Government recognises that increasing the use of renewables can make a significant contribution to achieving our climate objectives. Whilst reducing carbon dioxide emissions, the development of renewables also strengthens energy security through the diversity of energy mix and improves industrial competitiveness as cleaner technologies, products and processes are developed.

But challenging times lie ahead. Against a backdrop of increasing global demand for energy and rocketing energy prices, the UK has also moved to being a net importer of energy. Evidence of the adverse impacts of climate change has also continued to grow. Our ambitious 2003 white paper goals are challenging.

Recognising these challenging issues on the horizon, it is clear we need to go even further in reducing emissions to tackle global warming. But this must, and can, be balanced with secure and efficient energy supply and a competitive UK economy. We will need to replace almost a third of our power stations by 2020 and we will increasingly import more of our oil and gas from a variety of countries.

We have already begun responding to these challenges. In November 2005, the UK Government initiated a wide ranging Energy Review which is looking at what more we need to do to stay on track for our long term goals, which is due to report in Summer 2006.

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 are obliged to prepare a report of their achievements against their indicative targets and on climate change commitments. This report serves to implement our obligations arising from that Directive.

2. Progress in meeting Targets (pursuant to article 3.3)

The national targets in the EU Directive on the promotion of electricity produced from renewable energy sources (RES) are based on the target of doubling the share of RES in the EU by 2010. The UK's indicative target as its contribution under the Renewables Directive is set at 10% gross electricity production by 2010

The most recent statistics collected show that the percentage of UK electricity generation accounted for by renewable sources eligible for the Renewables Directive increased from 2.66% in 2003 to 3.51% in 2004.

Table 1

Percentages of electricity Derived from Renewables Sources	2002	2003	2004
Overall renewables % (revised to international basis)	2.87	2.67	3.58
% on renewables obligation basis	1.80	2.21	3.08
% on renewables Directive Basis	2.81	2.66	3.51

Table 2 shows the capacity of, and the amounts of electricity generated from, each renewable source. Total electricity generation from renewables in 2004 amounted to 14,171 GWh, an increase of 3,533 GWh (+33.2 per cent) on 2003. The main contributors to this record increase were 1,702 GWh from hydro schemes, 728 GWh from landfill gas (+22.2 per cent), 650 GWh from wind (+51.6 per cent), and 420 GWh from co-firing of biomass with fossil fuels (+69.8 per cent). The increase in hydro was from the particularly low levels in 2003 caused by low rainfall and snowfall during winter 2002/3 and the summer of 2003. Only 30 per cent of generation from renewables was from hydro in 2003 compared with 35 per cent in 2004. The increase in the co-firing of biomass promotes that renewables technology to being the fourth most important in output terms after hydro, landfill gas and wind.

A detailed overview of the development of renewable technologies in the UK, including its impact on the environment may be found in the DTI's Digest of UK Energy Statistics (DUKES) at www.dti.gsi.gov.uk.

Increasing the use of renewables helps to avoid the dispersal of GHG's during the use of fossil fuels and therefore constitutes an indispensable component of the UK's Climate Change Strategy. Meeting our domestic goal of reducing carbon dioxide emission by 20% on 1990 levels by 2010 is also proving challenging. Higher than anticipated levels of economic growth and the recent rise in global energy prices, which has altered the relative prices of coal and gas, have led to increases in our carbon dioxide emissions in recent years. The latest projections suggests that the UK will have reduced emissions by around 15-18% below 1990 levels by 2010 when taking in to account new measures from the domestic revised Climate Change Programme which was published in March 2006. The measures will reduce emissions of greenhouse gases by between 23-25 per cent below 1990 levels in 2010.

Table 2: Electricity Generated from Renewable Sources – Renewables Directive Basis

GWh

	2001	2002	2003	2004
Generation : Renewables Obligation basis				
Wind:				
Onshore (1)	960	1,251	1,276	1,736
Offshore (2)	5	5	10	199
Solar photovoltaics	2	3	3	4
Hydro:				
Small scale (1)	210	204	115	282
Refurbished large scale hydro	61	120	616	1,434
Biofuels:				
Landfill gas	2,507	2,679	3,276	4,004
Sewage sludge digestion	363	368	343	379
Co-firing with fossil fuels	-	286	602	1,022
Other (3)	776	840	937	927
Total biofuels	3,646	4,173	5,158	6,331
Total renewables generation on an obligation basis (4)	4,884	5,755	7,177	9,986

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Solar photovoltaics	2	3	3	4
Hydro:				
Small scale (1)	210	204	115	282
Large scale (5)	3,845	4,584	3,113	4,648
Biofuels:				
Landfill gas	2,507	2,679	3,276	4,004
Sewage sludge digestion	363	368	343	379
Municipal solid waste combustion (7)	880	907	965	971
Co-firing with fossil fuels	-	286	602	1,022
Other (3)	776	840	937	927
Total biofuels	4,526	5,080	6,122	7,302
Total renewables generation on a directive basis	9,549	11,127	10,638	14,171
Imports of electricity certified as CCL exempt (6)	1,740	1,668	2,865r	3,522

(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 less than 0.05 GWh of electricity from shoreline wave in each year shown.

