



Department for
Business, Energy
& Industrial Strategy

Contracts for Difference for Low Carbon Electricity Generation

Consultation on proposed amendments to
the scheme

Closing date: 29 May 2020



OGL

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General information

Why we are consulting

The Contracts for Difference (CfD) scheme is the government's main mechanism for supporting new, low carbon electricity generation projects in the United Kingdom (UK). The government is considering a number of changes to the way the CfD scheme operates so that it can continue to support new generation and provide value for bill payers for the next allocation round. The consultation seeks views from stakeholders and interested parties on these proposals.

Consultation details

Issued: 2 March 2020

Respond by: 29 May 2020

Enquiries to:

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Clean Power Strategy & Deployment Directorate
Department for Business, Energy and Industrial Strategy
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Tel: 020 7215 5000

Email: BEISContractsforDifference@beis.gov.uk

Consultation reference: Contracts for Difference for Low Carbon Electricity Generation: consultation on proposed amendments to the scheme.

Audiences:

The government welcomes responses from anyone with an interest in the policy area. We envisage that the consultation will be of particular interest to those considering the development of new renewable energy projects in Great Britain, electricity traders and suppliers, businesses operating in the bioenergy sector, and consumer and environmental groups with an interest in the electricity sector.

Territorial extent:

The CfD scheme applies to the UK but does not currently operate in Northern Ireland. This consultation therefore applies to Great Britain only.

How to respond

Your response will be most helpful if it is framed in direct response to the questions we have asked, though further comments and evidence are also welcome. When responding, please state whether you are responding as an individual or representing the views of an organisation. Electronic responses are preferred, but we will also consider hard copy responses sent to the address below.

We also intend to hold stakeholder events to discuss the questions raised in the consultation directly with you. If you would like to be involved, please email BEISContractsforDifference@beis.gov.uk.

Respond online at: <https://beisgovuk.citizenspace.com/clean-electricity/cfd-proposed-amendments-2020/>

or

Email to: BEISContractsforDifference@beis.gov.uk

Write to:

The CfD Team
Clean Power Strategy & Deployment Directorate
Department for Business, Energy and Industrial Strategy
3rd Floor Spur
1 Victoria Street
London
SW1H 0ET

Confidentiality and data protection

Information you provide in response to this consultation, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004).

If you want the information that you provide to be treated as confidential please tell us but be aware that we cannot guarantee confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not be regarded by us as a confidentiality request.

We will process your personal data in accordance with all applicable data protection laws. See our [privacy policy](#).

We will summarise all responses and publish this summary on [GOV.UK](#). The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the government's [consultation principles](#).

If you have any complaints about the way this consultation has been conducted, please email: beis.bru@beis.gov.uk.

List of acronyms

Acronym	Spelling
ACT	Advanced conversion technology
AD	Anaerobic digestion
AR	Allocation Round
ASP	Administrative strike price
BEIS	Department for Business, Energy & Industrial Strategy
CCC	Committee on Climate Change
CfD	Contracts for Difference
CHP	Combined heat and power
DECC	Department of Energy & Climate Change
DSR	Demand side response
EU	European Union
GB	Great Britain
GW	Gigawatt
LCCC	Low Carbon Contracts Company
MDD	Milestone Delivery Date
MR	Milestone Requirement
MW	Megawatt
MWh	Megawatt hour
NDD	Non-Delivery Disincentive
OREI	Offshore Renewable Energy Installation
PV	Photovoltaic (solar)
RO	Renewables Obligation
SCP	Supply Chain Plan
TRLs	Technology readiness levels
UK	United Kingdom

Introduction

Scope of this consultation

This consultation outlines changes the government is considering making to the Contracts for Difference (CfD) scheme. The CfD scheme provides support for new low carbon electricity generation projects.

We are considering various changes to ensure the CfD scheme is able to support the increase in ambition needed to deliver the government's 2050 net zero target, while minimising costs to bill payers. The consultation seeks evidence and opinion from respondents to inform the approaches the government takes forward. We welcome responses from anyone with an interest in the policy area, but envisage that the consultation will be of particular interest to those considering developing new renewable energy projects in Great Britain (GB), businesses involved in low carbon electricity generation supply chains, electricity traders and suppliers, businesses operating in the bioenergy sector and consumer and environmental groups with an interest in the electricity sector.

The CfD scheme applies to the UK but does not currently operate in Northern Ireland. Changes proposed in the consultation, if taken forward, will apply to contracts awarded as a result of future allocation rounds and will not affect existing CfD contracts.

Context

The UK has a proud record in greenhouse gas emissions reduction and is one of the first major economies to set a legally binding target to cut emissions to net zero by 2050 and end its contribution to global warming. The target, which came into force on 27 June 2019, will require the UK to reduce all greenhouse gas emissions to net zero by 2050, compared with the previous target of 80% reduction from 1990 levels. This is a landmark decision for the UK and one which demonstrates that we are continuing to lead the international effort to bring an end to climate change.

Decarbonising the power sector is a vital part of the UK's efforts to meet its world-leading net zero target. Whilst we cannot predict today exactly what the generating mix will look like in 2050, we can be confident that renewables will play a key role, alongside firm or flexible low carbon generating capacity such as carbon capture usage and storage technology and nuclear power. Net zero defines what we must achieve by 2050, but not how to get there, and we must take the necessary decisions now to deliver the low cost and secure, low carbon power system we will need to reach net zero.

The competitive nature of the CfD scheme has been very successful in driving substantial deployment of renewables at scale whilst rapidly reducing costs. On 20 September 2019 the government published the results of the third CfD allocation round, which saw contracts awarded to 5.8 gigawatts (GW) of new renewable energy projects¹ at clearing prices well below the administrative strike prices for each of the successful technologies. This saw the costs of offshore wind fall by around 30% from the previous allocation round in 2017 and is the

¹ Contracts for Difference (CfD) Allocation Round 3: results (September 2019)
<https://www.gov.uk/government/publications/contracts-for-difference-cfd-allocation-round-3-results>

first time that renewables are expected to come online below current market prices, meaning a better deal for consumers.

These successes are an important step towards decarbonising the UK's energy system. The UK's new 2050 net zero emissions target means that we will continue to require substantial amounts of new, low carbon power sources to be built before 2050. In their report on net zero, the Committee on Climate Change (CCC) advise that the UK could require four times the amount of renewable generation from today's levels², requiring sustained and increased deployment between now and 2050.

The transition to a net zero greenhouse gas economy will require change across the whole of society, and in this context the government has considered how to ensure that CfD allocation rounds can best support an increase in the pace of renewable deployment needed to achieve its net zero ambitions, whilst minimising the amount consumers spend on energy across the country. In July 2018³ the government announced its intention to hold a CfD auction approximately every two years from 2019 to provide industry with the certainty to invest in new renewable projects. In line with this, the government plans to hold the next allocation round in 2021, subject to seeking any applicable regulatory approval of planned changes.

The changes proposed in this document form part of the government's overall strategy to cut emissions, increase efficiency and help lower the amount consumers and businesses spend on energy across the country, while supporting economic growth. The success of previous CfD allocation rounds in driving value for money at the same time as securing substantial amounts of new, low carbon electricity has been a key consideration in reviewing the scheme ahead of the next allocation round. The government has considered a series of changes proposed in this consultation to continue to support these aims, summarised below.

Aim of this consultation

This consultation proposes changes to the CfD scheme that would, if implemented, apply to contracts awarded as a result of future allocation rounds. The proposed changes support the following themes:

- **delivering net zero** by supporting the increased ambition required by the government's economy-wide legislative target to reach net zero greenhouse gas emissions by 2050;
- **achieving value for money** by ensuring that government support drives cost reductions in renewable electricity generation and that this results in households and businesses being supplied with secure, affordable and clean energy;
- **supporting communities** by ensuring developers listen to local communities and energy developments reflect their local environmental and economic context;
- **advancing the low carbon economy** in the places which stand to benefit the most by boosting productivity and driving regional growth; and

² Net Zero – The UK's Contribution to Stopping Global Warming. Committee on Climate Change (May 2019) <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

³ CfD Auction Announcement (July 2018)

<https://www.gov.uk/government/news/energy-minister-claire-perry-hails-success-story-of-offshore-wind-in-newcastle-today>

- **maintaining energy security** by supporting deployment of new power sources needed to achieve a low cost and secure low carbon power system.

In order to support the increase in ambition needed to deliver the 2050 net zero target, the consultation considers whether the structure by which different technologies currently compete against each other within groups ('pots'), should be altered. The transition to a net zero greenhouse gas economy will require change across the whole of society and in order to ensure local impacts and benefits of energy developments are proportionate and measured, the government is considering how better engagement between renewable energy developers and local communities can be encouraged.

In order to ensure the scheme can continue to support new low carbon electricity projects in the future, the government is also proposing to extend the CfD scheme delivery years until 31 March 2030.

As well as working with the sector in seeking to deliver 30GW of offshore wind by 2030, it is likely that higher levels of wind deployment will be needed to help the UK achieve its 2050 net zero target. In order to support this, the government is considering how best to facilitate the acceleration of floating offshore wind projects to commercial deployment and harness the potential benefits it offers for the UK if costs can be brought down to a level competitive with other cost effective renewables. We are proposing that floating offshore wind is classified as a separate technology with a distinct administrative strike price, so that projects may compete in future auctions for 'less established' technologies (known as 'Pot 2').

To help enhance the effectiveness of the existing Supply Chain Plan process at delivering value into the supply chain, the government is also seeking to review the current policy to ensure that it supports our Grand Challenges and advances the low carbon economy in places which stand to benefit the most by boosting productivity, driving regional growth and achieving net zero. We are seeking views on how this could be achieved and how the Supply Chain Plan policy can be strengthened to ensure it remains fit for purpose.

The government also wants to ensure that developers and owners of offshore renewable energy installations continue to give appropriate consideration to the existing offshore decommissioning regime and is therefore considering how to link the offshore renewable energy installation decommissioning regime with the CfD scheme for future CfD rounds.

The government is also proposing the exclusion of new coal-to-biomass conversions from future rounds of the scheme. Since the government's 2012 Bioenergy Strategy⁴ we have been clear that coal-to-biomass conversions have been supported as a transitional, rather than long-term technology. Following on from a previous call for evidence⁵ on fuelled technologies in the CfD scheme, the government is now proposing to exclude new coal-to-biomass conversions from future CfD auctions as trailed in the 2019 Clean Air Strategy⁶.

The government also wishes to make a number of technical changes to future allocation rounds to improve the way that the scheme operates. This includes a proposal to simplify

⁴ UK Bioenergy Strategy (April 2012)

<https://www.gov.uk/government/publications/uk-bioenergy-strategy>

⁵ Call for evidence on fuelled and geothermal technologies in the CfD scheme (November 2016)

<https://www.gov.uk/government/consultations/call-for-evidence-on-fuelled-and-geothermal-technologies-in-the-contracts-for-difference-scheme>

⁶ Clean Air Strategy 2019

<https://www.gov.uk/government/publications/clean-air-strategy-2019>

delivery years distinguished within the auction design, and a proposal to amend the valuation formula used to calculate the budgetary impact of a round. The government also proposes introducing flexibility in how it applies any capacity cap or monetary budget in future and the way in which administrative strike prices (ASPs) are calculated.

The government has considered how to ensure that the CfD scheme incentivises projects that are most likely to deliver and is therefore proposing an extension to the Milestone Delivery Date (MDD) as well as changes to the exclusion period and other aspects of the Non-Delivery Disincentive (NDD).

The government proposes maintaining the previous cap on phased offshore wind projects at 1,500 megawatts (MW) to strike a balance between economies of scale and facilitating new entrants to the market. We think this will increase the likelihood of a greater number of applicants being successful in future allocation rounds.

As the balance of different generating technologies changes to deliver the power sector's contribution to net zero, it is important that electricity markets and any support arrangements reflect wider system costs and benefits. The consultation therefore considers how renewables supported under the CfD scheme can contribute towards a smart, efficient electricity system and seeks views on barriers to storage co-located with CfD projects and amending the existing negative pricing rule.

Lastly, the government wants to ensure that the CfD scheme continues to operate as intended, and that relevant legislation is clear and unambiguous for applicants. We are therefore proposing a number of improvements to the Contracts for Difference (Allocation) Regulations 2014, in addition to those changes suggested throughout the document to implement other proposals.

Next steps

Stakeholders and other interested parties are invited to provide their views on the government's proposed changes to the CfD scheme; the questions set out in the consultation are summarised at the end of the document.

Over the course of the consultation period, the Department for Business, Energy and Industrial Strategy (BEIS) also intends to hold a number of stakeholder events where you will have the opportunity to provide feedback directly on the proposals in scope of the consultation.

The consultation closes on 29 May 2020 and details on how to respond are provided in the General Information section above.

Once the consultation has closed, BEIS will analyse responses and set out how it intends to proceed in a government response. A government response will provide a summary of the views expressed in response to the consultation and will set out the decisions that government has taken.

Proposals in this consultation are presented as a package and would, if implemented, be done so together. However, subject to consultation responses and the timing of future allocation rounds, some may not be taken forward or their implementation may be staggered over future rounds. If your response in respect of one or more proposals is materially affected by the introduction, or not, of other proposals, please make this clear in your response. If necessary, the government may choose to consult further on the detail of any changes if a decision is

taken to move them forward. We note that where applicable, some proposals may be subject to seeking applicable regulatory approval. We continue to consider how our policies can best support the transition to a decarbonised power sector over the long term and we will be setting out our plans to support this transition in an upcoming Energy White Paper.

