Renewable Energy Statistics

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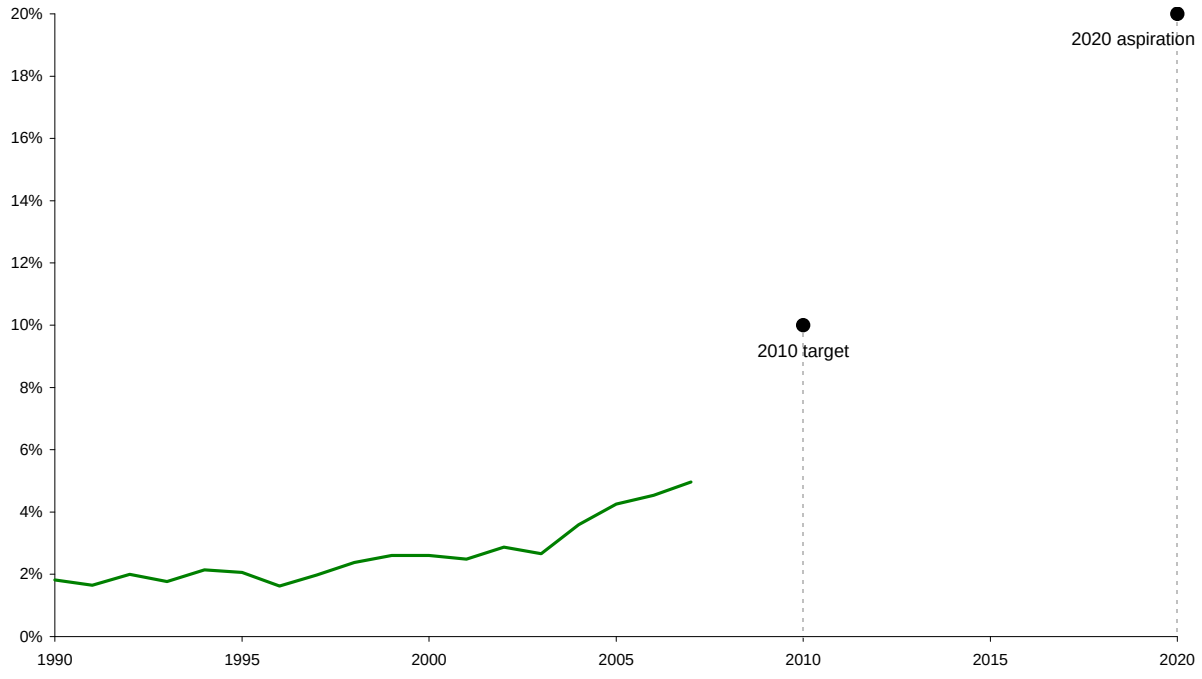
This note looks at trends in the production of energy from renewable sources. It also sets out progress towards targets for 2010-20, gives some international comparisons and looks at different definitions of renewable energy.

The Utilities Act 2000 defines renewables as 'sources of energy other than fossil fuel or nuclear fuel'. This covers a wide range of sources from technologically advanced photovoltaics and wave power schemes to more traditional coppiced woodland and straw combustion. It includes both naturally occurring sources and those associated with human activity, like landfill gas.

The following Standard Notes and Research Papers give policy and scientific background on different aspects of renewable energy:

- *Wind power-overview and update*
- *Microgeneration*
- *Renewable energy policy and support*
- *Wave and Tidal Power*
- *Offshore wind farms - Licensing*
- *Biofuels in 2005/06*
- *Energy Bill*

Proportion of electricity from renewables -progress and targets



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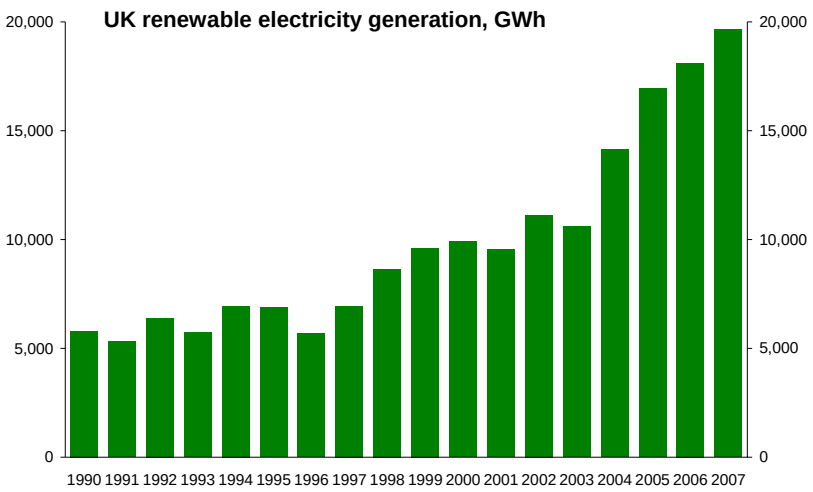
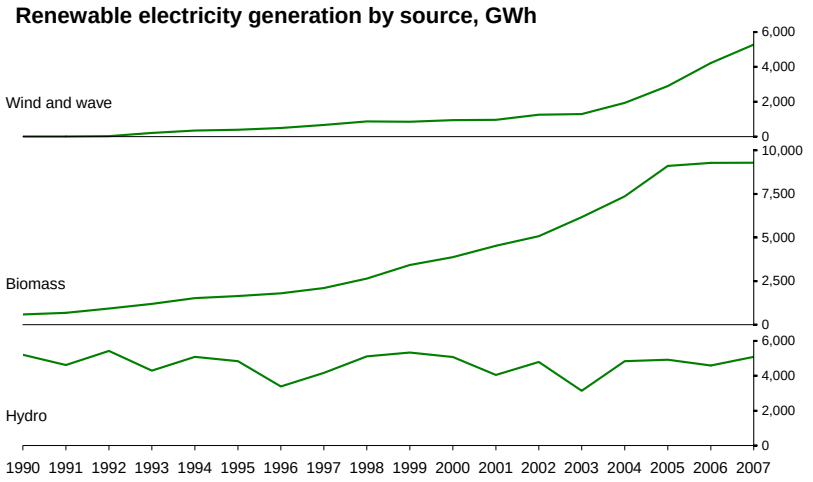
B. Electricity Generation

