Hornsea Project Four

Net Zero Teesside Development Consent Order

Written Representation of Orsted Hornsea Project Four Limited

Deadline: 2, Date: 9th June 2022

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1 Introduction

1.1 Orsted Hornsea Project Four Limited ("Hornsea Four") is proposing to develop an offshore wind farm comprising up to 180 wind turbine generators together with associated offshore and onshore infrastructure and all associated development ("Hornsea Four Offshore Wind Farm"). The wind farm is located approximately 69km off Flamborough Head on the Yorkshire Coast.

1.2 Hornsea Four began consultation on the proposed wind farm in September 2018, and submitted its application to develop the Hornsea Four Offshore Wind Farm on 29 September 2021. The Examination of the Hornsea Four DCO application began on 22 February 2022 and is currently ongoing.

1.3 The Applicant is proposing to develop a Carbon Capture Usage and Storage ("CCUS") scheme, with the Net Zero Teeside Development Consent Order seeking consent for a gas-fired generating station together with equipment required for the capture and compression of carbon dioxide ("CO_2") emissions, and the onshore section of a pipeline to export captured CO_2 offshore ("the Proposed Development"). The Proposed Development forms the onshore part of the wider Net Zero Teesside Project ("NZT Project"), which provides for an offshore transportation and geological storage facility in the Southern North Sea region of the UK continental shelf, to transport and store CO_2 from both Teesside and the Humber area. The applications for the necessary consents for the offshore component of the NEP Project are still to be submitted. The application for the offshore elements of the project is being progressed by the Northern Endurance Partnership. BP Exploration Operating Company Limited ("bp") is the proposed operator of the Co_2 store being promoted by the Northern Endurance Partnership.

1.4 The offshore component of the NZT Project is referred to in this Written Representation as the NEP Project.

1.5 There is an area of seabed which both the Hornsea Four Offshore Wind Farm and the Net Zero Teesside Project have identified as required for part of their respective proposals ("the Overlap Zone").

1.6 This Written Representation (WR) has been drafted to provide the Examining Authority ("ExA") with an overview of Hornsea Four's position on the potential for co-existence between the projects, how this Proposed Development ought to be considered in the context of the possible impacts of the NZT Project as a whole, and the protective measures which could be put in place to ensure co-existence remains a possibility.

1.7 This Written Representation also presents Hornsea Four's draft form of protective provisions to be included in the Net Zero Teesside DCO, along with an explanation of the protection sought.

2 Background to Hornsea Four Offshore Wind Farm

2.1 The former Hornsea Zone was one of nine offshore wind generation zones around the UK coast identified by The Crown Estate (TCE) during its third round of offshore wind licensing. As part of a competitive tender, SMart Wind Ltd., a then 50/50 joint venture between International Mainstream Renewable Power (Offshore) Ltd and Siemens Project Ventures GmbH, was awarded the rights to

the development of the former Hornsea Zone by entering into a Zone Development Agreement (ZDA) with the Crown Estate in 2009.

2.2 Ørsted Wind Power A/S acquired the development rights to Hornsea Project One in February 2015 and, in August 2015, Ørsted Wind Power A/S acquired SMart Wind Ltd and the then Hornsea Zone, together with the development rights for Hornsea Project Two, Hornsea Project Three and Hornsea Project Four.

2.3 Subsequently in March 2016, the Hornsea ZDA was terminated and project specific Agreements for Lease ("AfL") were agreed with TCE for Hornsea Project One, Hornsea Project Two, Hornsea Project Three and Hornsea Project Four.

2.4 Hornsea Four's AfL includes rights to enter into up to four leases with the Crown Estate in respect of the Overlap Zone.

3 Interface Agreement

3.1 Hornsea Four and bp have been engaging proactively with each other over several years to seek a solution for the Overlap Zone between Hornsea Four and the NEP Project.

3.2 The commercial relationship between Hornsea Four and bp is governed by an agreement made between (1) The Crown Estate Commissioners, (2) National Grid Twenty Nine Limited and (3) Smart Wind Limited on 14 February 2013 (the "Interface Agreement").

3.3 National Grid Twenty Nine Limited and Smart Wind Limited were defined in the Interface Agreement as the "Carbon Entity" and "Wind Entity" respectively, in relation to their proposed carbon storage and offshore wind farm projects.

3.4 Both projects were proposed to be situated within the Overlap Zone, and so the parties agreed to enter into the Interface Agreement to seek to regulate and co-ordinate their activities with a view to managing potential and resolving actual conflicts.

3.5 The Interface Agreement was varied by a Deed of Adherence and Variation dated 12 September 2016 and then subject to a subsequent Deed of Covenant and Adherence dated 10 February 2021, following which it is acknowledged by the parties that bp is now the Carbon Entity and Hornsea Four is now the Wind Entity, under the Interface Agreement. The Crown Estate Commissioners remain a party to the Interface Agreement.

3.6 On 25 January 2022 Hornsea Four and bp agreed (subject to certain conditions) to mutually waive certain obligations under the Interface Agreement to allow representations to be made in the context of applications for necessary consents for Hornsea Four and the Proposed Development (respectively).

3.7 Hornsea Four and bp have differing views on whether or not co-existence of both projects within the Overlap Area is feasible. The matters remaining between the parties are highly technical, and generally involve requirements for the CCUS Measurement, Monitoring and Verification (MMV) plan and the ability to accommodate potential future relief wells or other infrastructure for the NEP Project and the interaction of those requirements with the presence of the Hornsea Four infrastructure. The Applicant has intimated to Hornsea Four that it does not see merit in progressing a Statement of Common Ground at this stage. Hornsea Four however considers it necessary for the Examining Authority to understand the respective positions on the possibility of co-existence in order to properly understand and weigh the parties' positions and the appropriateness of the

application of mitigations/protections. Hornsea Four is in the process of finalizing a report on the feasibility of co-existence between the two projects and would therefore propose to supplement this Written Representation with a copy of that report at or before Deadline 3.

4 The Scenarios

4.1 bp has made submissions to the Hornsea Four Offshore Wind Farm DCO examination centred on whether Hornsea Four Offshore Wind Farm and the storage element of the NZT Project can co-exist in the Overlap Zone. It is understood pursuant to bp's proposed protective provisions that the objective of bp is to force exclusion so that Hornsea Four cannot locate turbines in the Overlap Zone rather than focus upon mitigating the impact of either project upon the other. bp has also sought within the Hornsea Four DCO examination to disapply the Interface Agreement and remove the ability of Hornsea Four to make a claim for an antecedent breach under the Interface Agreement through its protective provisions.

4.2 Hornsea Four is confident that the impact upon the NEP Project can be mitigated and has proposed protective provisions within its draft DCO to deal with the interaction between the two projects. The proposed protective provisions address the known uncertainties and seek to put in place a process to ensure successful coexistence. In this way Hornsea Four considers that the maximum benefit from the combination of the two Nationally Significant Infrastructure Projects can be achieved.

4.3 Hornsea Four considers there are three potential scenarios for the Hornsea Four Offshore Wind Farm DCO application that are relevant to the NZT Project.

4.3.1 Scenario 1: The Hornsea Four Offshore Wind Farm DCO is refused and there is therefore no potential interface between the projects.

4.3.2 Scenario 2: The Hornsea Four Offshore Wind Farm DCO is approved subject to bp's proposed protective provisions which would exclude any Hornsea Offshore Wind Farm infrastructure from the Overlap Zone, with consequently limited interface. In this scenario, the impact on the Hornsea Four Offshore Wind Farm would be significant. A project of a similar capacity (2.6GW) would be significantly impacted in terms of the electricity generated if the developable area is reduced by removing the Overlap Zone. In broad terms this would equate to a loss of approximately 2.5% annual energy production (AEP) due to an increased density of turbines in the southern part of the Agreement for Lease (AfL) area. This would have the impact of making the project far less commercially competitive and potentially result in Hornsea Four being unable to compete for a contract for difference. bp maintain that using fewer, larger turbines would achieve the same generating capacity without any wake loss impacts occurring. This assumption is incorrect. The largest current model commercially available is 14MW. Vestas have announced a 15MW wind turbine which may be commercially available however even based on the 15MW turbine Hornsea Four still requires 180 turbines to build out the secured grid capacity of 2.6GW once transmission losses are factored in. The Overlap Zone represents approximately 25% of the developable area. A similar 25% reduction in turbine numbers would mean a loss of 45 turbines resulting in a project capacity reduction of 630mw to 675mw depending upon whether a 14 or 15 mw turbine is deployed. If the turbines are located to the southern part of the array the additional wake losses will, as set out above, make the project uncompetitive and potentially result in a failure to achieve full grid capacity of 2.6GW. An inefficiently designed wind farm with high wake losses is very likely to be at a significant disadvantage. For clarity, the Applicant needs to maintain the extent of the Offshore Order Limits as is reasonable to deliver an essential and substantial near-term contribution to the

UK's decarbonisation objectives and security of supply, at a highly competitive cost per megawatt hour (MW/h). The impact upon Hornsea Four will impact the government's wider drive towards net zero.

