

# Control for Low Carbon Levies

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## Introduction

**1.1** The government is committed to keeping energy costs as low as possible. The Control for Low Carbon Levies (“the Control”) is an important part of delivering on this commitment. Following extensive stakeholder engagement earlier this year, we concluded that the Levy Control Framework (LCF), the existing framework, needed updating. While the LCF has worked well in the past to curb costs on bills and provide certainty to investors, it is no longer the right vehicle to do this given the bulk of costs now relates to signed contracts.

**1.2** Since our Spring Budget announcement to end the LCF, we have been developing our new Control. Along with reaffirming our existing commitments, it provides clarity to industry out to 2025 about future support for low carbon electricity.

**1.3** In order to protect consumers, it focuses on controlling the flow of new low carbon electricity levies. The Control sets out that there will be no new low carbon electricity levies until the burden of such costs is falling. On the basis of the current forecast, there will be no new low carbon electricity levies until 2025. It does not seek to cap or set a budget for low carbon electricity levies.

**1.4** The Control does not rule out future support for any technology. In addition, all existing contracts and commitments will be respected, including the commitment of up to £557 million (in 2011-12 prices) for further Contracts for Difference (CfD) confirmed in the recent Clean Growth Strategy. The significant cost reductions that were achieved in the last CfD auction indicate that this support could secure far more low carbon electricity than originally anticipated.<sup>1</sup>

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<sup>1</sup> The results of the recent auction were announced on 11 September 2017. The cost of some new offshore wind projects starting to generate electricity from 2022-23 are now 50% lower than the first auction held in 2015. Source: <https://www.gov.uk/government/news/new-clean-energy-projects-set-to-power-36-million-homes>

## The control

**1.5** The Control covers all existing and new low carbon electricity levies, including: Contracts for Difference, Feed-in-Tariffs and the Renewables Obligation. The Control will monitor the total cost of these schemes. **Until the total burden of these costs is forecast to fall in real terms over a sustained period, the Control will not allow for new low carbon electricity levies to be introduced.** Based on the current forecast, set out below, this will rule out new levy spend until 2025.

**1.6** The government is continuing to make progress towards our carbon budgets. Commitments made in the government's Clean Growth Strategy will not be impacted by the new Control. These include:

- existing Contracts for Difference (including Hinkley Point C), and existing commitments under regulatory schemes such as the Renewables Obligation and Feed-in Tariffs
- up to £557 million (in 2011-12 prices) for additional Contracts for Difference

**1.7** Anything outside of this scope is classed as a new levy.

**1.8** New low carbon electricity levies may be considered if the aggregate of existing levies is forecast to have a sustained and significant fall in real terms. Given the volatility of the forecasts and their sensitivity to changes in wholesale prices, the government would look closely at the drivers and sustainability of any decline before considering possible additional levies.

**1.9** Even if this condition is not satisfied, in order to ensure the lowest costs for consumers, **new levies may still be considered where they have a net reduction effect on bills and are consistent with the government's energy strategy.**

**1.10** Any new levies will be subject to the usual policy scrutiny, consistent with relevant legislation, regulations, and – in line with Treasury guidance – full assessment of value for money, affordability and risks.