Delivering Net Zero

On 27 June 2019, a new, legally binding target to reach net zero greenhouse gas emissions by 2050 came into law in the UK. By 2050, the UK will need an ultra-low carbon power sector to meet this economy-wide net zero emissions target. In parallel, generation will need to increase to meet future demand at the same time as ageing plants are being decommissioned. The CCC believes almost complete decarbonisation in the power sector can be achieved, but that to achieve this, low carbon electricity generation will need to quadruple by 2050. The CfD scheme therefore needs to be able to support a substantial increase in low carbon electricity generation.

The government is committed to a low carbon electricity system that supplies our homes and businesses with secure, affordable and clean power. That means developing low carbon sources of electricity that are both low cost and clean.

The CfD scheme, together with the bespoke CfD contracts signed in the early days of the scheme⁷, has so far awarded contracts to around 16GW of new renewable electricity capacity, including nearly 13GW of offshore wind capacity.

The scheme continues to be successful in bringing forward cost-effective, low carbon electricity generation. The results of the third allocation round (AR3), published in September 2019, saw contracts being awarded to almost 6GW of new, clean energy awarded at record low prices. The costs of offshore wind have fallen by around 30% since the second allocation round (AR2) in 2017 and for the first time renewables are expected to start generating electricity below average market prices and at scale. This demonstrates the effectiveness of the scheme's competitive approach in delivering cost reductions in renewable electricity generation and in driving down costs to the consumer.

The UK's new 2050 net zero target will require a substantial amount of new, low carbon power sources to be built before 2050 and to produce the majority of power with renewables if we are to decarbonise at low cost. In 2018, the collective share of UK electricity generation from renewable sources was 33%, up from 29% in 2017⁸. In its report on net zero, the CCC advise that the UK could require up to a four-fold increase in renewable generation under their 'further ambition' scenario.

In July 2018, the government announced its intention to hold allocation rounds around every two years from 2019 to provide industry with certainty to invest in new projects⁹. The Offshore Wind Sector Deal, published in March 2019, set out a pathway to 30GW of offshore wind by 2030. The recent Conservative manifesto commitment seeks to increase this ambition to 40GW by 2030.

⁷ Final Investment Decision Enabling for Renewables (April 2014)

<https://www.gov.uk/government/publications/increasing-certainty-for-investors-in-renewable-electricity-final-investment-decision-enabling-for-renewables>

⁸ Digest of UK Energy Statistics (DUKES) 2019 (July 2019)

<https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2019>

⁹ Press release: A boost for North East innovation to promote high-quality jobs and growth (July 2018)

<https://www.gov.uk/government/news/a-boost-for-north-east-innovation-to-promote-high-quality-jobs-and-growth>

Pot 1 ‘established’ technologies

CfDs are allocated in a competitive auction process, in which different technologies compete against each other within groups or ‘pots’. The technologies in Pot 1 are ‘established’. Among these, some are expected to be the lowest cost renewable technologies and we therefore expect them to play an important role in supporting the government’s objective of decarbonising at lowest cost to meet net zero as part of a diverse energy mix.

We are aware of a number of projects (mainly solar PV and onshore wind) that have deployed or are planning to deploy on a merchant basis since the last Pot 1 auction was held. Unsubsidised renewables are now also eligible to participate in the capacity market. We are pleased to see the costs of these technologies continue to fall, enabling some deployment without subsidy. However, there is a risk that if we were to rely on merchant deployment of these technologies alone at this point in time, we may not see the rate and scale of new projects needed in the near-term to support decarbonisation of the power sector and meet the net zero commitment at low cost.

We expect that some of these technologies have the lowest costs and would be able to secure CfDs at strike prices below the average expected wholesale price for electricity, and so over the course of a contract may pay back as much, or more, than they receive in CfD top-up payments (based on current market forecasts). Therefore, running an allocation round in 2021 which includes established technologies will help deliver a diverse generation mix at low cost, as well as give a clearer signal of the costs of these technologies, several years on from the previous auction.

In light of this the fourth CfD allocation round (AR4), scheduled for 2021, will therefore include auctions for both established (‘Pot 1’) and less-established (‘Pot 2’) technologies.

Community support

Policy context

Delivering net zero will require a fundamental change in how we produce and consume energy. Achieving this ambitious goal will require proactive and increased engagement with local communities across the UK to ensure that the local impacts and benefits of energy developments are proportionate, measured and reflective of the local environmental and economic context.

In 2014, the Department of Energy and Climate Change (DECC) produced best-practice guidance¹⁰ for England on community benefits and engagement guidance for onshore wind. This publication, a partnership between industry, community organisations and government, set out clear principles and considerations for ensuring productive engagement between developers and local communities.

¹⁰Community benefits and engagement guidance for onshore wind (October 2014)

<https://www.gov.uk/government/publications/community-benefits-and-engagement-guidance-for-onshore-wind>

In the government's response to a 2018 consultation on proposed amendments to the CfD scheme¹¹ we outlined our view that specifying the community benefits that remote island wind projects must deliver could reduce the likelihood that a benefit package reflects the priorities and needs of local communities. This is something the government now considers to be applicable to all technologies, and we encourage developers and operators to consider the following when engaging with local communities:

- providing community benefits consistent with relevant guidance and good practice principles, including providing an opportunity for communities or local people to invest in the project, with this opportunity additional to a community benefit fund;
- community benefits should last the lifetime of the project. If a development is sold on, subsequent owners and/or operators should honour existing agreements with the local community; and
- the potential effect of a proposed renewable energy development on visual amenity and landscape should be assessed¹².

Whilst community benefits¹³ are a feature of many developments, we consider early, consistent and transparent engagement between developers, local communities and local authorities to be key to ensuring local communities are aware of developments and can outline their views¹⁴. Conversely, developers can gauge the views of local communities early in the process, leading to productive engagement and continued dialogue.

Proposals

Delivering net zero will require change across the whole of society, and we therefore think it is more important than ever to engage with and support local communities in this transition. We want to see this work for the whole of the UK and will therefore work with the Scottish and Welsh Governments to share best practice and understanding of how best to ensure local communities are involved in nearby renewable energy developments.

The government is therefore considering the following:

- Updating the existing community benefits and engagement guidance for onshore wind, jointly with developers and local communities. We want to ensure local communities are appropriately involved in decision-making on such projects; and
- creating a register of renewable energy developments in England that lists available projects and community benefits.

The government welcomes views on:

- whether you agree with the proposals;

¹¹ Contracts for Difference Scheme for Renewable Electricity Generation; Government response to consultation on proposed amendments to the scheme – Part B (August 2018)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/736588/Part_B_Consultation_Response.pdf

¹² For example, as advised in Guidance on Renewable and Low Carbon Energy (June 2015)
<https://www.gov.uk/guidance/renewable-and-low-carbon-energy>

¹⁴ Planning changes brought into effect in 2015 have given local communities the final say on onshore wind farms in England, but planning is devolved in Scotland and Wales.

- best practice examples of community benefits and engagement and how agreement was reached between developers and local communities; and
- suggestions to improve engagement between developers, local authorities and local communities.

In particular, we would be keen to hear from individuals and community groups.

What does a good developer look like?

The developments below have been suggested as exemplifying good practice in community engagement through:

- substantial consultation and engagement with the local community, including through drop-in sessions and surveys;
- continued engagement with the relevant local authority; and
- consideration of the various types of community benefits that could be offered.

We are interested in the views of individuals, community groups and developers on other examples of what exemplifies ‘best practice’ when it comes to engaging with and supporting local communities.

Operator	Development	Location	Operational since
Vattenfall	Ray Wind Farm (54.4MW)	Northumberland, England	2015
Hadstone Energy/Communities for Renewables	Wick Farm Solar Park (14.6MW)	Somerset, England	2016
EDF Energy Renewables	Corriemoillie Wind Farm (48.5MW)	Highlands, Scotland	2017
Red Rock Power Limited	Afton Wind Farm (50MW)	Strathclyde, Scotland	2018
CGN Wind Energy Ltd	Brenig Wind Farm (37.6MW)	Denbighshire, Wales	2019

Consultation questions:

1. How can the government better ensure that the local impacts and benefits of renewable energy developments are taken into account across the whole of GB?

2. What exemplifies ‘best practice’ when it comes to engaging with and supporting local communities on renewable energy developments? Examples of specific projects and/or developers would be welcomed.

3. How should the government update the existing community benefits and engagement guidance for onshore wind to reflect developments in best practice for engagement between developers and local communities?

4. Should the government consider creating a register of renewable energy developments in England that list available projects and associated community benefits?

Pot structure

Policy context

To deliver the level of ambition required to meet net zero, the government has set out its plans to hold the next CfD allocation round in 2021 for both established and less-established technologies. CfDs are allocated in a competitive auction process, in which different technologies compete against each other within groups or 'pots'. The current two pots include the following eligible technologies:

- **Pot 1, established technologies:** onshore wind (>5MW), solar photovoltaic (PV) (>5MW), energy from waste with combined heat and power (CHP), hydro (>5MW and <50MW), coal-to-biomass conversions, landfill gas and sewage gas.
- **Pot 2, less established technologies:** offshore wind, remote island wind (>5MW), wave, tidal stream, advanced conversion technologies (ACT), anaerobic digestion (AD) (>5MW), dedicated biomass with CHP and geothermal.

These groupings were formed on the basis of technology and industry maturity and aim to drive value for money whilst also retaining optionality for the development of technologies that have potential for further cost reduction and to play a significant role in the UK energy mix¹⁵. At the beginning of the scheme a third pot also existed which contained only coal-to-biomass conversion projects, but this technology was transferred into Pot 1 as of 1 January 2017 in line with the state aid approval for the scheme.

Pot divisions and falling prices

The government intends to run an allocation round in 2021 for all eligible technologies (subject to proposals on biomass conversions and floating offshore wind included later in this consultation). This will provide transparency on prices for all technologies and continue the momentum of delivering substantial levels of new renewable projects.

We consider that maintaining separate pots in the fourth allocation round is important to ensure the continued success of the CfD scheme. Considerations that we have taken into account in deciding to continue to use pots and formulating the proposals in this consultation include:

- diversification of the generation mix;
- potential contribution to meeting net zero target in 2050;
- potential for significant low-cost renewable generation in the future;
- potential for further cost reduction and dependence on levels of UK deployment;
- potential for further technological development;

¹⁵ Government response on Competitive Allocation (May 2014)

<https://www.gov.uk/government/consultations/electricity-market-reform-allocation-of-contracts-for-difference>

- potential contribution to security of supply; and
- overall impact of the scheme on energy costs for consumers.

Prices have dropped over the last three allocation rounds – offshore wind, remote island wind and ACT projects were all successful in AR3 with clearing prices of around £40/MWh (in 2012 prices). These prices have reduced faster than expected, demonstrating the important role of the competitive auction process in price discovery. However, we still expect the costs of some Pot 1 technologies, such as onshore wind and solar PV (which also have potentially large pipelines) to be lower than Pot 2 technologies. Whilst prices have reduced for some Pot 2 technologies, there remains potential for further cost reduction and the pace of future cost reductions for some Pot 2 technologies is dependent on levels of UK deployment.

Many of these Pot 2 technologies offer the benefit of providing diversity of supply given they are not reliant on the same resource and may be geographically separated from the other renewable technologies comprising the majority of generation. Some of these technologies also have the potential to contribute significantly to delivering net zero.

In particular, the government views offshore wind as being strategically important to meeting net zero emissions by 2050. Offshore wind (including floating) is potentially the most scalable renewable technology and could play a huge role in delivering net zero at low cost by 2050. Retaining optionality so that we have the ability to deploy offshore wind at scale is important to have confidence that we can deliver the volume of renewable generation needed in the future, particularly given uncertainties around future electricity demand and generation mix, and at low cost.

CfD allocation decisions have a long-term impact, particularly for technologies with the greatest scope for cost reduction, highest upfront costs and longest development timelines; stopping and restarting deployment, rather than providing for smooth and steady investment to support cost reduction may be more expensive and inefficient in the long-term. Forward visibility of future auctions is of particular importance to the offshore wind sector, given the long development timelines of offshore wind projects, scope for further cost reduction and their large size compared to some Pot 1 technologies such as solar PV. Not having this visibility may reduce the capacity and confidence of the UK supply chain, with a potential impact on jobs, exports and scope for cost reductions.

There is a risk that, by moving Pot 2 technologies into Pot 1 or running a technology neutral auction at this point, only a few of the lowest cost technologies are successful in an auction, and technologies that have significant long-term potential to contribute to decarbonisation and could support further cost reduction are unsuccessful. This would result in a suboptimal outcome, particularly for the purposes of meeting the net zero commitment at low cost.

Therefore it is the government's view that the original rationale of introducing pots to retain optionality for technologies on the basis that they may make a significant contribution to decarbonisation in the future, remains for AR4. We also consider, for the reasons explained in this section, that it would not be appropriate to place offshore wind in Pot 1 at this stage, and therefore we are considering possible changes to reflect the above.