In 2007 renewable sources were used to generate 19,664 gigawatt hours (GWh) of electricity. This was 4.96% of all electricity generated in the UK. The largest renewable source was biomass (47%), followed by wind and wave (27%) and hydo (26%).

The DTI has published data on the level of electricity generation from all renewables since 1990 and trends are illustrated opposite. The absolute a mount its proportion of total generation has increased in each year since 2004. This was after a fall on both measures in 2003. The main cause of the fall in 2003 was a 33% decline in output from hydro schemes caused by low rainfall and snowfall during winter 2002/03 and summer 2003. This situation reversed from 2004 and the overall figure was also boosted by increases in output from biofuels and wind power.



The chart opposite and the appended Table 1 detail generation, by source. Much of the overall year-on-year variation is down to the variability in generation from hydo, as noted in the 2003 output. Output from biomass has increased consistently over most of this period. The increase in 2007 was the lowest ever recorded. Most of the increase in generation from biofuels in recent years has been in co-firing with fossil fuels; this fell by a small amount in 2006 and by around one-fifth in 2007. Wind generation has increased more rapidly since 2002 and exceeded the generation from hydro for the first time in 2007. The majority of wind generation is onshore (85% in 2007), but offshore wind is increasing at a faster rate. Wave power contributes a very small proportion to this category.



The latest published data uses the international definition of total renewables that excludes non-biodegradable wastes. All data back to 1990 has been revised to reflect this.

1. Targets

In 2000 the Government set a target that renewable sources should supply 10% of UK electricity, as long as the cost to the consumer is acceptable. Furthermore the Government's 'aspiration' is that this should double to 20% by 2020.[1] The 2020 'target' was restated in the 2006 Energy Review and 2007 Energy White Paper.[2] [3] The UK element of a wider EU target is for renewables to supply 15% of all energy sources (electricity, heat and transport) by 2020. This implies an even higher figure for electricity in 2020. The Government's consultation presented a potential scenario where to meet the overall 15% target, 32% of electricity would need to come from renewables in 2020 and just over 20% from wind energy alone.[4]

a. Renewables Obligation

This target has been built into the Renewables Obligation (RO) (and the analogous Renewables (Scotland) Obligation) which came into effect in April 2002. It is an obligation on all electricity suppliers to supply a specific proportion of electricity from renewable energy sources. The target under the RO is to increase the contribution of electricity from renewables in the UK so that by 2010-11, 10.4% of licensed UK electricity *sales* should be from RO-eligible renewable sources, rising to 15.4% by 2015-16. The Energy Review set out plans to increase this to 20% "when justified by growth in renewable generation".[5]

Not all of the sources covered by Table 1 are eligible under the RO. Exclusions include existing hydro plant of over 20MW, all plant using renewable sources built before 1990, and energy from mixed waste combustion, unless the waste is first converted to fuel using advanced conversion technology. Proposed changes to the RO are summarised in the Library Research Paper on the *Energy Bill*

b. Renewables Directive

The European Union's Renewables Directive (RD) came into force in October 2001. The diagram above shows that it has a more inclusive definition of eligible renewables, excluding only non-biodegradable wastes. In 2006 the European Commission clarified the definition of this measure and as a result imports of renewable electricity are not longer included, as illustrated by the diagram. All imported electricity (whatever the source) still remains in the denominator for this measure and any UK renewable generation that is exported is also excluded.

The Directive proposed that Member States adopt national targets for renewables that are consistent with reaching the overall EU-15 target of 12% of energy (22.1% of electricity) from renewables by 2010. The proposed UK "share" of this target is that renewable sources eligible under the RD should account for 10% of UK electricity consumption by 2010.

