



Department for  
Business, Energy  
& Industrial Strategy

# THE RENEWABLES OBLIGATION FOR 2019/20

Calculating the Level of the Renewables  
Obligation for 2019/20



September 2018

# THE RENEWABLES OBLIGATION FOR 2019/20

## Calculating the Level of the Renewables Obligation for 2019/20

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# Calculating the Level of the Renewables Obligation for 2019/20

## 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 2019/20 period today, 28 September 2018. This notice sets out the methodology used in calculating the renewables obligation.

### The total 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 2019/20 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 2019/20 is estimated and then uplifted by 10 per cent. 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 41.5 million ROCs using BEIS’s forward electricity demand figures reference scenario.

Calculation B sets it at 114.0 million ROCs, excluding headroom, and taking account of the annual cap on biomass conversion stations and units<sup>1</sup>. Including 10% headroom gives a total of **125.4m ROCs** in the United Kingdom.

Calculation B is the higher of the two and must therefore be used.

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<sup>1</sup> An explanation of the cap is on pages 6 - 7 of this note

## Calculating the Level of the Renewables Obligation for 2019/20

### The Supplier Level Obligation

The Supplier Level Obligation sets the number of ROCs that electricity suppliers are required to present to Ofgem per megawatt hour (MWh) of electricity that they supply during an obligation year.

Taking account of the exemption for Energy Intensive Industries in Great Britain, the number of ROCs that electricity suppliers are required to produce during the 2019/20 obligation period, will be **0.484** ROCs per MWh in **Great Britain** (England, Wales and Scotland) and **0.190** ROCs per MWh in **Northern Ireland**.

### An exemption for Energy Intensive Industries

An exemption for Energy Intensive Industries (EIs) from up to 85% of the indirect costs of the Renewables Obligation (RO) was implemented in England and Wales in 2017. This involved 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) applies to:

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

The details of the exemption methodology for England and Wales are set out in the Renewables Obligation (Amendment) (Energy Intensive Industries) Order 2017<sup>2</sup>

The Scottish Government has devolved responsibility for setting the obligation in Scotland. It has made equivalent changes to the methodology for setting the obligation level and scope of the obligation in Scotland, as set out in the Renewables Obligation (Scotland) Amendment Order 2017<sup>3</sup>.

This means that, as under the current arrangements, there will continue to be a single obligation level for Great Britain. In carrying out this calculation we have assumed that the total amount of EI excluded electricity in Great Britain in 2019/20 is 10.4TWh (i.e. 85% of 12.3 TWh), in line with the central scenario of BEIS' Technical note on electricity supply estimates for the exemption from the indirect costs of funding Contracts for Difference and the Renewables Obligation, published in September 2018<sup>4</sup>

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<sup>2</sup> Renewables Obligation (Amendment) (Energy Intensive Industries) Order 2017 at: <https://www.legislation.gov.uk/ukdsi/2017/9780111159170/contents>

<sup>3</sup> The Renewables Obligation (Scotland) Amendment Order 2017 at: <https://www.legislation.gov.uk/sdsi/2017/9780111036433/contents>

<sup>4</sup> Energy Intensive Industries-Technical Note on electricity supply estimates for the exemption from the costs of funding Contracts for Difference and the Renewables Obligation (September 2018) at: <https://www.gov.uk/government/publications/contracts-for-difference-and-renewables-obligation-electricity-supply-estimates-2018>

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The exemption has not been introduced for the RO in Northern Ireland at this stage. As a devolved policy matter, this would be for a restored Northern Ireland Executive to take forward if it so decides. As a result, the obligation level for Northern Ireland does not make any adjustments for electricity supplied to EIs.

### Caps on the ROCs received by certain biomass co-firing and conversion stations and units

The Renewables Obligation (Amendment) Order 2018 inserts a new Schedule 6 into the Renewables Obligation Order 2015 which provides for the introduction of annual flexible caps on the number of ROCs that certain RO eligible biomass co-firing and conversion stations and units not protected by grandfathering<sup>5</sup> can receive.

The new Schedule 6 defines two types of generating stations to which the flexible cap mechanisms will apply:

- Capped generating stations, which comprise only non-grandfathered ‘capped’ units;’ and
- Mixed generating stations, which comprise non-grandfathered ‘capped’ units and grandfathered ‘exempt’ units.

At **capped generating stations**, there is a cap on the number of ROCs the station can be issued in each Obligation year. This is equal to 125,000 ROCs for each unit at the station. Stations will be able to optimise generation across units, up to the level of their station cap.

For **mixed generating stations**, an overall station cap will be calculated by first estimating the number of ROCs likely to be issued for generation at the exempt units during the Obligation year (the “exempt combustion unit estimate”). An allowance of 125,000 ROCs is then added for each of the station’s capped units. If generators choose to exceed their capped unit allowance, further ROCs will only be issued for generation at any of the station's RO eligible units up to the level of flexible station cap. If generators choose to stay within their allowance at their capped units, there will be no cap on the number of ROCs issued to their exempt units.