4.3.3 Scenario 3: The Hornsea Four Offshore Wind Farm DCO is approved subject to Hornsea Four's proposed protective provisions for the benefit of the licensee from time to time of the UK Carbon Dioxide Appraisal and Storage Licence CS001. The current licensee of licence CS001 is Carbon Sentinel Limited (previously known as National Grid Twenty Nine Limited), Equinor New Energy Limited and bp. bp is the operator of licence CS001 on behalf of the other licensees. The effect of these protective provisions being that, with limited exceptions, Hornsea Four is required to refrain from any wind development in the Overlap Zone unless and until a suitable co-existence solution is agreed between the parties or determined by the Secretary of State (via arbitration). These protective provisions have been designed to allow additional time for the NEP Project (and the novel carbon capture storage technology) to mature to resolve any outstanding bp concerns in this regard. Hornsea Four believes these provisions strike the appropriate balance to manage the interests between the parties and the requirement for coexistence prescribed in the Interface Agreement and relevant policy. Upon award of the Hornsea Four Offshore Wind Farm DCO, it is imperative that bp has sufficiently advanced the development of its infrastructure in the Overlap Zone to warrant any restriction on or delay to the development of Hornsea Four. These protective provisions mean that when determining the DCO application for Hornsea Four a decision does not need to be made as to which project should be excluded from the Overlap Zone. This is important from a policy perspective because the two projects have equal importance in terms of the contribution to be made to decarbonisation. Therefore, it would be undesirable to have to select a project to prioritise at an early stage in project development. The more reasonable and policy compliant solution is to allow more time and a process for a mutually acceptable coexistence solution for the Overlap Zone to be found and to secure that in the protective provisions in the Hornsea Four DCO and protective provisions of broadly reciprocal effect in the Net Zero Teeside DCO (see Sections 6 and 7 and Appendix 1 below.

4.4 The Applicant has not provided any protective provisions for the benefit of Hornsea Four offshore Wind Farm in its draft DCO. Hornsea Four has therefore proposed protective provisions which would be largely reciprocal to those included within its own DCO for the benefit of bp. These are set out in detail in Appendix 1 together with an explanation as to why they are necessary in this DCO in Sections 6 and 7 below.

4.5 Hornsea Four acknowledges that the Applicant, in Appendix 7: Applicants' Response to Action 4 (Options for the SOS for BEIS on Hornsea 4 DCO Application) of its Written Summary of Oral Submission for Issue Specific Hearing 1 (Document Reference 9.2), has identified a fourth scenario, in which the Hornsea Four DCO is granted with the bp protective provisions (inclusive of the Applicant's provision to disapply the Interface Agreement). For the reasons set out below at Section 8, Hornsea Four does not consider that the dis-application the Interface Agreement would be appropriate or justified, and therefore does not consider this to be a scenario which ought to be considered by the Secretary of State when determining the Hornsea Four Offshore Wind Farm DCO.

5 Acceptability of the scheme as a whole

5.1 The Applicant has submitted an Environmental Statement in support of the Proposed Development. The Applicant's Statement of Combined Effects (document reference 6.4), at paragraph 24.8.4 rightly acknowledges the principles of the EIA process and the need to consider the 'project as a

whole'. When reporting on the effects of the offshore scheme, however, that document (and the rest of the Environmental Statement and other Application documents) fails to identify the potential effects on Hornsea Four Offshore Windfarm. Hornsea Four submits that this is a deficiency in the Environmental Statement that the Applicant should remedy.

5.2 In order for the Secretary of State to be in a position to determine whether to grant consent for the Proposed Development, and in what terms, it is imperative that the impacts of the entire NZT Project as a whole have been assessed and are reported on, including the effects of the offshore elements of the NZT Project on Hornsea Four Offshore Wind Farm.

5.3 It is clear that for the Proposed Development to operate as proposed, the Endurance Store will be in use and is therefore a key element in the overall NZT Project. This is clearly acknowledged by the Applicant, as their draft DCO Article 31(1) provides that "no part of the authorised development other than permitted preliminary works may commence until the undertaker has provided evidence to the relevant planning authority that the necessary consent required to enable the construction and operation of a site for the storage of the carbon dioxide captured or collected by the authorised development has been granted." Therefore, the onshore elements of the NZT Project cannot be assessed in isolation.

5.3.1 It is also necessary in policy terms to assess the impacts of developments on other emerging developments.

Overarching National Policy for Energy (NPS EN-1)

5.3.2 NPS EN-1 5.10.1, recognises that "an energy infrastructure project will have direct effects on the existing use of the proposed site and may have indirect effects on the use, or planned use, of land in the vicinity for other types of development."

5.3.3 NPS EN-1 goes on to advise, at paragraph 5.10.5, that "the ES (see Section 4.2) should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing." Footnote 132 clarifies that proposed land uses include where a planning application has been submitted.

5.3.4 The offshore elements of the NZT Project will undoubtedly have an impact on the planned use of the Overlap Zone by Hornsea Four, for which Hornsea Four has an Agreement for Lease with The Crown Estate and has been and continues to carry out survey work in the Overlap Zone and wider array area in order to develop the Hornsea Four Offshore Wind Farm, and is currently undergoing its own DCO examination and therefore is at a progressed stage of the said planned use. Therefore,

in terms of NPS EN-1, the ES for the Proposed Development must consider the impacts on Hornsea Four Offshore Wind Farm.

East Inshore and Offshore Marine Plan

5.4 Further policy support can be found in the East Inshore and Offshore Marine Plan.

5.5 The majority of the proposed Hornsea Four infrastructure and the Northern Endurance Store would sit within the East Inshore and Offshore Marine Area, which this policy relates to.

5.6 Policy WIND1 provides strong support for the implementation and protection of Round 3 offshore wind developments, stating:

5.6.1 "Developments requiring authorisation, that are in or could affect sites held under a lease or an agreement for lease that has been granted by The Crown Estate for development of an Offshore Wind Farm, should not be authorised unless a) they can clearly demonstrate that they will not compromise the construction, operation, maintenance, or decommissioning of the Offshore Wind Farm b) the lease/agreement for lease has been surrendered back to The Crown Estate and not been re-tendered c) the lease/agreement for lease has been terminated by the Secretary of State d) in other exceptional circumstances"

5.7 The justification/explanation section confirms at paragraph 306 that:

5.7.1 "This policy covers lease areas granted by The Crown Estate's rounds 1, 2 and Extension leasing programmes, demonstration sites and projects brought forward from Round 3 Offshore Wind Farm zones for agreement for lease (including areas under Offshore Transmission Owner leases)... The policy seeks to prevent other new development or activities that would compromise construction, operation or decommissioning of the Offshore Wind Farm. This protects the existing rights of Offshore Wind Farm leases and agreements for lease."

5.8 Therefore, the ES for the Proposed Development should provide the Examining Authority and Secretary of State with information to determine whether or not the Proposed Development will

compromise the construction, operation, maintenance or decommissioning of the Hornsea Four Offshore Wind Farm, which it currently does not.

5.9 There is also policy support in the East Inshore and Offshore Marine Plan for CCUS projects. Policy CCS1 states:

5.9.1 "Within defined areas of potential carbon dioxide storage (mapped in figure 17) proposals should demonstrate in order of preference:

a) that they will not prevent carbon dioxide storage

b) how, if there are adverse impacts on carbon dioxide storage, they will minimise them

c) how, if the adverse impacts cannot be minimised, they will be mitigated

d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts"

5.10 Policy GOV2 of the Inshore and Offshore Marine Plan states:

5.10.1 "Opportunities for co-existence should be maximised wherever possible."

5.11 The justification/explanation provided for this policy states, at paragraph 264:

5.11.1 "A key principle of the Marine Policy Statement is to promote compatibility and reduce conflict (between activities, and also with the environment) in order to manage the use of space within the marine environment in an efficient and effective manner."

5.12 And further provides at paragraph 266:

5.12.1 "Co-existence (including activities in the same area, but vertically or laterally separated, and co-location in the same space) is particularly pertinent to the busy East marine plan areas."

5.13 Therefore, there is clear policy support for co-existence of developments, where possible, in order to maximise the potential for development in this area.

5.14 While the Proposed Development does not contain infrastructure which would directly impact on the Hornsea Four Offshore Windfarm, the offshore infrastructure of the wider NZT Project does, and would have direct impacts on a Round 3 site which ought to be a consideration in the current DCO examination. Given the onshore elements of the wider NZT Project are dependent on the construction and use of the Endurance Store, it is imperative that the acceptability of the NZT Project as a whole is considered. Given the clear support for and protection of Round 3 offshore wind projects (which includes Hornsea Four Offshore Wind Farm), it is not clear on the face of it that the offshore elements of the NZT Project will be acceptable without some mitigation. Hornsea Four consider therefore that an assessment of the impact of the NZT Project as a whole, a consideration of possible protections and mitigations and an assessment of the overall acceptability of the proposals with and without those protections and mitigations, must be carried out so that a decision on the Proposed Development can be made.

5.15 The Applicant has acknowledged, in Appendix 6: Applicants' Response to Action 2 (In Relation To Consideration of the Overlap with Hornsea 4) of its Written Summary of Oral Submission for Issue Specific Hearing 1 (Document Reference 9.2), that providing an assessment of the impacts on the offshore elements of the Project on Hornsea 4 Offshore Wind Farm would assist the ExA's

consideration of the Application, and has therefore undertaken to provide such an assessment by Deadline 4.

5.16 Deadline 4 is Thursday 7th July 2022, with the next Issue Specific Hearings to take place on the week commencing 12th July 2022.

5.17 Hornsea Four respectfully asks that the ExA requests that the Applicant submits the assessment by Deadline 3 (23rd June 2022) in order that Hornsea Four may have an opportunity to review the assessment and if necessary respond in writing at Deadline 4 prior to the Issue Specific Hearings scheduled for 12th and 14th July 2022.