Proposed pot structure for AR4

A range of Pot 2 technologies have been successful in auctions to date, but the expected costs across the technologies have diverged. In addition, offshore wind has distinct characteristics and potential compared to other technologies in the CfD scheme, which may make it more

suitable to be placed in a separate pot. We are interested in stakeholder views on whether to keep Pot 2 as it is currently structured, or whether to separate offshore wind into a third pot. The introduction of a third pot would be subject to any applicable regulatory approval.

For AR4, the technologies would either continue to be grouped into two pots:

- **Pot 1, established technologies**¹⁶: onshore wind (>5MW), solar photovoltaic (PV) (>5MW), energy from waste with CHP, hydro (>5MW and <50MW), landfill gas, sewage gas.
- **Pot 2, less established technologies**: ACT, AD (>5MW), dedicated biomass with CHP, floating offshore wind (see following section), geothermal, offshore wind, remote island wind (>5MW), tidal stream, wave.

Or alternatively, the following structure for technology groupings is proposed:

Pot 1, established technologies¹⁷: onshore wind (>5MW), solar photovoltaic (PV) (>5MW), energy from waste with CHP, hydro (>5MW and <50MW), landfill gas, sewage gas.

Pot 2, less established technologies: ACT, AD (>5MW), dedicated biomass with CHP, floating offshore wind (see following section), geothermal, remote island wind (>5MW), tidal stream, wave.

A new Pot 3: offshore wind.

The government has considered the advantages of separating offshore wind into a separate pot (compared to keeping the technology in Pot 2) and these are described below.

Competition and value for money – including technologies in a pot with very different characteristics in terms of development timelines, size and expected costs introduces challenges when designing an auction with parameters to deliver optimal competitive tension. For example, setting a capacity cap large enough to accommodate technologies that are generally very large in size may reduce competition for smaller projects with lower costs, or setting a sufficiently high monetary budget to allow more expensive technologies to compete may risk them pulling up the clearing price of cheaper technologies. Maxima and minima can be useful tools to ensure diversity, but they achieve similar outcomes to having separate pots whilst increasing auction complexity.

Separating offshore wind projects (which are generally much bigger in size and have lower costs) from the other technologies that are currently in Pot 2, will allow more appropriate parameters (e.g. monetary budget, capacity cap, delivery years) to be set for each of the pots to reflect project characteristics and reduce the risk of potential future suboptimal auction outcomes (such as higher strike prices, and hence consumer costs, than necessary). Using pots that contain technologies with similar characteristics (for example expected costs, development timelines, size or broader regulatory environment such as different grid connection regimes) also allows for greater opportunity to adapt the CfD regime going forwards

¹⁶ Removal of biomass conversions from Pot 1 is subject to a separate proposal in this consultation.

¹⁷ Removal of biomass conversions from Pot 1 is subject to a separate proposal in this consultation.

to most appropriately suit different technologies, for example to best deliver competition and secure cost reductions or adapt to falling costs.

On the other hand, by reducing competition to offshore wind alone, there is a risk that there are fewer uncertainties for bidders, reducing competitive tension. We consider that this can be managed by ensuring that auction parameters (such as the level of any capacity cap) are set in a way that continues to ensure competitive tension and value for money.

Separating offshore wind from the other technologies in the current Pot 2 could mean that more budget is allocated to projects that would otherwise be unsuccessful if offshore wind remained in Pot 2, increasing technological diversity but also potentially increasing consumer costs. Decarbonising at low cost is important to maximise resources as we work to deliver net zero and therefore auction parameters will continue to be set in a way that delivers value for money and controls the level of costs passed on to consumers.

Supporting diversity – The expected costs of offshore wind projects currently are above expected levelised costs for some Pot 1 technologies (such as onshore wind and solar PV) but below many of the Pot 2 technologies, making it difficult for some technologies to compete. The CfD regime offers the potential for preserving optionality and delivering innovation as well as competition. Nascent technologies such as floating offshore wind could have a role in the long-term decarbonisation of the UK, but they need to deliver value for money and have the potential to both achieve cost reduction and contribute significantly to decarbonisation. Whilst in previous allocation rounds other technologies in Pot 2 have been successful, separating offshore wind into a third pot allows more potential for other technologies to successfully compete in the next CfD allocation round, subject to auction prices. However, as previously noted, under the existing two pot structure projects deploying other technologies such as ACT and remote island wind have been successful to date and so it is possible that this would continue in future auctions without a change to the pots.

We are aware of various suggestions for the scheme to support technology-specific innovation, such as improvements to turbine technology, but we do not think the CfD scheme is the right place or mechanism for supporting this type of earlier stage innovation and technology development, although it may have a role to play in the commercialisation of technologies that have progressed beyond the earliest Technology Readiness Levels (TRLs)¹⁸. The CfD scheme is designed to bring forward cost-effective, commercial generation at scale to support the government's ambitious decarbonisation goals. There are already several other innovation funding avenues open to developers elsewhere, such as Horizon 2020 funding and the Crown Estate leasing process, which includes a rent discount for the part of a project which is demonstrating a first-of-a-kind innovation.

Consultation questions:

5. The government welcomes views on whether, compared to maintaining the existing two pot structure, the proposed option of introducing a new Pot 3 for offshore wind is an effective means of ensuring value for money and achieving our

¹⁸ TRLs were developed by NASA as a measurement of how close to mission readiness a technology was. The concept has since been developed for use across the research, development and commercial deployment of other technologies.

https://www.nasa.gov/pdf/458490main_TRL_Definitions.pdf and

<https://epsrc.ukri.org/research/ourportfolio/themes/healthcaretechnologies/strategy/toolkit/landscape/>

decarbonisation and other objectives in the long term. We welcome the submission of supplementary evidence to support views on this.

6. The government welcomes views on whether the proposed options are an effective means of bringing forward a greater diversity of low carbon electricity generation.

7. The government welcomes views on whether there are alternative approaches to be considered in light of net zero.

Floating offshore wind

Policy context

In the context of the additional levels of ambition likely to be necessary to deliver our net zero target, the government is considering the role of floating offshore wind in the future low carbon electricity mix and how this can be supported through the CfD scheme. Although the various technologies utilised in floating offshore wind projects (turbines, floating structures, dynamic cables) are relatively well established, their use together to create a stable operational platform for offshore wind turbines generating electricity in deeper water remains novel.

To date there have been only a small number of demonstration projects deployed around the world and the costs of floating offshore wind turbines remain higher than those for fixed bottom turbines. Floating offshore wind is yet to develop to a point where the most effective, lowest cost floating foundation concepts have been determined or sufficient deployment to deliver economies of scale has occurred. In view of this, although the technology is currently eligible to compete in allocation rounds as offshore wind, its cost means that it does not currently have a clear UK route to market.

The Offshore Wind Sector Deal¹⁹ sets out a pathway to 30GW by 2030. Theoretically this could be met almost entirely with fixed bottom offshore wind. However, with the significantly higher levels of deployment needed to 2050 to meet net zero it makes sense to consider the risk of cumulative impacts (environmental, radar interference, conflicting uses of the sea for example) which could increasingly affect the ability for fixed bottom wind deployment to be realised. Should such risks materialise it is likely that the commercial deployment of floating offshore wind will be needed sooner than previously anticipated and at greater levels, particularly during the 2030s. Floating offshore wind could also find use in other applications to help decarbonisation, for example the Oil and Gas sectors are considering whether it could be a useful power source for deep-water oil and gas fields, displacing fuels such as diesel or replacing the need for long cables from shore.

Given the still relatively early stage of development of the floating offshore wind sector it may be necessary to consider introducing measures over the coming years to encourage early deployment and cost reduction. This would allow larger scale deployment to begin during the 2030s without a deployment hiatus which could jeopardise maintaining our decarbonisation trajectory and at lower cost than would otherwise be possible. Floating offshore wind will need to deliver value for money, demonstrated through competitive auctions, and have the potential to both achieve cost reduction and contribute significantly to decarbonisation. Introducing a

¹⁹ Offshore wind: Sector Deal (March 2019)

<https://www.gov.uk/government/publications/offshore-wind-sector-deal>

separate definition for “floating offshore wind” within the list of eligible technologies would facilitate the use of the CfD process if that was considered the appropriate mechanism.

Proposals

The government is considering separately defining floating offshore wind projects from conventional, fixed-bottom projects for the purposes of the CfD scheme and providing the technology with a distinct administrative strike price. This allows more potential for floating offshore wind projects to successfully compete in the next CfD allocation round, subject to auction prices. This could be further improved if the option to make changes to pot structure for technology groups, referred to in the previous section, is implemented.

A separate definition and administrative strike price would also be necessary if further measures to support floating offshore wind were to be considered in future allocation rounds. These measures could assist such pre-commercial technologies, for which the levelised cost of electricity is significantly above that of more mature technologies, to access support under the CfD. It could help accelerate the path from pre-commercial pilots to commercial deployment at scale, where the industry can benefit from learning and economies of scale to reduce costs. In turn, should floating offshore wind projects access support under the CfD scheme this would support greater diversification of the energy system.

This consultation seeks views on:

- the merits of introducing floating offshore wind as a separate eligible technology with its own administrative strike price, providing a distinction from conventional, fixed-bottom projects under the CfD scheme;
- potential trajectories of floating offshore wind deployment in the UK and globally;
- a proposed legal definition for floating offshore wind projects; and
- what wider benefits or disadvantages floating offshore wind projects may bring to the UK.

Rationale for proposed changes

The Offshore Wind Sector Deal²⁰ envisages up to 30GW of installed capacity by 2030, subject to costs continuing to fall²¹. However, it is likely that even higher levels of offshore wind deployment could be needed to help the UK achieve its legally binding target of net zero by 2050.

To date, deployment of offshore wind in the UK (and elsewhere) has focused on shallower water with less than 60 metres water depth where fixed foundations, such as monopile or jacket foundations or suction buckets can be used. The existence of a large, shallow water basin in the North Sea has led to a concentration of deployment in that area. With the increase of longer-term deployment, which will be necessary to meet net zero, it is likely that cumulative impacts in the North Sea will increase. Therefore, as offshore wind deployment in the UK increases, it is likely that projects will look to seek deeper water sites, potentially requiring

²⁰ Offshore Wind Sector Deal (March 2019)

<https://www.gov.uk/government/publications/offshore-wind-sector-deal>

²¹ The recent Conservative manifesto commitment seeks to increase this ambition to 40GW by 2030.

deployment of floating offshore wind sooner in the 2030s and at a higher level than previously anticipated.

Floating offshore wind has the potential for deployment in deeper water sites, where fixed bottom offshore wind is either not technically feasible or uneconomic, and where wind speed can be higher. In the UK, this could open areas of Scotland, Wales and southwest England for deployment. This also potentially creates additional diversity benefits as generation will increasingly be moved beyond the east coast of England where different weather systems will operate²².

Although not a primary rationale for supporting floating offshore wind within the CfD scheme, the early deployment of the technology in the UK could have additional systems, economic growth and industrial development benefits. For example, in the longer term, this could create export opportunities for the UK should floating wind deploy in countries which have limited shallow water sites (for example Japan and west coast USA). In addition, deployment in areas of sea remote from existing deployment in the North Sea (for example, Scottish Waters or off the South West of England) could increase diversity of supply. It may allow offshore wind generation that is decoupled from the weather patterns in the North Sea to provide some insulation against the effects of intermittency on the grid.

There are multiple floating foundation concepts that are at a relatively early stage of development compared to fixed bottom foundations. To date, only a small number of demonstration projects have been deployed, e.g. in the UK, Norway and Japan. These foundation technologies, therefore, have not yet had the opportunity to fully climb down the cost curve or benefit from the economies of scale that typically have arisen with the mass commercial-scale deployment of fixed-bottom wind. The levelised cost of energy and, hence, strike price needed by floating offshore wind farms is therefore higher than fixed-bottom offshore wind.

On this basis we consider that floating offshore wind should be treated separately from fixed-bottom offshore wind in the CfD allocation process.

Proposed definition of floating offshore wind

The government proposes to amend the Contracts for Difference (Allocation) Regulations SI 2014/2011²³ (as amended) (“Allocation Regulations”) to define floating offshore wind and describe the necessary characteristics required by a floating offshore wind CfD unit to qualify as this new separate technology. The government does not intend to separately define fixed-bottom offshore wind to allow flexibility in the way in which technologies could be deployed. For example, giving scope for projects to be developed in a hybrid manner, including both fixed-bottom and floating technologies.

²² Macroeconomic benefits of floating offshore wind in the UK (September 2018)

<https://www.crownstatescotland.com/maps-and-publications/download/219>

²³ The Contracts for Difference (Allocation) Regulations SI 2014/2011 (as amended);

<https://www.legislation.gov.uk/ukSI/2014/2011/contents/made>

The government proposes and seeks views on the following definition.

A floating offshore wind CfD Unit means a CfD Unit which generates electricity by the use of wind and which –

(a) is situated (or is to be situated) in offshore waters exceeding 60 meters depth, and

(b) is a floating structure.

It may be electrically connected to an offshore substation irrespective of whether floating or not.

To qualify for support as a floating offshore wind CfD unit, all the turbines which form part of the eligible generating station would need to meet the definition of a floating offshore wind CfD Unit.

