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Research Briefing

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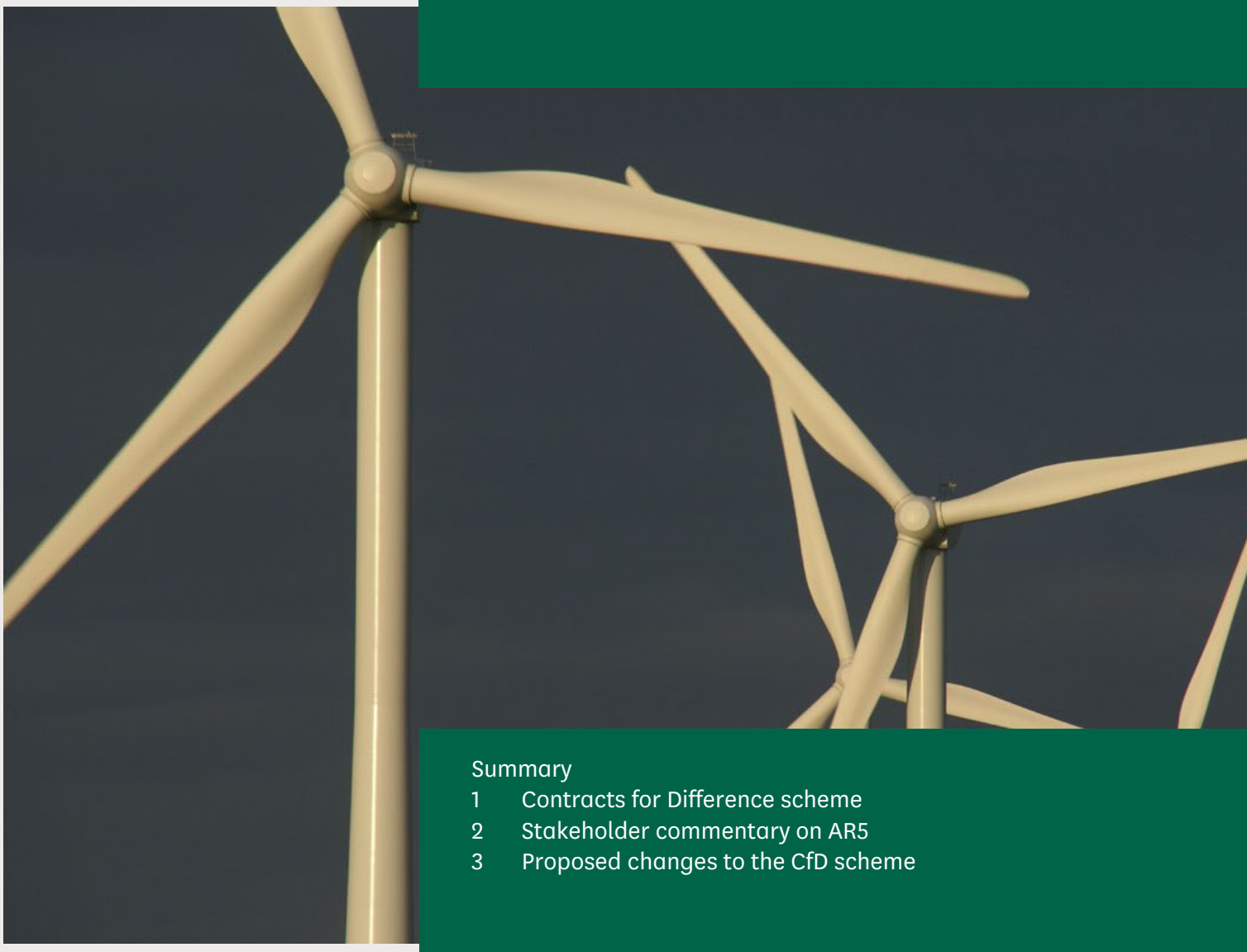
Contracts for Difference



Summary

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Summary

The Government's primary mechanism for supporting new low carbon power infrastructure is the Contracts for Difference (CfD) scheme.

CfDs work by guaranteeing a set price for electricity – known as a strike price – that generators receive per unit of power output. As the wholesale price of electricity fluctuates, the generator is either paid a subsidy up to the set price, or pays back any surplus above the set price to the scheme, so that they have the certainty of always receiving the value of the strike price. The cost, or benefit, is passed on to consumers through their bills.

The fifth CfD auction round, which took place in 2023, delivered a record number of solar, onshore wind, tidal, and geothermal projects. However, although offshore wind was the dominant technology in previous CfD auction rounds, the fifth auction round did not attract any bids from offshore wind developers. The overall capacity of successful projects in this round was 66% below the total from round four. This result was widely criticised by representatives from the offshore wind industry.

The outcome of the sixth CfD auction round was announced in early September 2024. There was a record number of successful projects in this round, their total capacity was much larger than the previous auction round, but still below the record set in the fourth round. The sixth round saw a record capacity for solar projects and return of offshore wind, although the total capacity of successful offshore wind projects was below levels in both the third and fourth auction rounds.

Changes are being considered to the CfD scheme under the government's Review of Electricity Market Arrangements and additional consultations. These include proposals to partially expose CfD generators to wholesale prices, introduce a revenue 'cap and floor', or to base the revenue received by a generator on a prediction of how much it would generate in particular location, instead of its actual output.

This briefing provides an overview of the CfD scheme, the projects it has delivered and its value to generators and costs to consumers. It also covers stakeholder commentary on the most recent CfD auction and the changes under consideration.

1 Contracts for Difference scheme

1.1 Background

The energy policy of successive Governments has been designed in line with the "energy trilemma" to decarbonise electricity generation; ensure energy security; and minimise the cost of electricity to consumers.

In 2010, the Coalition Government energy policy sought to address the trilemma with a programme known as Electricity Market Reform (EMR), legislated through the Energy Act 2013. EMR aimed to improve the relative attractiveness of the UK for investors in the electricity market by creating a long-term, stable and predictable electricity market, providing greater revenue certainty. The two main mechanism of EMR are:

- A Capacity Market – to help ensure security of electricity supply. More information on the capacity market is available in the Library briefing paper on Electricity Grids (January 2019, section 3.3).
- Contracts for Difference (CfD)– to provide support for new low carbon power. CfDs replaced the Renewables Obligation, which closed to new generation in March 2017. The CfD scheme applies to Great Britain (GB).