6 The Need for Protective Provisions in the NZT DCO

6.1 Hornsea Four has proposed protective provisions for the benefit of the licensee from time to time of the UK Carbon Dioxide Appraisal and Storage Licence CS001 in Part 8 of Schedule 9 of the draft DCO for Hornsea Four. As noted above, the current licensee of licence CS001 is Carbon Sentinel Limited (previously known as National Grid Twenty Nine Limited), Equinor New Energy Limited and bp. bp is the operator of licence CS001 on behalf of the other licensees.

6.2 Hornsea Four's proposed protective provisions require Hornsea Four, with limited exceptions, to refrain from any wind development in the Overlap Zone unless and until a suitable co-existence solution is agreed between the parties or determined by the Secretary of State.

6.3 There is no such reciprocal obligation on the proposed operators of the NZT CCUS scheme to engage with Hornsea Four to establish the degree to which the two projects can co-exist.

6.4 There is a clear link between the onshore and offshore elements of the NZT Project (as evidenced by Article 31(1) of the draft DCO referred to in paragraph 5.3 above and as acknowledged in various places through the Application Documents). In reaching a decision on this DCO Application the Secretary of State should be satisfied that the scheme can come forward in an acceptable way. It is submitted that the application of appropriate protective provisions for the benefit of Hornsea Four is an appropriate and necessary step to ensure the acceptability of the scheme overall at the point of DCO decision. It is further submitted that the DCO process offers the best opportunity to fully consider the relevant issues and to apply appropriate mitigations and protections. There is no transparency in the storage permit process and whilst there may be the opportunity for limited consultation under the related EIA process, there is no opportunity to discuss issues and propose protections with the advisors to the decision maker.

7 Hornsea Four Proposed Protective Provisions for NZT DCO

7.1 Hornsea Four's proposed draft protective provisions for inclusion in the NZT DCO are set out in full in Appendix 1.

7.2 The provisions are structured as follows:

7.2.1 No part of the Proposed Development works must commence until a Coexistence and Proximity Agreement ("CPA") is entered into between the licensee from time to time of the UK Carbon Dioxide Appraisal and Storage Licence CS001 ("the Licensee") and Hornsea Four (or the parties agree none is required) or the Secretary of State has determined that a CPA is not required;

7.3 Provided all necessary Offshore Wind Farm Consents (i.e. consents for Hornsea Four's works within the Overlap Zone) are obtained within four months of the coming into force of Endurance Consents (i.e. the consents, licences and permissions required to allow the Licensee to carry out the licensee's

works), the Undertaker shall use reasonable endeavours to ensure that the Licensee commences preparation of a CPA by serving notice on Hornsea Four;

7.4 To facilitate preparation of the CPA, the Licensee and Hornsea Four must prepare a plan of work (essentially a programme, method statement etc. for the development of each project) and provide it to the other party. The CPA must be based on those plans of work and the other matters referred to in paragraph 8 of the protective provisions;

7.5 If the Offshore Wind Farm Consents are not obtained within the timescale specified in the protective provisions (or such other timescale as the Secretary of State determines on receipt of a request form Hornsea Four) of the grant of the Endurance Consents, or the Offshore Wind Farm Consents are granted in such a way as to preclude Hornsea Four from placing any infrastructure in the Overlap Zone the restriction on Proposed Development works within the Overlap Zone ceases to apply.

7.6 Arbitration provisions have been included to govern disputes.

7.7 There is an obligation for each party to keep the other informed of relevant activities.

7.8 The provisions are without prejudice to the parties' rights and obligations under the existing Interface Agreement.

7.9 Orsted maintains that coexistence in the whole of the Overlap Zone is possible and the protective provisions have been designed to allow additional time for the NEP Project (and the novel carbon capture storage technology) to mature to resolve any outstanding bp concerns in this regard.

7.10 Hornsea Four believes these provisions strike the appropriate balance to manage the interests between the parties and the requirement for coexistence prescribed in the Interface Agreement and relevant policy.

8 The Applicant's Proposed New Article in the Net Zero Teesside DCO

8.1 The Applicant has, in Appendix 7: Applicants' Response to Action 4 (Options for the SOS for BEIS on Hornsea 4 DCO Application) of its Written Summary of Oral Submission for Issue Specific Hearing 1 (Document Reference 9.2) stated its intention to include a new article in the draft DCO "to address liabilities which could in certain circumstances otherwise arise under the 'Interface Agreement'". This is an entirely new matter for this DCO examination which, if implemented, would have a material impact on Hornsea Four Offshore Wind Farm.

8.2 The new proposed article reads:

"Disapplication of Interface Agreement

From the date of this Order, the Interface Agreement shall no longer have effect, and no claim may be made, nor award granted, for any damages as a result of any alleged antecedent breach of the Interface Agreement prior to the date of this Order."

8.3 Hornsea Four considers this to be a material change to the application and one which is prejudicial to its interests and potentially the interests of The Crown Estate. The Interface Agreement was entered into in respect of Hornsea Four's interest in the seabed. If this is removed, then it prevents

Hornsea Four from taking enjoyment of the land interest it has been given and also denies Hornsea Four any rights it would have to compensation from bp under the Interface Agreement.

8.4 Section 120(3) of the Planning Act 2008 ("the 2008 Act") allows the Secretary of State to "make provision relating to, or matters ancillary to, the development for which consent is granted".

8.5 Through extensive research, Hornsea Four has not been able to identify any instance whereby a private commercial agreement has been disapplied by a DCO. It is a position which is wholly unprecedented.

8.6 It would not be appropriate for the Secretary of State to interfere with that private contract, which has managed the relationship of the parties to it since 2013, such that one party can unilaterally set aside a contract it no longer likes, without the consent of the other parties to that contract. If any amendments to the Interface Agreement were deemed to be required, the appropriate and lawful course of action would be for bp, the Applicant and The Crown Estate to negotiate a deed of variation to the Interface Agreement.

8.7 Hornsea Four do not consider that an interpretation of the powers conferred on the Secretary of State under Section 120 of the 2008 Act, given the impacts the imposition of the proposed new article would have on Hornsea Four's rights to its land interest and compensation under the Interface Agreement, should be interpreted so broadly as to permit an interference with a party to an agreement's private contractual rights.

8.8 Even if it was within the powers of the Secretary of State to disapply a private commercial agreement within a DCO, The Crown Estate would need to consent to the inclusion of the power in the NZT DCO pursuant to section 135(2) of the Planning Act 2008. There is no indication that The Crown Estate has been asked to or will provide this consent.

8.9 The Applicant's rationale for disapplying the Interface Agreement is based on submissions made by bp to the Hornsea Four Offshore Wind Farm DCO examination that it is necessary in the public interest to remove the risk that the terms of the agreement lead to award of compensation to Hornsea Four in relation to an adverse impact of the NEP Project on Hornsea Four Offshore Wind Farm which, in turn, renders the NEP project unviable. Notwithstanding the position that there is no lawful basis for the proposed new article to be imposed, in response to that: (i) this potential liability has been known to those promoting a CCUS project since 2013, and bp entered into the Interface Agreement cognisant of it. Therefore it is a potential liability that should have been factored into the financial modelling of the NEP Project and to have progressed this far suggests the liability would not render the NEP Project unviable; (ii) to the extent (if any) that there is public interest in this matter as bp have suggested, it applies at least equally in respect of the public interest in not allowing a nascent technology to curtail the generation capacity of offshore wind and undermine the path to Net Zero; (iii) bp (in the Hornsea Four Examination) and the Applicant (in this Examination) have failed to justify the lawful basis for the disapplication of the Interface Agreement; and (iv) it appears that bp has not sought the views of The Crown Estate on this matter.

8.10 Hornsea Four, in response to the request from bp to disapply the Interface Agreement by imposing protective provisions to that effect in the Hornsea Four Offshore Wind Farm DCO, has sought the opinion of Counsel on whether it is lawful and, if so, appropriate, to include provisions within a DCO to disapply a commercial agreement and is submitting a legal submission to the Hornsea Four DCO examination. Those submissions apply also to what is proposed in the context of the NZT Project

DCO and Hornsea Four would therefore propose to supplement this Written Representation with a copy of that legal submission at or before Deadline 3.

8.11 Hornsea Four strongly disagrees with the Applicant's request that the scrutiny of/advocacy for the disapplication of the Interface Agreement is limited to the Hornsea Four DCO examination. This is a power which is now being sought under the Net Zero Teeside DCO (quite independently of bp's request under the Hornsea Four DCO) and its acceptability must be thoroughly tested as part of an examination into this DCO.

9 UK Policy Support for Hornsea Four and the Carbon Storage Project

9.1 To assist the Examination of the Proposed Development, Hornsea Four attaches a summary of some of the current UK Policy Support for offshore wind and carbon capture and storage projects at Appendix 2.

10 Conclusions

10.1 The NZT Project consists of onshore and offshore elements which are intrinsically linked, with the onshore elements being unable to progress without the offshore elements being consented. It is therefore necessary that the acceptability of the NZT Project as a whole is assessed as part of this examination, including the impacts on Hornsea Four Offshore Wind Farm.