Longer term treatment of floating offshore wind under the CfD

The increased levels of deployment necessary to meet net zero coupled with the increasing inertia caused by cumulative impacts on fixed bottom deployment means that commercial deployment of floating offshore wind may be needed earlier than previously anticipated. It is possible that to remain in trajectories to net zero we will need to see commercial roll out of floating offshore wind starting during the 2030s. If we are to limit the costs of this and avoid a potential deployment hiatus it is therefore necessary to consider how the CfD scheme can facilitate cost reduction and a pre-commercial 'ramp up' beyond AR4.

We are therefore seeking initial evidence on this which will help to formulate future policy decisions.

The government is seeking views on the proposed definition of floating offshore wind and the following consultation questions.

Consultation questions:

8. The government welcomes views on whether the proposed approach is an effective means of supporting floating offshore wind.

9. The government welcomes views on whether the proposed definition is a suitable definition of floating offshore wind projects, which should be distinguished from fixed bottom offshore wind, and what evidence prospective generators should be asked to supply in order to demonstrate that they have the required characteristics.

10. The government welcomes views and evidence on any potential wider benefits or disadvantages that floating offshore wind may bring to the UK, in particular in respect of wider system impacts.

11. The government welcomes views on the need to deploy floating offshore wind at scale through the 2030s to meet net zero, and what trajectories for deployment and cost reduction are realistic and feasible, both globally and in the UK.

12. What further amendments to the CfD allocation process could be necessary to facilitate floating offshore wind technologies?

13. Are there additional measures to support pre-commercial deployment and cost reduction which would be more effective than the CfD, or which could enhance the effectiveness of the measures under the CfD?

Extending delivery years

The government plans to hold the next allocation round in 2021 and to hold subsequent rounds every two years thereafter. In order to further provide long-term certainty to developers investing in bringing forward new projects and to support the level of ambition needed to meet the 2050 net zero target, we propose to extend the CfD scheme 'delivery years' until 31st March 2030.

The powers to introduce CfDs can be found in Part 2 of the Energy Act 2013. Subsequent to the Energy Act 2013 receiving Royal Assent in December 2013, several statutory instruments implementing secondary legislation have been made and have subsequently been amended.

Under the Allocation Regulations, allocation rounds and their associated budgets can only be made available for projects commissioning in set periods, known as delivery years. The Allocation Regulations currently define a 'delivery year' as any of:

- a) the period from 1 August 2014 (i.e. the date on which Allocation Regulations came into force) and ending on 31st March 2015; and
- b) the 12-month periods commencing on 1st April 2015 and each anniversary of that date and ending with the 12 month period ending on 31st March 2026.

To enable the government to undertake allocation rounds for projects commissioning after the 31st March 2026 and provide investors with certainty over our long-term delivery plans, an amendment to the Allocation Regulations is necessary. We therefore propose to extend 'delivery years' to cover the period up to 31st March 2030. If we do not make this amendment, we would be unable to run allocation rounds for delivery years after 31st March 2026.

Consultation question:

14. Should the government amend the Contracts for Difference (Allocation) Regulations 2014 in order to extend the delivery years specified in those regulations to the 31st March 2030?

Supply Chain Plans

The government wants to ensure that the Supply Chain Plan (SCP) Policy, which has been in operation for three Allocation Rounds, supports our Grand Challenges and advances the low carbon economy in the places which stand to benefit the most by boosting productivity, driving regional growth and achieving net zero. The government also wants to consider whether the policy might be better able to encourage the growth of sustainable, efficient supply chains.

Policy context

The Electricity Market Reforms General Regulations 2014 requires Applicants intending to take part in a CfD Allocation Round to apply for a Supply Chain Plan Statement from the Secretary of State for Business, Energy and Industrial Strategy.

Applicants with generating stations of 300MW or more are required to provide National Grid (as Delivery Body) a statement from the Secretary of State approving their SCP. The original aim of this process was to ensure that generators encourage the effective development of open and competitive low carbon electricity generation supply chains and the promotion of innovation and skills. The rationale is that this, in turn, would increase competition and drive down the cost of generation over time, contributing to lower costs to consumers.

As part of the SCP process, applicants that are successful in an Allocation Round have their SCPs published and then monitored by BEIS. This includes the requirement that when a project is built, the Applicant must submit a Post Build Report (PBR) for approval by the Secretary of State, setting out how the SCP commitments have been implemented and if they have not, the reasons why. Applicants must also submit an Interim Post Build Report (IPBR) if they submit a SCP for a future Allocation Round before their PBR has been submitted and approved.

The Secretary of State can take into account an Applicant's failure to demonstrate they have implemented a previously approved SCP when considering any subsequent SCP submitted by that Applicant (or any consortium of which that Applicant is a member). Ultimately, this could result in excluding all partner(s) (with a 20% share or greater) in the project from entry to that CfD Allocation Round.

Proposal

The Industrial Strategy, published in 2017, set out a long-term plan to boost the productivity and earning power of people throughout the UK. It set out Grand Challenges, including Clean Growth, to put the UK at the forefront of industries of the future, ensuring that the UK takes advantage of major global changes whilst improving people's lives and the country's productivity. The SCP Policy process was developed and published prior to the publication of the Industrial Strategy and the Offshore Wind Sector Deal, and therefore the terminology which it uses to describe supply chain growth, innovation and skills is different.

The government considers that the SCP Policy does not reflect the current realities and requires fundamental change to align to the objectives of the government, specifically to ensure that renewable energy deployment delivers economic growth in the places where these developments are located. The government is considering introducing new measures to strengthen the policy so that it is more focussed on delivering clearer and more measurable commitments that align with government priorities such as supporting regional growth, investing in skills and boosting productivity. This will include reviewing how BEIS monitors and measures progress against SCPs. This could better enable the Secretary of State to determine whether an Applicant has implemented the commitments they made in their SCP, including how Applicants are held accountable for their SCPs, through a more robust compliance regime.

In light of the commitment to achieving net zero emissions by 2050 the government is also considering how it might be more able to encourage the growth of sustainable, efficient and low carbon supply chains through consideration of their carbon footprint.

The government is therefore seeking views on whether the SCP Policy would reflect its Industrial Strategy objectives by:

- increasing the quality of SCP commitments and the implementation of these through strengthened compliance processes;
- asking whether the 300MW threshold for submitting a SCP is set at the right level or if it should be lowered to capture smaller projects that are still large enough to make a material impact on the supply chain;
- and considering the carbon intensity within supply chains and how this could be measured and/or reported, and taken into account, as we transition to a net zero economy.

Consultation questions:

15. The government welcomes views on whether the Supply Chain Plan process for all technologies should be more closely aligned with the Industrial Strategy, for example with criteria headings to reflect a focus on competition, innovation, people and skills, infrastructure and regional growth, and within this what other measures the government could adopt and consider to support its objectives, for example, in the Offshore Wind Sector Deal.

16. The government welcomes views on strengthening the powers to fail SCPs on the basis that the Applicant has not demonstrated compliance with a past SCP.

17. The government welcomes views on whether requiring an updated SCP at a later stage after a CfD is awarded, for example at FID or after MDD, when major contracts would have been awarded, would deliver more focused and deliverable commitments.

18. The government welcomes views on the current compliance process for SCPs for failure to implement an approved SCP. Is it sufficient and if not, what other potential compliance options could be considered, for example by linking non-compliance to CfD payments?

19. The government welcomes views on any impact of reducing the threshold limit for the submission of a Supply Chain Plan to capture offshore wind extension projects (which were not envisaged when the policy was first drafted) and to reflect that projects below 300MW will also have a material impact on supply chains and if so, what the limit should be.

20. The government is committed to achieving net zero by 2050 and encouraging the growth of sustainable, efficient supply chains through the consideration of the carbon footprint of supply chains. We welcome views on how industry takes account of the carbon footprint of their supply chains. What methodologies are being used or could be developed to take greater account of the carbon intensity of supply chains when considering Supply Chain Plans.

Coal-to-biomass conversions

Coal-to-biomass conversions have been supported under the CfD scheme as a transitional technology, with support ending in 2027. They have played a material role in helping meet the UK's 2020 renewables targets by replacing coal fired power stations with renewable energy generation. However, as electricity generation has become less carbon intensive, we are reviewing the role of biomass conversions and this consultation seeks views on the proposal to exclude new biomass conversions from future CfD allocation rounds. Biomass conversions which are not otherwise subsidised may apply to participate in the Capacity Market, our main mechanism for ensuring security of supply.

Coal-to-biomass conversions are former coal power stations that have been converted to burn biomass rather than coal. They have provided the means of delivering large volumes of renewable generation relatively quickly, and by displacing coal fired generation have contributed to significantly reduced emissions. They can also produce low carbon electricity on demand, and so have also been useful to the operation and security of the GB electricity system. Government support has incentivised the deployment of around 3GW of biomass conversion capacity in the UK, through the Renewables Obligation (RO) and the CfD, in line with strict sustainability criteria.

Early coal-to-biomass conversion projects quickly delivered significant cost-effective emissions reductions compared to the coal plants they were then replacing. However, GB electricity generation has become less carbon intensive over time and the government is committed to ending unabated coal generation by 2025. This means that it is no longer appropriate to compare the emissions from new biomass conversions with those from coal plants, but instead against the carbon intensity of electricity on the grid.

Since the government's 2012 Bioenergy Strategy, we have been clear that coal-to-biomass conversions were supported as a transitional, rather than a long-term, technology in the decarbonisation of UK electricity generation²⁴. All support for biomass conversions under the CfD (and the Renewables Obligation) ends in 2027. This means that while support under CfD contracts normally lasts for 15 years from the generation start date, those for coal-to-biomass conversion projects cease to provide support in 2027. Therefore, any contracts issued from the next allocation round apply to projects with delivery years beginning in the mid-2020s and would therefore only receive limited support rather than the usual 15 years.

In November 2016, the government published a call for evidence²⁵ on fuelled technologies, including coal-to-biomass conversions in the CfD scheme. It sought views on how the CfD scheme should treat this technology in future and received approximately 3000 broadly similar responses as part of a campaign, as well as 33 unique responses. The bulk of campaign responses argued that coal-to-biomass conversions should not be eligible for new CfD contracts. Of the 33 other responses received, 12 were broadly in favour of retaining biomass conversion in the CfD scheme (generally because of the flexibility and security of supply

²⁴ UK Bioenergy Strategy (April 2012)

<https://www.gov.uk/government/publications/uk-bioenergy-strategy>

²⁵ Call for evidence on fuelled and geothermal technologies in the CfD scheme (November 2016)

<https://www.gov.uk/government/consultations/call-for-evidence-on-fuelled-and-geothermal-technologies-in-the-contracts-for-difference-scheme>

benefits it brings), and 21 were broadly opposed to doing so. A summary of responses is included in Annex A of this document.

The government is now proposing to exclude new coal-to-biomass conversions from future CfD auctions. We anticipate that this will be through amendment of the relevant Statutory Instrument.²⁶ Because support under any contracts issued following from Allocation Round 4 will end in 2027 and therefore only last approximately two years (assuming delivery years in mid-2020s) the impact of this proposal is thought to be low, though we welcome views from stakeholders.

It is important to note existing CfDs supporting coal-to-biomass conversion projects will remain unaffected by this proposal. The proposal will also not affect biomass conversion projects which are not otherwise subsidised and seek to participate in the Capacity Market, our main mechanism for ensuring security of supply.

Consultation question:

21. Views are welcomed on the proposal to exclude new biomass conversions from future CfD allocation rounds, on the likely impact of this approach, and on any alternative approaches.

²⁶ Removal of the reference to 'a biomass conversion station' from paragraph 1(a) of the schedule to the Contracts for Difference (Definition of Eligible Generator) Regulations SI 2014/2010 (as amended), as well as any relevant supporting provisions.

Decommissioning Plans

The government wants to ensure that developers and owners of Offshore Renewable Energy Installations (OREIs) continue to give appropriate consideration to the Energy Act 2004²⁷ (“the 2004 Act”) decommissioning regime for offshore renewable energy installations. This consultation therefore seeks views on how to link the OREI decommissioning regime with the CfD scheme for future CfD rounds including whether it would be appropriate to include specific decommissioning obligations in the CfD regime.

Policy Context

The 2004 Act contains the statutory decommissioning regime for offshore (i.e. below the mean low water mark) wind and marine energy installations (wave, tidal flow and tidal range²⁸) and their related electric lines (collectively, ‘OREIs’).

The provisions in the 2004 Act reflect the government’s view that a person who constructs, extends, operates and/or uses an OREI should be responsible for ensuring the infrastructure and/or related electric line is decommissioned at the end of its useful life and is responsible for meeting the costs of decommissioning (the “polluter pays” principle).

At the end of 2018 there were 1,931 operational turbines²⁹ in UK waters and 27 offshore substations. These numbers will grow significantly over the next few decades. The Offshore Wind Sector deal envisages 30GW of operational capacity by 2030. Even larger numbers might be needed in the period after 2030 to help the UK achieve its legally binding net zero targets by 2050. The government is therefore considering a number of measures to strengthen the OREI regime. With the cost of decommissioning offshore wind projects in operation or construction in 2017 valued between £1.28bn-£3.64bn (2017 prices³⁰), we want to ensure developers give appropriate consideration to decommissioning during the development stage, thus minimising the risk to taxpayers of the Secretary of State having to step in as decommissioner of last resort.

