

UK Clean Energy:

Key Facts 2012



Introduction

Needs and expectations for low carbon energy have been transformed in the last two decades. As the world has recognised the threats posed by climate change and the need to limit greenhouse gas emissions, low carbon energy has come into its own. Moreover, the UK Government has provided the encouragement and support that has enabled low carbon technologies to expand rapidly here in the UK.

Low carbon energy offers more than simply a means of adapting to climate changes. It offers an alternative to fossil fuels at a time when the UK's North Sea oil and gas supplies have been waning and the cost of importing them from other regions has been rising. In this it is playing a vital role in energy security for the UK in the longer term.

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Nor should the importance of efficiency be underrated as a means of keeping carbon emissions from energy low. Energy is wasted in homes and businesses across the country yet simply by making efficiency improvements huge savings can be made – both in emissions and in the financial cost to the consumer.

Wind energy was in its infancy 20 years ago but today is part of the mainstream energy supply, solar devices are being installed in their thousands, biofuels are a routine component of transport fuels, and wave and tidal technologies are fast emerging as a major generator for the future.

While renewable sources have played an increasingly important role in the energy mix, nuclear power has continued to provide a reliable level of low carbon energy.

The UK Government has played a vital and leading part in promoting low carbon energy as a solution to climate change and as a route to future economic growth. It has introduced funding mechanisms to ensure low carbon technologies get started in the market, it has provided the policies and regulatory frameworks that are needed, and it has provided the backing and assurances industry requires to invest billions of pounds in building, installing and operating low carbon facilities. Just as important, it continues and will continue to offer the support and encouragement the sector needs to turn the UK into a low carbon economy.



Offshore wind has been identified as a source of low carbon electricity that can be expanded rapidly to play a key part in ensuring the UK meets its 2020 renewable energy target.

Offshore Wind

Then: In 2001 the capacity of offshore wind was 3.8MW. In 2001 the UK had 2 offshore turbines. In 2007 there were 700 people employed in UK offshore wind.

Now: In 2011 there were 3,200 people employed in UK offshore wind. In 2012 the capacity of offshore wind exceeds 1.5GW. At the start of 2012 the UK had 487 offshore turbines with 719 under construction. Offshore wind provides 1.5 per cent of the UK's electricity.

Future: In 2020 there are forecast to be up to 67,700 people working in UK offshore. In 2020 the capacity of offshore wind is forecast to be 18GW. By 2020 it is forecast that the UK could have up to 5,000 offshore wind turbines. Offshore wind is forecast to provide 7 per cent of electricity in 2017 and 17 per cent by 2020.

Source:

Working for a Green Britain Vol 2, RenewableUK
UK Renewable Energy Roadmap
RenewableUK



In April 2010 the UK became the first nation to reach 1GW of installed offshore capacity.

Up to 40 per cent of Europe's offshore wind resource is in UK waters.

The first UK offshore wind farm was constructed at Blyth in 2000. It had 2 turbines and a 4MW capacity and could supply 2,125 homes. In 2012 the Walney 102-turbine wind farm was completed with a 367MW capacity, enough to power 320,000 homes.

Three main licensing rounds were held by the Crown Estate. The first was for 18 sites and a total of 1.5GW. The second was for 15 projects with a 7.2GW capacity. Round Three projects total 25GW and will supply 25 million homes.

A separate Scottish licensing round gave rights to 6.4GW of projects. They are estimated to generate up to £30 billion of investment.

The biggest wind farm under construction is the £2.9 billion London Array project. Its 630MW first phase of 175 turbines will be operational later this year and will supply 480,000 homes. It will displace more than 925,000 tonnes of CO₂ annually, equal to taking 289,000 cars off the road. The second phase will make it the first 1GW windfarm.

Source: Scottish Development International

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Nuclear

Nuclear is an important source of low carbon energy and preparations are currently underway for a new generation of state of the art power plants to replace elderly reactors that are reaching the end of their lifetimes.

Now: 17 nuclear reactors are operational in the UK. In 2012 44,000 people are employed in the nuclear industry in the UK.