10.2 The timelines for both the Hornsea Four Offshore Wind Farm and the NZT Project coming forward are uncertain in terms of the order in which the respective developments will obtain their consents, and be ready to implement these consents. The detailed design of the offshore components of the NZT Project in particular is still being progressed. There are also a number of methodologies which may be successfully deployed to facilitate successful co-existence. Therefore there is a need within the NZT DCO to ensure that the NZT Project can come forward in an acceptable way, which is not inconsistent with the Hornsea Four DCO and which will not result in the unjustified exclusion of offshore wind development in the Overlap Zone.

10.3 This could be achieved by including the Hornsea Four draft protective provisions within the NZT DCO. These protective provisions would address the known uncertainties and seek to put in place a process to ensure successful coexistence, in line with relevant policy.

10.4 In the absence of acceptance by the Applicant of such a mechanism it is Hornsea Four's position that the ExA will need to understand the respective policy merits of the projects; the different ways in which they could be delivered; the impacts of each scenario on the respective projects; and on that basis reach a decision on whether and how the NZT scheme can come forward in an acceptable way.

10.5 Hornsea Four is confident that co-existence is possible and that the proposed protective provisions within both the Hornsea Four DCO and the Net Zero Teeside DCO would afford the best prospects of maximising the benefits from the two schemes.

Hornsea Project Four

Net Zero Teesside Development Consent Order Written Representation of Orsted Hornsea Project Four Limited
Appendix 1: Draft Protective Provisions

Deadline: 2, Date: 9th June 2022

PART [X]

FOR THE PROTECTION OF ORSTED HORNSEA PROJECT FOUR LIMITED

1 Application

1. For the protection of Hornsea Four, unless otherwise provided for in this Schedule or otherwise agreed in writing between the undertaker and Hornsea Four the provisions of this part of this Schedule shall have effect for so long as the offshore wind farm consent shall remain in full force and effect.

2.—(1) In the event that—

(a) the offshore wind farm consents are not obtained by the date specified in paragraph 5; or

(b) the offshore wind farm consents are granted in such a way as to preclude Hornsea Four from placing any infrastructure in the overlap zone,

the obligations on the undertaker in this Part shall no longer have effect.

2 Interpretation

3. In this Part of this Schedule—

"applicable laws" means applicable laws, rules, orders, guidelines and regulations, including without limitation, those relating to health, safety and the environment and logistics activities such as helicopter and vessel operations;

"BP Exploration Operating Company Limited" means BP Exploration Operating Company Limited, with Company Registration Number 00305943, whose registered office is at Chertsey Road, Sunbury On Thames, Middlesex TW16 7BP;

"Carbon Sentinel Limited" means Carbon Sentinel Limited, with Company Registration Number 08116471, whose registered office is at 1–3 Strand, London WC2N 5EH;

"coexistence and proximity agreement" means an agreement entered on reasonable terms between the licensee and Hornsea Four in respect of the undertaker's works and Hornsea Four's works to reconcile and protect the interests of the parties as are known at the time to secure the implementation of the licensee's works and Hornsea Four's works, taking account of the matters in paragraph 8;

"endurance consents" means all necessary consents, licences and permissions required to allow the licensee to carry out the licensee's works including without prejudice to the generality a storage licence under section 18 of the Energy Act 2008;

"good offshore wind farm construction practice" means the application of those methods and practices customarily used in construction of wind farms in the United Kingdom continental shelf with that degree of diligence and prudence reasonably and ordinarily exercised by experienced operators and contractors engaged in the United Kingdom continental shelf in a similar activity under similar circumstances and conditions;

"good carbon storage practice" means the maintenance of all apparatus and appliances in good repair and condition and the execution of all operations in or in connection with the area subject to the Licence in a proper and workmanlike manner in accordance with methods and practice customarily used in good industry practice (as defined in the licence) and taking all steps practicable in order to prevent damage to adjoining strata;

"Hornsea Four" means Orsted Hornsea Project Four Limited with Company Registration Number

08584182, whose registered office is at 5 Howick Place, London, England, SW1P 1WG and its transferees and lessees under The Hornsea Four Offshore Wind Farm Order;

“Hornsea Four’s works” the works by Hornsea Four pursuant to the offshore wind farm consents within the overlap zone;

“interface agreement” means the agreement dated 14 February 2013 between (1) The Crown Estate Commissioners (2) Carbon Sentinel Limited and (3) Smart Wind Limited, as varied and adhered to by an agreement dated 12 September 2016 between (1) The Crown Estate Commissioners (2) Smart Wind Limited (3) Carbon Sentinel Limited and (4) Hornsea Four and a Deed of Covenant and Adherence dated 10 February 2021 between (1) The Crown Estate Commissioners (2) Hornsea Four (3) Smart Wind Limited (4) Carbon Sentinel Limited and (5) BP Exploration Operating Company Limited, or such other agreement as may be entered into by the parties in substitution for those agreements;

“licence” means United Kingdom Carbon Dioxide Appraisal and Storage Licence CS001;

“licensee” means the licensee from time to time of the Licence (or any one of them);

“licensee’s works” means: (i) the operation of any infrastructure existing in the overlap zone; and (ii) any monitoring in the overlap zone, or any infrastructure and monitoring to be installed, operated or undertaken (as applicable) in the overlap zone, and owned, occupied or maintained by or on behalf of the licensee, and authorised by the licence;

“monitoring” means any means of monitoring within the overlap zone, including seismic surveying;

“offshore wind farm consents” means all necessary consents, licences and permissions required to allow Hornsea Four to carry out Hornsea Four’s works;

“overlap zone” means the area of seabed with the coordinates below and shown delineated [ ] on the protective provisions plan;

Polygon Vertex	*Longitude*	*Latitude*
1	1° 0’ 34.075” E	54° 8’ 51.929” N
2	1° 0’ 43.850” E	54° 9’ 13.497” N
3	0° 58’ 21.782” E	54°10’ 49.480” N
4	0° 58’ 31.095” E	54° 12’ 37.143” N
5	1° 12’ 18.263” E	54° 12’ 17’413” N
6	1° 15’ 35.528” E	54° 10’ 48.297” N
7	1° 13’ 54.364” E	54° 9’ 52.770” N
8	1° 11’ 0.989” E	54° 8’ 17.458” N

“plan of the licensee’s works” means an exploration and development programme, method and details and location of licensee’s works and minimum requirements known at that time in accordance with good carbon storage practice and applicable laws to enable the licensee to, as applicable, explore, appraise, develop and/or decommission carbon dioxide storage as permitted by the licence;

“plan of Hornsea Four’s works” means a construction programme, method and details of the proposed location of Hornsea Four’s works and minimum requirements known at that time such as safety in accordance with good offshore wind farm construction practice and applicable laws to enable Hornsea Four to construct and operate their works;

"the protective provisions plan” means the plan entitled protective provisions plan and certified as the protective provisions plan for the purposes of this Part of this Schedule;

“Relevant Activities” means all development activity relating to the carrying on of the licensee's and Hornsea Four's businesses within, or adjacent to the overlap zone, including (but not limited to) the

preparation of development proposals, the submission of applications for statutory consents associated with those proposals and consultation in respect thereof;

"Smart Wind Limited" means Smart Wind Limited, with Company Registration Number 07107382, whose registered office is at 5 Howick Place, London, England SW1P 1WG;

"The Crown Estate Commissioners" means The Crown Estate Commissioners on behalf of Her Majesty the Queen, acting in exercise of the powers of the Crown Estate Act 1961[1];

"undertaker's works" means the indicative works permitted by this order.

3 Coexistence and Proximity Agreement

4.—(1) Save as provided in paragraphs 9 and 11 no part of the undertaker's works shall commence until —

(a) one or more coexistence and proximity agreement(s) has been concluded between the licensee and Hornsea Four in respect of the licensee's works and Hornsea Four's works and Hornsea Four has confirmed this to the undertaker acting reasonably and without delay; or

(b) the licensee and Hornsea Four shall have agreed in writing that no coexistence and proximity agreement is required in respect of the licensee's works and Hornsea Four's works and Hornsea Four has confirmed this to the undertaker acting reasonably and without delay; or

(c) The Secretary of State has determined that a coexistence and proximity agreement is not required

5. Within [XX] months of the coming into force of the endurance consents (or such other timescale as may (1) be agreed between the undertaker. the licensee and Hornsea Four or (2) be determined by the Secretary of State on receipt of a request from Hornsea Four) the undertaker should use reasonable endeavours to ensure that the licensee commences preparation of a coexistence and proximity agreement by serving notice on Hornsea Four including a plan of the licensee's works along with a request for Hornsea Four to produce a plan of Hornsea Four's works.

6. In response to the notice Hornsea Four shall produce a plan of Hornsea Four's works within 28 days of service of the notice.

7. Preparation of a coexistence and proximity agreement must be concluded within 3 months of the date for production of the plan of Hornsea Four's works under paragraph 6 above unless otherwise agreed in writing between the licensee and Hornsea Four.