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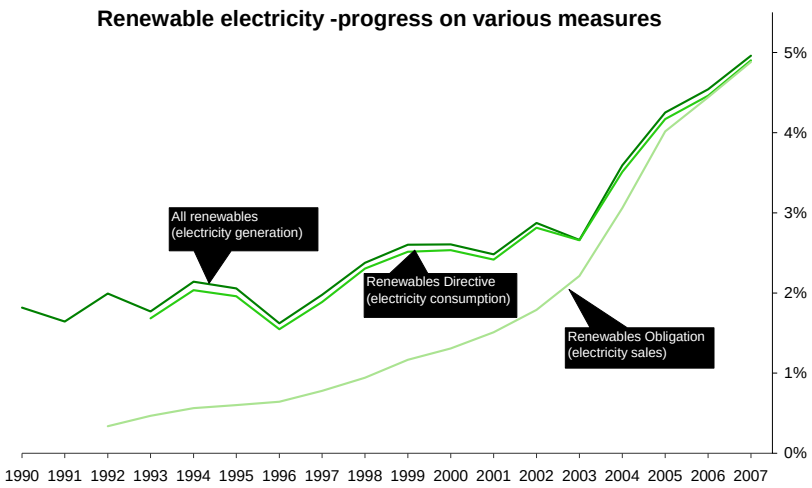
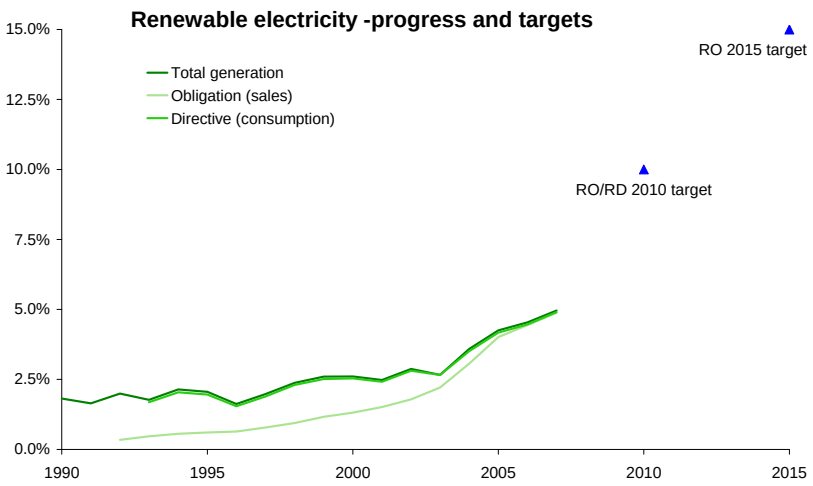
1 *Creating a low carbon economy-First annual report on the implementation of the Energy White Paper,* DTI
2 *The Energy Challenge -Energy Review Report 2006*, DTI (Cm 6887)
3 Meeting the Energy Challenge. A White Paper on Energy (Cm 7124)
4 *Renewable Energy Strategy Consultation*, BERR June 2008
5 Cm 6887. para 5.30

The chart opposite and Table 2 show progress on electricity generation under the international definition, the narrower RO measure and on consumption on the RD basis. Consumption of renewable electricity (RD) has been very similar to the all renewables figure over this period –the increases from 2004 are clearly illustrated. The RO measure started from a lower point due to the exceptions outlined earlier and has progressed more steadily than the generation indicator because it excludes large hydro plants. It has caught up the other indicators in the second half of this period as output from renewables not included in the RO has either fallen or increased at a slower rate than other renewables and its denominator (electricity sales) has increased by a smaller amount than the denominators of the other rates (generation and consumption).[6]



The next chart shows the same data but puts it in the context of the 2010 and 2015 targets. Clearly the current rates of increase are not fast enough to meet either of these targets. The Government have said that most of the expansion in renewables to meet their 10% target by 2010 is likely to come from wind power –with a possible 7-8% coming from onshore and offshore wind farms and 2-3% from other renewable sources.[7] Progress on wind power has been slower than expected. The 2007 Energy White Paper cited a number of reasons for the slower growth of wind power including delays in the planning system, higher than expected costs and delays in getting grid connections.



c. EU 2020 target

The EU has set a target to provide 20% of its total energy requirement from renewables by 2020. Targets for individual countries have been proposed by the European Commission, these vary from 10% for Malta to 49% for Sweden. The target for the UK is 15%. There are continuing negotiations about the definitions to be used and proposed targets. Therefore targets may change in the future and data on progress may be revised. Renewables made

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6 *Digest of UK Energy Statistics 2006*, DTI. Chapters 5 and 7

7 HC Deb 23 February 2004 c73w

up 8.5% of final energy consumption in the EU in 2005. The UK's share was 1.32% in 2005 and increased to 1.78% in 2007.[8] More details for individual countries are given later in this note.