(3) Includes the use of farm waste digestion, poultry litter combustion, meat and bone combustion, straw and short rotation coppice.

(4) See paragraphs 7.7 and 7.8 of the Digest of UK Energy Statistics 2005 for definitions.

(5) Excluding pumped storage stations.

(6) Mainly hydro electricity exported to England from France. In the 2005 published Digest these figures were included within the Renewables Directive basis but have now been removed following clarification by the European Commission.

(7) Biodegradable part only.

3. Measures to Stimulate Renewable Electricity

The UK Government deploys a wide range of policy instruments to stimulate the development of renewables:

Renewables Obligation Mechanism



The primary policy mechanism for delivering the UK's renewable target is the Renewables Obligation. The Renewables Obligation came into force on 1 April 2002 and applies until end March 2027. It requires electricity suppliers in Great Britain to supply an increasing amount of their electricity, year on year, from renewables until 2016/17 – although the RO will remain in place until 2027. Suppliers can meet their obligation by presenting Renewables Obligation Certificates (ROCs) as evidence of renewable generation, paying the 'buyout' price, or a combination of the two. The buyout price which rises with the Retail Price Index each year, caps the costs of the system to suppliers and thus ultimately electricity consumers.

Review of the Renewables Obligation

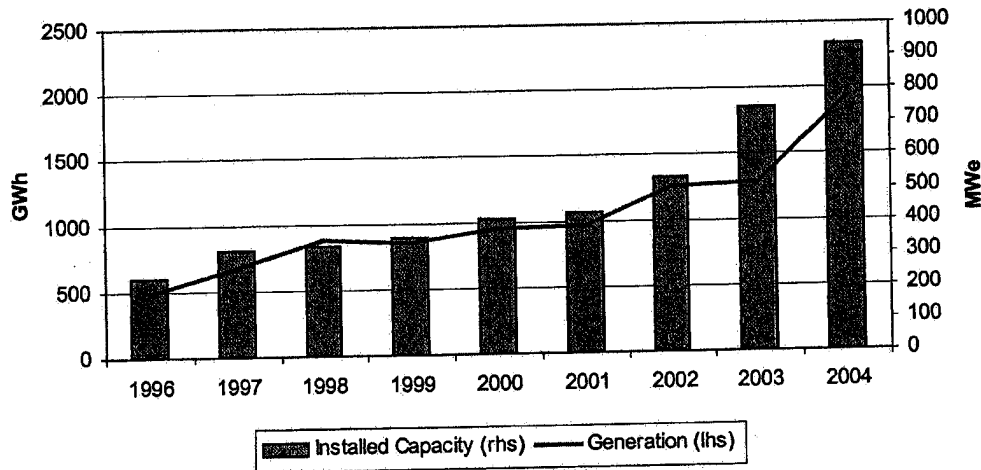
In the 2003 Energy White Paper 'Our energy future – creating a low carbon economy', the Government committed to a review of the Renewables Obligation in 2005/06. The Review was not a fundamental rethink of renewables policy, but an opportunity to consider amendments to improve the effectiveness of the Obligation in certain areas. The overwhelming view of industry was that the Renewables Obligation was working well in delivering significant new generating capacity.

Sector-by-Sector Development of Electricity Generated from Renewables

4.1 Development of Wind Power Use in the U.K

Of all the renewable forms of energy, wind power, particularly offshore wind farms, has the greatest medium term potential for expansion in the electricity sector in the UK.

Wind generating capacity and volume of electricity generated,
1996-2004



In June 2005, the UK became one of only eight countries around the world to have installed over 1,000 MW (or 1 gigawatt) of wind capacity, following the opening of Cefn Croes windfarm. At the beginning of 2006, the UK had some 1300 MW of installed (onshore and offshore) wind capacity. Looking forward, development activity continues at a high rate with 821 MW currently under construction, and 9,700 MW of new wind generating capacity in the planning system.