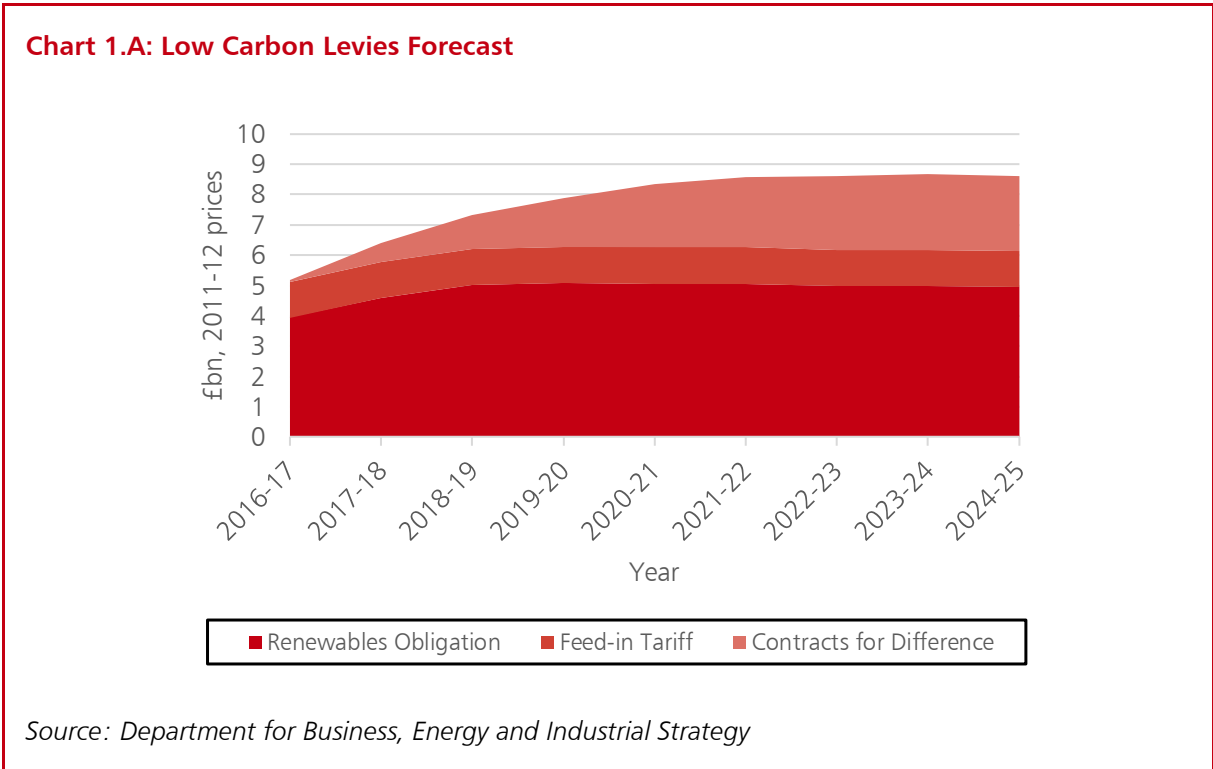
# The forecast

1.11 Below is the current forecast of spend on low carbon electricity levies. On the basis of this forecast, there will be no new low carbon electricity levies until 2025.

1.12 To provide continuity, in line with the previous LCF, the forecast is in 2011-12 prices. The forecast is however consistent with the relevant components of the OBR’s forecast of environmental levies, out to 2021-22. Beyond this, estimates are produced by BEIS.

1.13 The government will update the forecast of low carbon electricity levies on an annual basis.

1.14 The up to £557 million budget (in 2011-12 prices) for additional Contracts for Difference is not included in the forecast at this stage as no decision on the precise budgets for future allocation rounds or the commissioning windows has yet been taken.



**Table 1.A: Forecast breakdown, £bn (2011-12 prices)**

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Renewables Obligation	3.9	4.6	5.0	5.1	5.1	5.1	5.0	5.0	4.9
Feed-in-Tariff	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Contracts for Difference	0.1	0.6	1.1	1.6	2.1	2.3	2.4	2.5	2.5
Total	5.2	6.4	7.3	7.9	8.4	8.6	8.6	8.7	8.6

Source: Department for Business, Energy and Industrial Strategy

1.15 The forecast is subject to a number of uncertainties. These are described in detail in the Annex.

## Annex

**A.1** This Annex sets out the main assumptions used to project policy costs from the Renewables Obligation (RO), Feed-in Tariff (FITs) and Contracts for Difference (CfD). This is for purposes of transparency and also fulfils the government’s commitment to publish further detail on assumptions each time an updated forecast of low carbon electricity policy costs is published.<sup>2</sup>

### Methodology

**A.2** Estimates of each of the three schemes’ support costs follow a separate methodology bespoke to that scheme.

**A.3** The costs of the Renewables Obligation (RO) are driven by the level of the obligation set on energy suppliers, which has already been determined up to 2018/19 and projected thereafter. The obligation is set primarily by estimating the amount of renewable electricity expected to be generated under the scheme each year.<sup>3</sup> This brings together assumptions of the generating capacity operating under the scheme, load factors (the proportion of full generating capacity that is used over a year) that generators achieve, and the price of the Renewables Obligation Certificates (ROCs) that generators receive for each MWh of renewable electricity produced.

**A.4** The costs of the Feed-in Tariff (FITs) are estimated by combining data on the generation capacity, load factors, and the generation and export tariffs received by generators for the electricity generated.

**A.5** The costs of Contracts for Difference (CfD) projects are determined by the difference between the prices paid to generators for each MWh produced according to their individual contract (the ‘strike price’) and the wholesale electricity price. The overall support costs of the scheme are therefore estimated by combining estimates of generating capacity, load factors, the agreed strike prices, and the projected wholesale electricity price.

### Key assumptions

**A.6** The key drivers of subsidy cost for these schemes are: generation capacity, load factors, and prices. The key assumptions for each are described below. In order to protect commercial confidentiality, assumptions are in places grouped as “large scale” and “small scale” renewables rather than specific to individual schemes.

#### Generation capacity

**A.7** Generation capacity refers to the estimated maximum electricity output from low carbon electricity projects supported under government schemes. Table 1.B sets out the central estimates of generation capacity underpinning the forecast. The exact capacity and the availability in different points in time is uncertain – for example, projects can be delayed or in some instances generate sooner than expected, or in some circumstances choose to exit a scheme. Note that the ‘Large scale’ capacities relate to Renewables Obligation (RO) and Contracts for Difference (CfD) projects that have been accredited or signed a CfD.