The CfD scheme is the government's main mechanism for supporting large scale, low carbon power infrastructure, providing certainty for investors on the price generators will receive for the electricity they produce.

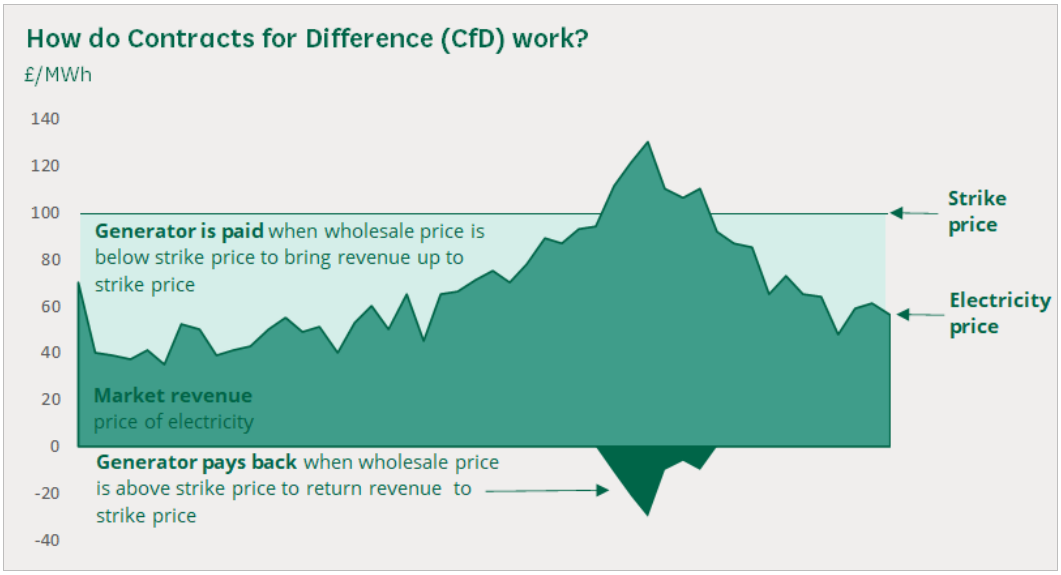
A CfD is a contract between a low-carbon electricity generator and the Low Carbon Contracts Company (LCCC), a government-owned company. Prices paid to generators selling electricity on the wholesale market are volatile. CfDs work by fixing the prices received by low carbon generation over a number of years, reducing the risks developers face from a fluctuating wholesale power price, and ensuring that eligible technology receives a price for generated power that supports investment. The fixed price is known as the strike price.

The primary role of the LCCC is to issue the contracts, manage the contracts through the construction and delivery phases, and make CfD payments. National Grid ESO is the delivery body for the CfD scheme, responsible for running the CfD allocation process. Ofgem is responsible for hearing certain appeals.

The Library Briefing Support for low carbon power provides further background on CfDs and related policy until April 2020.

1.2 How CfDs work

When the market price for electricity generated by a CfD Generator is below the strike price set out in the contract, payments are made by the LCCC to the CfD Generator to make up the difference. However, when the market price is above the strike price, the CfD Generator pays LCCC the difference. This is shown in the figure below.



Source: House of Commons Library

The payments, and repayments, paid and received by the LCCC for the CfD scheme are passed on to consumers' electricity bills.

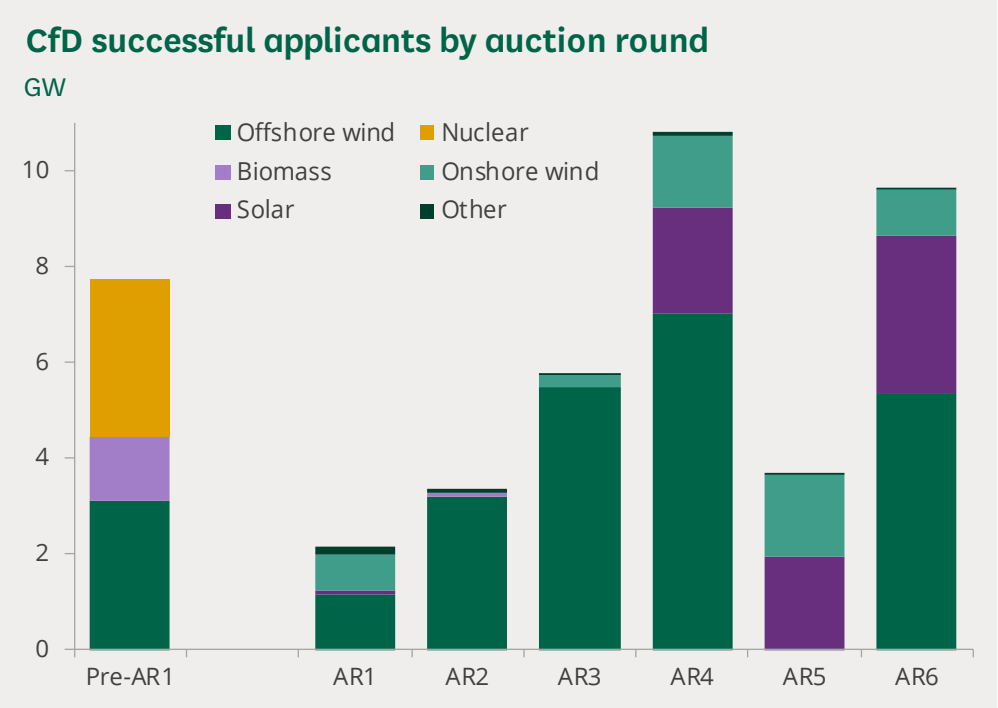
CfD contracts are awarded for 15 years through auctions. These are known as allocation rounds, to allow competition between technologies and help keep prices low. The government sets a budget in advance, then sealed bids of strike prices submitted by developers are accepted sequentially from the lowest to the highest until the budget is exceeded. This is referred to as a reverse auction, as the winners are the lowest rather than highest bidders

The government is required by regulations to publish the budget in advance but is free to choose the amount. The budget notice specifies the amount that is available for each delivery year within the allocation round, along with the highest strike price the government is willing to pay at the auction for each technology (known as the "administrative strike price") and any lower or upper budgetary restrictions for particular technologies eligible to bid in the auction.