8. —(1) The coexistence and proximity agreement must be based on the plan of the licensee's works and the plan of Hornsea Four's works and must take account of—

(a) the nature and location of the licensee's works on any plan of the licensee's works as known at that time;

(b) the location and extent of sea and/or airspace required for the licensee's works (including all applicable exclusive zones) as known at that time;

(c) all such evidence as is available at the time to support the existence of a prospect for the storage of carbon dioxide (with a view to its permanent disposal) in the area subject to the licence;

(d) the objectively assessed ability of the licensee to reduce or remove its sea and/or airspace area requirement under (b) above in light of evidence at (c) above, whether with immediate effect or at a specified later date;

(e) the date by which the licensee will seek to commence operation, or at which works of appraisal will cease, as known at that time;

[1] 1961 c.55

(f) the siting and design of Hornsea Four's works on any plan of Hornsea Four's works as known at that time;

(g) the minimum feasible exclusive zones, buffer zones or safety zones required for safe construction and operation between Hornsea Four's works and the licensee's works;

(h) protocols protective of navigation communication and use of the sea or air by third parties, including without prejudice protection of the integrity of search and rescue corridors;

(i) possible future transfer of the benefit of the order or of the licence; and

(j) the national policy requirements for co-existence and the ongoing commercial viability of the authorised development permitted under the order together with carbon dioxide appraisal and storage in the overlap zone.

9. If no coexistence and proximity agreement is concluded, or Hornsea Four and the licensee shall not have agreed whether a crossing and proximity agreement is required pursuant to paragraph 4(b) within the period specified in paragraph 7, the outstanding matters in dispute must be determined by the Secretary of State following the process in article [47] (arbitration) of this Order as modified by paragraph 11. The undertaker's, Hornsea Four's and the licensee's works must not commence until the determination of the Secretary of State has been made and must only be implemented in accordance with that determination which is final and binding on the undertaker, Hornsea Four and the licensee (save for manifest or legal error)—

(a) the arbitration shall be conducted by a sole arbitrator appointed by the Secretary of State;

(b) the Secretary of State must consult the parties on the candidates for the role of arbitrator;

(c) the Secretary of State must appoint an arbitrator within 14 days of the delivery of a notice of arbitration;

(d) unless otherwise agreed between the Secretary of State, the undertaker, Hornsea Four and the licensee, the arbitrator shall be a person (including one who has retired) with not less than fifteen years' aviation, radar or shipping and marine navigation, and seismic survey experience (as applicable) associated with a combination of offshore oil and gas development and offshore wind farm development or as a lawyer or other professional advisor serving those industries and having that experience;

(e) the arbitrator should make a recommendation to the Secretary of State as to the determination of the matters in dispute within 1 month of appointment;

(f) the Secretary of State must determine the arbitration within 1 month of receiving the recommendation of the arbitrator; and

(g) when determining the arbitration the Secretary of State must— (i) have regard to the recommendation of the arbitrator, but may reach an alternative view; and (ii) give reasons for the determination.

4 Provision of information

10. Without prejudice to any other rights or obligations under this Part of the Schedule the undertaker, licensee and Hornsea Four shall from time to time keep each other informed of relevant activities such that the undertaker, licensee and Hornsea Four may seek to agree solutions to allow the licensee's works and Hornsea Four's works to successfully co-exist as far as reasonably practicable or if later until completion of activities required under any post-closure plan required under The Storage of Carbon Dioxide (Licensing, etc.) Regulations 2010 in relation to the licence and taking place within the area

subject to the licence.

5 Interface agreement

11. Nothing in this Part of the Schedule shall affect any rights or obligations of the licensee or Hornsea Four under the terms of the interface agreement, and should a conflict arise between the terms of these protective provisions and the terms of the interface agreement, the interface agreement shall prevail.

Hornsea Project Four

Net Zero Teesside Development Consent Order Written Representation of Orsted Horsnea Project Four Limited
Appendix 2: UK policy support for Carbon Capture, Usage and Storage (CCUS) and Offshore Wind

Deadline: 2, Date: 9th June 2022

Table of Contents

1 Executive Summary

1.1 On 14th December 2020 government published the Energy White Paper: Powering our Net Zero Future (EWP) [9]. EWP followed from the National Infrastructure Strategy [3] and The Prime Minister's Ten Point Plan of November 2020 [16], which sets out the measures that will help ensure the UK is at the forefront of a global green industrial revolution. EWP provides further clarity on the Prime Minister's measures and puts in place a strategy for the wider energy system. Since the publication of the Energy White Paper, not only has the UK hosted COP26, but further documents have been issued from Government and industry relating to the important roles of CCUS and offshore wind in achieving the aims of the UK's net zero commitment, namely:

- Adoption by government of the Committee on Climate Change (CCC) recommendation for Carbon Budget 6 (CB6, running 2033-2037);
- Issuance of the Draft revised suite of overarching and technology specific **National Policy Statements** for Energy (including EN-1 and EN-3);
- A suite of documents setting out Cluster sequencing for the bringing forward of CCUS projects in the UK in the 2020s; and
- Publication of the British Energy Security Strategy.

1.2 This paper summarises aspects of UK energy policy which have been relevant to CCUS[1] and offshore wind since the introduction of the **Climate Change Act 2008** (CCA2008) through to the most recent publications. The EWP is wholly consistent with the **National Infrastructure Strategy** (NIS) and with many of the recommendations made by the Committee on Climate Change (CCC) in their proposals for a sixth carbon budget (see following).

1.3 In summary, this paper demonstrates that both CCUS and offshore wind are of critical importance to both the UK's green recovery plan and the national need to meet Net Zero commitments by 2050. Government's policy position, based on absolute need and taking a conservative approach to planning, is not to prioritise either one or the other of these two critical technologies, but to progress both with equal vigour and drive to meet the United Kingsom's (UK's) strategic national climate aims.

2 The Low Carbon Transition Plan

2.1 Government, through CCA2008, made the UK the first country in the world to set legally binding carbon budgets, aiming to cut emissions (versus 1990 baselines) by 34% by 2020 and at least 80% by 2050, 'through investment in energy efficiency and clean energy technologies such as renewables, nuclear and carbon capture and storage' [1, Five Point Plan].

2.2 CCA2008 was underpinned by further legislation and policy measures. Many of these were first consolidated in the **UK Low Carbon Transition Plan** (2009) (LCTP) [1], and then in the **UK Clean Growth Strategy** (2017) [2]. Both CCUS and Offshore Wind can trace the policy support they currently enjoy back to LCTP. Both remain critically present in the **National Infrastructure Strategy** (November 2020) [3] and **Energy White Paper** (December 2020) [9] and Government is supporting industry to make tangible developments in both important technologies during the critical 2020s.

[1] CCS involves the capture, transportation and storage of carbon, primarily produced from industrial or power generation processes. CCUS extends CCS to include the possibility of using, rather than storing, the carbon which has been captured. Much of the infrastructure required for CCS is also anticipated to be required for CCUS, potentially excluding the ultimate storage site. This paper uses CCUS and CCS throughout, taking its lead from the primary text which is being referenced

2.3 LCTP, alongside other policies, included policy measures to show how generation of around 40% of electricity from low carbon sources, and a reduction in emissions from the power sector and heavy industry of up to 22% on 2008 levels, would both be achieved by 2020. [1, p52]

2.4 LCTP recognised that 'Renewable electricity, nuclear and carbon capture and storage will be needed in some combination', and government is therefore taking action to enable both to contribute as part of the mix. [1, p58]

2.5 In summary, LCTP acknowledged that delivering large increases in renewable electricity would be critical in decarbonising the power sector [1, p59], but also that fossil fuels 'remain important to ensure [UK] electricity supply is reliable and secure as [the UK] move[s] towards a greater dependence on intermittent renewable sources like wind'. Therefore, to enable the continued operation of gas fired power stations while respecting the Carbon Budgets established under CCA2008, CCUS was – and remains – critically important as a technological solution 'which has the potential to reduce emissions from fossil fuel power stations by up to 90%.' [1, p65]

2.6 In October 2018, following the adoption by the UN Framework Convention on Climate Change of the Paris Agreement, the Intergovernmental Panel on Climate Change (IPCC) published a **Special Report on the impacts of global warming of 1.5°C above pre-industrial levels**. This report concluded that human-induced warming had already reached approximately 1°C above pre-industrial levels, and that without a significant and rapid decline in emissions across all sectors, global warming would not likely be contained, and therefore more urgent international action is required. The ambition against which CCA2008 was established had been extended, and the targets for carbon emissions reduction were tightened.

2.7 In May 2019, the CCC published **Net-Zero: The UK's contribution to stopping global warming** [17], which recommended that 'The UK should set and vigorously pursue an ambitious target to reduce greenhouse gas emissions (GHGs) to 'Net-Zero' by 2050, ending the UK's contribution to global warming within 30 years.' This recommendation was implemented into law in June 2019. One year later, in June 2020, the CCC reported to government that:

> *To reach the UK's new Net Zero target emissions … is likely to require outperformance of the carbon budgets legislated to date*. [4, pp52-53].

2.8 the importance of carbon abatement and renewable generation were both reiterated in the CCC's June 2021 **Progress Report to Government**:

> *Electricity generation should be fully decarbonised by 2035, while meeting a 50% increase in annual demand. This will require large-scale deployment of new low carbon generating capacity that is resilient to a changing climate [and] phasing out unabated gas-fired generation …* [19, p122]

3 The National Infrastructure Strategy

3.1 In November 2020, government published its **National Infrastructure Strategy** [3], rooted in the expert advice of the National Infrastructure Commission (NIC) and responding to its ground-breaking 2018 assessment of the country's infrastructure needs. NIS sets out the government's plans to deliver an infrastructure revolution 'to put the UK on the path to net zero emissions by 2050.' [3, p8]

3.2 NIS includes all points set out in the Prime Minister's Ten Point Plan (also November 2020), including:

- Significant investment in offshore wind and into modern ports and manufacturing infrastructure to expand the share of energy generation from renewables; and
- £1 billion to support the establishment of carbon capture and storage in four industrial clusters.