Future: 16 nuclear reactors are due to be decommissioned by 2023 but 19 new reactors are forecast to be built by 2030. By 2025 new nuclear build is forecast to create 30,000 new jobs.

Source:

www.decc.gov.uk/en/content/cms/meeting_energy/nuclear/nuclear.aspx

Nuclear Industry Association



The UK has more than 50 years of experience of the safe operation of nuclear energy.

A quarter of the UK's electricity is from low carbon sources. Nuclear power accounts for more than 60 per cent.

In the 1990s nuclear plants provided 25 per cent of the UK's electricity. It is now 20 per cent.

Decommissioning old nuclear reactors is a £3 billion industry in the UK. Work includes reprocessing hundreds of tonnes of spent fuel annually.

Nuclear energy reduces the UK's carbon dioxide emissions by up to 40 million tonnes annually.

The UK's carbon emissions are reduced by 7 to 14 per cent by nuclear generation.

From today to 2023 the UK will lose 8.5GW of capacity through the closure

of aging reactors but by 2030 it is forecast that 16GW of new capacity will be added by the construction of modern plants, with a further 5GW possible.

Eight sites have been named as the locations for the next generation of nuclear build. They are Bradwell, Hartlepool, Heysham, Hinkley Point, Oldbury, Sellafield, Sizewell, and Wylfa.

The European Pressurised Water Reactor and the Westinghouse AP1000 have been granted interim design acceptance by the independent nuclear safety, security and environment regulators.

Carbon emissions from a new nuclear power station are expected to be in the range of 7 to 22g per kWh, similar to the lifecycle emissions from wind power.

Source: The Carbon Plan; Delivering Our Low Carbon Future, Decc.

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Wave and tidal is an emerging force in the energy sector and in the 2020s the technologies will start being rolled out on a large scale.

Wave and Tidal

Then: In 2001 the UK had 0.2MW of installed wave and tidal capacity. In 2005 UK wave and tidal devices displaced 1,695kg of CO₂. In 2005 200 people worked in the UK wave and tidal sector. In 2005 wave and tidal devices in the UK provided enough electricity to supply 3,942 homes.

Now: In 2012 the UK has 8MW of installed wave and tidal capacity. In 2012 UK wave and tidal devices will displace at least 9,040kg of CO₂. In 2012 900 people are working in the UK wave and tidal sector. In 2012 wave and tidal devices in the UK can provide enough electricity to supply 21,024 homes. In 2011 investment in the UK wave and tidal sector was estimated at £120 million.

Future: By 2020 the UK is forecast to have 300MW to 1.3GW of installed wave and tidal capacity. By 2021 between 5,000 and 9,400 people are forecast to be working in the UK wave and tidal sector. In 2020 wave and tidal devices in the UK are forecast to supply at least 788,400 homes.

Source:

300MW UK Renewable Energy Roadmap, Decc

UK National Renewable Energy Action Plan

DECC evidence to Energy and Climate Change Select Committee

Working for a Green Britain Vol 2, RenewableUK

RenewableUK

Carbon Trust



The UK's wave and tidal resources are among the best in the world. The Orkneys have waves up to 50 feet high and tidal currents of 7.8 knots, among the fastest in Europe.

Europe has 20 to 30 per cent of the world's tidal resources. The UK has 80 per cent of Europe's tidal resources.

The UK leads the world in wave and tidal energy. Today it has four times more capacity than its nearest competitor.

A quarter of the global wave and tidal technology projects are led by UK businesses.

Three of the world's leading and state-of-the-art test facilities are based in the UK – the European Marine Energy Centre (EMEC) in the Orkneys, Wave Hub off Cornwall and the National Renewable Energy Centre (NaREC) in Northumberland.

By the 2040s wave and tidal is forecast to be capable of supplying 20 per cent of the UK's electricity.

Source: Manifesto 2010, RenewableUK

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Solar energy is an increasingly important component of the nation's energy mix and is particularly well suited to enable households to generate their own hot water and electricity.

