



Department for
Business, Energy
& Industrial Strategy

THE RENEWABLES OBLIGATION FOR 2017/18

Calculating the Level of the Renewables
Obligation for 2017/18



1 October 2016

THE RENEWABLES OBLIGATION FOR 2017/18

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Calculating the Level of the Renewables Obligation for 2017/18

Summary of the calculation

The Renewables Obligation Order (ROO) 2015 requires the Secretary of State to publish the number of renewables obligation certificates (ROCs) that electricity suppliers are required to produce during an obligation period: the “renewables obligation”. This must be published 6 months before the start of the obligation period, i.e. on or by 1 October.

The Secretary of State is therefore publishing the renewables obligation for the 2017/18 period today, 1 October 2016. This notice sets out the methodology used in calculating the renewables obligation.

Setting the size of the **total obligation** requires two calculations:

- a) **For calculation A (fixed target)** we are required to estimate the total amount of electricity (MWh) expected to be supplied to customers during the 2017/18 obligation period, for both Great Britain and Northern Ireland. The overall obligation (in ROCs) is then obtained by multiplying these figures by the fixed targets specified in the 2015 Order. For the 2017/18 period these are: 0.154 ROCs per MWh for Great Britain and 0.063 per MWh for Northern Ireland;
- b) **For Calculation B (headroom)**, the expected number of ROCs issued in 2017/18 is estimated and then uplifted by 10 per cent (headroom). The projected number of ROCs is then used to calculate the obligation level for Calculation B.

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

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

Calculation A sets the total UK obligation at **44.8** million ROCs using BEIS forward electricity demand figures central scenario, compared with Calculation B which sets it at **108.2** million ROCs (excluding headroom) in the United Kingdom. Calculation B is the higher of the two and must therefore be used.

This means that the Renewables Obligation, the number of ROCs that electricity suppliers are required to produce during the 2017/18 obligation period, will **be 0.409** ROCs per MWh in **England, Wales and Scotland**, and **0.167** ROCs per MWh in **Northern Ireland**.

Further information is provided in Annex A to this notice.

An exemption for Energy Intensive Industries

In April 2016, a consultation on implementing an exemption for Energy Intensive Industries (EII) from up to 85% of the indirect costs of the Renewables Obligation and Feed-in Tariff Schemes¹ was published. To implement the exemption under the RO in England and Wales, BEIS proposed changing the methodology for calculating the obligation level and adjusting the scope of the renewables obligation in the Renewables Obligation Order 2015 so that the obligation level (ROCs/MWh rate) would be applied to:

- 100% of electricity provided to non-EIIs:
- 15% or more of the electricity supplied to EIIs.

The Scottish Government² has devolved responsibility for setting the obligation in Scotland and issued a consultation on 19 May 2016 on implementing the RO exemption in Scotland³. The proposals for implementing the exemption mirrored those set out in the consultation for England and Wales.

Both consultations proposed introducing the exemption from 1 April 2017 but recognised that it would not be possible to have the necessary State aid clearance and legislative changes in place to set the 2017/18 obligation level in accordance with the proposed revised methodology for implementing the exemption.

To minimise the impact that this uncertainty will have on suppliers' ability to forecast costs, BEIS proposed publishing an estimate of how the obligation level for England and Wales (and Scotland) would be adjusted to account for the EII exemption.

The Government Response is expected to be published shortly. If a decision is taken to continue with the above proposals, an indication of how the obligation level for Great Britain set out in this document would change to account for the exemption, will be published as part of the Government Response.

The exemption will not be introduced for the RO in Northern Ireland at this stage. The Northern Ireland Executive will consider an exemption and will issue a call for evidence in the near future. In the meantime, the 2017/18 obligation level for Northern Ireland set out in this document will apply to electricity supplied by licensed suppliers to customers in Northern Ireland.