2. Compliance with the Renewables Obligation

The table below summarises supplier compliance with the RO throughout the UK. This shows that suppliers have failed to meet the obligation level in each year –the number of Renewables Obligation Certificates (ROCs) presented was less than the RO requirement in MWh. The deficit fell in absolute and relative terms in 2004-05 and 2005-06. This trend was reversed in 2006-07 when the increase in the RO, which was larger than in earlier years, outpaced the relatively small increase in the number of ROCs presented. As a consequence the amount suppliers were required to pay into the buy-out fund increased from around £140 million in 2005-06 to just over £230 million in 2006-07.[9]

Supplier compliance with the RO

	2002-03	2003-04	2004-05	2005-06[(a)]	2006-07[(a)]
RO level	3.0%	4.3%	4.9%	5.5%/2.5%	6.7%/2.6%
RO requirement (MWh)	9,261,568	13,627,412	15,761,067	18,032,904	21,629,676
ROCs presented	5,451,449	7,610,144	10,855,848	13,699,317	14,612,654
Percentage of obligation met by ROCs	59%	56%	69%	76%	68%

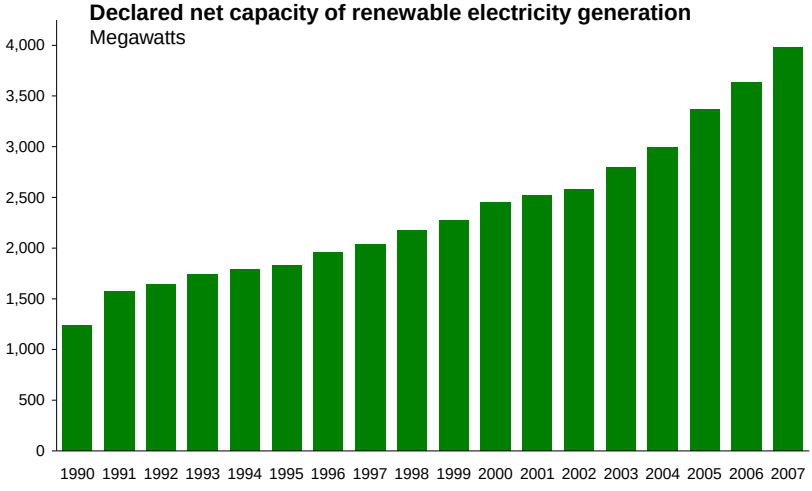
(a) Includes North Buy-out paid per ROC includes late payments from 2005-06.

Source: Renewables Obligation: Annual report 2005-06. Ofgem; The Renewables Obligation buy-out fund (2006-07), Ofgem

3. Generating capacity

There has been a more consistent increase in renewable capacity than in actual generation. Trends are shown in the chart opposite and the appended Table 3. Total capacity has increased in each year shown. The 2005 increase was the largest in absolute terms; the percentage change (12.8%) was the largest since 1991.

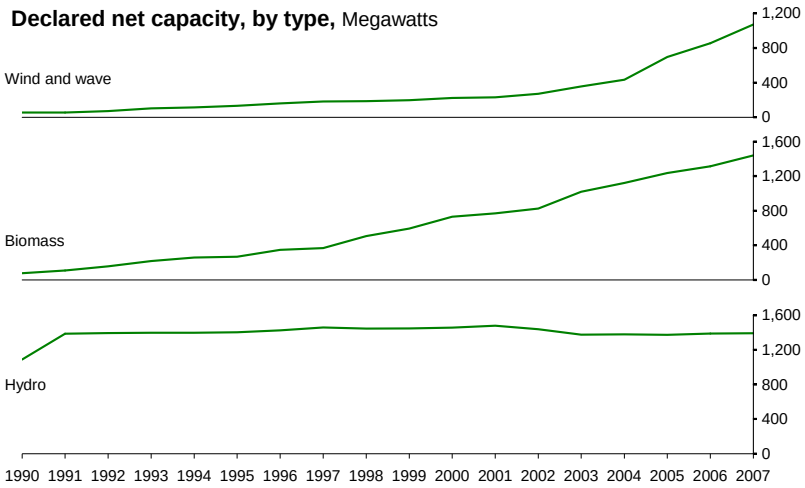
Declared net capacity of renewable electricity generation
Megawatts



8 *Digest of UK energy statistics 2008,* BERR. Table 7B

9 *Renewables Obligation: Annual report 2005-06*. Ofgem; *The Renewables Obligation buy-out fund (2006-07)*, Ofgem

There has been little change in hydro capacity (shown opposite) since 1991, while the other two sources have expanded rapidly. Wind and wave capacity increased by 365% between 2002 and 2007. At 10,041 MW it was the largest single type after hydro. Within the biofuels category the capacity of landfill gas combustion increased by 91% between 2002 and 2007; at 837 MW it was the next largest single type.