Solar

Then: By 2007 18.1MW of solar capacity had been installed in the UK. From July 2007 to April 2010 there were 3,113 solar PV installations in the UK. Before the introduction of FiTs there were 1,000 registered solar PV companies.

Now: By February 2012 957MW of solar capacity had been installed in the UK. In 2012 15,000 people are estimated to be working in the UK's solar sector. By February 26, 2012 the number of solar PV installations had risen to 265,044. Since the introduction of FiTs the number of registered solar PV companies has risen to 5,500.

Future: By 2016 4.3GW of solar capacity is forecast to be installed in the UK. In 2015 50,000 people are forecast to be working in the UK's solar sector. The rise will be driven primarily by the Feed in Tariff. By 2015 there are forecast to be 620,000 solar PV installations, and 3.3 million by 2020.

Source: Decc

Of the 658.3MW renewable capacity installed in 2011 using Feed in Tariffs, 593.4MW was from solar photovoltaics. The next biggest was wind with 34.7MW installed.

Costs of purchasing and installing solar power have fallen by 45 per cent since 2009.

The UK PV industry is now eighth in the world for the installation of solar PV with 2 per cent of the world market.

The solar PV units installed through FiT by the end of 2011 will generate 500MWh per year and save 4.389 million tonnes of CO₂ over their lifetimes.

The Energy Savings Trust calculates that 10.7 million homes in the UK would benefit from having solar PV units fitted.

By 2020 about 3 million homes are expected to have installed 22GW of solar units, the equivalent of 10 large power stations.

Solar PV units used with smart metering save low-income homes £200 to £3,500 a year.

Typical CO₂ savings in a year for a solar heating system are 230kg per household when replacing gas and 510kg when replacing electric immersion heating.

Typical cash savings per household for a solar heating system are £55 a year when replacing gas and £80 a year when replacing electric immersion heating.

Costs of purchasing and installing solar power have fallen by 45 per cent since 2009.

Source: DECC

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Waste to Energy

Generating energy from waste not only provides a low carbon source of energy and reduces pressure on limited landfill space but it prevents large quantities of powerful greenhouse gases escaping into the atmosphere from decomposing rubbish.

Then: In 2007 installed EfW combustion capacity was 274MW. In 2007 there were 2043TWh of electricity generated through EfW combustion.

Now: By late 2012 installed EfW combustion capacity it is estimated to be 500MW. In 2012 there are estimated to be 3,723TWh of electricity generated through EfW combustion.

Future: By 2017 installed EfW combustion capacity is forecast to be 640MW. By 2018 it is forecast there will be 4765TWh of electricity generated through EfW combustion.

Source: Analysis of renewable growth to 2020, AEA for Decc



Landfill sites are the UK's largest source of man-made methane emissions and account for about 3 per cent of the country's greenhouse gas emissions, including 40 per cent of methane emissions. Methane recovery is the main reason emissions from waste have fallen 69 per cent since 1990.

Landfill gas generated 4,913GWh of electricity in 2007. In 2012 it is estimated to be 5,311GWh. In 2018 it is forecast to be 4,498GWh. Landfill gas schemes have a commercial life of 5 to 10 years.

There are 146 sewage sludge treatment AD plants. They have 115MW capacity, produce 1TWh of electricity and treat 1.1 million tonnes of sewage sludge.

More than 100 million tonnes of organic waste are produced each year in the UK that could be used to make biogas.

Biffa's plant at Cannock is the most powerful anaerobic digester in the UK with an output capacity of 6,000 kW. It digests 120,000 tonnes of waste annually.

In 2005 there were 5 anaerobic digestion plants in the UK. By February 2012 there were 72. Hundreds more are expected to be built over the next 5 years.

Biogas production through anaerobic digestion is forecast to generate up to 10 to 20TWh of electricity by 2020.

The biogas industry is forecast to be able to create 35,000 jobs and be worth £3-4 billion to the UK economy.

