Department for
Business, Energy
& Industrial Strategy

THE RENEWABLES OBLIGATION FOR 2018/19

Calculating the Level of the Renewables Obligation for 2018/19

29 September 2017

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Any enquiries regarding this publication should be sent to us at enquiries@BEIS.gov.uk.

This publication is available for download at:
https://www.gov.uk/government/publications/renewables-obligation-level-calculations-201819.

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Calculating the Level of the Renewables Obligation for 2018/19

Summary of the calculation

The Renewables Obligation Order 2015 (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 2018/19 period today, 29 September 2017. 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 2018/19 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 ROO 2015. These are: 0.154 ROCs per MWh for Great Britain and 0.063 ROCs per MWh for Northern Ireland;

b) **For Calculation B (headroom)**, the expected number of ROCs issued in 2018/19 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 total obligation, which is then used to determine the obligation level, is set as one of these calculations, determined as:

- Fixed target: If the fixed target (Calculation A) is equal to or 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 **44.2 million** ROCs using BEIS forward electricity demand figures central scenario, compared with Calculation B which sets it at **117.9 million** ROCs, excluding headroom, and **129.7 million** ROCs, including 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 2018/19 obligation period, will be **0.452** ROCs per MWh in **Great Britain** (England, Wales and Scotland), and **0.185** ROCs per MWh in **Northern Ireland**.

Further information is provided in Annex A to this notice.

An exemption for Energy Intensive Industries in Great Britain

In July 2017, Government confirmed its intention to implement an exemption for Energy Intensive Industries (EIIs) from up to 85% of the indirect costs of the RO (subject to Parliamentary approval).[1] Implementing the exemption under the RO in England and Wales will involve changing the methodology for calculating the obligation level and adjusting the scope of the obligation in the ROO 2015 so that the obligation level (ROCs/MWh rate) would be applied to:

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

The Scottish Government has devolved responsibility for setting the obligation in Scotland.[2] The Scottish Government has confirmed its intention to make equivalent changes to the methodology for setting the obligation level and scope of the obligation in Scotland to those described in the Government Response document for England and Wales.[3] This means that, as under the current arrangements, BEIS will continue to set and publish a single obligation level for Great Britain.

Both Government Responses stated the intention to bring in the RO exemption from 1 January 2018, subject to being in a position to publish a revised 2017/18 obligation level by 31 October 2017.[4] If the implementing legislation has not come into force and we have not published the revised 2017/18 obligation level by 31 October, the intention is that the exemption will come into effect from the start of the fourth month after the necessary approvals have been obtained and a revised renewables obligation is published.

The Government Responses explained that introducing the exemption will also entail adjusting the obligation level for the 2018/19 obligation period. They stated that the 2018/19 obligation level would be calculated in accordance with the current methodology (i.e. not taking into account the changes needed to implement the exemption). When publishing the 2018/19 obligation level, to aid understanding and provide advance notice, we proposed to also provide an estimate of how the 2018/19 obligation level would be adjusted to account for the EII exemption. This is set out below. We intend to publish the final revised 2018/19 obligation level alongside the revised 2017/18 obligation level.

[1] Government response to the consultation on implementing an exemption for energy intensive industries from the indirect costs of the RO and the FITs (July 2017) 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] See the Scottish Government Response at: http://www.gov.scot/Publications/2017/07/8547

[4] The obligation level for 2017/18 calculated using the current rules is set out at: https://www.gov.uk/government/publications/renewables-obligation-level-calculations-201718

How the 2018/19 obligation level for Great Britain would be adjusted to account for the EII exemption

Applying the revised exemption methodology set out in the Government Response would increase the obligation level for the 2018/19 obligation period in Great Britain from **0.452 ROCs/MWh** to **0.468 ROCs/MWh**.

In carrying out this calculation we have assumed that the total amount of EII excluded electricity in Great Britain in 2018/19 is 9.9TWh (i.e. 85% of 11.7 TWh), in line with the estimates of electricity supplied to EIIs published in March 2017.[5] We have assumed that there will be no change to the total UK obligation (129.7 million ROCs including headroom) or any of the other assumptions underpinning the calculation.

The exemption will not be introduced for the RO in Northern Ireland at this stage. However, it may be extended to Northern Ireland from a future date, subject to Ministerial direction to consult on making equivalent changes to the Northern Ireland Renewables Obligation. In the meantime, the 2018/19 obligation level for Northern Ireland set out in this document, **0.185 ROCs/MWh**, will apply to electricity supplied by licensed suppliers to customers in Northern Ireland.

[5] https://www.gov.uk/government/publications/contracts-for-difference-exemption-electricity-supply-estimates

Annex A

Calculation A

For 2018/19, BEIS central projections[6] are that 291.6 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 44.2 million ROCs for Calculation A.

