



Production of Quarterly Renewable Electricity Statistics

As a result of the increasing interest in renewable electricity, DECC developed a new quarterly renewables table, ET 6.1, which was published for the first time in December 2010, beginning with data for 2010 Q1 to Q3. It can be found on DECC's energy statistics website at:

<https://www.gov.uk/government/statistics/energy-trends-section-6-renewables>

It uses the same definitions used in the annual table 6.4 of DUKES, with the exception of aggregating large and small scale hydro generation. The paragraphs following detail the main sources and methods used in producing this table.

Renewable generation data sources

The main source of generation data is DECC's monthly Major Power Producers (MPPs) survey, used to produce DECC's electricity statistics. Ofgem's Renewables Obligation Certificates (ROCs) register provides monthly generation data, reported by operators in order to claim ROCs. This is used to compile generation figures for non-MPP generators. It also provides co-firing data for both MPP and non-MPP generators, which is not available from the MPPs survey. Additionally, DECC's survey of autogenerators provides quarterly data for the non-MPP large-scale hydro sites.

Data for non-MPPs municipal solid waste (MSW), hospital waste and tyres are collected annually via the RESTATS survey. Only generation from biodegradable wastes are eligible for the EU Renewables Directive. Therefore, the non-biodegradable share (36.5 per cent) of generation from MSW, alongside hospital waste and tyres is included in a separate line that does not contribute to the renewable generation total. The remainder, biodegradable part, of MSW (63.5 per cent) is included in the main section.

For small scale Solar Photovoltaics DECC estimates the generation based on the capacity installed under the Feed in Tariff scheme (FiTs). Details on this methodology can be found here

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/266467/estimating_generation_from_fit_installations.pdf

The table below summarises the sources used for the renewables generation data, by technology:

Table 1: Data source by technology

Technology	Data Source
Onshore Wind	MPP survey, ROCs register
Offshore Wind	MPPs survey
Shoreline wave / tidal	ROCs register
Solar photovoltaics	ROCs register, DECC estimate
Hydro	MPPs survey, ROCs register, Autogenerators survey
Landfill gas	ROCs register
Sewage sludge digestion	ROCs register
Municipal solid waste combustion	MPPs survey, Annual RESTATS survey
Co-firing with fossil fuels	ROCs register
Animal Biomass	MPPs survey, ROCs register
Plant Biomass	MPPs survey, ROCs register
Hospital waste & tyres	Annual RESTATS survey

Renewable generation methodology issues

For the last month in the latest quarter, generators have not yet submitted ROCs data. Therefore, for this month, generation data from this source has been estimated. Additionally, data are also estimated where generators have not yet submitted data for other months. For this reason, data for the latest quarter is highly provisional. When actual data subsequently becomes available, we will revise the estimates in the following quarter's release.

For the latest month, where ROCs data is not yet available, this is estimated using typical load factors, where possible utilising information from wind speeds/rainfall data. There is no estimation required for offshore wind, since this is entirely from the MPPs survey.

For months other than the latest, where data are missing from the register but generation is thought to have taken place, a typical load factor for the generator is applied to its end of quarter capacity figure. The exceptions are non-MPP small hydro and non-MPP onshore wind, where typical load factors may not fully represent the impacts of variable wind speeds and rainfall. Therefore, missing generation data is estimated by applying the overall actual load factor for the month obtained only from sites where data are available, to the end of quarter capacity totals for all non-MPP onshore wind/small hydro. Where data are from annual sources, such as non-MPP MSW, and the current year's data are not yet available, the previous year's data are used, divided evenly across the four quarters. DECC will continue to re-assess its methods of estimating where generation data are not available.

Quality assurance

A number of steps are carried out to quality assure all the data sources that feed into the quarterly tables. On receipt of the data DECC calculates a monthly load factor, any extreme values are then queried with the generators or Ofgem (who supply the ROC data). Trends over time for individual stations are also monitored so any unusual changes can be picked up.



DECC also publishes UK weather statistics, trends in the weather (e.g. average monthly rainfall) are compared to the hydro generation figures to check that both data series are following a similar pattern. The same check is carried out for wind generation data by comparing the figures to average wind speeds across the UK.

Installed capacity data sources

Installed capacity figures are derived from that reported by RESTATS (and table DUKES 6.4) at the end of the previous reporting year and any capacity that has become operational since then. This additional capacity is obtained from several sources, including Ofgem's ROCs Register, where data relating to generating capacity is also submitted by operators on a monthly basis, and the Renewable Energy Planning Database, which is updated on a monthly basis with information on newly operational sites.

Co-firing at power stations and sewage gas (primarily large-scale schemes) are special cases. Fossil fuels here represent a major proportion of the stations output and, as such, it would be misleading to take the whole of the installed capacity into consideration. Here, a percentage of the total installed capacity, based on what fraction of the output is derived from the renewable component, is used. When using these data to calculate the generation figures for which direct survey data are not available, allowance must be made for the number of operational months available for those schemes built late in the reporting quarter.

In addition to the capacity data provided by the sources above, DECC includes FiT capacity data. The FiT scheme started in 2010 Q2 and covers onshore wind, hydro, solar photovoltaics and Anaerobic Digestion. From the FiT data, only those schemes commissioned after 1 April 2010 are included in table 6.1's capacity figures, since these smaller-scale schemes will not be included in the ROCs register (FiT capacity commissioned prior to 1 April 2010 may have transferred from the Renewables Obligation scheme, so may be included on the ROCs register).

Quality Assurance

A data reconciliation exercise is undertaken in order to ensure that a consistent set of figures are used. Operators replacing existing generation units may lead to either an increase in the overall site installed capacity through the installation of a larger unit, or a decrease due to the breakdown of a large facility into several smaller units (as has been seen with some hydro schemes). In the case of wind capacity, the ROCs register lists the entire capacity of the wind site as soon as the site is claiming ROCs for generation. This is often before all turbines become fully operational, so the installed capacity of the site does not show incremental increases. Changes as a result of post planning application conditions, however, may result in changes to capacity to those initially recorded in the planning database.

James Hemingway
Energy Statistics
Tel: 0300 068 5042
E-mail: James.Hemingway@decc.gsi.gov.uk
URN 14D/353