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<sup>2</sup> Government response to the Public Accounts Committee’s *Levy Control Framework Enquiry*, Recommendation 4. Available here: <https://www.parliament.uk/business/committees/committees-a-z/commons-select/public-accounts-committee/inquiries/parliament-2015/energy-policy-levy-control-framework-16-17/>

<sup>3</sup> This is set out in detail in *Calculating the level of the Renewables Obligation for 2018/19*, available here: <https://www.gov.uk/government/publications/renewables-obligation-level-calculations-201819>

**Table 1.B: Central estimates of generation capacity by technology, GW**

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
<b>Large scale</b>									
Advanced Conversion Technologies	0.15	0.20	0.24	0.24	0.24	0.32	0.32	0.32	0.32
Anaerobic Digestion	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Biomass CHP	0.61	0.72	0.72	1.01	1.01	1.09	1.09	1.09	1.09
Biomass Conversions	1.91	2.30	2.94	2.94	2.94	2.94	2.94	2.94	2.94
Dedicated Biomass	0.69	0.76	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Energy from Waste with CHP	0.19	0.22	0.22	0.27	0.32	0.32	0.32	0.32	0.32
Hydro	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Landfill Gas	0.82	0.82	0.82	0.82	0.82	0.82	0.47	0.40	0.34
Offshore Wind	5.21	7.49	8.48	9.74	10.39	10.61	12.90	13.11	14.04
Onshore Wind (England)	2.64	2.66	2.68	2.68	2.68	2.68	2.68	2.68	2.68
Onshore Wind (Northern Ireland)	1.09	1.18	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Onshore Wind (Scotland)	6.97	7.49	8.22	8.27	8.27	8.27	8.27	8.27	8.27
Onshore Wind (Wales)	0.86	0.95	1.00	1.13	1.13	1.13	1.13	1.13	1.13
Sewage Gas	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Solar PV	7.16	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17
Tidal	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Wave	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
<b>Total</b>	<b>29.63</b>	<b>33.31</b>	<b>35.87</b>	<b>37.64</b>	<b>38.34</b>	<b>38.73</b>	<b>40.66</b>	<b>40.80</b>	<b>41.67</b>
<b>Small scale</b>									
Solar PV	4.52	4.72	4.96	4.98	4.98	4.98	4.98	4.98	4.98
Onshore Wind	0.64	0.67	0.69	0.70	0.70	0.70	0.70	0.70	0.70
Hydro	0.13	0.14	0.17	0.18	0.18	0.18	0.18	0.18	0.18
Anaerobic Digestion	0.24	0.25	0.27	0.28	0.28	0.28	0.28	0.28	0.28
Micro CHP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>5.54</b>	<b>5.79</b>	<b>6.09</b>	<b>6.14</b>	<b>6.14</b>	<b>6.14</b>	<b>6.14</b>	<b>6.14</b>	<b>6.14</b>
<i>Sources: Large Scale Renewables capacities are taken from 'Calculating the level of the Renewables Obligation for 2018/19'<sup>4</sup>, the Contracts for Difference Register<sup>5</sup> and supplementary BEIS analysis; Small Scale Renewables capacities are derived from BEIS analysis of Ofgem FITs administrative data.</i>									

## Load factors

**A.8** Load factors express the proportion of generation capacity that is used to produce electricity on average throughout the year. Combining load factors with generation capacities enables the estimation of GWh of electricity produced.<sup>6</sup> Table 1.C sets out the central assumptions that underpin the forecasts above, but actual load factors will vary due to a range of uncertainties from weather conditions, unplanned outages, and unanticipated commercial decisions.

<sup>4</sup> Available at: <https://www.gov.uk/government/publications/renewables-obligation-level-calculations-201819>

<sup>5</sup> Available at: <https://lowcarboncontracts.uk/cfds>

<sup>6</sup> For example, a 2GW plant with a 50% load factor would produce on average (2 x 50%) = 1GW of electricity, or 1GWh per hour.

**A.9** For large scale renewables, different load factors are used for plants that commissioned before 2016-17 and those that commissioned after this date. This is to reflect that in general newer plants benefit from technological improvements that enable them to achieve higher load factors.