There is a non-delivery disincentive for developers unable to fulfil the contract they have been awarded, meaning they will not be able to compete in the next auction.

1.3 Projects awarded CfDs

There have been six competitive auction rounds for CfD capacity completed. The outcome of the first round was announced in February 2015 and the sixth round in September 2024. These were preceded by 'investment contracts' awarded to renewable projects in 2014 under the Final Investment Decision Enabling for Renewables process. The Government has also agreed a CfD for Hinkley Point C with key terms set out in 2013 and a final revised agreement in 2016. The following chart shows the capacity under CfDs in each auction round (AR) alongside these earlier projects.



Sources: LCCC, Auction outcomes dataset; DECC, Final Investment Decision Enabling for Renewables: Updates 1, 2 and 3 (Updated April 2014); DESNZ, Hinkley Point C

The renewable investment contract projects awarded in 2014 were for biomass and offshore wind only and had a combined capacity of 4.6 GW. This was larger than the total capacity of successful projects in either of the first two auction rounds. AR3 totalled 5.8 GW and AR4 was much higher again at 10.8 GW.

95-96% of the capacity awarded in rounds 2 and 3 was offshore wind. AR4 included the first substantial amount of solar power and more onshore wind than in previous rounds. No offshore wind generator entered the AR5. This meant that the capacity awarded in this round was 7.1 GW less than in AR4; a drop of 66%.

There was a record number of successful project in AR6 with 131. However, most of these were relatively small solar projects, so while the total capacity of AR6 projects was 160% higher than in AR5, it was still below the capacity of AR4 projects. The increase in AR6 capacity was driven by the return of

offshore wind with 5.5 GW across 10 projects.[1] This total was still below the offshore wind capacity awarded in both AR3 and AR4. There was a record capacity of solar projects in AR6 of 3.3 GW. The amount of successful offshore wind capacity in AR6 fell to 1.0 GW.

73% of the 33.3 GW of capacity awarded in rounds 2 to 6 is located in England, 26% in Scotland and 1% in Wales.[2][3]

The following table summarises the capacity awarded CfDs by detailed technology type.

Capacity of projects awarded CfDs, by technology (MW)

	Auction round							
	Pre-AR1	AR1	AR2	AR3	AR4	AR5	AR6	**Total**
Offshore Wind	3,101	1,162	3,196	5,466	6,994	-	4,942	**24,861**
Solar PV	-	72	-	-	2,209	1,928	3,288	**7,497**
Nuclear	3,277	-	-	-	-	-	-	**3,277**
Onshore Wind	-	749	-	-	888	1,481	990	**4,108**
Remote Island Wind	-	-	-	275	598	224	-	**1,096**
Biomass conversion	1,052	-	-	-	-	-	-	**1,052**
Dedicated Biomass with CHP	299	-	86	-	-	-	-	**385**
Advanced Conversion Technology	-	62	64	34	-	-	-	**160**
Energy from Waste with CHP	-	95	-	-	30	-	-	**125**
Tidal Stream	-	-	-	-	41	53	28	**122**
Floating Offshore Wind	-	-	-	-	32	-	400	**432**
Geothermal	-	-	-	-	-	12	-	**12**
Total	**7,729**	**2,139**	**3,346**	**5,775**	**10,792**	**3,697**	**9,648**	**43,126**

CHP = Combined heat and power

Sources: LCCC, Auction outcomes dataset; DECC, Final Investment Decision Enabling for Renewables: Updates 1, 2 and 3 (Updated April 2014); DESNZ, Hinkley Point C

CfD contracts set out the delivery year when the project is expected to start generating. These dates are not definitive and can slip for various reasons (see the next section for more up to date estimates of when projects will go live). The chart below summarises this information for successful projects in rounds 1 to 6.

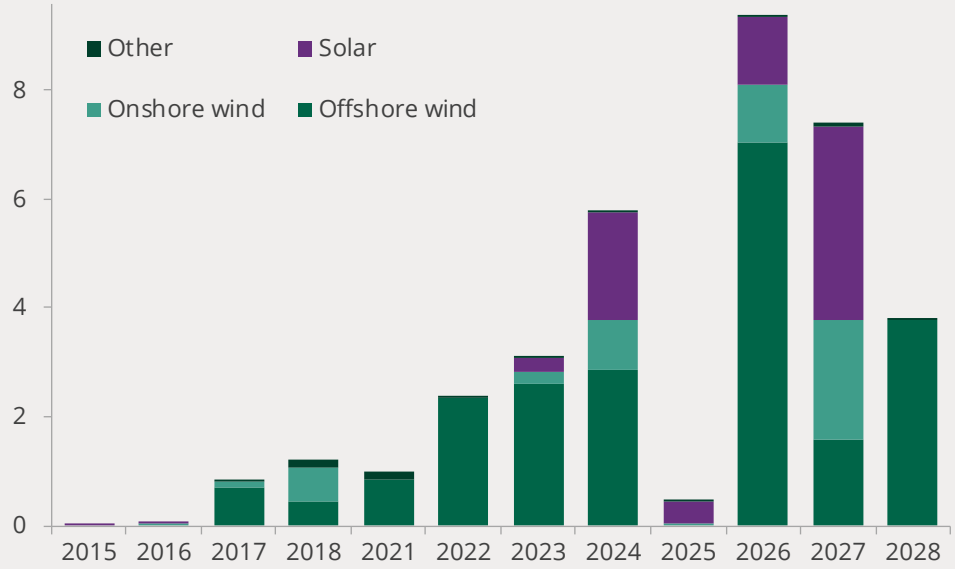
There is a general increase in the annual capacity intended to be added up to 2024. The sharp drop in 2025 is because most onshore wind and solar awarded in AR4 have delivery dates in 2024, while all the offshore wind in this

1 Includes floating offshore wind
2 Includes capacity for offshore wind off the coast of each country.
3 LCCC, Auction outcomes dataset

round has dates in 2026. Most AR5 capacity has delivery dates in 2026 and 2027, most AR6 capacity has delivery dates in 2027 and 2028.