Calculation B

Calculation B estimates the expected number of ROCs to be issued to stations expected to be operational during 2018/19, 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 2018/19 included.

The list of potential new build expected to generate in 2018/19 was sourced from the Renewable Energy Planning Database (REPD)[7], the National Grid's Transmission Entry Capacity (TEC) Register[8] and the Combined Heat and Power 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 calculations give a total of 117.9 million ROCs before headroom. With headroom, this gives a total of 129.7 million ROCs.

The following table sets out the breakdown of the 117.9 million ROCs by technology and cohort in 2018/19.

[6] Based on latest published BEIS electricity consumption predictions, consistent with Energy and Emissions Projections (EEP) 2016, published in March 2017. 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'.

[7] https://www.gov.uk/government/statistics/renewable-energy-planning-database-monthly-extract

[8] http://www2.nationalgrid.com/UK/Services/Electricity-connections/Industry-products/TEC-Register/

Estimated number (in million) of UK Renewable Obligation Certificates (ROCs) by technology and cohort in 2018/19[9]

Technology	Existing stations	New build stations	Total
Onshore wind	26.6	2.7	29.4
Offshore wind	32.4	9.4	41.8
Hydro, Wave and Tidal	3.1	0.4	3.5
Landfill gas and Sewage gas	5.2	0.0	5.2
Biomass and waste[10]	25.3	2.7	28.0
Photovoltaics (Solar PV)	9.9	0.0	9.9
Total	**102.7**	**15.2**	**117.9**

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 2018/19.

[9] The small difference in some of the total figures compared to adding up the individual figures is due to rounding.
[10] This includes advanced conversion technologies, anaerobic digestion, energy from waste with CHP, dedicated biomass, biomass CHP, biomass conversions and co-firing of biomass.

Assumptions used for Calculation B

Capacity for new and existing UK stations by technology

Technology	GW
Onshore wind	12.6
Offshore wind	6.6
Hydro, Wave and Tidal	0.8
Landfill gas and Sewage gas	1.1
Biomass and waste technologies[11]	4.2
Photovoltaics (Solar PV)	7.1
Total	**32.4**

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 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.

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.

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

We have adjusted the boundary year which defines the cut-off point between the load factor categories. The definition of the two categories is now as follows:

- 'Existing': sites which commissioned up to and including 2016/17;
- 'New build': sites commissioning in 2017/18 and later.

Methodology

Similar to last year, we have used load factors derived from actual generation and capacity data, as published by Ofgem.[12]

To derive the load factors for 'existing sites', we have used monthly generation and capacity data (on an unchanged configuration basis) based on ROCs issued for the past six years up to 31 March 2017.

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, we have used actual generation data, supplemented by external benchmarks, including BEIS internal databases and industry intelligence.

For biomass conversions and co-firers, given the small numbers of projects involved, we have used plant specific load factors based on actual generation data and discussions with industry experts.

[12] Ofgem Renewables and CHP Register: https://www.renewablesandchp.ofgem.gov.uk/

Load factors for each technology

Technology	Category	Load factors		Source
		Existing	New build	
Onshore wind	England	26.8%	30.9%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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.
	Wales	25.7%	30.9%	
	Scotland	25.9%	35.2%	
	Northern Ireland	27.5%	32.4%	
Offshore wind		37.7%	47.3%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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	Hydro (Micro)	46.4%	29.5%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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 (>20MW)	45.1%	29.5%	
Landfill Gas		61.4%	61.6%	A capacity weighted average of actual generation data over past six years to 31 March 2017, on an unchanged configuration basis, has been used to inform the existing build category. The data shows a clear downward trend due to depletion. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.

Technology	Load factors		Source
	Existing	New build	
Sewage Gas	47.4%	49.0%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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.
Advanced Conversion Technologies	26.0%	83.2%	A capacity weighted average of actual generation data over past six years to 31 March 2017, on an unchanged configuration basis, has been used to inform the existing build category, pre-applying 50% RQM. The load factor for new build stations is based on industry benchmarks and reports, pre-applying a 50% Renewable Qualifying Multiplier.
Anaerobic Digestion	56.3%	79.1%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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.
Energy from Waste with CHP	19.0%	81.5%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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.

Technology	Load factors		Source
	Existing	New build	
Dedicated Biomass	55.2%	67.4%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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.
Biomass CHP	64.1%	80.3%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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)	10.8%	10.3%	A capacity weighted average of actual generation data over past six years to 31 March 2017, 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.
Wave	2.9%	30.0%	For the existing category, the load factors from DUKES have been used. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.
Tidal	30.9%	30.9%	Industry benchmarks and internal evidence have been used to inform both the existing and new build categories.

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