Source: Anaerobic Digestion and Biogas Association

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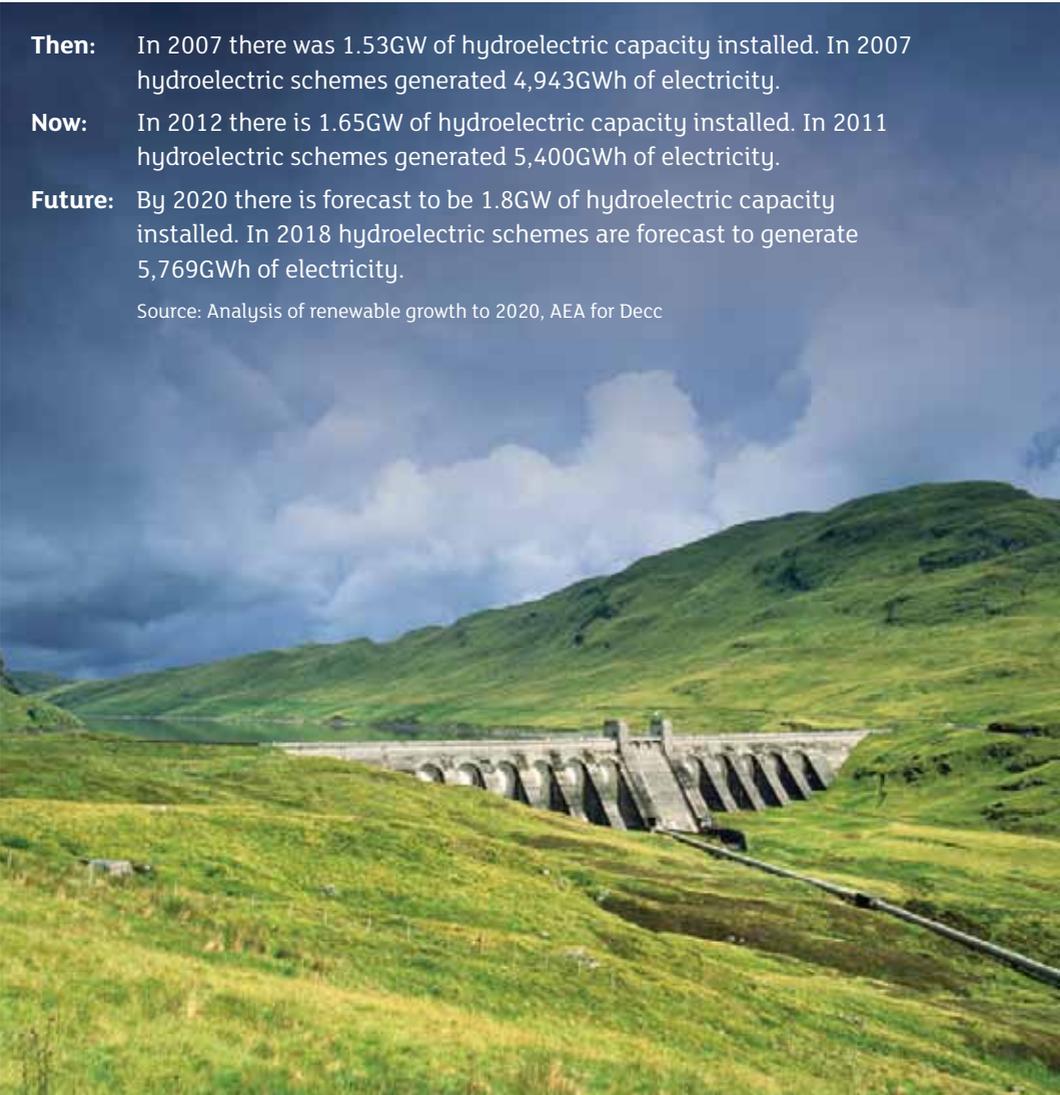


Hydroelectric schemes make a valuable contribution to UK low carbon energy needs and micro-hydro devices are extending the technology's reach and use.