Intended delivery year of CfD projects by technology

Auction rounds 1-5, GW



Source: LCCC, Auction outcomes dataset; DECC

Future auction rounds could increase the capacity of projects starting in 2027 and particularly in 2028. This is not likely to be from offshore wind which has longer lead times and would therefore have delivery dates in later years. The fall in capacity with dates in 2027 (reflecting the drop in capacity awarded in AR5) is unlikely to be reversed when future auction rounds are awarded.

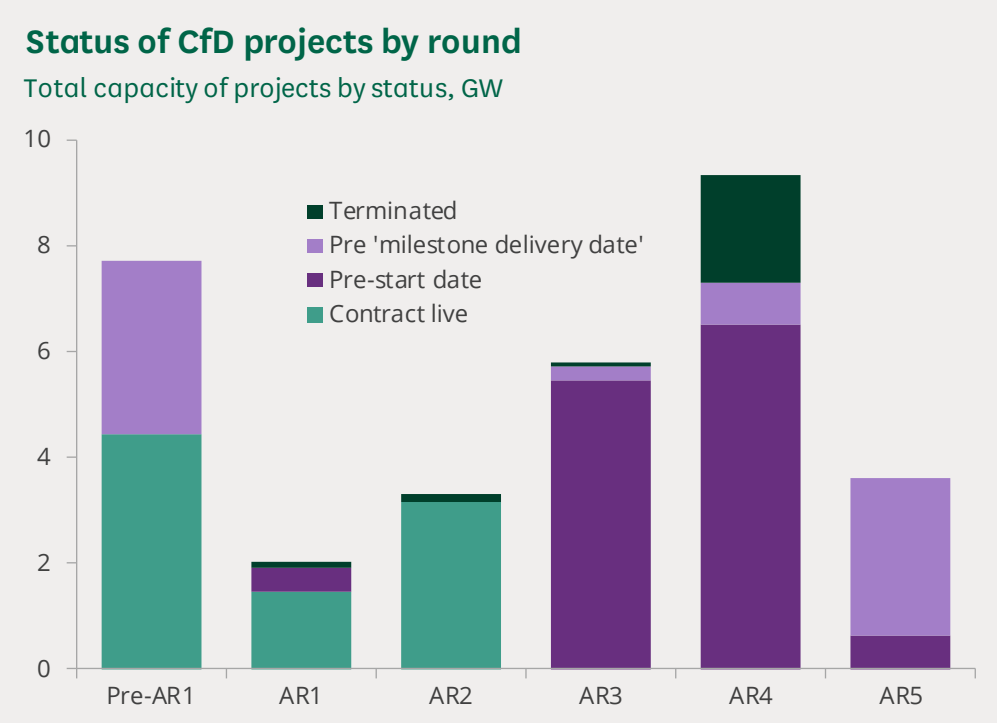
1.4 Operational CfD projects

Capacity

On 1 September 2024 contracts for a total of 9.1 GW of CfD capacity were 'live',[4] up from 6.8 GW on 1 October 2023. Just under half of this capacity was from the investment contracts signed before the first auction round. Most of the rest was offshore wind from AR2. A further 13.1 GW of capacity was at 'pre-start date' stage, 7.3 GW was at 'pre-milestone delivery date'[5] and contracts for 2.3 GW had been terminated. The following table shows the status by auction round.

[4] The project was generating and contract had started. Includes some where the final installed capacity had not yet been reached.

[5] This is a stage during the project development, before construction has started. It is the deadline by which developers must demonstrate delivery progress, by providing evidence of either spend of 10% of total pre-commissioning costs, or 'project commitments'. From round 4 the deadline for this is 18 months after the project has been signed.



Source: LCCC, CfD Contract Portfolio Status dataset (updated 1 September 2024)

The 'pre-AR1' category includes the renewable investment contracts projects, which are all live, and the 3.3 GW Hinkley Point C which is listed as pre-milestone delivery date.

The live CfD contracts at the start of September 2024 made up around 16% of all UK renewable capacity.[6] [7] Capacity of projects supported by the previous scheme for large scale renewables, the Renewables Obligation, was 35.4 GW at the end of 2022-23.[8]

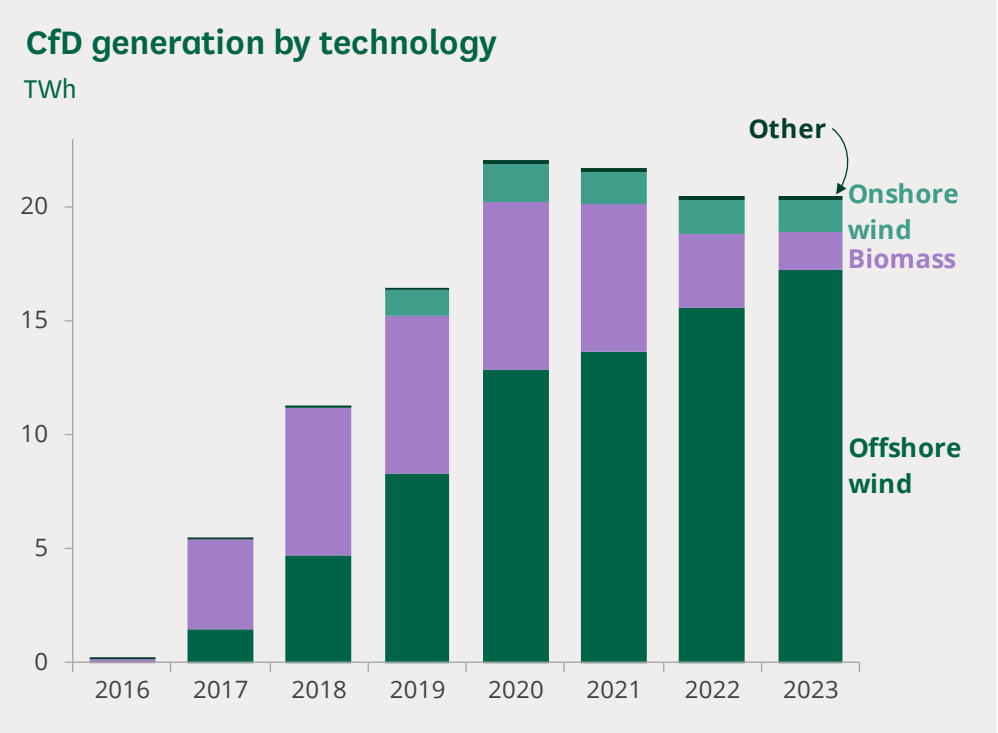
The expected contract start dates of projects at 'pre-start date' stage are from late 2024 to early 2029. These start dates are more up-to-date than the intended delivery years listed in auction results (and show earlier in this paper). The majority of capacity for projects at this stage has a start date in 2025 or 2026. The 'pre-start date' group includes any projects which have started generating, but whose generators have not yet activated or triggered their CfD. Expected start dates for projects at pre-milestone delivery date is later and generally spread out over the late 2020s and early 2030s.[9]