The following RO accredited generating station meets the definition of **mixed generating station** in 2018/19, as set out in the new Schedule 6<sup>6</sup>:

- Drax Power Station, Selby, YO8 8PH

The station comprises two RO eligible exempt units (Unit #2 and Unit #3) and one RO eligible capped unit (Unit #4).

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<sup>5</sup> Grandfathering is a policy commitment that projects will receive no less support under the RO than they have received historically. Stations or units which generated at the biomass conversion band on or before 12 December 2014 are grandfathered. Stations or units which generated at the biomass conversion band after this date are not grandfathered.

<sup>6</sup> Based on Ofgem records and the RO accredited stations list at: <https://www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx>

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The 2019/20 exempt combustion unit estimate for Drax Unit #2 and Unit #3 will be set as follows, together with the capped unit allowance for Unit #4:

### Overall station cap for Drax

Type of unit	Unit number	No. of ROCs for 2019/20 obligation year	
Drax RO eligible exempt (grandfathered) units	Unit #2	Estimate of number of ROCs likely to be issued in respect of relevant electricity generated during the 2019/20 obligation year	9,333,298
	Unit #3		
Drax RO eligible capped (non-grandfathered) unit	Unit #4	Capped unit allowance for 2019/20 obligation year	125,000
<b>Overall station cap</b>			<b>9,458,298</b>

### Further information

Further information on the calculation is provided in Annex A to this notice.

# Annex A

## Calculation A

Calculation A requires an estimate of the total amount of electricity (MWh) expected to be supplied to customers during the 2019/20 obligation period, for both Great Britain and Northern Ireland.

The estimate of the total amount of electricity is based on the published BEIS electricity consumption predictions in the updated energy and emissions projections (EEP): 2017, published in January 2018<sup>7</sup>. EEP projections are made on the same basis as table 5.5 of the Digest of UK Energy Statistics (DUKES)<sup>8</sup>. The forecast of 'electricity sales' in 2019/20 is therefore comprised of DUKES' final consumption plus BEIS's estimate of use, where supplied over the public generation system, in: oil and gas extraction; petroleum refineries; coal extraction and coke manufacture; and other fuel industries.

The EEP figures are on a calendar year basis but the obligation runs from April to March. So 75% of our estimate for electricity sales for 2019 is added to 25% of our estimate of electricity sales for 2020. This gives a total estimate for 2019/20 of 274.02 TWh of electricity supplied by licensed suppliers for the UK as a whole.

EEP projections only give UK-wide figures, so to divide our UK-wide estimate of electricity sales of 274.02TWh between Great Britain and Northern Ireland, the percentage split between the two is based on actual outturns in Energy Trends Table 5.5 - Availability and consumption of electricity<sup>9</sup>. Looking at the forward trend since the RO started in 2002 gives a split of 97.3% of UK electricity sales in Great Britain, and 2.7% in Northern Ireland. Applying these to the 274.02TWh gives a figure of 266.6TWh for Great Britain and 7.4TWh for Northern Ireland.

The overall obligation (in ROCs) for Calculation A is obtained by multiplying the electricity sales estimates by the fixed targets specified in the ROO 2015. These are 0.154 ROCs per MWh for England, Wales and Scotland, and 0.063 ROCs per MWh for Northern Ireland.

This gives a total of 41.5 million ROCs for Calculation A.

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<sup>7</sup> Updated energy and emissions projections: 2017 (published 2 January 2018) are available at: <https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2017>

<sup>8</sup> DUKES is available at: <https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes>

<sup>9</sup> Energy Trends table 5.5 is available at: <https://www.gov.uk/government/statistics/electricity-section-5-energy-trends>



### Calculation B

Calculation B estimates the number of ROCs to be issued to stations expected to be operational during 2019/20, carried out for both existing and forthcoming stations.

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 was taken from Ofgem's RO accredited stations list, with just those expected to be operational during 2019/20 included.

The list of potential new build expected to generate in 2019/20 was sourced from the Renewable Energy Planning Database (REPD)<sup>10</sup>, the National Grid's Transmission Entry Capacity (TEC) Register<sup>11</sup> and internal information from Ofgem. We also contacted a range of developers to confirm the capacity and timescales for completion of these projects.

BEIS's calculations give a total of 114.0 million ROCs before headroom. With headroom, this gives a total of 125.4 million ROCs.

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 2019/20.

### Assumptions used for Calculation B

The following tables set out the breakdown of capacity by technology, and the breakdown of the 114.0 million ROCs by technology and cohort in 2019/20.

Biomass and waste technologies include advanced conversion technologies, anaerobic digestion, energy from waste with CHP, dedicated biomass, biomass CHP, biomass conversions and co-firing of biomass.

The small difference in the total figure in both tables compared to adding up the totals for the rows is due to rounding to the nearest decimal place.