Hydropower

- Then:** In 2007 there was 1.53GW of hydroelectric capacity installed. In 2007 hydroelectric schemes generated 4,943GWh of electricity.
- Now:** In 2012 there is 1.65GW of hydroelectric capacity installed. In 2011 hydroelectric schemes generated 5,400GWh of electricity.
- Future:** By 2020 there is forecast to be 1.8GW of hydroelectric capacity installed. In 2018 hydroelectric schemes are forecast to generate 5,769GWh of electricity.

Source: Analysis of renewable growth to 2020, AEA for Decc



Hydropower produces 1.2 per cent of electricity consumed in the UK. It has been generating electricity in the UK since 1882.

An average of 60 new hydroelectric projects are being approved each year, almost all of them small-scale.

In the first 18 months of the feed in tariffs scheme the number of micro-hydro schemes more than doubled.

In 2010, 48 per cent of the projects approved opened up a stretch of river to fish that had previously been blocked.

The UK has 1.65GW of hydroelectric capacity installed of which 88 per cent is from large-scale developments.

In England and Wales a study for the Environment Agency identified 25,937 potential sites for hydro schemes, with

a capacity of 1,178MW and able to supply 845,000 homes with electricity.

Of the potential sites, 4190 are described as realistic prospects likely to be beneficial for fish and offer the potential for developments with about 550MW capacity and an average size of 45kW.

A 2010 study for the Scottish government identified the potential for 7,043 hydroelectric schemes in Scotland. They would provide 1.2GW of capacity.

There are 350 hydropower schemes in England and Wales today. There are forecast to be 1,200 by 2020.

Source: Environment Agency

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Biofuels

Reducing carbon emissions of the transport sector is vital if the UK is to meet its 2020 targets; the replacement of fossil fuels in vehicles by biofuels has been identified as one of the key mechanisms.

Then: In 2005 118 million litres of biofuel were used by vehicles.

Now: In 2010-11 1,440 million litres of biofuel were used by vehicles.



The Renewable Transport Fuel Obligation (RTFO) requires 3.5 per cent of fuel to come from a renewable source. This increases with 10 per cent of all transport energy required to come from renewable sources by 2020.

In the third quarter of 2011 a record high of 453 million litres of liquid biofuels used in the transport sector was set.

A new record for the proportion of biofuels in road transport fuel was set in the third quarter of 2011. It made up 3.9 per cent of the total. Biodiesel accounted for 4.4 per cent of diesel, bioethanol accounted for 3.3 per cent of petrol.

The UK supplied 22 per cent of the biofuel it used in 2010-11.

In 2010-11 used cooking oil accounted for 30 per cent of biofuel feed, 30 per cent of the total.

16 per cent of renewable energy is used to generate heat. Biomass is the single biggest renewable contributor, producing 88 per cent.

Drax power station is the single biggest renewable energy generator in the UK. By burning biomass with coal it can produce up to 12.5 per cent of its power from renewable sources supplies 7 per cent of the UK's electricity and 7 per cent of the UK's renewable power.

In 2007 the capacity of biomass units was 701MW. In 2012 it is expected to be 1.3GW. By 2020 it is forecast to rise to 4.4GW.

Source: Analysis of renewable growth to 2020, AEA for Decc

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Losing energy through the fabric of buildings and from the use of inefficient equipment is one of the biggest causes of greenhouse gas emissions in the UK .

Energy Efficiency

Then: In 2007 8.5 million homes had cavity wall insulation. In 2007 9.5 million homes had adequate loft insulation. In 2008 65,000 homes had solid wall insulation.

Now: In 2012 11 million homes have cavity wall insulation. In 2012 13.7 million homes have adequate loft insulation. In 2012 113,000 homes have solid wall insulation – 1 per cent of homes with solid walls.

Future: By 2020 18.3 million homes will have cavity wall insulation. By 2020 23.3 million homes will have adequate loft insulation. By 2020 between 1 million and 3.7 million homes could have solid wall insulation.

Source:

Government Carbon Plan

Dec, Statistical release, Estimates of Home Insulation Levels in Great Britain



Buildings accounted for 43 per cent of UK emissions in 2009. From 2016 all new homes must be zero carbon. From 2019 all new non-domestic buildings will be required to be zero carbon.