Currently, under the terms of the 2004 Act decommissioning regime, the Secretary of State may require a person (including a body corporate associated with the person), who constructs, extends, operates and/or uses an OREI or related electricity line, to produce and carry out a decommissioning programme. To date it has been relatively common for a number of revisions to be required to draft decommissioning programmes before they are considered acceptable

²⁷ Energy Act 2004 Part 2 Chapter 3

<http://www.legislation.gov.uk/ukpga/2004/20/part/2/chapter/3>

²⁸ The provisions for decommissioning of offshore installations in sections 105 to 114 of the Energy Act 2004 do not currently apply to infrastructure located below mean low water levels, which is permanently attached to land. However, it is BEIS view that the deployment of tidal lagoon structures raise decommissioning (or long term maintenance) issues that are similar in nature to those posed by offshore renewable energy installations (OREIs). An annex was included in the existing Offshore Renewable Guidance Notes to provide clarity on the applicability of this guidance to nationally significant tidal lagoons over 100MW and within territorial waters adjacent to England and Wales.

²⁹ 2018 Offshore Wind Operational Report, The Crown Estate (2019)

<https://www.thecrownestate.co.uk/media/2950/offshore-wind-operational-report-2018.pdf>

³⁰ Decommissioning offshore wind installations: cost estimation (July 2018)

<https://www.gov.uk/government/publications/decommissioning-offshore-wind-installations-cost-estimation>.

by BEIS. To improve the quality of submissions of draft decommissioning programmes and to provide clarity to owners of OREIs in understanding their obligations under the OREI decommissioning regime, updated Guidance Notes for Industry were published in March 2019³¹.

Development Consent Orders granted by the Secretary of State for OREIs under the Planning Act 2008 contain conditions that require the submission of draft decommissioning programmes before construction of the relevant parts of the development (as defined in the Order) can commence. However, the Secretary of State's responsibilities for decommissioning OREIs in England and Wales also extend to projects that fall under other consenting regimes operated by the Marine Management Organisation and Natural Resources Wales³². Decisions on whether and what decommissioning provisions should be included in those consents/permissions are matters for the authorities concerned. The Secretary of State cannot require their inclusion. The Government is therefore seeking for additional initiatives to be put in place to promote, incentivise and provide a process allowing HMG to seek the submission of decommissioning programmes across a wider range of generating capacities.

The CfD scheme is the government's main mechanism for supporting low-carbon electricity generation. Projects in receipt of CfD support are required to provide financial security for the cost of decommissioning under the 2004 Act decommissioning regime during the 15-year period of the CfD.

To ensure developers continue to give appropriate consideration to the cost of decommissioning from the outset, so that the risk of the taxpayer having to intervene in the future remains low, the government is considering whether it would be appropriate to include specific decommissioning obligations in the CfD regime. While the 2004 Act's provisions apply UK wide, the Scotland Act 2016 devolved the Secretary of State's powers under the 2004 Act to Scottish Ministers for projects consented and/or constructed on or after 1 April 2017. As some aspects of decommissioning involve areas of devolved competency (e.g. 2004 Act powers in Scotland), any outcome of this consultation and action by the government will be carefully considered in light of devolved competency.

³¹ Decommissioning of offshore renewable energy installations under the Energy Act 2004 (March 2019) <https://www.gov.uk/government/publications/decommissioning-offshore-renewable-energy-installations>.

³² The Electricity Act 1989 and the Marine and Coastal Access Act 2009 –operated by the Marine Management Organisation (for OREIs in English waters with a generating capacity of 100MW or less) and Natural Resources Wales (for OREIs in Welsh waters with a generating capacity of 350MW or less).

Proposal

The government is considering options to ensure decommissioning obligations are taken seriously given likely increases in offshore renewable capacity, and as part of that is considering how we could link the OREI decommissioning regime with the CfD scheme for future CfD rounds.

Consultation question:

22. The government welcomes views on how best to link the OREI decommissioning regime with the CfD scheme to ensure that offshore renewable projects that are party to a CfD fully comply with their obligations under the Energy Act 2004.

Allocation round design

Support under the CfD scheme is awarded to project developers via a competitive process. In advance of each competitive allocation round, BEIS sets parameters, eligibility requirements and rules for the round. Applicants apply to participate in an allocation round, their eligibility is checked and if the eligible applications exceed the budget (in monetary or capacity terms), an auction is held.

We are seeking views on proposed changes to the allocation round design to ensure value for money, through the setting of administrative strike prices and the introduction of flexibility to set either 'hard' or 'soft' capacity or monetary constraints (explained below). We are also seeking views on how non-delivery disincentives can work better to ensure projects are delivered.

There are also a number of technical changes that we are considering making to future rounds. Background on these has been provided to assist stakeholders in understanding fully the potential implications of our proposals and inform responses.

Administrative strike prices

Administrative strike prices (ASPs) set out the maximum support, presented on a price per megawatt hour (MWh) basis, that the government is willing to offer developers for each technology. ASPs are otherwise commonly known in auctions as the 'reserve price'. Should there be sufficient bidders for an auction to be triggered, the clearing price is set by the bid made by the last project that is allocated a contract before the auction closes. This is subject to no project receiving a higher strike price than its technology-specific ASP. We are considering how to ensure value for money in the future when setting ASPs.

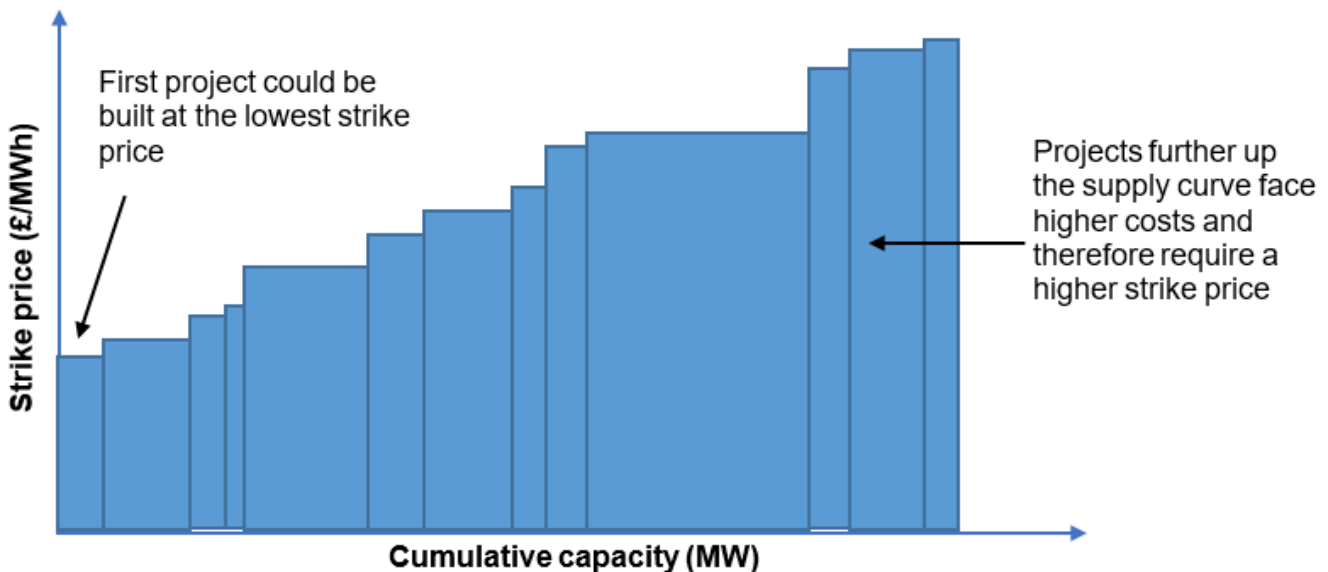
Methodology

Over the history of the CfD scheme, a number of different methods have been used to set ASPs. The first CfD allocation round (held in 2014/15) offered support for a subset of delivery years for which support under the RO remained available. The government therefore chose to set ASPs at broadly comparable levels to the RO until the closure of the scheme. For delivery years beyond the RO closure, ASPs were reduced in line with expected reductions in technology generation costs.

ASPs were set for the second and third allocation rounds using estimated generation cost data to produce modelled 'supply curves' for each technology in each delivery year. The supply curve represents the volume of capacity in MW that could be built at different ASPs. This is represented graphically as an upward-sloping curve, with more projects expected to be financially viable as the ASP is increased. For AR3, pipeline-specific data was also used where available to more accurately reflect estimated costs associated with the pipeline³³.

³³ Contracts for Difference (CfD) Allocation Round 3: Administrative strike prices methodology (December 2018) <https://www.gov.uk/government/publications/contract-for-difference-cfd-third-allocation-round-methodology-used-to-set-administrative-strike-prices>

Figure 2: Illustrative Supply Curve



Flexibility

Flexibility when setting ASPs is important to ensure value for money for consumers, whilst maintaining the ability to deliver a significant amount of deployment. Given the many different pathways to achieve electricity decarbonisation, it is necessary to be adaptable in terms of the technologies that can be brought forward through the CfD scheme. Whilst technology costs (the basis for setting ASPs under the current approach) should be a key factor in determining ASPs, consideration of a wider set of factors and potential alternative approaches may be beneficial in ensuring the scheme is adaptable in future.

Under our current approach generation cost data is used to develop supply curves, and ASPs are set by targeting the same proportion of the supply curve for each technology. Whilst this approach is consistent across technologies, it can mean that ASPs are set at a level not in line with our decarbonisation, cost reduction, investment and innovation ambitions. Furthermore, there is disparity across technologies in the level of information available for pipeline projects and associated costs, the diversity of project types (and therefore costs) within a particular technology type, and the size of pipeline (where some technologies may have only a few projects with planning consent or expected to have planning consent in time).

Applying a very stringent approach in the same way across such a diverse range of technologies can lead to setting ASPs at a level that may not reflect scale of deployment and cost reduction potential. For example, using our current approach led us to set ASPs for ACT and dedicated biomass with CHP for allocation round 3 at £111 - £113/MWh and £121/MWh respectively, despite these technologies clearing at £74.75/MWh in AR2 (2012 prices). In AR3 ACT technologies cleared as low as £39.65, which is around 70% less than the highest ASP set. Given these limitations, we are seeking views on how we might change our approach to ensure value for money in future.

Consultation question:

23. The government welcomes views on how we might change our approach to administrative strike prices to ensure value for money in future.

Non-Delivery Disincentive

The Non-Delivery Disincentive (NDD) aims to incentivise applications only from projects likely to be delivered. In light of the intention to run allocation rounds every two years and to ensure it has the intended effect, we are considering changes to the exclusion period. We are also exploring alternative approaches to ensuring project delivery and maintaining the integrity of the auction process.

Nature of the exclusion

The NDD set out at regulation 14A of the Allocation Regulations exists to ensure successful applicants awarded a CfD contract are incentivised to sign contracts and make their best efforts to demonstrate adequate delivery progress by their Milestone Delivery Date (MDD), a contractual milestone to achieve generation by the dates stated in a contract. Currently, the NDD penalises non-compliant developers by excluding applications for a CfD at the same site (an 'excluded site') in both:

- any CfD allocation round commencing in the period of 13 months from the date of the relevant CfD notification; and
- the first of any CfD allocation rounds commencing between the end of that period and 24 months after CfD notification.

This exclusion period is triggered if (i) the successful applicant in respect of that project allowed the offer of a CfD to lapse³⁴ or (ii) the contract was terminated, either within 13 months of the date of the CfD notification or because the successful applicant failed to meet their Milestone Requirement (MR) by the MDD³⁵.

Whilst regulation 14A(2) is clear that it is an application in respect of an 'excluded site' which is prevented by the NDD, the government intends to avoid any uncertainty around the reference to the 'first' allocation round in regulation 14A(2)(b)(ii) by a suitable amendment to make clear that this is the first allocation round to which the would-be applicant would otherwise have been entitled to apply under the rules of that allocation round.

Exclusion period

The intention of the NDD is to exclude a site from entering the next allocation round (in which it would otherwise be eligible to apply – see last section) following the CfD notification, whilst avoiding an open-ended exclusion by providing a maximum exclusion period of 24 months. This period was established in acknowledgement that future allocation rounds may not be annual.

The government has since announced its intention to hold future allocation rounds around every two years. For this reason, and to ensure the intended effect, we are proposing to extend the exclusion period to 36 months. We think this will more reliably ensure that an excluded site

³⁴ For the meaning of 'offer lapsed', see regulation 11(1) Contracts for Difference (Standard Terms) Regulations SI 2014/2012 (as amended).

³⁵ The Milestone Requirement is a mechanism within the CfD contract to ensure developers demonstrate adequate delivery progress by a deadline (the Milestone Delivery Date) of 12 months after contract signature. It does so by requiring developers to demonstrate evidence of considerable financial commitments to project delivery, for example in the form of invoices.

is not eligible for the next (applicable) allocation round, whilst allowing an application in a later round. In order to implement this we are therefore proposing to amend the Allocation Regulations to ensure that the site of a project where the successful applicant allowed an offer of a CfD to lapse or that has its contract terminated under the circumstances described in the NDD provisions is excluded from being used in respect of a CfD application for:

- any CfD allocation round commencing in the period of 13 months from the date of the relevant CfD notification (the present position under the NDD); and
- the first of any (applicable) CfD allocation rounds commencing between the end of that period and 36 months after CfD notification.