Generation

The first CfD project to start generating was Charity Farm (Burlton Solar Farm) in Shropshire at the end of June 2016. The next chart shows CfD generation by broad technology type. Total CfD generation grew to a peak of 22 TWh in 2020. It fell slightly in the following two years despite the growth of

6 Installed capacity, not de-rated for intermittency of different technologies.
7 All renewable capacity at the end of Q1 2024. DESNZ, Energy Trends: UK Renewables (Table 6.1).
8 Ofgem, Renewables Obligation (RO) Annual Report: Scheme Year 21 (2022-23)
9 LCCC, CfD Contract Portfolio Status dataset (updated 1 September 2024)

offshore wind. This was due to falling output from the two biomass plants with CfDs (Drax 3rd unit and Lynemouth), especially towards the end of 2022.



Source: LCCC, Actual CfD Generation and avoided GHG emissions dataset

This trend continued in the first half of 2023 when CfD generation was 20% below its level in the first half of 2022. This was again due to falls in biomass generation, which fell by 97% over this period.[10] This drop in output was said to be linked to the high level of reference prices for baseload electricity under CfD at the time. This meant these generators would pay back to the scheme and make generation unprofitable at the prices they were actually paid for their power.[11]

There was a small increase in total generation in 2023, despite the continued drop in biomass output. Generation in the first half of 2024 was more than double that for the same period in 2023 and almost 40% higher than in the first half of 2020. This increase was driven by higher output from biomass and offshore wind.

CfD generation made up 15.1% of UK renewable generation in 2023 and 7.0% of total UK generation.[12]

10 LCCC, Actual CfD Generation and avoided GHG emissions dataset
11 Argus Media, UK biomass-fired generation hits 10-month high (3 October 2023)
12 DESNZ, Energy Trends: UK Renewables (Table 6.1)

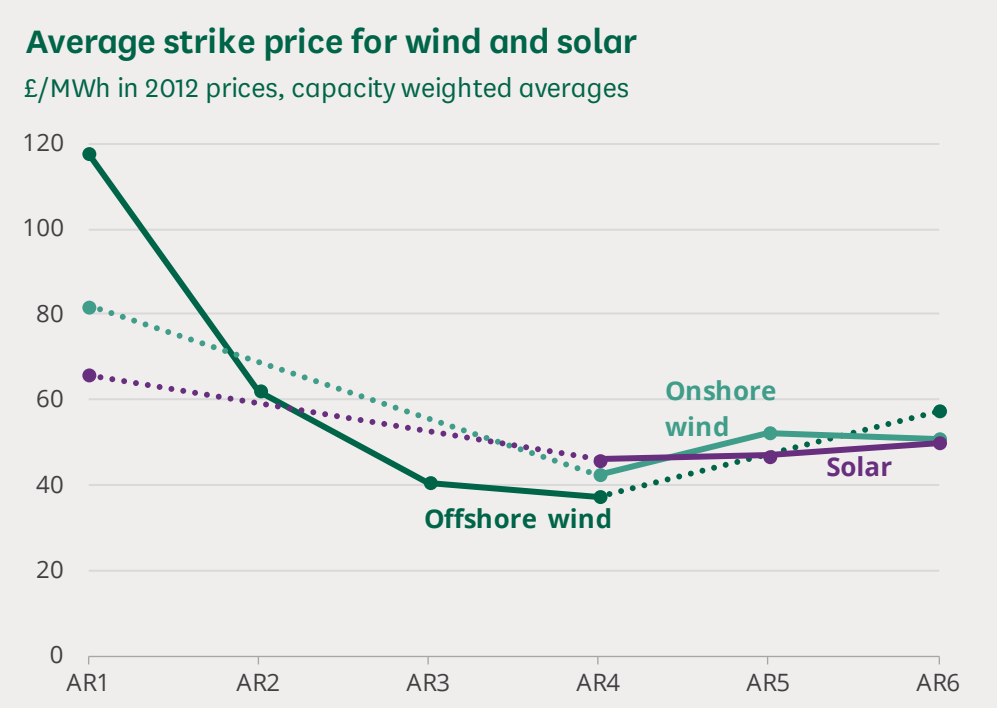
1.5 Value of CfDs to generators and costs to consumers

Strike prices

There were substantial reductions in the strike prices agreed in the first four auction rounds, as shown in the chart below. Prices are expressed in 2012 prices, as is conventional for CfDs.

The average strike price for offshore wind projects fell from £120/MWh in AR1 to less than £40/MWh in AR4. The strike prices for the earlier investment contract projects were higher still at £140 to £150/MWh. No offshore projects bid in AR5. The average price in AR6 was just over £57/MWh. This was just over 50% higher than in AR4, but well below the administrative strike price for this technology of £75/MWh in AR6.

Strike prices for onshore and solar projects fell between AR1 and AR4 by 48% and 30% respectively (neither were included in rounds 2 and 3, hence the dotted line below). Strike prices for onshore wind increased in AR5 and fell back slightly in AR6. Prices for solar increased slightly in both AR5 and AR6. The AR6 prices for both technologies were still well below the AR1 levels.



Source: LCCC, Auction outcomes dataset

The average strike price[13] across all technologies fell from £102/MWh in AR1 to just under £41/MWh in AR3 and AR4. It increased to £52/MWh in AR5 and £58/MWh in AR6.[14]

Strike prices and inflation

CfD strike prices are set at the time the contract is agreed. They are expressed in 2012 prices, even for the contracts which were agreed as late as 2023. The strike price that generators receive is not this 2012 figure, but the current equivalent of this when uprated for inflation. Their strike price is increased each year in line with inflation.