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<sup>10</sup> The REPD is available at: <https://www.gov.uk/government/statistics/renewable-energy-planning-database-monthly-extract>

<sup>11</sup> National Grid's TEC Register is available at: <https://www.nationalgrid.com/uk/electricity/industrial-connections/registers-reports-and-guidance>

## Calculating the Level of the Renewables Obligation for 2019/20 – Annex A

### Capacity for new and existing UK stations by technology

Technology	GW
Onshore wind	12.6
Offshore wind	6.5
Hydro, Wave and Tidal	0.7
Landfill gas and Sewage gas	1.1
Biomass and waste technologies	4.0
Photovoltaics (Solar PV)	7.3
<b>Total</b>	<b>32.1</b>

### Estimated number (in million) of UK Renewables Obligation Certificates (ROCs) by technology and cohort in 2019/20

Technology	Existing stations	New build stations	Total
Onshore wind	27.0	3.0	30.0
Offshore wind	32.4	10.8	43.2
Hydro, Wave and Tidal	2.7	0.0	2.7
Landfill gas and Sewage gas	3.5	0.0	3.5
Biomass and waste	20.7	3.9	24.6
Photovoltaics (Solar PV)	10.0	0.1	10.1
<b>Total</b>	<b>96.2</b>	<b>17.7</b>	<b>114.0</b>

### Load Factors

Load factors are used to calculate generation from the capacity for each technology. The load factors presented below are net of availability, expressed on a total installed capacity (TIC) basis.

### 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.

The definition of the two categories is as follows:

- ‘Existing’: sites which commissioned up to and including 2016/17;
- ‘New build’: sites which will commission in 2017/18 and later.

### Methodology

Similar to last year, we have based load factors derived from actual generation and capacity data, as published by Ofgem<sup>12</sup>.

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 from April 2010 up to 31 March 2018.

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’s 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.

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<sup>12</sup> Ofgem’s Renewables and CHP Register is available at:  
<https://www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx>

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### Load factors for each technology

Technology	Category	Load factors <sup>13</sup>		Source
		Existing	New build	
Onshore wind	England	26.9%	30.9%	Existing build category load factors have been based on actual generation with a wind speed factor correction. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.
	Wales	31.1%	30.9%	
	Scotland	26.7%	35.2%	
	Northern Ireland	24.2%	32.4%	
Offshore wind		38.6%	47.3%	Existing build category load factors have been based on actual generation with a wind speed factor correction. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.
Hydro		40.2%	29.5%	A capacity weighted average of actual generation data from 1 April 2010 to 31 March 2018, 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.
Landfill Gas		38.2%		Existing build category load factors have been based on the declining trend of generation from 1 April 2010 to 31 March 2018. Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.

<sup>13</sup> The load factors have been rounded to the nearest decimal place.

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Technology	Load factors		Source
	Existing	New build	
Sewage Gas	42.1%		A capacity weighted average of actual generation data from 1 April 2010 to 31 March 2018, on an unchanged configuration basis, has been used to inform the existing build category.
Advanced Conversion Technologies	82.4%	83.2%	<p>A capacity weighted average of actual generation data from 1 April 2010 to 31 March 2018, on an unchanged configuration basis, has been used to inform the existing build category, pre-applying 50% Renewable Qualifying Multiplier (RQM).</p> <p>The significant increase from last year is due to a higher observed load factor in 2017-18 which has over 80% of the weighted capacity.</p> <p>The load factor for new build stations is based on industry benchmarks and reports, pre-applying a 50% RQM.</p>
Anaerobic Digestion	28.1%	79.1%	<p>A commissioning year weighted average of actual generation data from 1 April 2010 to 31 March 2018, on an unchanged configuration basis, has been used to inform the existing build category. This method has been used as there is a clear upward trend in load factors due to over time.</p> <p>The decrease in load factor compared to last year is due to including stations that didn't produce for a full 12 months and also calibrating capacity figures with Ofgem's certificate register.</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 with CHP	22.8%	81.5%	<p>A capacity weighted average of actual generation data from 1 April 2010 to 31 March 2018, on an unchanged configuration basis, has been used to inform the existing build category, pre-applying 50% Renewable Qualifying Multiplier.</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	Load factors		Source
	Existing	New build	
Dedicated Biomass	47.2%	67.4%	<p>A capacity weighted average of actual generation data from 1 April 2010 to 31 March 2018, 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>
Biomass CHP	64.0%	80.3%	<p>A commissioning year weighted average of actual generation data from 1 April 2010 to 31 March 2018, on an unchanged configuration basis, has been used to inform the existing build category. This method has been used as more recent years had a higher load factor.</p> <p>Industry reports and benchmarks and internal evidence have been used to inform the load factor for the new build category.</p>
Photovoltaics (Solar PV)	10.8%	12.0%	<p>A capacity weighted average of actual generation data from 1 April 2010 to 31 March 2018, 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>
Wave	2.9%		<p>For the existing category, there is no data available to estimate load factors. Based on the stations in the RO and internal discussions, the historic assumption seemed reasonable.</p>
Tidal	9.0%		<p>For the existing category, there is limited data available to estimate load factors. The load factor is based on internal discussions on the projects in the RO, their weighted capacity and likely individual load factors.</p>





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