These figures are expressed in terms of declared net capacity (DNC). Installed capacity is the maximum continuous rating of the generation sets in the stations. DNC does not include the power consumed by the plant itself and reduces the capacity by a specific factor to account for the intermittent nature of the energy source. For instance a factor of 0.43 is applied to wind power. It therefore represents the nominal maximum capability of a generating set to supply electricity to consumers. A regularly updated database of renewable capacity that details how much is operational by type and the planning/construction stage of potentially forthcoming capacity is that is updated every month is available from the restats website at: http://www.restats.org.uk/2010_target.htm

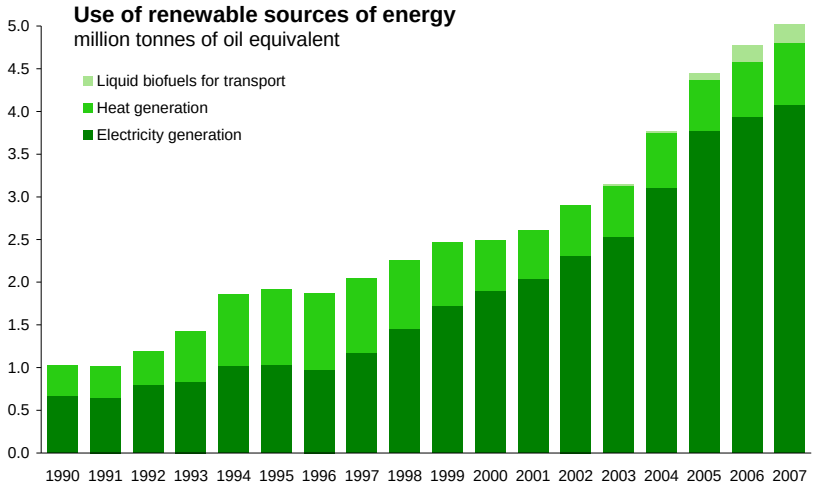
According to the British Wind Energy Association over 1,000 megawatts of offshore wind capacity has been given consent in round one of UK Offshore Wind Development. A total of 15 projects with a combined capacity of 7,200 megawatts have been allowed to apply for leases in round two.[10] The wind farms from round one are expected to be installed between 2005 and 2010 and those from round two after 2010.[11]

Data on renewable capacity and generation by UK region are also available from the restats website

[10] http://www.bwea.com/offshore/info.html

[11] *Creating a low carbon economy-First annual report on the implementation of the Energy White Paper,* DTI, p55

C. Renewable energy inputs



Renewable sources are used to produce transport fuels, heat –in boilers, Combined Heat and Power plant or incinerators- as well as electricity. Table 4 shows trends in all renewable energy inputs for all types. The chart opposite summarises this information. Renewable energy consumption has increased more than five-fold over the period considered, from 1.0 million tonnes of oil equivalent (mtoe) in 1990 to 5.2 mtoe in 2007. The proportion consumed for electricity generation has increased from 65% in 1990 to 79% in 2007. Heat from renewables fell by around a half in the decade to 2005, but has since recovered some of this loss. The fall was mainly due to the tighter emissions controls on on-site burning of biofuels, especially wood waste.

ON the standard UK basis renewable sources, excluding passive uses of solar energy, provided 2.0% of the UK's total primary energy requirements in 2007, up from 1.8% in 2005 and 0.3% in 1990.[12] These figures are slightly higher than those based on definition used by the EU and hence quoted in connection with the 2020 target.

Table 4 shows that biofuels dominate the sources for electricity generation to a much greater extent than they do the actual energy provided (shown in Table 1). This is because the energy supplied by hydro, wind and wave is assumed to be equal to its inputs. This is not to say that they are 100% efficient, only that it is not technically possible to measure the total energy input from these sources in the same way as for other fuels.

D. International Comparisons

a. Electricity generation

The European Commission projects that, given existing national policies and measures, the EU-25 will achieve 19% electricity consumption from renewable sources by 2010, instead of its 21% target.[13]

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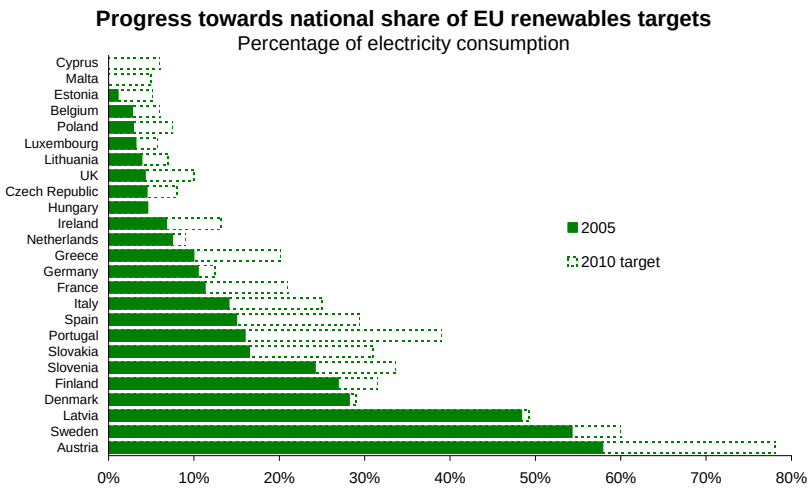
12 *Digest of UK Energy Statistics 2007*, DTI. para 7.15. *Digest of UK energy statistics 2008*, BERR. Table 7B

13 *Renewable Energy Road Map. Renewable energies in the 21st century: building a more sustainable future s*, COM (2006) 848 final, European Commission
http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0848en01.pdf

The chart opposite and Table 5 show the different RD targets in place for 2010 across the EU-25, and the progress of Member States towards these as of 2005. The percentage contributions are calculated by dividing the national production of electricity from renewable sources by gross national electricity consumption, and therefore do not take exports and imports into account. As such, the UK figure differs slightly from that recorded by the UK government.