3.3 NIS also addresses current inequalities in infrastructure development and private investment across the Union. Government wants to use infrastructure to 'level up' the UK, including: 'creating regional powerhouses, making cities the engines of growth and revitalising towns' by 'backing new green growth clusters in traditional industrial areas, with carbon capture and storage, offshore wind, port infrastructure and low carbon hydrogen.' [3, p26]

3.4 CCUS and offshore wind are both valued by government as vital instruments in the regeneration of towns and communities:

> *The government's decarbonisation agenda will build the UK's capability in new green industries. Infrastructure investment in offshore wind capacity (40GW by 2030) and port infrastructure will create jobs in coastal communities. Further investment in Carbon Capture and Storage and in low carbon hydrogen will drive economic activity in post-industrial towns.* [3, p37]

3.5 Critically, current government strategy recognises that the energy ecosystem which will deliver Net Zero must be integrated, with cross-commodity, cross-vector technologies optimising energy generated while minimising both carbon emissions and energy wasted.

- Low carbon hydrogen (either green, or blue) is a potential (but increasingly seen as essential) alternative to fossil fuel heating in industry and buildings, for the storage ofenergy, as a source of power, and for some modes of transport. The UK Hydrogen Strategy [21, p10] states that, as a result of its geography, geology, infrastructure and capabilities, the UK has an important opportunity to demonstrate global leadership in low carbon hydrogen and to secure competitive advantage. The UK's *twin track* approach capitalises on the national potential to produce large quantities of both electrolytic (green) and CCUS enabled (blue) hydrogen.;
- CCUS is a lead technology to enable the decarbonisation of existing or new gas-fired electricity generation (to complement renewable generation when wind or solar levels are low), but also to capture emissions from industry, to enable the production

of blue hydrogen, and to support greenhouse gas removal technologies to offset some of the hardest to reach sectors;

- Low-carbon electricity generation (with offshore wind at the vanguard) will generate electrical energy not only for traditional use, but also for the electrification of space heating and transport, and for the production of green hydrogen. [3, p48].

3.6 The North East of England has been identified in the NIS as an example of a place which 'could become a home of choice for companies delivering carbon capture and storage; making hydrogen power a part of daily life; and designing, building and maintaining offshore wind turbines' [3, p48] showcasing the dual importance of both CCUS and offshore wind not only to the country and our Net-Zero ambitions, but also to local areas in terms of jobs and community prosperity.

4 The Sixth Carbon Budget

4.1 The CCC's recommendations for a **Sixth Carbon Budget** (CB6), presented to the Secretary of State in December 2020 [10] provides insight into the level of policy support which may be required for CCUS, offshore wind and other technologies in order to 'reflect the goals and requirements of the Paris Agreement, recognising the UK's responsibility as a richer developed nation and its respective capabilities' [10, p17].

4.2 CB6 identifies actions which are required to expand low-carbon electricity supplies, and foresees in all scenarios that 'The largest contribution [to low-carbon electricity supplies] is from offshore wind, reaching Government's goal of 40 GW in 2030 on a path to 65-125 GW by 2050'. [10, p25]

4.3 Action is also needed to take-up low-carbon solutions: 'Industry must either adopt technologies that use electricity or hydrogen instead of fossil fuels or install carbon capture and storage' and 'Low-carbon hydrogen [must] scale up to 90 TWh by 2035 … produced using electricity or from natural gas or biomass with carbon capture and storage.' [10, p25]

4.4 All of the pathways explored in the CCC's Sixth Carbon Budget advice include CCUS as a critical and cost-effective means of meeting the UK's 2050 Net Zero target. The CCC state that the 'exclusion of CCS is likely to significantly increase cumulative emissions over the period to 2050' and is therefore not a recommended pathway. [10, Box 2.4]

4.5 The CCC scenarios indicate potential ranges of installed capacity for different generation technologies, each showing a significant increase for both offshore wind (as described above) and CCS. In each scenario, unabated gas generation is phased out between 2035 and 2040,

and dispatchable (abated, i.e. with CCUS capacity) generation ranges between 50 GW and 65 GW by 2050 [10, Table 3.4a].

4.6 Further, it is foreseen (in line with current government policy support) that 'Infrastructures for CCS and hydrogen are deployed from 2025 in the pathway, starting near industrial clusters.' [10, p126]

5 Energy White Paper

5.1 The electricity sector is undergoing rapid and ambitious change and government's policy position will be reviewed, subject to the success of nascent technologies.

> *Our understanding of what is required from the electricity sector to support the delivery of net zero emissions will change over time. Our views will be informed by what we learn about the costs of decarbonising other sectors of the economy and by the costs and availability of negative emissions technologies … We are not targeting a particular generation mix for 2050.* [9, p42]

5.2 EWP presents Government's energy policy preferences before introducing legislation to put those preferences into effect. EWP is an important document which sets out current policy on energy and energy infrastructure and includes policy statements on both offshore wind and CCUS. [9, pp12,13]

5.3 In support of a key commitment to bring forward affordable clean electricity, government are targeting 40 GW of offshore wind, using highly competitive CfD arrangements to bring down the cost of generation. CfD Allocation Round 4 is ongoing at the time of writing, and a pot budget of £200m with no capacity cap has been allocated. [9, p45]

5.4 Further, offshore seabed leasing has also been announced by The Crown Estate and Crown Estate Scotland, the later awarding in January 2022 seabed leases to 17 projects totalling 24.8 GW of generation potential. These projects do not come without risk, however. Scottish Renewables recommended a 30% MW attrition rate for future potential projects leased under ScotWind in their 2018 publication **An industry view of the Draft Sectoral Marine Plan for Offshore Wind** in order to reflect the more challenging conditions in Scottish offshore waters relative to the rest of the UK, particularly regarding water depth, ground conditions and grid charges.

5.5 Additionally, a £160 million scheme with a competitive process for attracting funding has been launched to support the development of offshore wind manufacturing infrastructure through the development of major portside infrastructure hubs, strengthening UK offshore wind manufacturing.

> *By 2030 we plan to quadruple our offshore wind capacity so as to generate more power than all our homes use today, backing new innovations to make the most of this proven technology and investing to bring new jobs and growth to our ports and coastal regions.* [9, p56]

5.6 This narrative demonstrates that not only is it government policy for offshore wind to provide a significant amount of 'heavy lifting' required to combat climate change, but also that the offshore wind sector is well placed to deliver that heavy lifting. However development is not without risk. Schemes which are located on developable areas of seabed, and are well advanced in their planning and development cycles, are therefore valuable in relation to the lower risk contribution they have the potential to make in continuing progress in decarbonisation.

5.7 EWP confirms that gas-fired generation with CCUS can provide flexible, low-carbon capacity to complement high levels of renewables, therefore the deployment of power CCUS projects are expected to play a key role in the decarbonisation of the electricity system at low cost. The EWP therefore included commitments to support at least one power CCUS plant to come forward and be operational by 2030 in one of the major industrial clusters (Grangemouth, Teesside, Humberside, Merseyside, South Wales and Southampton). [9, p47&121]

5.8 Both EWP and government's **Industrial Decarbonisation Strategy** [18] present CCUS as fundamental to the decarbonisation of energy intensive industries such as steel, cement, oil refining and chemicals and set out how CCUS can help secure the long-term future of these industries and enable production of clean hydrogen at scale, and therefore why CCUS development is needed.

> *Our ambition is to capture 10Mt of carbon dioxide a year by 2030 - the equivalent of four million cars' worth of annual emissions. We will invest up to £1 billion to support the establishment of CCUS in four industrial clusters, creating 'SuperPlaces' in areas such as the North East, the Humber, North West, Scotland and Wales.* [9, p125]

5.9 EWP confirms that both offshore wind and CCUS hold critical positions in current GB energy policy and EWP includes government measures to support the increased deployment of each in the critical 2020s timeframe.

6 The National Policy Statements

6.1 An important part of streamlining the planning process and thereby accelerating the deployment of low-carbon infrastructure in the England and Wales was establishing **National Policy Statements** (NPS). The NPSs were established against obligations made as part of CCA2008. The overarching **National Policy Statement for Energy** (NPS EN-1) [5] sets out national policy for energy infrastructure in England and Wales. It has effect, in combination with NPS EN-2 (for fossil fuel electricity generating infrastructure) [6], NPS EN-3 (for renewable energy infrastructure) [7] and NPS EN-5 (for electricity networks) [8], on recommendations made by the appointed Examining Authority (ExA) to the SoS for BEIS on applications for energy developments that fall within the scope of the NPSs [5, Para 1.1.1]. NPS EN-2 covers applications for fossil fuel generating stations with over 50 MW generating capacity and NPS EN-3 covers those renewable technologies which, at the time of publication in 2011, were technically viable at generation capacities of over 50 MW onshore and 100 MW offshore. These NPSs, when combined with the relevant technology-specific energy NPS, provide the primary basis for decisions by the SoS. The NPS set out a case for

the need and urgency for new energy infrastructure to be consented and built with the objective of supporting government's policies on sustainable development, in particular by:

- Mitigating and adapting to climate change, and
- Contributing to a secure, diverse and affordable energy supply. [7, Para 1.3.1].