The actual (nominal) strike price which the generator receives is based on this agreed value (in 2012 prices) uprated for inflation each year.[15] So, for instance, a strike price of £50/MWh (2012 prices) would be almost £70/MWh in 2024-25. The offshore wind projects which were part of the 2014 (pre-auction) round are currently receiving strike prices of between £193 and £210/MWh in financial year 2024-25.[16]

Expressing strike prices in 2012 terms means that comparisons of the cost/value of CFD generation in different rounds can easily be made over time in real terms (as in the chart above). However, it is important to realise that generators receive more than this 2012 figure because it is uprated each year. This also means that these prices should not be compared with other costs/prices which don't follow this convention, such as the cost of other types of generation or prices paid by consumers.

Payments to CfD generators

The Low Carbon Contracts Company (LCCC) collects a levy from energy suppliers and uses this to fund payments to CfD generators when their strike price is above the amount they are paid for the power they produce (the market reference price). The chart below looks at monthly data on payments from the LCCC to generators.

Payments increased from less than £50 million a month in 2016 and 2017 to a peak (at the time) of £222 million in October 2020. This increase was driven by new CfD generators coming online, many of which had relatively high strike prices, and falls in power prices in 2019 and much of 2020. Rising power prices cut the value of these payments in 2021 and they went negative (in aggregate) in October 2021 and were negative in 10 of the following

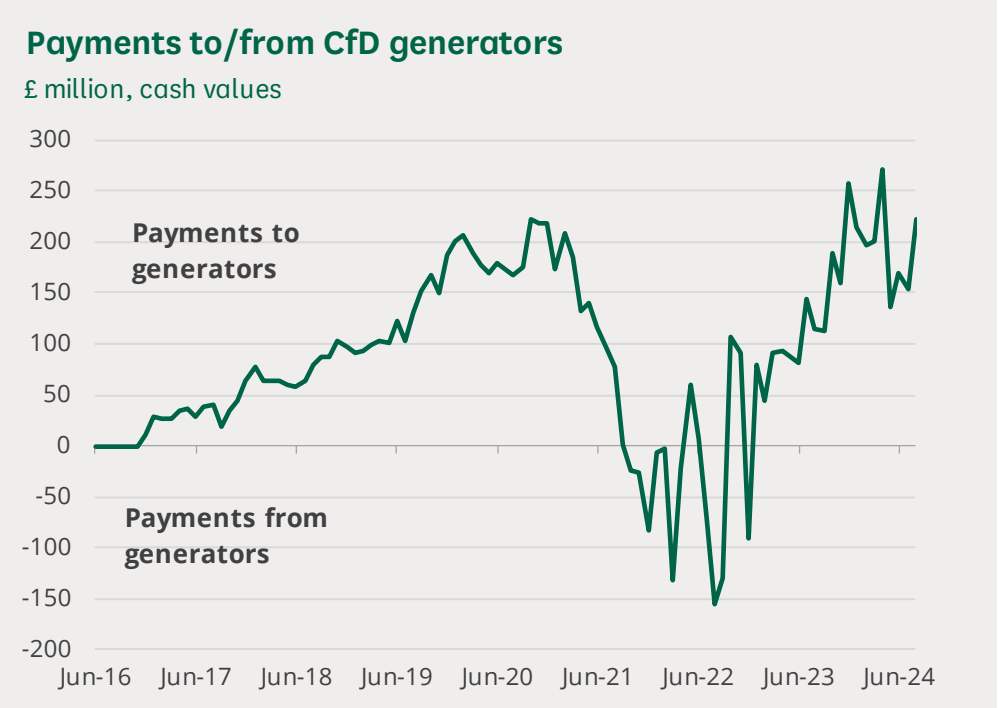
13 Capacity weighted average price

14 LCCC, Auction outcomes dataset; DECC

15 Financial year nominal strike prices are uprated from their agreed 2012 value using the increase in the all items Consumer Prices Index between October 2011 and the January immediately before the start of the financial year (plus any strike price adjustments, again uprated for inflation).

16 LCCC, Actual CfD Generation and avoided GHG emissions

14 months. Negative values mean CfD generators were repaying the LCCC in aggregate because the market reference price was above their strike price.



Source: LCCC, Actual CfD Generation and avoided GHG emissions

Payments have been positive in aggregate in each month of 2023 and up to August 2024. The increase in payments from late 2023 was due to lower wholesale power prices and higher output. Payments set a new monthly high in December 2023 of £258 million and exceeded this in April 2024 with £272 million. The cumulative net value of CfD payments from when the scheme started to the end of August 2024 was £8.9 billion.[17]

Future levels of aggregate CfD payments depend both on power prices and how quickly CfD generators with lower strike prices begin generating.

Costs to domestic consumers

Energy suppliers pass on the costs of CfD payments to all their customers; households, businesses etc. The energy regulator Ofgem adds an allowance for CfD costs (the Interim Levy which is paid to the LCCC) to the energy price cap for household electricity to account for the costs of this to energy suppliers. The following chart shows how much this added to energy bills since the cap was introduced in 2019.

This shows that, for instance, the CfD allowance increased bills for the summer 2020 price cap by £25. While this is expressed as a half yearly figure (and later data for quarters) it refers to costs if that rate were to apply across a whole year.