The Government, does however, recognise that our renewable targets are ambitious. Planning and grid connection issues remain the key barriers for the Government and Industry to address looking forward and we have continued to work with stakeholders to alleviate these barriers across the wind and other renewable sectors that are preventing industry from achieving the 10% target. Recent successes include:

- £38m of a total available of £117m of Capital Grant money so far paid out for 300MW of offshore wind capacity installed
- In 2005, four consent applications under the second round of offshore wind farms were submitted to the Department and, of these, the London Array development has the potential to be the largest offshore wind farm in the world, supplying around 1% of the UK's electricity supply. We are likely to see further applications in 2006.
- The Department continues to support R&D into reducing the costs of installation and operation of offshore wind.
- Brought forward a £2.5 million Research Advisory Group to fund research into the impact of wind farms on the environment, including addressing concerns over seascape, birds and navigational safety.
- Announced in March 2006, the Government's decision on the regulation of offshore transmission, to meet the requirements of grid connection for large offshore wind farms and the next generation of offshore renewables.

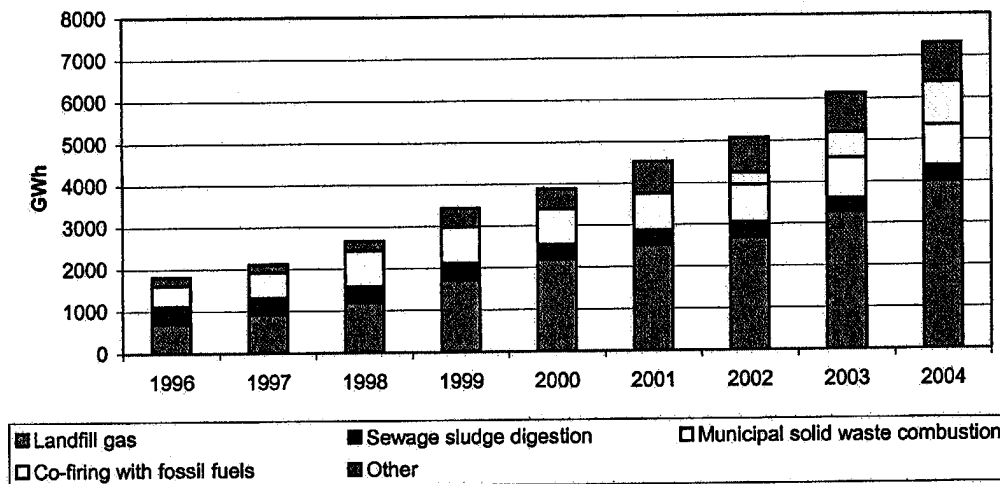


- Continue to make real progress in addressing concerns over possible wind turbine interference with aviation & radar systems.
- The Department is currently taking forward recommendations emanating from the Renewable Advisory Board's report on the Barriers to Commissioning Renewable Energy Projects - including issues surrounding grid connection of renewables.
- Organising a series of Renewable Energy workshops, with local planning officers and councilors across England and Wales, with the aim of increasing the understanding of the issues related to renewable developments. This will enable wind farm applications, and other renewable proposals, to be processed more quickly and decisions made on an informed basis.
- We have announced a £80 million funding package over three years for the Low Carbon Building Programme. ** I thought the Chancellor announced in the budget a further £50 million on top of the £30 million announced by MW for microgeneration and energy efficiency measures

4.2. Biomass

Bioenergy is a key technology for meeting our targets and objectives for renewable energy and currently provides about 2% of the UK electricity generation and about 1% of energy for heating in 2003.

**Volume of electricity generated from biofuels,
1996-2004**



Biomass currently accounts for the largest percentage of renewable obligation generation and the use of biomass shows major growth potential in the UK, although much of that potential is currently unrealised. Recognising this, the Biomass Task Force was established to 'assist Government & Industry in optimising the contribution of biomass energy to renewable energy targets and to sustainable forestry and farming and rural objectives'.

The Biomass Task Force reported to Government in October 2005. A full report is available at <http://www.defra.gov.uk/farm/acu/energy/biomass-taskforce/btf-finalreport.pdf>

An action plan in response to the Task Force Report was published by the UK Government on 27 April 2006. The plan accepts that energy from crops, trees and waste can make a strong contribution to reducing greenhouse gas emissions and sets out eleven key ways to make this happen. The main argument of the Task Force Report – that biomass is particularly suited for generating heat – was accepted by the Government, though the action plan makes clear that electricity generated from biomass and combined heat and power (CHP) are also important parts of its future.

Measures introduced include a capital grant scheme for biomass boilers; the establishment of a new Biomass Energy Centre to provide expert information and advice, along with further grant support for energy crops and a commitment to consider using biomass heating, wherever possible, in Government buildings.