6.2 The UK chose to largely decarbonise its power sector by adopting low carbon sources quickly, but remained cognisant of the advantages to the UK of maintaining a diverse range of energy sources so avoid dependency on a particular fuel or technology type. [5, Para 3.3.5]

6.3 NPS-EN-1 identified the need for CCUS as a critical enabler to decarbonise fossil fuel generation, and for offshore wind as a low-carbon and proven fuel source.

6.4 During 2020, Government determined that the NPSs should be reviewed and EWP, signalled a review of the existing National Policy Statements. Draft versions of NPS EN-1 and EN-3 were issued for consultation on 6th September 2021 [14, 15]. While the Draft EN-1 confirms that the 'Secretary of State has decided that for any application accepted for examination before designation of the 2021 amendments, the 2011 suite of NPSs should have effect in accordance with the terms of those NPS.' [14, Para 1.6.2] the same document also states that "any emerging draft NPSs (or those designated but not having effect) are potentially capable of being important and relevant considerations in the decision-making process" [14, Para 1.6.3]. This paper therefore contains a synthesis of the Draft National Policy Statements EN-1 and EN-3 in relation to both CCUS and offshore wind.

6.5 However the NPSs as issued in 2011 remain current until they are superseded, and they provide specific policy in relation to both CCUS and offshore wind development. The policies set out in NPS EN-1, 2, 3 and 5 therefore apply, and being unquestionably 'important and relevant', therefore should afford significant weight in any planning assessment.

7 The Draft NPS (September 2021)

7.1 Draft EN-1, published for consultation in September 2021, establishes the need for new nationally significant electricity infrastructure and CCUS.

7.2 To ensure that there is sufficient electricity to meet demand, new electricity infrastructure will have to be built to replace output from retiring plants and to ensure that increased demand can be met. Building out more capacity increases the margin between supply and demand. The larger the margin, the more resilient the electricity system will be in dealing with unexpected events, and consequently the lower the risk of a supply interruption, although unnecessary additional capacity may increase the overall cost of the system. [14, Paras 3.3.2&3.3.3]

7.3 A doubling of demand by 2050 (as is anticipated by CCC, the National Infrastructure Commission and National Grid ESO), may require a fourfold increase in low carbon generation. [14, Para 3.3.5]. A diverse mix of electricity infrastructure is therefore required to come forward, to deliver a secure, reliable, affordable, and net zero consistent system in

2050 for a wide range of demand, decarbonisation, and technology scenarios. [14, Para 3.3.8]

7.4 Offshore wind and CCUS are both critical elements of a diverse mix of infrastructure. Government analysis 'shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar' [14, Para 3.3.21], a key driver for government's target of 40 GW of offshore wind by 2030.

7.5 Combustion power stations, which by their nature are dispatchable and therefore provide significant energy security and system operation benefits, are also currently incredibly important to the GB electricity system, but most produce residual emissions. All new carbon-emitting combustible power stations over 300 MW in capacity must be constructed to be ready for carbon capture. CCUS is therefore a critical enabler to the continued operation of dispatchable carbon emitting plant. [14, Para 3.3.32]

7.6 Although CCS has not been deployed in the UK to date, the barriers to deployment are considered to be commercial rather than technical, and the potential of CCS will become clearer once at least one power CCS plant is operational, as expected by 2030. [14, Para 3.3.37]

7.7 Hydrogen could be a low carbon alternative for natural gas if production of that hydrogen is coupled with CCS, or through electrolysis powered by low carbon electricity, demonstrating that the significant uptake of hydrogen in the UK electricity system will be critically dependent on either or both offshore wind and CCS.

7.8 The conclusion is that all generating technologies mentioned in the Draft EN-1 are urgently needed to meet the Government's energy objectives of delivering a secure, affordable and net zero energy system. Prioritisation of one technology over any other is not current government policy [14, Para 3.3.43] and this extends to CCUS.

> *New carbon capture and storage infrastructure will be needed to ensure the transition to a net zero economy. The Committee on Climate Change Committee states CCS is a necessity not an option.* [14, Para 3.5.1]

7.9 Government's view is that CCS is needed to enable domestic production of low carbon hydrogen from natural gas (blue' hydrogen) as well as unlocking the potential use of biomass for low carbon hydrogen production with negative emissions. Further, CCS is fundamental to the deep decarbonisation of energy intensive industries such as chemical and cement plants and refineries. Alternate methods of decarbonising industry are limited, and CCS is therefore essential. [14, Para 3.5.5]

7.10 A further technology-specific NPS (Draft EN-3, [15]) covers onshore and offshore renewable electricity generation, including offshore wind. No technology-specific NPS currently exists for CCS. EN-1 Para 1.3.3 makes clear that Draft EN-1 will have effect alone for CCS

infrastructure, and therefore that the absence of a technology specific NPS for CCS should not be inferred as a lower level of need for the technology.

8 COP26: Uniting the world to tackle climate change

8.1 The UN Climate Change Conference of the Parties (COP26) was held in Glasgow on 31 October – 13 November 2021. COP26 brought parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. As the first COP since the first Nationally Determined Contributions (NDC)s had been published (post Paris Agreement), the run up to COP26 in Glasgow was a critical moment in the world's mission to keep the hope of limiting global temperature rises to 1.5°C alive [22]. Through the NDCs shared at and before COP26, international pledges could be reviewed and amalgamated, and for the first time a view of global commitments made towards limiting carbon emissions and adapting to climate change could be created.

8.2 COP26 achieved agreements on many themes, including: science and urgency; adaption; adaption finance; mitigation; finance, technology transfer and capacity-building for mitigation and adaptation; loss and damage; implementation; collaboration; and confirmation and developments of elements of the Paris rulebook.

8.3 Of greatest relevance to this Summary of UK Policy Support, specifically because collective progress to date to reduce emissions has not been sufficient, are the outcomes agreed at COP26 relating to mitigation: setting out the steps and commitments that Parties will take to accelerate efforts to reduce emissions 'to keep 1.5°C in reach'. Key achievements at COP26 under the theme of mitigation include [23]:

- Over 90% of world GDP and around 90% of global emissions are now covered by net zero commitments and 153 countries have put forward new or updated emissions NDCs, which collectively cover around 80% of the world's greenhouse gas emissions. Net zero is a global endeavour and the world is getting on board;
- The importance of action now to address the urgency of climate change and drive emissions down before 2030 was cemented in an agreement from all parties to revisit and strengthen their current emissions targets to 2030, in 2022;
- The role of clean electricity in delivering climate action, and the importance of driving down emissions from fossil fuel generators as well as increase capacity of renewable generators, was acknowledged in the negotiated agreement by 190 countries at COP26 to 'phase down coal power'. Further commitments to cease international coal finance and direct public support of unabated fossil fuel energy, by the end of 2021 and 2022 respectively, will free funds to be redirected for deployment in renewable energy;
- Accounting for over 10% of global greenhouse gas emissions, and around half the world's consumption of oil, road transport is a critical sector to decarbonise with pace. Agreement was reached by countries, cities, companies, investors and vehicle manufacturers to target all new car and van sales to be zero emission by 2040 globally and 2035 in leading markets, and ultimately to phase out fossil fuelled vehicles. Electrification of transport is inevitable, underway and accelerating. Low carbon electricity supply must keep growing to provide the energy to enable the rapid displacement of oil.

8.4 It is appropriate that COP26 was held in the UK, because of the significant leadership and progress shown by the UK through its climate actions and ambitious climate change targets. And as the COP26 Outcomes report reminds its readers: 'we must continue the work of COP26 with concerted and immediate global effort to deliver on all pledges' in order to keep alive the hope of limiting the rise in global temperature to 1.5°C.

9 The British Energy Security Strategy

10 In April 2022, government published its British Energy Security Strategy [27]. The publication of this strategy reiterates the Government's support for both CCUS and offshore wind, with the Government committing to deliver four CCUS clusters by 2030 (including the East Coast Cluster which is noted as proceeding through Track 1), and increasing the target for offshore wind by 2030 from 40GW to 50 GW (including up to 5GW form floating wind).

11 The Strategy concludes that "to reduce our reliance on imported fossil fuels, we must fully utilise our great North Sea reserve, use the empty caverns for CO2 storage, bring through hydrogen to use as an alternative to natural gas and use our offshore expertise to support our offshore wind sector."

12 Sector-specific policy

12.1 As stated in the NPS, The UK chose to largely decarbonise its power sector by adopting low carbon sources quickly, but remained cognisant of the advantages to the UK of maintaining a diverse range of energy sources so to avoid dependency on a particular fuel or technology type. [5, Para 3.3.5]. The nature and timing of activities which have required support has therefore evolved differently across the critical sectors of offshore wind and CCUS. The following sections describe many the important policies and implementation support actions across each sector, which have supported their progress through the last decade and will continue to support progress into and beyond the next.

12.2 CCUS

9.2.1 Government first set out its support for the development of CCUS in the UK and internationally in 2013[2]. In October 2017, government announced a new approach to CCUS in the Clean Growth Strategy, which was designed to enable the UK to become a global technology leader for CCUS and ensure that government has the option of deploying CCUS at scale, subject to costs coming down sufficiently. To progress this ambition, government has more recently: re-affirmed their commitment to deploying CCUS in the UK subject to cost reduction; progressed international collaboration on CCUS; and supported and funded CCUS innovation. The Carbon Capture Usage and Storage deployment pathway issued by Government in 2019 set out a vision for CCUS, recognising the huge opportunity for the UK to become a global leader in the technology due to its existing assets, geography and infrastructure.