¹ "Implementing an exemption for energy intensive industries from the indirect costs of the RO and the FITs (April 2016) at: <https://www.gov.uk/government/consultations/implementing-an-exemption-for-energy-intensive-industries-from-the-indirect-costs-of-the-ro-and-the-fits>

² The rules on calculating the obligation level for individual suppliers in respect of electricity supplied to customers in Scotland are set out in the Renewables Obligation (Scotland) Order 2009 ("RO Scotland") as amended

³ Consultation on implementing an exemption for Energy Intensive Industries from the indirect costs of the Renewables Obligation Scotland at : <http://www.gov.scot/Publications/2016/05/8327>

Annex A

Calculation A

For 2017/18, DECC central projections⁴ are that 295.9 TWh of electricity will be supplied by Licensed Suppliers. At 0.154 ROCs per MWh for England, Wales and Scotland; and 0.063 ROCs per MWh for Northern Ireland, this gives a total of 44.86 million ROCs for Calculation A.

Calculation B

Calculation B estimates the expected amount of ROCs to be issued to stations expected to be operational during 2017/18, carried out for both existing and forthcoming sites.

For each installation, generation is estimated by multiplying the capacity by the number of hours in the year, and the expected load factor. The expected ROCs are then calculated by applying the banding level for that technology to the generation.

The list of existing sites is taken from the RO accredited stations list, with just those expected to be operational during 2017/18 included.

The list of potential new build expected to generate in 2017/18 was sourced from the Renewable Energy Planning Database (REPD)⁵, the National Grid's Transmission Entry Capacity (TEC) Report⁶ and CHP Quality Assurance (CHPQA) programme register. We have also contacted a range of developers to confirm the capacity and timescales for completion of these projects.

BEIS's calculations give a total of 108.2 million ROCs⁷ before headroom. With headroom, this gives a total of 119.1 million ROCs.

The following table sets out the breakdown of the 108.2 million ROCs by technology and cohort in 2017/18.

⁴ 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'.

⁵ <https://www.gov.uk/government/statistics/renewable-energy-planning-database-monthly-extract>

⁶ <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/tectrading/>

⁷ A small difference exists between this figure, and the total number of ROCs in the subsequent table – this is due to rounding.

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Estimated number (in million) of Renewable Obligation Certificates (ROCs) by technology and cohort in 2017/18

In the table below, the individual technology categories cover stations in England, Wales and Scotland. The Northern Ireland category covers all the technologies of stations in Northern Ireland.

The figures for new build landfill gas and sewage gas stations in Great Britain, and for stations in Northern Ireland, are shown as 0.0 in the table as the totals are less than 100,000 ROCs. The small difference in some of the total figures compared to adding up the individual figures is due to rounding.

Technology	Existing stations	New build stations	Total
Onshore wind	20.7	8.2	28.9
Offshore wind	32.0	3.2	35.2
Hydro, Wave and Tidal	2.3	0.1	2.4
Landfill gas and Sewage gas	5.1	0.0	5.2
Biomass ⁸	19.5	5.7	25.2
Photovoltaics (Solar PV)	8.4	2.6	11.0
Northern Ireland	0.4	0.0	0.4
Total	88.5	19.7	108.2

Calculation B is therefore higher than Calculation A. In accordance with the Renewables Obligation Order 2015, Calculation B must be used to set the level of the Obligation in 2017/18.

⁸ This includes advanced conversion technologies, anaerobic digestion, energy from waste CHP, dedicated biomass, biomass CHP, biomass conversions and co-firing of biomass

Assumptions used for Calculation B

Capacity for new and existing stations

In the table below, the individual technology categories cover stations in England, Wales and Scotland. The Northern Ireland category covers all the technologies of stations in Northern Ireland. The small difference in the total figure compared to adding up the individual figures is due to rounding.

Technology	GW
Onshore wind	12.6
Offshore wind	6.4
Hydro, Wave and Tidal	0.7
Landfill gas and Sewage gas	1.0
Biomass ⁹	3.4
Photovoltaics (Solar PV)	7.8
Northern Ireland	0.1
Total	32.1

Load Factors

Load factors are used to calculate generation from the capacity for each technology.

We have considered feedback from stakeholders and have made amendments to our categorisation and methodology for load factors in this year.

The load factors presented below are net of availability, expressed on a total installed capacity (TIC) basis. Existing load factors are net of an assumption on the Renewable Qualifying Multiplier (RQM) and parasitic load, while new build are gross of RQM and parasitic load.

