



Department
of Energy &
Climate Change

The Renewables Obligation for 2015/16

Calculating the Level of the Renewables Obligation
for 2015/16

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Calculating the Level of the Renewables Obligation for 2015/16

The Renewables Obligation Order (ROO) 2009 requires the Secretary of State to announce the level of the Obligation six months preceding an Obligation period. The Secretary of State is therefore announcing the size of the Obligation for the 2015/16 period today, 1 October 2014. This paper sets out the methodology used in calculating the size of the Obligation.

Setting the size of the Obligation requires two calculations:

- A) The number of Renewable Obligation Certificates (ROCs) that would be needed for suppliers to meet a **fixed target** of 0.154 ROCs per MWh from eligible renewable sources in England, Scotland and Wales and 0.063 ROCs per MWh in Northern Ireland.
- B) The amount of renewable electricity we expect to be generated, and based on this the number of ROCs that we expect will be issued, uplifted by 10% (**headroom**).

The Obligation level is set as one of these calculations, determined as:

- **Fixed targets:** If fixed targets (A) is greater than headroom (B).
- **Headroom:** If headroom (B) is greater than the fixed target (A).

Calculation A sets the total obligation at 46.0 million ROCs using DECC forward electricity demand figures Central scenario, compared with **Calculation B which sets it at 86.8 million ROCs**. Calculation B is the higher of the two and must therefore be used.

This means that the number of ROCs that would be needed for suppliers to meet their targets will be 0.290 ROCs per MWh in England, Scotland and Wales, and 0.119 ROCs per MWh in Northern Ireland.

Further information is provided in the Annex to this notice.

Calculation A

For 2015/16 DECC central projections¹ are that 303.8 TWh of electricity will be supplied by Licensed Suppliers. At 0.154 ROCs per MWh for England and Wales and Scotland; and 0.063 ROCs per MWh for Northern Ireland, this gives a total of 46.0 million ROCs for Calculation A.

Calculation B

Calculation B estimates the potential amount of ROCs to be generated by stations accredited as of 17 July 2014 – multiplying together the MW capacity, the number of hours in the year, the banding level of that technology and the load factors set out below. This is then added to potential new build which will be generating during the period.

The list of potential new build expected to generate in 2015/16 was sourced from the Renewable Energy Planning Database (REPD)², the National Grid's Transmission Entry Capacity (TEC) Report³, Distribution Network Operator (DNO) Companies, the CHP Quality Assurance (CHPQA) programme register and Ofgem's preliminary ROC Register⁴. We have also contacted a range of developers and planning authorities to confirm the capacity and timescales for completion of these projects.

DECC's calculations gives a total of 78.9 million ROCs before headroom. With headroom, this gives a total of 86.8 million ROCs. The split between existing stations and new build stations is as follows:

¹ Based on latest published DECC electricity consumption predictions (EEP 2014, Published in September 2014). The EEP projects electricity demand (final consumption + energy industry use excluding own use, losses and pumping use). From this measure of demand a deduction is made for the estimated demand met by non - public distribution suppliers. This gives 'electricity sales'.

Currently, the demand met by non – public distribution suppliers is estimated by multiplying non-MPP production by a factor representing the assumed proportion of non-MPP production which is not exported to the grid. The assumed proportion of non-MPP production which is not exported is based on actual data recorded in DUKES. DUKES table 5.2 can be used to estimate the proportion by comparing 'transfers' with total 'other generators' production.

² <https://restats.decc.gov.uk/cms/planning-database-reports/>

³ <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/tectrading/>

⁴ <https://www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx?ReportVisibility=1&ReportCategory=0>

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	ROCs (millions)
Potential ROCs from existing stations	59.1
Potential ROCs for new build	19.8
Total (with 10% headroom)	86.8

Calculation B is therefore higher than Calculation A. In accordance with the Renewables Obligation Order 2009, Calculation B must be used to set the level of the Obligation in 2015/16.

Assumptions used for Calculation B

Biomass co-firing and conversions

We have based our assumptions on the likely level of generation under the enhanced co-firing and biomass conversion bands from information provided by generators as part of the FID enabling process and discussions with individual operators. Because of the relatively small number of plants involved, and the commercially sensitive nature of some of the information given to us, we are not publishing the amount of generation we are assuming for these categories.