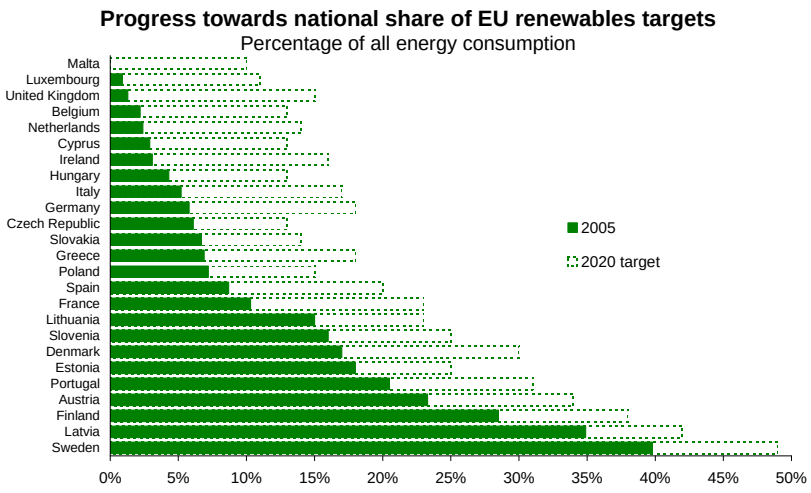


In early 2007 the European Commission concluded that nine member states were fully on track to meet their 2010 targets (Germany, Denmark, Hungary, Spain, Ireland, Sweden, Luxembourg, Finland and the Netherlands). The UK is assessed as being just behind this group; not currently on track but started to implement appropriate policies.

For *all* energy use, the Commission estimates that the share of renewable energy sources in the EU-25 is unlikely to exceed 10% by 2010. The shortfall compared with the 12 % target is caused by higher costs of renewable energy, in particular the failure to include external costs in fossil fuel alternatives and 'numerous administrative problems' in a relatively new and complex sector.[14]

b. All energy consumption

The chart opposite and Table 5 give the share of all energy from renewables in 2005 and target levels for 2020. UK consumption from renewable sources was the third lowest in the EU after Malta and Luxembourg. All countries have been proposed a 2020 target clearly above the latest levels. These targets and precisely how renewable energy will be measured is still up for negotiation. The UK's target at 15% is the greatest amount above 2005 levels in percentage point terms.



[14] ibid

E. Further information and links

Statistics relating to renewable sources of energy are provided in the UK by BERR:
http://www.berr.gov.uk/energy/statistics/source/renewables/page18513.html

The Restats website includes national and regional breakdowns of renewables energy capacity and generation and monthly data on capacity that is either operational, under construction and awaiting planning consent.

F. Reference tables

Table 1

Electricity generated from renewable sources: 1990-2007

GWh

			Hydro		Biomass							
	Wind and wave	Solar photo-voltaics	Small scale	Large scale[a]	Landfill gas	Sewage sludge digestion	Municipal solid waste combustion[b]	Co-firing with fossil fuels	Other[c]	Total biomass	**Electricity generation from renewables**	*Renewable generation as proportion of total[d]*
1990	9	0	127	5,080	139	316	141	0	0	596	**5,812**	*1.82%*
1991	9	0	142	4,482	208	328	150	0	1	688	**5,320**	*1.65%*
1992	33	0	149	5,282	377	328	177	0	52	934	**6,398**	*1.99%*
1993	217	0	159	4,143	447	378	252	0	122	1,198	**5,717**	*1.77%*
1994	344	0	159	4,935	517	361	449	0	192	1,518	**6,956**	*2.14%*
1995	392	0	166	4,672	562	410	471	0	199	1,642	**6,871**	*2.06%*
1996	488	0	118	3,275	708	410	489	0	197	1,805	**5,685**	*1.64%*
1997	667	0	164	4,005	918	408	585	0	199	2,110	**6,945**	*1.99%*
1998	877	0	206	4,911	1,185	386	849	0	234	2,654	**8,648**	*2.38%*
1999	850	1	207	5,128	1,703	410	856	0	460	3,429	**9,616**	*2.61%*
2000	946	1	214	4,871	2,188	367	840	0	487	3,882	**9,914**	*2.63%*
2001	965	3	210	3,845	2,507	363	880	0	776	4,526	**9,549**	*2.48%*
2002	1,256	3	204	4,584	2,679	368	907	286	840	5,080	**11,127**	*2.87%*
2003	1,286	3	150	2,987	3,276	394	965	602	937	6,174	**10,600**	*2.66%*
2004	1,935	4	283	4,561	4,004	440	971	1,022	927	7,364	**14,147**	*3.59%*
2005	2,904	8	444	4,478	4,290	470	964	2,533	849	9,107	**16,940**	*4.25%*
2006	4,225	11	478	4,115	4,424	456	1,083	2,528	797	9,288	**18,116**	*4.54%*
2007	5,274	11	534	4,554	4,677	517	1,177	1,956	964	9,291	**19,664**	*4.96%*

(a) Excluding pumped storage stations.