⁹ This includes advanced conversion technologies, anaerobic digestion, energy from waste CHP, dedicated biomass, biomass CHP, biomass conversions and co-firing of biomass.

Categorisation

We have maintained a load factor for ‘existing’ stations and one for ‘new build’ stations to reflect that the latter may achieve higher load factors. This reflects that new build plants are, in general, likely to be more efficient, reflecting updated technology used in the plants and learning from previous experience.

Compared with the previous year, we have removed the ‘newer build’ category for offshore wind and onshore wind due to there being no discernible difference when reviewing load factor trends for the 2013/14 and 2014/15 commissioning cohort against the preceding years.

The definition of the two categories is as follows:

- ‘Existing’: sites which commissioned up to and including 2015/16 for wind technologies and anaerobic digestion, and up to 2013/14 for all other technologies;
- ‘New build’: sites which commissioned in 2016/17 and later for wind technologies and anaerobic digestion, and after 2013/14 for all other technologies.

Methodology

Similar to last year, BEIS used load factors derived from actual generation and capacity data, as published by Ofgem¹⁰.

To derive the load factors for ‘existing sites’, BEIS has used monthly generation and capacity data (on an unchanged configuration basis), based on Renewables Obligation Certificates (ROC) issued¹¹, for up to the past six years to 31 March 2016. This is deemed more reflective of actual performance than the calendar years previously used.

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 removes bias from changes in capacity during the year (e.g. because of sites beginning operation at the beginning or end of the year).

To inform ‘new build’ sites, BEIS has used actual generation data, supplemented by external benchmarks, including BEIS internal databases and industry intelligence.

For biomass conversions, given the small numbers of projects involved, BEIS has used plant specific load factors based on actual generation data and discussion with industry experts.

¹⁰ Ofgem Renewables and CHP Register, <https://www.renewablesandchp.ofgem.gov.uk/>

¹¹ <https://www.renewablesandchp.ofgem.gov.uk/>

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Load factors for each technology

Technology	Category	Load factors		Source
		Existing	New build	
Onshore wind	England and Wales	27.2%	30.9%	Actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.
	Scotland	27.0%	32.8%	
	Northern Ireland	28.5%	33.2%	
Offshore wind		38.3%	47.7%	Actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.
Hydro		36.3%	29.5%	Actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category. Data extrapolation techniques (actual generation data over past three years) have been used to inform the new build category.
Landfill Gas		59.6%	61.6%	A capacity weighted average of actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category. The data shows a clear downward trend due to depletion. Data extrapolation techniques (actual generation data over past three years) have been used to inform the new build category.

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Technology	Category	Load factors		Source
		Existing	New build	
Sewage Gas		47.0%	49.0%	<p>A capacity weighted average of actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category.</p> <p>Data extrapolation techniques (actual generation data over past three years) have been used to inform the new build load factor category.</p>
Advanced Conversion Technologies		27.2%	83.2%	<p>A capacity weighted average of actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category, pre-applying 50% RQM.</p> <p>The load factor for new build stations is based on industry benchmarks and reports, pre-applying a 50% Renewable Qualifying Multiplier.</p>
Anaerobic Digestion		55.0%	79.1%	<p>A capacity weighted average of actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category.</p> <p>Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.</p>
Energy from Waste CHP		13.2%	81.4%	<p>A capacity weighted average of actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category.</p> <p>Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.</p>

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Technology	Category	Load factors		Source
		Existing	New build	
Dedicated Biomass		59.3%	71.7%	A capacity weighted average of actual generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category. Data extrapolation techniques (actual generation data over past three years) have been used, supplemented by industry benchmarks and internal evidence to inform the new build category.
Biomass CHP		69.1%	80.3%	Generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing build category. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.
Photovoltaics (Solar PV)		11.3%	11.3%	Generation data over past six years to 31 March 2016, on an unchanged configuration basis, has been used to inform the existing and new build categories.
Wave		2.9%	30%	For the existing category, the load factors from DUKES has been used. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.
Tidal		31%	31%	For the existing and new build category, industry benchmarks and internal evidence have been used to inform the new build category.

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