Choice of scheme between the RO and Contracts for Difference and FID Investment Contracts

During the Obligation setting year (15/16), some developers may be able to make a choice between the RO and CfD. The CfD budgets are set such that there is no funding available for less established technologies commissioning under the CfD until 16/17, and there is some uncertainty over when mature-technology projects will come forward under the auction, given that projects will compete for funding across delivery years. Therefore, we have taken a cautious approach to the calculation of the RO for 2015/16 and assumed that all such projects likely to commission during the next Obligation period will seek support under the RO.

Load Factors

For all load factors, DECC has considered actual generation and capacity (from the Digest of UK Energy Statistics⁵ (DUKES) and the ROC register). Where historic load factors showed a clear trend, this trend was continued for 2015/16. If there was not a clear trend, averages were

⁵ <http://www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx>

considered as described below, ranging from averages over the last three to 10 years. The load factors overleaf were used in the calculation.

Technology	Category	Load Factor	Source⁶
Onshore wind	England and Wales	24.8%	Average load factor between 2003-2012 (10 years) on an unchanged configuration basis. The 10-year average UK load factor is 26.8%.
	Scotland	27.8%	
	Northern Ireland	30.6%	
Offshore wind		33.8%	Average load factor between 2008 and 2013 (6 years), on an unchanged configuration basis.
Hydro	< 5MW	36.3%	Average load factor between 2009 and 2013 (5 years), on an unchanged configuration basis.
	> 5MW	34.5%	Average load factor between 2009 and 2013 (5 years), on an unchanged configuration basis.
Landfill gas		56.7%	The load factor for landfill gas exhibits a downward trend. Therefore, end of year load factors between 1997 and 2013 (17 years) have been extrapolated to 2015. Load factors on an unchanged configuration basis were not used as there is evidence of site decline which is better captured by the end of year load factor.
Sewage gas		51.0%	Average load factor between 2009 and 2013 (5 years), on an unchanged configuration basis.
Anaerobic Digestion		59.4%	The AD load factor has been increasing since 2010 due to improvements in operation and technology. As such, using an average over the last four years is

⁶ Most load factors are sourced from DUKES and either given on an end of year basis or an unchanged configuration basis. End of year load factors express the average hourly quantity of electricity generated as a percentage of the average capacity at the beginning and end of the year. Unchanged configuration load factors express average hourly quantity of electricity generated by plants operational the entire year (in the same configuration), as a percentage of capacity operational the entire year (from the same plants). As such, it compensates for changes in capacity during the year (e.g. because of sites beginning operation at the beginning or end of the year). This is particularly important for wind technologies.

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			likely to understate the outturn load factors. Therefore we have calculated the load factor on the basis of the unchanged configuration basis between 2010 and 2013.
Energy from Waste CHP		42.5%%	Average load factor between 2009-2013 (five years), on an unchanged configuration basis and taken out of table 6.5 of DUKES.
Other Fuelled⁷		64.5%	Average plant biomass load factor between 2009 and 2013 (5 years) on an unchanged configuration basis.
Photovoltaics (Solar PV)		11.1%	This is sourced from the Impact Assessment accompanying the government response to the review of Solar PV bands under the renewables obligation, published in December 2012.
Wave		2.9%	Based on an average load factors from two generating plants across the years 2011 to 2013.
Tidal Stream		3.2% and 21.8%	Two load factors applied – one for an established plant and an average based on three plants for the years 2011 to 2013 is applied to all other plants, to reflect their place in the development cycle.

Solar PV: <https://www.gov.uk/government/consultations/levels-of-banded-support-for-solar-pv-under-the-renewables-obligation-for-the-period-1-april-2013-to-31-march-2017>

Onshore wind: https://restats.decc.gov.uk/cms/historic-regional-statistics/#load_factors

Other technologies: Table 6.5 DUKES, <https://www.gov.uk/government/publications/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes>

Solar PV

The Government Response to the May 2014 consultation on changes to financial support for solar PV, and accompanying final Impact Assessment are available on the DECC's

⁷ Includes biomass, biomass CHP, Advanced Conversion Technologies, Anaerobic Digestion and Energy from Waste CHP

consultations website.⁸ The estimates of solar PV deployment assumed for the 2015/16 calculation reflect those documents.

⁸<https://www.gov.uk/government/consultations/consultation-on-changes-to-financial-support-for-solar-pv>

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