Insulating every household cavity wall would reduce national CO₂ emissions by 4.5 million tonnes.

Insulating every household loft would cut national CO₂ emissions by more than 2 million tonnes.

Insulating lofts supports 44,800 jobs. Insulating cavity walls supports 56,000 jobs. Boiler replacement supports 39,700 jobs. Together they have a gross value added worth to the economy of £6.6 billion.

Lighting accounts for about 19 per cent of electricity consumption in the home. Energy-saving policies will cut this by a quarter by 2020.

In 2000 average CO₂ emissions of new cars were 181g per km. By 2010 they had fallen 20 per cent to 144.2g per km in 2010. By 2020 they are expected to fall to less than 100g per km.

Between 1.9 million and 7.2 million energy efficiency installations such as improved glazing could be put in by 2030.

By 2027 emissions from buildings in the UK should be 24 to 39 per cent lower than they were in 2009.

Source: Government Carbon Plan

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Small wind turbines allow homes and businesses to reduce their individual energy bills while generating a big cut in carbon emissions nationwide.

Small Wind

Then: In 2005 installed UK small wind capacity was 2.08MW. In 2005 the UK small wind market was worth £2.36 million. In 2005 there were 1,163 small wind installations in the UK.

Now: In early 2011 installed UK small wind capacity was 42.97MW. In 2010 the UK small wind market was worth £29.27 million. By the end of 2010 there were 16,668 wind installations in the UK. In 2011 800 people were employed fulltime in the UK small wind sector.

Future: By 2021 UK small wind capacity is forecast to be 1.3GW and 9GW by 2040. In 2020 the UK small wind market is forecast to be worth up to £750 million. In 2021 up to 14,200 people are forecast to be employed fulltime in the UK small wind sector, 8,900 directly, 5,300 indirectly.

Source:

Working for a Green Britain Vol 2, RenewableUK

Small Wind Systems UK Market report, RenewableUK



Average capacity of turbines in the small wind sector has increased almost 3-fold. In 2005 the average size was 1.7kW but by 2010 it was 4.9kW. Numerically, more than twice the number of the smallest turbines – those of 1.5kW or smaller – were installed than all the others combined.

Small wind has the biggest take-up of feed in tariffs after solar PV. Wind accounted for 34.7MW of capacity installed in 2011 using feed in tariffs.

The 2,080 small wind schemes installed by the end of 2011 under feed in tariffs will generate 46MWh per year, 935,415MWh over their lifetime.

More than half the turbines built in the UK in 2010 were for export. They were sold to more than 100 different countries. Just over half went to Europe, 16 per cent went to North America and 9 per cent to South America.

The value of exports has risen more than four-fold in six years. In 2005 revenues from exports were worth £1.48 million. By 2011 they increased to £6.34 million.

Small wind turbines can reach 50 metres high. The electricity they generate in a year ranges from less than 1000 kWh – just under a quarter of an average household's usage - to 200,000kWh.

There is the potential for 407,950 small wind systems to be installed in the UK, primarily in rural homes that have oil-heating.

Source: Energy Saving Trust

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Investment in onshore wind was the first practical large-scale measure that could be taken to push the UK towards meeting its 2020 targets.

Onshore Wind

Then: In 2007 onshore wind turbines could provide electricity to 245,000 homes. In 2001 85 turbines were erected, adding 5.6MW to the network. In 2007 the UK had an onshore wind capacity of 1.9GW. In 2007 there were fewer than 3,000 people working fulltime in UK onshore wind.

Now: In 2012 onshore wind turbines can provide electricity to more than 3 million homes. On January 1, 2012 the UK had 3,128 onshore wind turbines. In 2011 333 turbines were erected, adding 723MW to the network. On January 1, 2012 the UK had an onshore wind capacity of 4.4GW. In 2012 there are more than 6,000 people working fulltime in UK onshore wind.