(b) Biodegradable part only.

(c) Includes electricity from farm waste digestion, poultry litter combustion, meat and bone combustion, straw and short rotation coppice.

(d) Total UK electricity production including pumped storage stations

Source: *Digest of United Kingdom Energy Statistics 2008* , Tables 5.2 & 7.1.1

Table 2

Renewable electricity: Progress on various measure since 1990

	Overall renewables (proportion of UK electricity generation)	Renewables Obligation basis (proportion of UK electricity sales)	Renewables Directive basis (proportion of UK electricity consumption)[(a)]
1990	1.82%	-	-
1991	1.64%	-	-
1992	1.99%	0.34%	-
1993	1.77%	0.47%	1.68%
1994	2.14%	0.56%	2.03%
1995	2.06%	0.60%	1.96%
1996	1.62%	0.64%	1.55%
1997	1.98%	0.78%	1.89%
1998	2.38%	0.94%	2.31%
1999	2.60%	1.17%	2.51%
2000	2.61%	1.31%	2.53%
2001	2.48%	1.51%	2.42%
2002	2.87%	1.79%	2.81%
2003	2.66%	2.21%	2.66%
2004	3.59%	3.06%	3.51%
2005	4.25%	4.01%	4.17%
2006	4.54%	4.44%	4.46%
2007	4.96%	4.88%	4.90%

- not available

(a) Data prior to 1998 are estimated due to the new definition that exlcudes imported renewables. In 1998 the difference between the actual figure and one using the estimated technique was 0.01 percentage points

Source: *Digest of United Kingdom Energy Statistics 2008* , BERR Tables 7.5 and 5.1

Table 3

Declared net capacity of electricity from renewable sources

Megawatts

			Hydro		Biomass and wastes					
	Wind and wave	Solar photo· voltaics	Small scale	Large scale[a]	Landfill gas	Sewage sludge digestion	Municipal solid waste combustion[b]	Other[c]	Total biofuels and wastes	**Total**
1990	4.3	-	26.3	1,084.0	16.5	72.7	30.9	0.1	120.3	**1,234.8**
1991	6.3	-	37.9	1,377.1	28.7	91.4	30.9	0.3	151.3	**1,572.7**
1992	21.3	-	40.3	1,383.0	51.1	91.4	44.6	12.9	200.0	**1,644.5**
1993	55.2	-	42.2	1,383.0	78.7	88.4	49.8	25.6	262.5	**1,743.0**
1994	65.7	-	42.2	1,383.0	84.9	87.1	86.8	25.6	304.4	**1,795.3**
1995	85.1	0.2	48.6	1,383.0	94.7	87.2	86.8	25.5	314.2	**1,831.1**
1996	113.0	0.3	49.1	1,405.8	145.7	87.2	115.0	25.5	393.4	**1,961.6**
1997	135.4	0.5	58.5	1,428.8	169.4	86.8	115.0	25.5	416.8	**2,039.9**
1998	139.4	0.6	61.6	1,413.0	220.6	89.8	162.1	63.9	556.7	**2,171.3**
1999	150.5	1.2	63.6	1,413.0	309.0	91.3	160.6	63.9	645.1	**2,273.4**
2000	176.8	2.0	66.1	1,419.0	382.6	85.3	184.0	73.7	784.9	**2,448.7**
2001	183.6	2.8	67.9	1,440.0	418.3	85.0	188.9	73.7	825.2	**2,519.5**
2002	225.1	4.1	70.3	1,396.0	439.2	96.0	202.7	73.7	882.0	**2,577.6**
2003	312.4	6.0	47.1	1,354.5	575.1	123.7	217.2	78.1	1,078.6	**2,798.6**
2004	392.7	8.2	51.7	1,355.9	670.9	131.9	223.5	71.8	1,182.9	**2,991.3**
2005	658.4	10.9	57.2	1,343.2	759.7	139.6	233.6	71.9	1,299.4	**3,369.0**
2006	821.9	14.3	55.5	1,361.4	795.4	146.4	237.3	74.2	1,380.5	**3,633.6**
2007	1,041.6	14.3	60.2	1,358.7	836.7	151.7	237.3	98.1	1,508.1	**3,982.8**

Note: Declared net capacity is the maximum rating of the generating sets in the stations, less the power consumed by the plant itself and reduced by a factor to take account of the intermitted nature of the energy source

(a) Excluding pumped storage stations.

(b) Biodegradable part only.