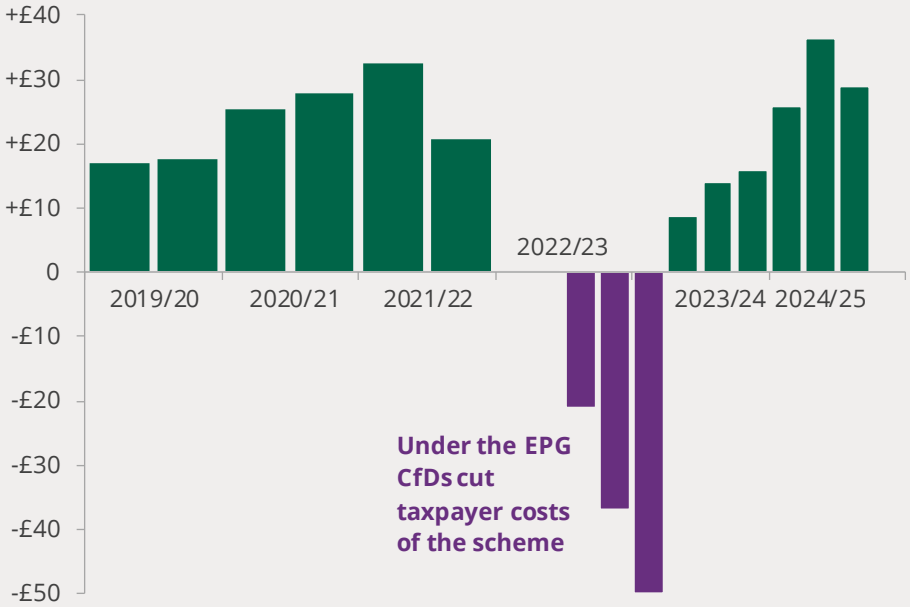
[17] LCCC, Actual CfD Generation and avoided GHG emissions

For the three quarters when this allowance was negative, prices were set by the Energy Price Guarantee (EPG) rather than Ofgem's price cap. Under the EPG the Government reduced energy prices to below price cap levels and paid the difference to energy suppliers. This meant that in effect the negative CfD allowance only reduced the cost to the Government of the EPG, rather than directly cutting customer bills.

The CfD allowance added a total of around £100 to typical domestic electricity bills over the period April 2019 to December 2024. This was 2.9% of the total electricity bill that a household with typical consumption would have paid over this period.[18] [19]

Impact of CfD costs on domestic electricity bills

CfD allowance under the direct debit price cap for typical annual consumption of 2,700 kWh. Excludes VAT.



Source: Ofgem, Energy price cap (default tariff): 1 October to 31 December 2024, Annex 2 – Wholesale cost allowance methodology v1.18

The energy consultancy Cornwall Insight has estimated that the successful renewable capacity in AR6 could add around £4.50 to annual bills by the time all these projects are scheduled to come online. They added:[20]

> While the scheme does carry a very small cost, if the past three years have shown us anything, it is the risks of relying heavily on the international energy market, which has had a significantly adverse impact on energy bills.

[18] This excludes the period when the EPG set maximum prices as the negative cfD value did not affect the prices consumers paid.

[19] Ofgem, Energy price cap (default tariff): 1 October to 31 December 2023, Annex 2 – Wholesale cost allowance methodology v1.18

[20] Cornwall Insight, Renewables scheme forecast to add £5 to household energy bills by 2030 (6 September 2024)

2 Stakeholder commentary on AR5

On 3 August 2023, in advance of the auction the government announced a £22 million uplift to the AR5 budget. The government stated that this increase in funding would "send a powerful signal to the industry, increasing developer confidence in the sector every year and enhancing the UK's reputation as among the most attractive places to invest and grow the economy, with nearly 25,000 jobs directly supported by renewable electricity sectors in 2021."[21]

The uplift was welcomed by the energy industry, but concerns were raised that the funding would still not be sufficient. Energy UK, the energy industry's trade association, said:

> While the budget increase is a positive development, it falls short of addressing the more fundamental problem – that the CfD regime no longer offers financially sustainable price [...] renewables will remain exceptionally good value for money, even at higher prices reflecting the current reality of international market condition. However without putting the CfD regime on a financially sustainable footing, we risk consumers footing the bill as the UK falls behind other key markets.[22]

Although offshore wind was the dominant technology in previous CfD auction rounds, AR5 did not attract any bids from offshore wind developers. This result was widely criticised by representatives from the offshore wind industry and the wider energy sector.

Cornwall Insight highlighted the government's decision to keep the administrative strike price for marine turbines at the same level as the previous allocation round (£44 per MWh) as a key limiting factor.

> [H]igh inflation, high cost of capital and supply chain issues have led offshore wind developers to opt out of the bidding. While there have been continued efforts from the renewables industry to drive down prices through innovation and efficiency measures, these developments have been unable to keep pace with an increasingly volatile economic environment. The administrative strike price has not been increased to reflect development costs and as a result, the auction was not seen as an economically viable option for several developers, leaving some projects without a clear path to market.[23]

[21] Department for Business Energy and Industrial Strategy (BEIS), Energy security boost with multi-million backing for renewables, 3 August 2023

[22] Politics.co.uk Energy UK respond to the Government's announcement on budget for Allocation Round 5 of the Contracts for Difference Scheme, 4 Aug 2023

[23] Cornwall Insight Government's renewable targets at risk as auction sees no bids for offshore wind 8 September 2023

Andrew Jamieson, Chief Executive at the Offshore Renewable Energy (ORE) Catapult, reiterated his support for offshore wind as "the UK's principal low carbon energy generation source for hitting our net zero targets, as well as one of the cheapest forms of electricity", but pointed to the AR5 results as evidence that "continuous pressure to deliver lower and lower prices is not sustainable in the face of escalating costs".[24] Similar points were raised by Keith Anderson, ScottishPower CEO, who referred to AR5 as "a multi-billion pound lost opportunity to deliver low-cost energy for consumers and a wake-up call for Government", stating that ScottishPower did not bid in this auction as "the economics simply did not stand up this time around".[25]

Energy sector analysts Regen referred to the auction results as "a disappointment, but not a surprise" and urged the government to take action to "rebuild industry confidence and re-establish the pipeline of offshore wind projects"[26]. RenewableUK gave a similar call to action, highlighting the need for the government to "to develop and fund supply chain growth and an internationally competitive fiscal regime which attracts capital into the UK".[27]

Following the results of AR5, the then Energy and Climate Change Minister Graham Stuart stated that the government was "delighted that our first annual Contracts for Difference auction has seen a record number of successful projects across solar, onshore wind, tidal power and, for the first time, geo-thermal."[28]

In response to criticisms related to offshore wind, the government stated:

> Offshore wind is central to our ambitions to decarbonise our electricity supply and our ambition to build 50GW of offshore wind capacity by 2030, including up to 5GW of floating wind, remains firm. The UK installed 300 new turbines last year and we will work with industry to make sure we retain our global leadership in this vital technology.[29]