The action plan is primarily for England. However the Devolved Administrations of Northern Ireland, Scotland and Wales have helped in its development and it will also contribute to a UK Biomass Strategy, which will be published in the next year.

Key points in the action plan are:

- A new five year capital grant scheme for biomass boilers, with funding of £10 - £15 million over the first two years and a second round of the Bio-energy Infrastructure Scheme (*announced in the Climate Change Programme Review*); (Capital grant support for biomass development in the UK was provided previously through the Bio-energy Capital Grants Scheme, the Community Energy programme and the Clear Skies Initiative.)



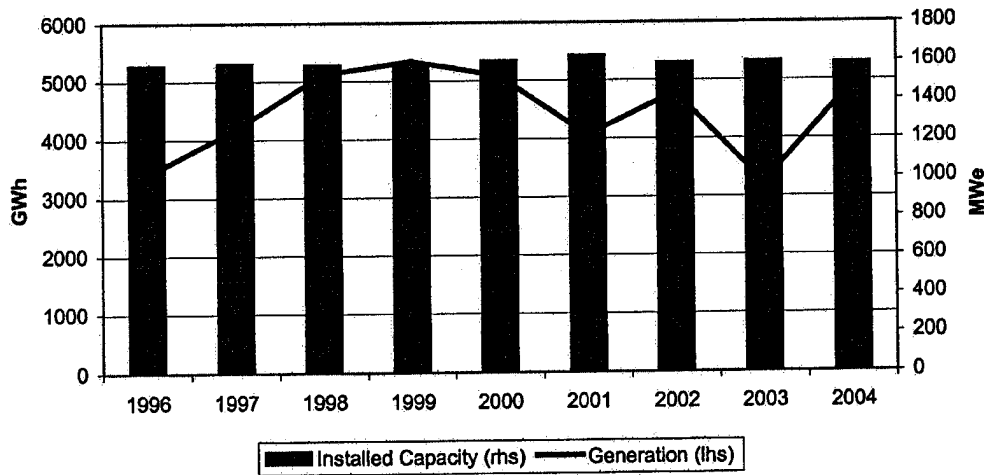
- Agreement in principle to support for energy crops under the new England Rural Development Programme to be introduced in 2007, closely integrated with bioenergy market development;
- Announcement of the Forestry Commission's new Biomass Energy Centre as a major new hub for bioenergy advice and best practice for industry and the public;
- Further measures to integrate environmental assessment in the planning of energy crop development;
- Government leadership through public procurement, including the commitment to carry out a mapping exercise of the potential use of biomass across the main procuring departments of the Government estate;
- Working with regional authorities in England and other organisations to ensure effective, coordinated mechanisms for delivery of policy and advice;
- Action already taken, since publication of the Task Force report, to improve the Renewables Obligation and implementation of the associated procedures;
- Use of the planning system to stimulate renewables development, including support for planning authorities applying a minimum percentage of renewable energy in new developments;
- Action to address regulatory barriers identified by the Task Force and to develop standards to improve understanding of, and confidence in, biomass;
- Government thinking on the use of energy from waste, subject to conclusions from the current review of Waste Strategy and the Energy Review; and
- Support for the EU Biomass Action Plan and agreement on UK membership of the Global Bioenergy Partnership from its launch in May 2006.

The full UK Government Response to the report of the biomass task force can be seen here: http://www.dti.gov.uk/renewables/renew_responsetothebiomasstaskforce.htm

4.3. Hydropower

In 2004, 1.24% of the UK's electricity supply came from hydropower, which represents nearly 35% of the total energy produced from renewable sources of energy. 4,648 GWh came from large scale and 282Gwh from small scale hydro respectively.

Hydro generating capacity and volume of electricity generated,
1996-2004



Whilst the Government recognises the potential from small scale hydro schemes, the prospect for significant further expansion of large scale projects (because of environmental concerns and commercial viability) is limited. However, plans for a new 100MW hydroelectric power station was given the go-ahead in July 05. New support is available for small-hydro as part of the wider low-carbon buildings programme launched in April 2006.

4.4. Wave & Tidal

In November 2005 we published the consent process for **wave and tidal** demonstration projects in England and Wales. These put in place the conditions that will allow the sector-leading UK marine industry to demonstrate and fulfil the renewable energy potential of our seas. We have also ring-fenced elements of the £50 million Marine Renewables Deployment Fund. Up to £2 million will be used for impact monitoring and research funding over the life of the demonstration projects. We have set aside up to £6 million for infrastructure projects. The remaining £42 million will be allocated through a new scheme that will support the first multi-device demonstration projects.