(c) ncludes the use of farm waste digestion, waste tyres, poultry litter, meat and bone, other animal waste derived fuels, straw and energy crops

Source: *Digest of United Kingdom Energy Statistics* , long term table 7.1.1

Table 4

Total use of renewable sources[a]

Thousand tonnes of oil equivalent

	Used to generate electricity					Used to generate heat					
	Wind and wave[b]	Solar photo-voltaics	Hydro	Biomass	Total	Active solar heating	Geo-thermal acquifier	Biomass	Total	Liquid biofuels for transport	**Total**
1990	0.8	0.0	447.7	219.0	667.5	6.4	0.8	345.8	353.1	..	**1,020.5**
1991	0.7	0.0	397.6	246.9	645.2	6.8	0.8	359.3	366.9	..	**1,012.1**
1992	2.8	0.0	467.0	334.6	804.4	7.1	0.8	381.9	389.9	..	**1,194.3**
1993	18.7	0.0	369.9	442.0	830.5	7.4	0.8	590.1	598.3	..	**1,428.9**
1994	29.5	0.0	438.0	550.8	1,018.3	7.7	0.8	831.8	840.3	..	**1,858.6**
1995	33.7	0.0	415.9	588.7	1,038.4	8.1	0.8	878.4	887.3	..	**1,925.7**
1996	41.9	0.0	291.7	639.1	972.7	8.7	0.8	888.6	898.1	..	**1,870.8**
1997	57.4	0.0	358.4	760.8	1,176.6	8.9	0.8	864.9	874.6	..	**2,051.2**
1998	75.4	0.0	440.0	938.0	1,453.4	9.1	0.8	796.0	805.9	..	**2,259.3**
1999	73.1	0.0	458.8	1,195.0	1,726.9	9.4	0.8	732.1	742.3	..	**2,469.2**
2000	81.3	0.1	437.3	1,380.8	1,899.6	11.1	0.8	583.7	595.6	..	**2,495.2**
2001	83.0	0.2	348.7	1,610.5	2,042.4	13.2	0.8	561.1	575.2	..	**2,617.6**
2002	108.0	0.2	411.7	1,786.8	2,306.7	16.1	0.8	572.8	589.7	..	**2,896.4**
2003	110.5	0.3	269.8	2,151.3	2,531.8	19.8	0.8	575.3	595.9	15.1	**3,142.8**
2004	166.4	0.3	416.5	2,523.1	3,106.3	24.6	0.8	622.4	647.8	16.7	**3,770.8**
2005	249.7	0.7	423.2	3,105.1	3,778.7	29.4	0.8	568.5	598.7	74.1	**4,451.4**
2006	363.3	0.9	394.9	3,176.0	3,935.2	36.3	0.8	608.7	645.8	187.8	**4,768.7**
2007	453.5	0.9	437.5	3,188.2	4,080.1	44.9	0.8	683.2	728.9	361.8	**5,170.8**

(a) Includes some waste of fossil fuel origin.

(b) For wind, wave and hydro, the figures represent the energy content of the electricity supplied, but for biofuels the figures represent the energy content of the fuel used.

Source: Digest of United Kingdom Energy Statistics, long term table 7.1.1

Table 5

Indicators of the importance of renewable energy and related targtes, EU members

%

	Rewnewable electricity production as a proportion of total consumption		All renewable energy consumed as a proportion of total final energy consumption	
	2005	2010 target	2005	2020 target
Austria	57.9	78.1	23.3	34.0
Belgium	2.8	6.0	2.2	13.0
Cyprus	0.0	6.0	2.9	13.0
Czech Republic	4.5	8.0	6.1	13.0
Denmark	28.2	29.0	17.0	30.0
Estonia	1.1	5.1	18.0	25.0
Finland	26.9	31.5	28.5	38.0
France	11.3	21.0	10.3	23.0
Germany	10.5	12.5	5.8	18.0
Greece	10.0	20.1	6.9	18.0
Hungary	4.6	3.6	4.3	13.0
Ireland	6.8	13.2	3.1	16.0
Italy	14.1	25.0	5.2	17.0
Latvia	48.4	49.3	34.9	42.0
Lithuania	3.9	7.0	15.0	23.0
Luxembourg	3.2	5.7	0.9	11.0
Malta	0.0	5.0	0.0	10.0
Netherlands	7.5	9.0	2.4	14.0
Poland	2.9	7.5	7.2	15.0
Portugal	16.0	39.0	20.5	31.0
Slovakia	16.5	31.0	6.7	14.0
Slovenia	24.2	33.6	16.0	25.0
Spain	15.0	29.4	8.7	20.0
Sweden	54.3	60.0	39.8	49.0
United Kingdom	4.3	10.0	1.3	15.0
EU 25	**13.6**	**21.0**	**8.5**	**20.0**

Note: Data used a 'normalised' hydro contribution to account for variations in the weather.

Sources: EUROSTAT

Renewable energy: Statistics used for the EU 2020 renewables target. Energy Trends March 2008 special feature, BERR