In a debate about CfDs on 19 September 2023, Secretary of State for Energy Security and Net Zero, Claire Coutinho, stated:

> The CfD programme has driven prices down over time to enormous effect, by 70% since they started, which is much more than people expected. [...] I am absolutely focused on getting investment into offshore wind. One of the first things I did after AR5 was speak to investors from across the board, to make sure I was listening to their concerns, and there are multiple things they care

[24] PoliticsHome ORE Catapult responds to Contracts for Difference Allocation Round 5 results 8 September 2023

[25] OGV Energy ORE Catapult responds to Contracts for Difference Allocation Round 5 results 8 September 2023

[26] Regen AR5: Urgent government response needed to rebuild leadership in UK offshore wind 8 September 2023

[27] RenewableUK Industry warns urgent action needed to restore investor confidence following renewables auction 8 September 2023

[28] Department for Energy Security and Net Zero (DESNZ), Record number of renewables projects awarded government funding, 8 September 2023

[29] Department for Energy Security and Net Zero (DESNZ), Record number of renewables projects awarded government funding, 8 September 2023

> about. One is having certainty; there was lots of welcoming of the move to annual auctions. The other is connections to the grid. I will be looking at all those things and making sure we can get the investment the sector needs.[30]

Trade body Solar Energy UK said that they were pleased by the success of solar projects in AR5, with the results exceeding their expectations. They stated that the auction results show "how resilient solar has become to economic shocks" and that solar "remains the cheapest way to generate power in the UK".[31] Steve Mack, chief investment officer of solar power company Low Carbon said "these projects [...] will play an important role in supporting the rollout of solar energy across the UK and provide investment certainty in the solar supply chain as we look to make further progress on reaching net zero."[32]

Similarly, representatives of the geothermal industry were pleased by the opportunity to particate in the auction. Geothermal Engineering Ltd referred to the auction as a "hugely significant milestone in our push to extend the boundaries of what's possible with geothermal power and heat". [33]

[30] HC Deb 19 September 2023

[31] Solar Energy UK, Solar secures more Contracts for Difference than expected 8 September 2023

[32] Solar Power Portal, Solar surges to almost 2GW in CfD Auction Round 5 11 September 2023

[33] Think Geoenergy, GEL awarded the first-ever Contracts for Difference for geothermal 8 September 2023

3 Proposed changes to the CfD scheme

3.1 Review of Electricity Market Arrangements

In 2022, the then Department for Business, Energy & Industrial Strategy (BEIS, now Energy Security and Net Zero, DESNZ) launched its Review of Electricity Market Arrangements (REMA) consultation. The summary of responses has been published, and a subsequent consultation will put forward packages of reforms. [34] The government stated in its summary of responses that this consultation will take place in autumn 2023.

Reforms are being introduced to incentivise greater decarbonisation, keep prices affordable for consumers and maintain a secure and reliable system. There is agreement among stakeholders that any reforms should consider investor confidence and avoid disrupting the deployment of new generation and network infrastructure.[35] REMA focuses on the wholesale electricity market in Great Britain (GB).

The POSTNote Electricity market reform (May 2023) provides an overview of the current wholesale market and the broader changes under consideration.

Potential reforms to CfDs

Changes to how the government supports mass low carbon power are being considered under REMA. Options being considered include changes to the CfD scheme.

Whilst noting that the CfD scheme has been extremely effective in driving down the cost of capital, the REMA consultation pointed to several challenges with the current CfD scheme. In its current form, the CfD scheme limits generators' market exposure, meaning that renewable assets are not exposed to price signals. The current design of CfDs is not designed for technologies that increase flexibility in the electricity market, such as low carbon flexible generation, storage, interconnection to other countries, and devices and technologies which shift or reduce demand. This has resulted a lack of investment. The current CfD scheme is not designed to send market signals relating to where in the UK infrastructure should be located, with non-

[34] DESNZ, Review of Electricity Market Arrangements Summary of responses to consultation (PDF) 7 March 2023

[35] DESNZ, Review of Electricity Market Arrangements Summary of responses to consultation (PDF) 7 March 2023

market factors such as weather patterns and seabed leasing being the main drivers for where developers choose to locate renewables projects. [36]

Reforms under consideration are listed below and would only apply to new contracts.

- **CfDs with wholesale price exposure**. CfDs could be moderately exposed to the market conditions by implementing a 'strike price range'. This would give generators a guaranteed maximum and minimum price per MWh output, exposing them to market conditions within that range. Changes could also be made to the reference price methodology, for example by setting CfD top-up payments for an entire week, with opportunities for profit or loss if plants do better in the market than the weekly average.

- **Separating revenue from generation.** CfD revenue could also be based on predicted generation in a particular location rather than actual generation. This so-called 'Deemed generation CfD' could incentivise assets supported by CfDs to participate in ancillary services or charge on-site battery storage for times when demand is higher.

- **Revenue cap and floor**. A cap and floor support mechanism guarantees minimum revenue (the 'floor') while limiting excessive profits through a revenue maximum (the 'cap').

Whilst REMA focuses on longer term reforms to market arrangements, the government may make changes to the CfD scheme in the shorter term. The government issued a Call for Evidence that closed in May 2023 on potential reforms to CfDs, with the aim of making the scheme "more adaptable, forward looking and able to address a range of emerging issues in the renewable energy industry".[37] These changes will be considered alongside REMA. The consultation sets out a range of options for taking into account non-price related factors in the CfD scheme. Details of these proposals are set out in the Call for Evidence (April 2023).

The government issued a response to the Call for Evidence in September 2023 and has said that:

> Government will take into account the points outlined below and use them to decide next steps on this policy. The government response should not be read as an indication of final policy decisions on any issue, nor that the policy will go ahead. Final decisions will be taken as part of the wider fiscal and policy context.[38]

[36] DESNZ Review of Electricity Market Arrangements (PDF) July 2023

[37] DESNZ Contracts for Difference for Low Carbon Electricity Generation Call for Evidence on introducing non-price factors into the Contracts for Difference Scheme (PDF) April 2023

[38] DESNZ, Review of Electricity Market Arrangements Summary of responses to consultation (PDF) 7 March 2023

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