We anticipate that implementing this proposal would require amendment to regulation 14A(2), although other amendments may also be required.

Alternative incentives

We are reviewing the NDD more widely to ensure that it continues to act as an effective incentive to contract signature and project delivery. As prices come down and the greater benefit of CfDs shifts from providing subsidy towards offering the support for successful applicants to secure finance for their projects, there may be an increasing risk that a generator does not proceed to deliver on its contract but considers it preferable to deliver on a merchant or other basis. Whilst this may still result in the same net deployment of renewable electricity generating capacity, it could effectively deny the opportunity of a CfD to another generator in need of the support. Moreover, consumers, to whom the costs of the CfD are passed on, provide the support that helps to secure project finance, and in this case, they would not see the benefit resulting from repayments by generators when the reference price is higher than the strike price.

A number of other comparable schemes employ stronger measures to ensure compliance and we are seeking views on the viability and potential efficacy of such measures to strengthen the CfD. It may be that different approaches are needed for technologies at different levels of development or that different types of incentive are needed at different stages within the contract.

Bid bonds

Some responses to the government's 2016 consultation on changes to the NDD³⁶ suggested that the NDD should be strengthened through the introduction of bid bonds. Other responses were strongly opposed to this option at that time, but we are revisiting the option now in the light of the scheme's development to understand whether the case has changed.

A bid bond would require applicants to provide a deposit, either by cash payment or alternatively through a bank guarantee or letter of credit. The deposit would be returned to unsuccessful applicants when notified and to successful applicants when they had met their MR. It would be retained in the case of successful applicants failing either to sign a contract or to meet the MR.

It is intended that a bid bond should not disadvantage applicants with smaller projects, as the size of the bond would vary in accordance with the size of the project. It would need to be set

³⁶ Consultation on changes to the non-delivery disincentive for CFD allocation (May 2016)
<https://www.gov.uk/government/consultations/consultation-on-changes-to-the-non-delivery-disincentive-for-cfd-allocation>

at a level that provides a suitable disincentive without being prohibitively high. This could be £10,000 per MW, which would be the same level as operates in the Capacity Market. A bid bond could be required instead of, or as a supplement to, the existing provision for an exclusion period. This requirement could strengthen the CfD by incentivising the commitment of successful applicants to signing a contract and to project delivery.

Other options

There may be alternative approaches that would strengthen the incentive to project delivery, and we would be interested in views on what these might be and how they might work.

We are grateful for views on the following consultation questions regarding the Non-Delivery Disincentive.

Consultation questions:

24. The government welcomes views on extending the exclusion period for sites excluded under the Non-Delivery Disincentive, including on whether 36 months is a suitable period, or a longer period is needed.

25. The government welcomes views on whether different forms of disincentive are needed for technologies at different levels of development and on what basis such differentiation might work most effectively.

26. The government welcomes views on the advantages and disadvantages of introducing a new requirement for a bid bond where applicants provide a deposit, either by cash payment, bank guarantee or letter of credit.

27. The government welcomes views on whether a bid bond would be practical for smaller projects. If difficulties are foreseen, what are they, what mitigation might apply and in respect of what size of project?

28. The government welcomes views on what a suitable level for a bid bond would be: would £10,000 per MW be effective and practical?

29. The government welcomes views on alternative approaches to the Non-Delivery Disincentive and how they might work in practice.

Technical changes to future rounds

We are considering making a number of technical changes to future allocation rounds. Whilst there is no statutory duty to consult on these aspects of the scheme, the potential changes we are considering are set out below to help inform responses. The rules that apply to each allocation round will continue to be set out in the allocation framework applicable to each round.

Simplifying delivery years

One potential technical improvement to allocation round design we are considering is simplifying the role of delivery years in auctions. Currently if the monetary budget is breached in one delivery year, that delivery year is closed, and the auction continues in other delivery

years. Following from this, different clearing prices are set for each delivery year in the same auction. This design is helpful when lots of delivery years are being auctioned at the same time as it allows the auction to continue in other years when the budget in one year is exceeded and it can facilitate smooth deployment over time. However, the benefits of this design reduce when only two delivery years are auctioned, as was the case for allocation rounds 2 and 3.

We anticipate continuing to open more than one delivery year for each allocation round, but we may exercise discretion to remove the distinctions between different delivery years within the auction for any given future allocation round, as provided for by the applicable allocation framework. This would mean that delivery years would not close independently but instead the whole auction would close, and there would be one clearing price across the different delivery years (subject to administrative strike prices and potential use of maxima). We consider that this could reduce the strategic complexity of the auction and increase value for money for consumers.

Valuation formula

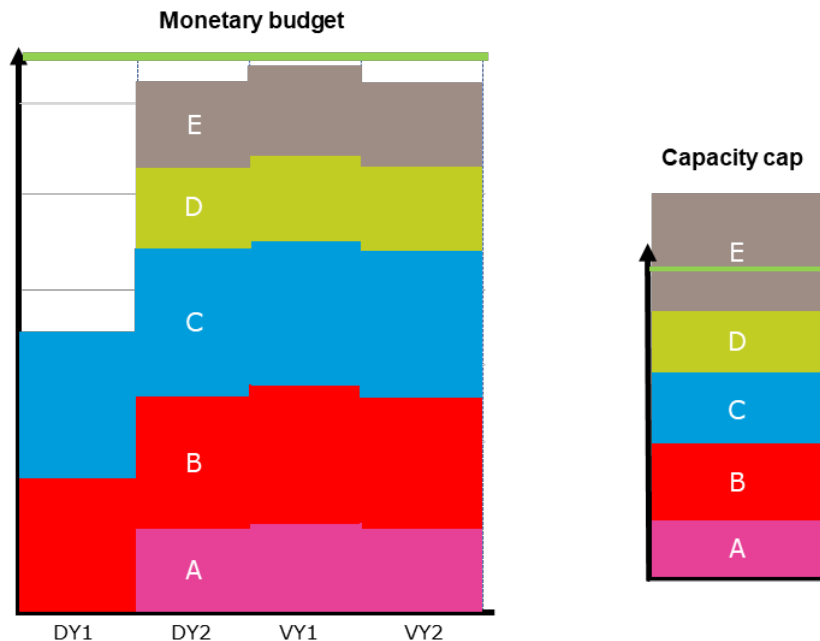
Another technical change that we are considering is to amend the valuation formula set out in the CfD allocation framework, to use the first day of the Target Commissioning Window to calculate the budgetary impact instead of the Target Commissioning Date. This could again reduce the strategic complexity of the auction and ensure that the earliest possible date of CfD payments is considered when calculating the impact on the budget.

Introducing flexibility for use of capacity caps, maxima and minima

For the third CfD allocation round, the overall budget, in both monetary and capacity terms (i.e. the 6GW 'capacity cap'), was set as a 'hard' constraint, whereby the bid that breaches either the monetary budget or capacity cap in the auction is rejected and so not offered a CfD. The use of a hard constraint makes it more difficult to manage the amount of capacity that is successful in the auction. Under the current 'hard' constraint rule, setting the cap at a level close to the ambition for that round could result in awarding less capacity than intended. This is due to large-sized projects which could breach the cap (as in Figure 1) closing the auction.

However, it could be preferable in future CfD allocation rounds to apply any capacity caps, maxima and/or minima (under the existing Allocation Regulations, the overall budget, maxima and minima may be set in terms of a sum of money, capacity or amount of generation) as a 'soft' constraint instead. This would mean accepting the bid that breached the cap, subject to specific conditions, including ensuring that value for money for consumers is maintained. The amount of capacity/generation for projects which are awarded contracts would therefore likely be closer to the ambition for that round.

Figure 1: Illustrative example of a CfD auction in which the capacity cap is breached before the monetary budget. If a hard capacity constraint is applied, this would mean Bid E breaches the hard capacity cap limit and is unsuccessful, and the whole auction closes. However, if a soft constraint is applied, then Bid E is successful, and the auction closes.



The government is proposing to introduce the flexibility to apply any capacity cap as a soft and/or a hard constraint for future allocation rounds; this is likely to require amendment of regulations 11 and 30 of the Allocation Regulations. This flexibility would also apply to the maxima and minima rules, but not to the monetary budget.

The decision on whether to apply a capacity cap and the type of constraint (either hard or soft, and the specific rules) would continue to be decided before an allocation round and informed by the other parameters for the round. These include, but are not limited to, the pipeline of projects likely to apply, the technologies eligible to apply, and how much renewable capacity the round is intended to deliver. As noted previously, the rules that apply to each allocation round will continue to be set out in the allocation framework applicable to each round.

There are several ways in which a soft constraint rule could operate. This could include:

- accepting the bid and awarding a contract to the project that breaches the cap, if enough monetary budget remains; or
- accepting the bid and awarding a contract to the project that breaches the cap, subject to price (i.e. more capacity could be successful only if the price is low enough); or
- accepting the bid that breaches the cap only if it increases the total capacity awarded a CfD in the round by less than a specified amount of capacity (a given threshold) and it is within the monetary budget.

Depending on the design of the constraint, it is possible that the flexible bid rules that apply to the auction and set out in the Allocation Framework would need to be amended or could be simplified. These proposals of how a soft constraint could operate are not exhaustive and stakeholders' views on alternative proposals are welcome.

Consultation questions:

The government welcomes views on:

30. Whether you agree the government should introduce the flexibility to apply any capacity cap, maxima, and minima as either a soft or hard constraint, set on a round by round basis?

31. The type of soft constraint (including those proposed) that could be deployed in future allocation rounds;

32. And any further evidence on benefits and disadvantages of a soft capacity cap constraint.

System integration of renewables

The success of renewable energy support schemes has seen significant growth in the amount of electricity generated from variable renewable technology (i.e. the source of energy is not continuously available, for example it is dependent on the weather). The intermittent nature of some low carbon generators of electricity could result in increased system costs for the consumer. This section focussed on how renewables supported under the CfD scheme can contribute towards a smart, efficient electricity system.

Storage

Storage could be a means to mitigate some of the potential negative impacts of intermittent renewable generation on the system. The UK could save £17-40 billion³⁷ across the electricity system by 2050 by deploying flexible technologies such as storage, Demand Side Response (DSR) and interconnectors. These technologies could help to mitigate the variability of some low carbon generation, reduce the costs of balancing the system and help to avoid or defer costly reinforcements to the network.

The design of the CfD scheme means generators are paid CfD payments in respect of when each unit of eligible electricity is generated. Intermittent CfD generators receive a CfD payment calculated by subtracting the day-ahead hourly price for electricity from their strike price (whereas the market price used to calculate payments to baseload generators is a season-ahead price). They also receive income from when the electricity is sold in the wholesale market, which is sold under separate commercial arrangements to the CfD. So, for example, if a CfD generator has separately metered storage technology this could be an additional revenue stream for the developer (for example, by storing generated electricity when the market price is low and selling when high, or by providing additional services to the grid), which could have a benefit for the wider system as a whole and therefore consumers.

Previous consultation

Electricity storage is permitted to be installed at CfD sites so long as generators comply with the obligations set out in the CfD contract. Under the terms of the CfD contract, storage is not considered part of the CfD facility and must be metered separately. Additional metering (specifically, installing storage in a separate Balancing Mechanism Unit) was described as a 'burden' by a significant number of respondents to the AR2 consultation in 2016³⁸.

In response to concerns raised by respondents the government introduced some flexibility into the CfD contract, which states that a separate Balancing Mechanism Unit is not necessary if the generator can demonstrate to the LCCC's satisfaction that the meter ensures that their storage technology only stores electricity generated by the CfD project and does not store electricity imported from any other source.

³⁷An analysis of electricity system flexibility for Great Britain (November 2016)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/568982/An_analysis_of_electricity_flexibility_for_Great_Britain.pdf

³⁸ Consultation on amending the CFD contract and regulations (May 2016)
<https://www.gov.uk/government/consultations/consultation-on-amending-the-cfd-contract-and-regulations>

Consultation question:

33. What storage solutions could generators wish to co-locate with CfD projects over the lifetime of the CfD contract?

34. What, if any, barriers are there to co-location of electricity storage with CfD projects?

35. What, if anything, could be changed in the CfD scheme to facilitate the co-location of storage with CfD projects?

Negative pricing

Within a cost-reflective system parties should pay their fair share of system costs. We propose extending the negative pricing rule, so that CfD generators are not subsidised when electricity prices are negative in the day-ahead hourly market.

Negative pricing occurs when the price of electricity is less than zero and may be driven by a number of factors. Such prices are currently very rare in the GB day-ahead market, although they have occurred more frequently in other markets in continental Europe and in the British within-day market.

Under the CfD contract, the generator's difference payments are capped at their Strike Price (so if prices are negative, they cannot receive payments any greater than the Strike Price). In addition, in the contracts that apply to generators awarded contracts in allocation rounds 2 and 3, when the Intermittent Market Reference Price (the GB day-ahead hourly price) is below zero for six or more consecutive hours, no CfD difference payments are made for any generation during that period. This rule applies to both intermittent and baseload technology types.

Proposal

The current rule limits the extent to which CfD generators are subsidised when day-ahead prices are negative, but generators still receive difference payments when there are less than six consecutive hours of negative pricing. This encourages CfD generators to keep generating during these periods despite oversupply in the day-ahead market signalling that generation during these times is not beneficial. It also facilitates negative bidding into the balancing mechanism (the within-day market used by the electricity system operator to balance electricity supply and demand for each half-hour period), increasing costs for consumers.