Future: In 2017 onshore wind turbines are forecast to be providing electricity to more than 5 million homes. In 2020 the UK is forecast to have an onshore wind capacity of at least 10GW. In 2021 there are forecast to be up to 19,000 people working fulltime in UK onshore wind, 11,900 directly, 7,100 indirectly.

Source:

RenewableUK

UK Renewable Energy Roadmap

Working for a Green Britain Vol 2, RenewableUK



The first wind farm in the UK was built at Delabole, Cornwall, in 1991. It had 10 0.4MW turbines, and could supply 3,355 homes with electricity.

Whitelee near Glasgow is the biggest onshore wind farm in Europe. It has 140 turbines spread over 21 square miles. When a 75-turbine extension is completed later this year it will be able to keep 304,000 homes supplied with electricity.

The turbines built in 2001 were able to supply up to 36,685 homes with electricity. Those built in 2011 supplied up to 404,663 homes.

The 1.6MW capacity of the average turbine put up in 2011 is almost double the 0.86MW capacity of the average turbine in 2001. In 2017 the average is expected to be 2MW.

Source: RenewableUK

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Government Policy

The UK Government has repeatedly demonstrated its commitment to low carbon energy with a range of measures that have and continue to support and encourage the sector's growth.

The Green Deal

Green Deal is a market led framework made possible by the Energy Act 2011. It is intended to enable individuals and businesses to get the finance they need to make their buildings more energy efficient without upfront costs. Repayment will be made in installments through energy bills. The Green Deal golden rule is that the savings made by the improvements exceed the cost of the work.

Energy Company Obligation

This underpins the Green Deal by obliging energy companies to provide an estimated £1.3 billion a year to support the installation energy efficient measures in hard to treat homes. It will also support basic heating and insulation measures for low-income and vulnerable households. The costs are assumed to be spread across all household energy bills in Britain.

FiT

Feed in tariffs were introduced in April 2010 to provide financial support to encourage the installation of small scale energy generators. Take up was five times greater than predicted. By the end of 2011 it had been expected that 57,879 projects would be installed but it was so popular that it rose to 143,347 with a further 90,183 in the

pipeline. Capacity had been expected to be 292MW but was 646.1MW, with a further 434.7MW in the pipeline.

Contracts for Difference

The power sector accounts for 27% of UK total emissions by source. The introduction of Contracts for Difference from 2014 replaces the Renewables Obligation as the mechanism of financial support to promote and encourage the installation of large scale low carbon energy schemes. The Renewables Obligation has been highly successful in promoting low carbon energy, especially wind developments, and Contracts for Difference will continue to do so but for a wider a wider range of clean energy generators, including nuclear. It will place greater emphasis on encouraging the development of emerging clean energy technologies.

Renewable Heat Incentive

Details of the incentive were announced in 2011. It is the first scheme in the world to create financial support for renewable heat and is intended to revolutionise the way heat is generated and used. It is initially aimed at non-domestic sectors, which contribute 38 per cent of the UK's CO₂ emissions, and is intended to encourage them to replace fossil fuels with renewable

sources of energy. It will offer £860 million financial support and is expected to stimulate £4.5 billion of capital investment. By 2020 it is forecast to contribute 57TWh of renewable heat and provide 12 per cent of the UK's energy.

Renewable Heat Premium Payment Scheme

The £15 million scheme runs parallel to the Renewable Heat Incentive and is intended for domestic properties. It is aimed primarily at the 4 million households in Great Britain that are not heated by mains gas and usually rely on heating with higher carbon emissions such as oil-fired boilers. It will help householders to install low carbon heating.

Bioenergy Strategy

The Government intends to publish its Bioenergy Strategy by the end of 2012 to give a clear signal on the most cost-effective and sustainable role for bioenergy in heat, transport and electricity, which between them could contribute around half of the overall 2020 target.

The Carbon Plan

This was published in December 2011 and sets out the Government's long term plan for achieving the emission reductions demanded by the first four carbon budgets. It highlights the key actions being taken by the Government now and how it is supporting the technologies and reforms that will promote low carbon energy

through the 2020s to put the country on track to meet its 2050 target of reducing greenhouse gas emissions by 80 per cent.