**Table 1.C: Central estimates of load factors by technology (% of generation capacity per year)**

<b>Large Scale</b>	<b>Plants that have commissioned by 2016-17</b>	<b>Plants that commission after 2016-17</b>
Advanced Conversion Technologies	26.0%	83.2%
Anaerobic Digestion	56.3%	79.1%
Biomass CHP	64.1%	80.3%
Biomass Conversions	91.8%	91.8%
Dedicated Biomass	55.2%	67.4%
Energy from Waste with CHP	19.0%	81.5%
Hydro	46.4%	29.5%
Landfill Gas	61.4%	61.6%
Offshore Wind	37.7%	47.3%
Onshore Wind (England)	26.8%	30.9%
Onshore Wind (Northern Ireland)	27.5%	32.4%
Onshore Wind (Scotland)	25.9%	35.2%
Onshore Wind (Wales)	25.7%	30.9%
Sewage Gas	47.4%	49.0%
Solar PV	10.8%	10.3%
Tidal	30.9%	30.9%
Wave	2.9%	30.0%
<b>Small scale</b>	<b>Most popular technologies</b>	
Solar PV	10.8%	
Onshore wind	28.7%	
Hydro	40.0%	
Anaerobic Digestion	91.0%	
Micro CHP	49.0%	
<i>Sources: Large Scale Renewables load factors are taken from 'Calculating the level of the Renewables Obligation for 2018/19'<sup>7</sup>; Small Scale Renewables load factors taken from the FITs 2015 and 2016 Impact Assessment that details the basis on which tariffs were set.<sup>8</sup></i>		

## Prices

**A.10** Once the amount of electricity generated under each low carbon electricity scheme is estimated, the associated cost depends on the appropriate price that is applied to that generation. A different price is relevant for each support scheme.

**A.11** For the Renewables Obligation (RO), generators generate a Renewables Obligation Certificate (ROC) for each MWh of renewable generation, which they then sell – mostly through

<sup>7</sup> Available at: <https://www.gov.uk/government/publications/renewables-obligation-level-calculations-201819>

<sup>8</sup> Available here: <https://www.gov.uk/government/consultations/consultation-on-a-review-of-the-feed-in-tariff-scheme>

bilateral agreements – to an obligated electricity supplier. The relevant price, therefore, is the value of a ROC. The ROC buyout price is set by Ofgem in advance of each obligation year according to projected changes in inflation, so is certain in real terms but subject to the same uncertainties as inflation forecasts in cash terms. It is assumed in the forecast that obligated electricity suppliers value ROCs at the buyout price set by Ofgem each year, but the actual price will vary.

**A.12** For the Feed-in Tariff (FITs), generators under FITs are paid a generation tariff for each kWh of electricity produced, and an export tariff for every kWh of electricity exported to the electricity grid.<sup>9</sup> The generation and export tariffs are therefore the relevant prices to apply to generation under FITs. FIT generation and export tariffs are set out in the 2015 government response to the FITs review, and 2016 review for Anaerobic Digestion and Micro Combined Heat and Power. They are uncertain to the extent that tariffs are reduced in accordance with the digression mechanism.

**A.13** Generators under Contracts for Difference (CfDs) are paid the difference between the strike price specified in their contract and the reference electricity wholesale price. The relevant prices to apply, therefore, are the estimated wholesale electricity price and project specific strike prices. CfD strike prices are fixed over the lifetime of each contract, but the subsidy costs are uncertain depending on movements in the electricity wholesale price. Wholesale prices are hard to predict so the resulting subsidy cost element is likely to differ from the forecast, although the cost to consumers of the CfD is fixed and unaffected by wholesale price changes.

**A.14** Table 1.D sets out central estimates of the electricity wholesale price, the value of a ROC, and the feed in tariffs for the most popular technologies. Project specific strike prices for CfD projects are available from the CfD Register.

**Table 1.D: Central estimates of relevant prices**

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Electricity wholesale price (£/MWh, 2011-12 prices)	38.88	42.15	41.34	41.21	42.13	42.70	43.39	44.98	46.35
ROC buyout price (£/MWh, 2011-12 prices)	42.56	42.56	42.56	42.56	42.56	42.56	42.56	42.56	42.56
FITs Generation tariff for projects commissioning in year (p/kWh, 2011-12 prices)									
Solar PV	3.8	3.5	3.2						
On shore wind	3.2	2.1	1.3						
Hydro	4	4	4			Scheme due to close in April 2019			
Anaerobic Digestion	5.2	0.9	0.9						
Micro CHP	12.2	12.2	12.2						

Sources: Wholesale electricity prices are taken from BEIS modelling, taking into account BEIS fossil fuel price assumptions; ROC buyout prices are set by Ofgem and indexed to inflation<sup>10</sup>; future FIT generation tariffs are estimated by BEIS according to anticipated future deployment, are for illustrative caps, and taken from the end of each financial year.

<sup>9</sup> Generators above 30kW in size may also negotiate a private contract with an electricity consumer or supplier where a privately determined price would replace an export tariff.

<sup>10</sup> Available here: <https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-ro-buy-out-price-and-mutualisation-ceilings-2017-18>.