We propose to extend the existing negative pricing rule so that difference payments are not paid to CfD generators when the Intermittent Market Reference Price is negative.

This proposal reflects the government's view that generators should not be encouraged through the CfD to generate in ways that are unhelpful to the overall system. By increasing the market exposure of CfD generators during negative pricing periods, this proposal aims to strengthen the incentives for generators to be responsive and flexible (such as by using storage) and increase value for money for consumers by reducing costs.

This change will be achieved through amending the definition of Rolling Negative Price Period in the CfD contract. Drafting revisions to the CfD contract will be published at a later date when the revised contract is consulted on.

This proposal does not apply to those generators that have already signed CfD contracts.

Analysis

The impact of this proposal depends on the expectation of when and how frequently negative pricing events in the GB day-ahead market will occur. In 2015, when consulting on the introduction of the 6-hour negative pricing rule, the Department of Energy and Climate Change (DECC) appointed Baringa Partners to undertake analysis on the causes, influencers and implications of negative pricing in the GB electricity market.

Baringa modelled two scenarios; a ‘market scenario’, based on Baringa’s central market scenario, and a ‘policy scenario’, based on DECC’s 2014 policy aspirations. Baringa’s key findings were that day-ahead negative prices are rare under both their modelled scenarios, although the results did show sensitivity to input assumptions, including the amount of subsidised low carbon capacity, bidding behaviour of low carbon generators, and levels of interconnection and electricity storage.

We have updated this analysis to cover the period 2025-2040 as well as including two scenarios, the first based on 30GW of offshore wind in 2030 (the upper end of deployment described in the Offshore Wind Sector Deal). The second is based on an increased ambition scenario of 40GW of offshore wind in 2030 to illustrate the effect this could have on the frequency of negative pricing events (Table 1). The latest Conservative manifesto seeks to increase the existing 30GW commitment to 40GW. Our updated analysis shows an increase in the expected frequency of day-ahead negative pricing events compared to the Baringa analysis. This may reduce revenues for CfD generators. Whilst the occurrence of negative pricing events in future is still expected to be rare, they are likely to increase, making it more important that CfD generators are encouraged to be responsive to market signals. This could help incentivise alternative uses for surplus power, for example electricity storage solutions.

Table 1: Summary of analysis on frequency of periods of GB day-ahead hourly negative prices

Scenario	Description	Average annual number of negative day-ahead hours	Average annual number of day-ahead 6+ negative hour periods
Baringa 2015: Market	Baringa’s central view of the energy system (2020-2035)	2 (~0%)	0
Baringa 2015: Policy	DECC’s published policy position (2014) (2020-2035)	48 (~0.5%)	4
BEIS 2019: Central, 30GW of offshore wind in 2030	BEIS current central position, assuming 30GW of offshore wind in 2030 (2025 – 2040)	86 (~1.0%)	2
BEIS 2019: Central, 40GW of offshore wind in 2030	BEIS current central position, assuming 40GW of offshore wind in 2030 (2025 – 2040)	399 (~4.5%)	13

As the proportion of our electricity that comes from variable renewables grows, managing any extra system costs that they may bring will become increasingly important if we are to minimise the costs of decarbonisation. We continue to consider how the CfD scheme can take into account the right level of market signals so that generators are appropriately incentivised to minimise whole system costs whilst delivering on our commitment of net zero.

With this in mind, CfD generators being insulated from wholesale market signals on the value of their generated power offers greater certainty for investors but limits the incentives for generators to export power in accordance with the needs of the system and may not drive innovation. Making this change to negative pricing is aimed at improving these signals for successful generators in the next allocation round.

Consultation question:

36. Do you have any views on the proposal to extend the negative pricing rule?

Please include in your response any specific evidence in relation to the incidence and impact of negative pricing.

Call for Evidence

CfD generators being insulated from wholesale market signals on the value of their generated power offers greater certainty for investors but limits the incentives for generators to export power in accordance with the needs of the system. We continue to review how best to strike this balance in order to minimise overall system costs. We will engage with the industry and other stakeholders through a call for evidence on potential further changes, which, if the evidence suggests could minimise system costs, we may also implement for the fourth allocation round.

Improving the operation and clarity of the CfD

The CfD scheme is kept under ongoing review to ensure that it continues to operate as intended and benefits from the experience gained through previous allocation rounds. Without limitation to that ongoing process, the government is proposing a number of changes to the CfD scheme which relate in particular to phased projects, milestone requirements and minor amendments to the Allocation Regulations. These changes are intended to improve the operation and clarity of the CfD scheme, and, in certain respects, ensure the contract is giving effect to the intended balance of risks between generators and consumers.

Phasing

Offshore wind projects that win a CfD contract can be built in up to three phases. All phases of a phased CfD offshore wind project must be located within the same Crown Estate lease area.

The size of phased projects has been capped at 1500MW since CfD Allocation Round 1. The cap was designed, in combination with the other phasing rules, to prevent applicants submitting one bid (and receiving a single strike price) to develop several different projects. This could result in consumers missing out on the benefits of cost reductions over time, reduce the number of successful developers and increase the negative impacts of non-delivery.

The government still considers 1500MW to be an appropriate cap size and proposes to retain the cap for Allocation Round 4, to strike a balance between economies of scale and facilitating new entrants to the market.

We are aware that some projects greater than 1500MW are seeking consent. There are a few ways such projects might still seek to participate in future allocation rounds, such as by applying for a CfD for the full capacity without phasing, by splitting projects into separate applications (so long as they meet the requirements for separate CfD units) or by applying for a CfD up to 1500MW and then deploying the remaining capacity on a merchant basis³⁹.

We believe it is increasingly likely that some developers will look at deploying capacity on a part-merchant basis. Projects that are able to do this can attract lower risk investment and potentially benefit from upside (i.e. not needing to 'pay back' LCCC) when electricity prices are high, while also benefitting consumers by providing lower cost power.

Proposal

The government considered increasing the cap on phased projects, for example up to 2500MW. However, we concluded that allowing very large projects the flexibility to phase could result in fewer projects winning contracts before an auction cap is breached. Fewer, larger projects winning contracts could also mean a project failing would result in less capacity

³⁹ Where a CfD Unit is part of a generating station, certain eligibility rules apply, including a requirement for separate metering – see regulation 14 of the Contracts for Difference (Allocation) Regulations 2014/2011 (as amended, and as supplemented by the relevant Allocation Framework).

delivered through the auction. As a result, the government's preferred approach is to keep the 1500MW cap on phased offshore wind projects, to increase the likelihood of a greater number of applicants (including potential new entrants) being successful in future allocation rounds.

The 1500MW cap is consistent with the Crown Estate's cap on new lease areas in England, Wales and Northern Ireland from their current leasing Round 4 (which could apply to projects bidding in from around 2025). Crown Estate Scotland may determine the cap on seabed released through the upcoming ScotWind leasing round differently, by capping the maximum area of an individual application in km² rather than MW capacity.

Consultation questions:

37. The government welcomes views on the preferred approach to maintain the cap on phased projects at 1500MW.

38. The government welcomes views on whether there are any barriers to developing a phased offshore wind project on a part-merchant basis.

Milestone Delivery Date

Extension of the delivery date

The Milestone Requirement (MR) is the means by which generators awarded a CfD demonstrate delivery progress by a deadline, the Milestone Delivery Date (MDD). Generators have flexibility to provide evidence of either (i) spend of 10% of total pre-commissioning costs, or (ii) project commitments. The CfD contract sets out the evidence that is deemed acceptable for the project commitments route.

The MR is intended to be a significant but feasible requirement, to ensure that progress can be made with successful projects and the risk of non-delivery minimised. In the light of feedback from stakeholders, we are taking the opportunity to review current arrangements for the MR and whether there is a need to change the deadline.

We understand that some generators find it challenging to meet the MDD, in particular in meeting the MR through the 10% spend route. For this reason, we are seeking views on the case for extending the deadline. We do not want to extend the deadline unduly, as this would not serve the purpose of providing early information about any projects that do not meet the MR, which can helpfully inform considerations for future allocation rounds.

For this reason, we would like to understand more clearly the evidence of the need for a change to the deadline. This includes whether change is needed for both MR compliance routes or only one, and whether difficulties are shared or specific to certain technologies or types of projects. We would like to see how change would facilitate effective and efficient project delivery and reduce costs for consumers. We would also like to ensure that any change provides only the minimum additional time needed to address any existing issues.

If the MDD were to be extended we would expect to make an appropriate amendment to the NDD trigger provision in regulation 14A(1)(b)(i) to act as a disincentive to early termination in this new context.

We therefore invite views on the following consultation questions.

Consultation questions:

39. The government welcomes views on the benefits, such as successful delivery of projects or reduced costs for consumers, that would result from extending the Milestone Delivery Date for: (i) the project commitments route only, or also (ii) the 10% spend route.

40. The government welcomes views on whether an extension should apply to all projects or only to particular technologies or sizes of projects.

41. The government welcomes views on the length of an effective extension and the implications. Would an extension to a 15-month deadline be effective and if not, why?

Miscellaneous Allocation Regulation changes

As part of our ongoing review of the CfD scheme to ensure that it continues to operate as intended, we have conducted a review of the Allocation Regulations to test whether the existing rules are fit for purpose. This work highlighted areas of the Allocation Regulations that the government felt could benefit from more clarity. This section outlines a number of proposed changes, all of which are minor yet offer benefits by improving the clarity of the Regulations.

End date of an allocation round

The end date of an allocation round is a date published in the allocation round notice by the Secretary of State in order to establish a new allocation round. Originally, it was included as a specified date in case multiple rounds are run simultaneously and defines a relevant period for the purposes of identifying which allocation framework applied to one or more allocation rounds.

However, the framework notice can be used to specify which allocation framework applies to a particular round and can be used for multiple rounds, meaning 'end date of the allocation round' is not necessary. We do not consider that the removal of all references to "end date of an allocation round" would have any effect on the operation of the regulations and, in addition, believe it would remove the risk of confusion resulting from stakeholders expecting that the 'end date of the allocation round' refers to the actual completion of the round, beyond which no more activities occur. However, this is not the case due to the various different timelines that may be followed depending on whether there are non-qualification reviews and appeals. An allocation round instead ends either when CfD Notifications are issued by the delivery body or when the round is terminated by the Secretary of State.

Removing the references to 'end date of the allocation round' will also require removing the reference to the 'relevant period' in Regulation 6 (1)(b) and (5), as the 'end date of the allocation round' is used as part of the definition of 'relevant period'. Again, we do not consider that this will affect the operation of the regulations as the framework notice will be used to specify which allocation framework applies to which allocation round, including where two or more allocation rounds are run at the same time, and different versions of an allocation framework apply to each. The government's intention is not to prevent the Secretary of State

from applying different versions of an allocation framework to different allocation rounds, including where they overlap in some way (as presently provided for by reg 6(1)(b)).

We therefore propose the removal of all references to the “end date of an allocation round” from regulations 4, 5 and 6 of the Allocation Regulations and the removal of references to the ‘relevant period’ in Regulation 6 (1)(b) and (5).

Round variation notice rules

The round variation notice is used by the Secretary of State to vary the key dates of an allocation round as stated in the allocation round notice. These are the commencement date, the application closing date and the end date of an allocation round.

The government consider that some detail needs to be added to Regulation 5 of the Allocation Regulations to clarify more of the scenarios when a variation may or may not be made. This is because although some timing rules are detailed in regulations, such as the fact that the round cannot be terminated after CfD notifications⁴⁰ have been issued, a number are not.

Our proposal is to add detail to clarify that it is not possible to vary the commencement date or application closing date after they have passed. This change will provide certainty to stakeholders that once a round is running it will run to the normal schedule and we won't change dates retrospectively. In addition, we propose adding detail to clarify that Secretary of State must give at least 5 working days' notice when varying key dates such as the commencement date and application close date. We feel these changes would provide more certainty to stakeholders in the event we need to vary any of the key dates and give them time to prepare.

Dates in the allocation framework

The government is required currently to publish the following dates in the allocation framework: “the non-qualification review request date”, “the appeals deadline date” and “the post-appeals indicative start date”.

However, we do not consider it necessary to publish this information for a number of reasons. Firstly, these dates only occur in certain scenarios (for example, if there are appeals) and so as standalone dates like this they may cause confusion. Also, publishing these dates in the allocation framework is also duplication of the work conducted by the deliver partners to publish a more detailed indicative timeline, which sets out clearly the five possible timelines and the associated key dates, and which we plan to continue doing. We believe that this timeline is more useful and relied upon by stakeholders.

The government therefore proposes removing the requirement for the following dates to be published in the allocation framework: “the non-qualification review request date”, “the appeals deadline date” and “the post-appeals indicative start date”.

Commencement of the allocation process

Currently the Delivery Body (National Grid ESO) commences the allocation process under four scenarios detailed in Regulation 33(1) of the Allocation Regulations. In the third allocation round for the first time we had no appeals and so moved to commence the allocation process

⁴⁰ A CfD notification is sent to a generator after the bids have all been assessed to confirm that their application has been successful and must include details such as their final strike price. CfD notifications are also sent to the Low Carbon Contracts Company (LCCC) so they can arrange for the contracts to be completed.

as soon as the Delivery Body had completed their second reviews⁴¹ and confirmed all applicants had qualified. It was noticed however, that the four scenarios do not explicitly allow for the situation where all applicants qualify either after the initial application review or after the second review as they had done in this situation.