Building Regulations

In England and Wales in 2010 new regulations introduced a 25 per cent improvement on the 2006 emissions standards for new buildings. In Scotland a 30 per cent reduction on the 2007 standards was introduced. Further improvements are being drawn up for England in 2013. From 2016 new homes in the UK will be required to be zero carbon and non-domestic buildings from 2019.

Climate Change Act 2008

Requires the Government to ensure greenhouse gas emissions are reduced by at least 34 per cent by 2020 and 80 per cent by 2050, based on 1990 figures. It requires the government to set carbon budgets that set the trajectory towards achieving the targets.

Appliances

Products such as white goods and televisions in homes contribute about 14 per cent of the UK's CO₂ emissions. EU minimum performance standards and labelling conventions are expected to be agreed by the end of 2012 to help remove the least efficient models and to promote energy efficient. Smart meters will be rolled out to help households monitor their energy usage.

Anaerobic Digestion strategy 2011

It sets out how a rapid expansion in the number of anaerobic digestion plants can be achieved. Among the measures is a £10 million loan fund run by WRAP to increase capacity in England by 300,000 tonnes a year. The first project, an £800,000 loan to Malaby Biogas, the four-year scheme was announced this year.

Nuclear

The government has stated that it believes construction of new nuclear power stations needs to start significantly earlier than the end of 2025. In 2011 the government's national policy statement on nuclear energy was approved.

Carbon Capture and Storage (CCS)

Capturing and safely storing carbon dioxide when fossil fuels are burnt to produce energy at power plants holds out the prospect of treating coal, gas and oil as low carbon sources of energy. The government has a £1 billion fund to fund the emergence of CCS technology. In 2011 the Government restated its commitment to CCS as an important component of the UK's long term energy strategy.

Carbon Emissions Reduction Target

The programme requires energy suppliers with more than 50,000 customers to reduce household CO₂ emissions by promoting the uptake of low carbon behaviour and hardware. In 2010 the Government

extended the programme to the end of 2012 as one of the measures paving the way for the Green Deal.

Renewable Energy Strategy

This outlines how the Government expects the UK to meet its obligations under the EU Renewable Energy Directive. Targets agreed under the directive require the UK to get 15 per cent of its energy from renewable sources by 2020. It also requires the UK to get 10 per cent of its transport energy from renewable sources. Among the factors highlighted by the Renewable Energy Strategy are the need for reducing at least 750 million tonnes of carbon emissions by 2030 and the prospects of creating 500,000 jobs in the drive for clean energy. The strategy is intended as a roadmap for the UK's transformation into a low carbon economy.

Local Sustainable Transport Fund

The Government is providing £560million over Parliament's lifetime to help people choose low carbon forms of travel. It challenges local transport authorities outside London to develop packages of measures that support economic growth and low carbon travel including walking, cycling and public transport.

EU Emissions Trading System (EU ETS)

By capping emissions by different sectors the trading scheme puts a price on carbon. The scheme is regarded as a major tool

in driving down emissions by businesses. From this year emissions from aviation will be included in the scheme.

Offshore Wind Cost Reduction Task Force

The task force was set up by the Government to identify ways that the cost of offshore wind can be driven down 33 per cent to £100 per MWh by 2020.

CRC Energy Efficiency Scheme

Large public and private sector organisations that are responsible for about 10 per cent of the UK's emissions are targeted by the mandatory scheme. It encourages them to take up energy efficiency measures.

Carbon Price Floor

In the 2011 budget a carbon price floor was announced as a measure to reduce investor uncertainty by putting a fair price on carbon. It is one of a number of measures by the government to ensure the UK gets the investment it needs – up to £200 billion by 2020 – to secure a low carbon future.

Emissions Performance Standard

It has been set at 450g CO₂ per kWh to reinforce the requirement that no new coal-fired power stations are built without CCS, and to ensure necessary investment in gas goes ahead.

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