In the event that all applicants qualify after the initial application review, Regulation 33 assumes that the Delivery Body will wait until the non-qualification review request date (5 working days after the window in which the Delivery Body review applications) until they provide a notice stating no reviews notices were received. However, as everyone has qualified and there is no need for any reviews, this is an unnecessary wait.

In the event that all applicants qualify after the Delivery Body's second review, Regulation 33 does not explicitly provide for this situation.

We therefore propose clarifying in Regulation 33 that if all applicants qualify either after the initial application review or after the Delivery Body's second review, then the delivery body should commence the allocation process as soon as practicable giving notice to all relevant parties. This will not add any complexity to the process as the number of potential scenarios the round could run to remains the same.

Budget Revision Notice

The budget revision notice is used by the Secretary of State to amend aspects of the budget after a final budget notice has been issued for an allocation round. Regulations 11 and 12 of the Allocation Regulations specify a number of rules around how a budget revision notice can be used. However, there are a couple of omissions we feel would be helpful to include.

The definition of "budget revision" in Regulation 12 refers to the matters listed in Regulation 11(2), which refers to minima, maxima and the division of the overall budget that applies to a pot. We propose adding detail to confirm that the overall budget can also be amended using a budget revision notice under the same conditions that the other matters in Regulation 11(2) are subject to. This function is not explicitly provided for and we feel it would be a useful addition to improve clarity.

In addition, we propose providing the ability for the Secretary of State to amend, add or remove a capacity cap under the same conditions that the other matters in Regulation 11(2) are subject to. Capacity caps may be a mechanism we look to use in future auctions and so we feel it would be useful to have the same powers to revise the cap in the same way we can other parts of the budget before the round starts.

Pausing an allocation round

Currently, once an allocation round begins there is no mechanism in legislation to pause or delay it. If something were to occur that might necessitate a pause (for example, a legal challenge), the only option available to fully stop or pause an allocation round from progressing is to terminate the round using a termination notice. We consider that termination could have a negative impact on investor confidence as it provides more uncertainty than pausing the round would. Once a round is terminated, in order to run the round again some notices need to be re-issued with their respective waiting period (e.g. the allocation round notice, budget notices

⁴¹ Second reviews of applications were conducted by the Delivery Body following submission of review notices by applicants who were initially deemed not to qualify.

etc.). Whereas, if the round is paused then it can be continued, when the issue that caused the pause is resolved, with relative speed.

We have therefore been considering the merits of introducing a mechanism by which to pause an allocation round between the round commencing and the issuance of CfD notifications. This would allow us to maintain a round in uncertain times and reduce the risk an allocation round would have to be terminated. However, we acknowledge this could increase uncertainty around the timings of an allocation round and so we would only propose pausing in a limited number of scenarios, such as a legal challenge, and when we consider it would be beneficial to the success of the round.

We would like to understand stakeholders view on Secretary of State having the ability to pause a round and whether it is considered necessary or useful.

Consultation questions:

42. Do you agree with the government’s proposal to remove all references to “end date of the allocation round”?

43. Do you agree with the government’s proposal to add more detail on when key dates can be varied using a round variation notice?

44. Do you agree with the government’s proposal to remove the requirement to publish certain dates in the allocation framework?

45. Do you agree with the government’s proposal to provide an extra scenario under which the allocation process must commence?

46. Do you agree with the government’s proposal to make explicit the ability to amend the overall budget before the commencement of an allocation round?

47. We would welcome views on adding additional powers to allow revision of a capacity cap before an allocation round commences.

48. We would welcome views on adding additional powers to pause an allocation round between the commencement of the round and the issuance of CfD notifications.

Consultation questions

Community support

1. How can the government better ensure that the local impacts and benefits of renewable energy developments are taken into account across the whole of GB?
2. What exemplifies 'best practice' when it comes to engaging with and supporting local communities on renewable energy developments? Examples of specific projects and/or developers would be welcomed.
3. How should the government update the existing community benefits and engagement guidance for onshore wind to reflect developments in best practice for engagement between developers and local communities?
4. Should the Government consider creating a register of renewable energy developments in England that lists available projects and associated community benefits?

Pot structure

5. The government welcomes views on whether, compared to maintaining the existing two pot structure, the proposed option of introducing a new Pot 3 for offshore wind is an effective means of ensuring value for money and achieving our decarbonisation and other objectives in the long term. We welcome the submission of supplementary evidence to support views on this.
6. The government welcomes views on whether the proposed options are an effective means of bringing forward a greater diversity of low carbon electricity generation.
7. The government welcomes views on whether there are alternative approaches to be considered in light of net zero.

Floating offshore wind

8. The government welcomes views on whether the proposed approach is an effective means of supporting floating offshore wind.
9. The government welcomes views on whether the proposed definition is a suitable definition of floating offshore wind projects, which should be distinguished from fixed bottom offshore wind, and what evidence prospective generators should be asked to supply in order to demonstrate that they have the required characteristics.
10. The government welcomes views and evidence on any potential wider benefits or disadvantages that floating offshore wind may bring to the UK, in particular in respect of wider system impacts.

11. The government welcomes views on the need to deploy floating offshore wind at scale through the 2030s to meet net zero, and what trajectories for deployment and cost reduction are realistic and feasible, both globally and in the UK.
12. What further amendments to the CfD allocation process could be necessary to facilitate floating offshore wind technologies?
13. Are there additional measures to support for pre-commercial deployment and cost reduction which would be more effective than the CfD, or which could enhance the effectiveness of the measures under the CfD?

Extending delivery years

14. Should the government amend the Contracts for Difference (Allocation) Regulations 2014 in order to extend the delivery years specified in those regulations to the 31st March 2030?

Supply chain plans

15. The government welcomes views on whether the Supply Chain Plan process for all technologies should be more closely aligned with the Industrial Strategy, for example with criteria headings to reflect a focus on competition, innovation, people and skills, infrastructure, and regional growth, and within this what other measures the government could adopt and consider to support its objectives, for example, in offshore wind, the Offshore Wind Sector Deal.
16. The government welcomes views on strengthening the powers to fail SCPs on the basis that the Applicant has not demonstrated compliance with a past SCP.
17. The government welcomes views on whether requiring an updated SCP at a later stage after a CfD is awarded, for example at FID or after MDD, when major contracts would have been awarded would deliver more focused and deliverable commitments.
18. The government welcomes views on the current compliance process for SCPs for failure to implement an approved SCP. Is it sufficient and if not, what other potential compliance options could be considered, for example by linking non-compliance to CfD payments?
19. The government welcomes views on any impact of reducing the threshold limit for the submission of a Supply Chain Plan to capture offshore wind extension projects (which were not envisaged when the policy was first drafted) and to reflect that projects below 300MW will also have a material impact on supply chains and if so, what the limit should be.
20. The government is committed to achieving net zero by 2050 and how it could encourage the growth of sustainable, efficient supply chains through consideration of the carbon footprint of supply chains. We welcome views on how the industry takes account of the carbon footprint of their supply chains. What methodologies are being used or could be developed to take greater account of the carbon intensity of supply chains when considering Supply Chain Plans.

Coal-to-biomass conversions

21. Views are welcomed on the proposal to exclude new biomass conversions from future CfD allocation rounds, on the likely impact of this approach, and on any alternative approaches

Decommissioning plans

22. The government welcomes views on how best to link the OREI decommissioning regime with the CfD scheme to ensure that offshore renewable projects that are party to a CfD fully comply with their obligations under the Energy Act 2004.

Administrative strike prices

23. The government welcomes views on how we might change our approach to administrative strike prices to ensure value for money in future.

Non-delivery disincentive

24. The government welcomes views on extending the exclusion period for sites excluded under the Non-Delivery Disincentive, including on whether 36 months is a suitable period, or a longer period is needed.
25. The government welcomes views on whether different forms of disincentive are needed for technologies at different levels of development and on what basis such differentiation might work most effectively.
26. The government welcomes views on the advantages and disadvantages of introducing a new requirement for a bid bond where applicants provide a deposit, either by cash payment, bank guarantee or letter of credit.
27. The government welcomes views on whether a bid bond would be practical for smaller projects. If difficulties are foreseen, what are they, what mitigation might apply and in respect of what size of project?
28. The government welcomes views on what a suitable level for a bid bond would be: would £10,000 per MW be effective and practical?
29. The government welcomes views on alternative approaches to the Non-Delivery Disincentive and how they might work in practice.

Technical changes to future rounds

The government welcomes views on:

30. Whether you agree the government should introduce the flexibility to apply any capacity cap, maxima and minima as either a soft or hard constraint, set on a round by round basis?
31. The type of soft constraint (including those proposed) that could be deployed in future allocation rounds;
32. And any further evidence on benefits and disadvantages of a soft capacity cap constraint.

Storage

33. What storage solutions could generators wish to co-locate with CfD projects over the lifetime of the CfD contract?
34. What, if any, barriers are there to co-location of electricity storage with CfD projects?
35. What, if anything, could be changed in the CfD scheme to facilitate the co-location of storage with CfD projects?

Negative pricing

36. Do you have any views on the proposal to extend the negative pricing rule? Please include in your response any specific evidence in relation to the incidence and impact of negative pricing.

Phasing

37. The government welcomes views on the preferred approach to maintain the cap on phased projects at 1500MW.
38. The government welcomes views on whether there are any barriers to developing a phased offshore wind project on a part-merchant basis.

Milestone delivery date

39. The government welcomes views on the benefits, such as successful delivery of projects or reduced costs for consumers, that would result from extending the Milestone Delivery Date for: (i) the project commitments route only, or also (ii) the 10% spend route.
40. The government welcomes views on whether an extension should apply to all projects or only to particular technologies or sizes of projects.
41. The government welcomes views on the length of an effective extension and the implications. Would an extension to a 15-month deadline be effective and if not, why?

Miscellaneous Allocation Regulation Changes

42. Do you agree with the government's proposal to remove all references to "end date of the allocation round"?
43. Do you agree with the government's proposal to add more detail on when key dates can be varied using a round variation notice?
44. Do you agree with the government's proposal to remove the requirement to publish certain dates in the allocation framework?
45. Do you agree with the government's proposal to provide an extra scenario under which the allocation process must commence?
46. Do you agree with the government's proposal to make explicit the ability to amend the overall budget before the commencement of an allocation round?
47. We would welcome views on adding additional powers to allow revision of a capacity cap before an allocation round commences.
48. We would welcome views on adding additional powers to pause an allocation round between the commencement of the round and the issuance of CfD notifications.

Annex A: Summary of responses to the call for evidence on biomass conversions

The call for evidence ran from 9 November to 20 December 2016. It received approximately 3000 broadly similar responses as part of a campaign, as well as 33 other unique responses that specifically commented on biomass conversion projects.

How should the CfD scheme treat biomass conversion in future?

The ~3000 campaign responses argued that biomass conversions should not be eligible for new CfD contracts. Of the 33 other responses received, 12 were broadly in favour of retaining biomass conversion as part of the CfD, and 21 were broadly opposed to doing so.

The ~3000 campaign responses argued that large scale biomass had limited carbon benefits, had significant and growing negative effects on forests, contributed to deforestation and forest degradation, and led to a loss of biodiversity. They argued that biomass conversions were likely to be more expensive than low carbon renewables such as wind and solar power. Further concerns were expressed on the sourcing and carbon impact of wood pellets.

Several respondents expressed concerns about the sustainability of biomass (and particularly woody biomass) for use in electricity production, quoting studies suggesting that carbon intensities of biomass from forests may be comparable to coal (as managed forests do not store as much carbon as unmanaged forests, and due to the effect of indirect land use changes).

Some respondents also expressed concerns regarding the potential for damage to habitats in the countries where biomass was sourced from, and some questioned whether the presumption of carbon neutrality for woody biomass was correct. Respondents noted issues regarding the life cycle of carbon replacement and carbon debt associated with woody biomass – arguing that these were problematic in view of the timeframe for action to address climate change.

Some respondents expressed concern about the use of biomass solely or principally for electricity generation, on the grounds that this could divert resources away from other sectors with fewer decarbonisation options. Other arguments made included that further support for biomass would create a longer term dependency on an inefficient centralised combustion technology, and a reliance on imported feedstock that was vulnerable to market and currency fluctuations. Some respondents argued that government support for low carbon electricity generation should focus on solar and wind energy or be redirected towards demand reduction.

Other respondents argued that CfD policy should better recognise the flexibility and security of supply benefits biomass conversions can bring to electricity generation, noting that they have an ability to complement the inherent intermittency of some other renewable technologies. It was also suggested that dedicated biomass with CHP should continue to be supported because of its ability to help facilitate wider decarbonisation of the economy.

Several respondents said biomass conversion is now a mature technology with limited cost reduction potential in the future, though two felt it should be combined with some form of CHP as this could provide wider benefits to the economy. In terms of the impact future biomass

conversions might have on how the CfD operates, concerns were raised by two respondents that biomass conversions, being large in size and having relatively high load factors, would displace support for other technologies.

This consultation is available from: www.gov.uk/government/consultations/contracts-for-difference-cfd-proposed-amendments-to-the-scheme-2020

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