> ***Our vision*** *is to become a global leader in CCUS, unlocking the potential of the technology and securing the added value which it can bring to our industrial centres and businesses all across the UK.* [13, p6]

[2] https://www.gov.uk/guidance/uk-carbon-capture-and-storage-government-funding-and-support

9.2.2 One of the biggest challenges with CCUS at the time of writing the LCTP, was that while each stage – capture, storage and transport – had already been shown to work, it had never been tried at a commercial scale on a power station and never the complete process from start to finish. However deployment at commercial scale in the 2020s is considered by both the CCC and the Energy Technology Institute to be an essential prerequisite to keeping open an option to deploy at scale during the 2030s, and thereby continue deployment through to the 2050s in support of achieving the Net Zero 2050 legal commitment. [13, p14]

> ***Our ambition*** *is that the UK should have the option to deploy CCUS at scale during the 2030s, subject to the costs coming down sufficiently.* [13, p6]

9.2.3 In setting out this ambition, Government has supported CCUS by encouraging CCUS investment and innovation through competition and funding, as well as progressing a demonstration of the technology at commercial scale, whilst ensuring the UK was prepared for its eventual deployment. [1, p65]. In recognition of the importance of infrastructure and geography to the cost effective deployment of CCUS, Government therefore encouraged clusters of CCUS infrastructure and expertise, in key areas, including Yorkshire and Humber, and Tyne/Tees [1, p66], as well as requiring that any new fossil fuel power stations would have to be designed and built so that they could fit CCUS in the future. [1, p53]. This also supports the government 'levelling up' agenda by 'Supporting local industrial competitiveness, supporting our industrial centres and attracting new high-tech companies to their areas'. [13, p14]

9.2.4 Actions taken by government in support of CCUS development include the following.

9.2.5 **Development Plans**

9.2.5.1 A **CCUS Cost Challenge Taskforce** has been established to provide advice on the steps needed to reduce the cost of deploying CCUS in the UK. The Taskforce identified the need for a long-term supportive policy environment and viable business models to support the delivery of CCUS.

9.2.5.2 The **CCUS Advisory Group** (CAG) was established. This was an industry-led group which considered the critical challenges that face CCUS, and provided insight into potential solutions

9.2.5.3 The **UK CCUS Deployment Pathway** has set out the steps government and industry should take in partnership in order to achieve the government's CCUS ambitions.

9.2.6 **Siting**

9.2.6.1 Government has worked with ongoing initiatives, including in the North East of England, to test the potential for development of CCUS industrial decarbonisation clusters. Government's **Industrial Clusters Mission** (ICM), announced at COP24 in December 2018, identified CCUS as a likely vital component to the low carbon transformation of the UK's industrial base. The ICM set out the ambition to establish the world's first net-zero carbon industrial cluster by 2040, and at least one low-carbon cluster by 2030 [11, p9]. With the potential to store more than 78 billion tonnes of carbon dioxide (CO_2), the UK could become a world leader in CO_2 storage services.

9.2.6.2 The Ten Point Plan crystallised further government's ambitions to see CCUS deployed in the critical 2020s by bringing forwards the aims of the ICM. In May 2021 further clarity on the process of project sequencing was published with the aim of facilitating the deployment of 'Carbon Capture, Usage and Storage (CCUS) in two industrial clusters by the mid-2020s, and a further two clusters by 2030 with an ambition to capture 10 $MtCO_2$ per year by 2030' [24, p4].

9.2.6.3 In November 2021, HyNet Cluster (North West) and the East Coast Cluster (Humber and

Teesside) were selected as the preferred Track-1 clusters for national CCUS sequencing.

9.2.6.4 The East Coast Cluster will be enabled by the Northern Endurance Partnership (NEP), which is developing the common infrastructure needed to transport CO_2 from emitters across the Humber and Teesside to secure offshore storage in the Endurance aquifer in the Southern North Sea.

9.2.6.5 The Endurance aquifer is located in the vicinity of the Hornsea Four seabed lease area. Hornsea Four, if developed, will provide a significant and vital contribution towards meeting the urgent national need for the delivery of renewable energy in the critical 2020s.

9.2.7 **Financing**

9.2.7.1 A 2019 consultation [11] reviewed delivery and investment models for CCUS in the UK to understand how the barriers to cost effective deployment could be reduced, and how the private and public sectors can work together to deliver the government's ambition for CCUS. Government's overarching parameters to guide the development of CCUS business models were that they should be:

- Market based;
- Attractive for investment;
- Cost efficient;
- Appropriate and fair in the sharing of cost and allocation of risk between the Government and CCUS developers;
- Able to evolve as the technology matures, with the potential of becoming subsidy free.

9.2.7.2 The consultation response, published in August 2020, reconfirmed the crucial role CCUS would play in both green recovery and net-zero 2050, as well as a vital role in levelling up the economy. Government support for ambitious delivery plans for CCUS in the 2020s remains clear, using consumer subsidies to support the construction of the UK's first CCUS power plant while continuing to develop business models for CCUS power, industrial CCUS and low carbon hydrogen production. Further details on the revenue mechanism which will encourage private sector capital into the new business models which are being created to support deployment of industrial carbon capture were clarified in January 2022 in BEIS' **Carbon Capture, Usage and Storage: An update on the business model for Transport and Storage** [25].

9.2.7.3 Significant private investment must be raised for the construction and delivery of the early phases of CCUS Transport and Storage assets which will be critical to enable CCUS to be a key technology in supporting the government to achieve its net zero targets. The further detail provided by BEIS in early 2022 on a regulatory investment model for Transport and Storage of CO_2 is a critical step in providing the conditions required to encourage such private investment to come forwards. As of 2017, government had invested over £130m in R&D and innovation support to develop CCUS in the UK. Further innovation programmes which made funds available to progress CCUS post 2017, included £100m for industrial decarbonisation and CCUS as part of the **BEIS Energy Innovation Programme**.

9.2.7.4 At the Spring 2020 budget, a new CCS Infrastructure Fund was established, initially to support the development of at least two UK CCS sites with the first operational by the mid-2020s and the second by 2030. Government also announced plans of support for at least one CCS gas power station by 2030 [12, p7]. Since the budget, government has raised its commitment from £800m to £1bn to facilitate the UK's deployment of operational CCUS in four industrial clusters by the end of the decade [9, p126].

9.2.7.5 Later in 2020, eligible organisations were invited by Innovate UK to apply for a share of between £10m and £20m each, up to a maximum of £131m, from the Industrial Strategy

Challenge Fund to implement plans for decarbonising an industrial cluster[3].

9.2.7.6 Projects within the clusters sequenced onto Track-1 will have the first opportunity to be considered to receive any necessary support under the government's CCUS Programme. Such support includes access to the CCS Infrastructure Fund (described above) as well as the development of new CCUS business models for Transport and Storage of CO2, power, industrial capture and, potentially, bio-energy with CCS (BECCS) to bring through private sector investment into industrial carbon capture projects.

12.3 Offshore wind

9.3.1.1 Initially, government action in support of renewable technology increased financial incentives for renewables developers through the Contracts for Difference instrument, streamlined the planning process and supported innovation in renewable generation technologies. [1, p53]

9.3.2 Siting

9.3.2.1 Offshore wind developments in GB are permitted only in zones which have been identified and allocated (under a Zone Development Agreement) to potential developers by The Crown Estate. In 2001, The Crown Estate announced the first UK offshore wind leasing round and since then has run three further leasing rounds in 2003, 2008 and 2021. At the time of writing this paper, National Grid ESO's **Transmission Entry Capacity Register** [20] lists thirty-six distinct UK offshore wind project connections with Project Status 'built'. The UK's strategy is to grow offshore wind farm operating capacity from current 11.4GW [20], to 40GW by 2030. The government's ambition for 40GW of offshore wind to be operational by 2030 was reconfirmed in the 2020 Energy White Paper [9, p3 et al] and The Ten Point Plan [16].

9.3.2.2 Round 4, the first leasing opportunity of this scale in a decade, created the opportunity for 8GW of new offshore wind projects in the waters around England and Wales. Round 4 winners were announced in February 2021 and The Round 4 Plan-Level Habitats Regulations Assessment (HRA) is now underway and is expected to conclude in Spring 2022[4].

9.3.2.3 Crown Estate Scotland announced in 2022 that 17 new offshore wind projects are to be awarded through the ScotWind leasing process, again subject to suitable environmental and habitats assessments.

9.3.2.4 In 2020, BEIS launched the **Offshore Transmission Network Review** (OTNR) [26], to look into the way that the offshore transmission network is designed and delivered, consistent with the ambition to deliver net zero emissions by 2050.

9.3.2.5 Offshore wind is expected to play an important role in delivering net-zero emissions by 2050, and a review of the framework for delivering offshore transmission connections is relevant in the context of current and growing ambitions for offshore wind generation capacities.

9.3.2.6 Importantly the OTNR is exploring options for the efficient connection of nationally important wind resources to customers and markets. OTNR's Medium Term workstream seeks to focus primarily on projects which have already been identified and are expected to connect to the onshore network after 2025 (such as Hornsea Four), by facilitating coordination of development in the short-medium term and assessing how centrally delivered, enabling infrastructure may facilitate the connection of increased levels of offshore wind by 2030.

[3] https://apply-for-innovation-funding.service.gov.uk/competition/657/overview

[redacted]

9.3.2.7 The OTNR will help the UK's world leading offshore wind sector to increase capacity and achieve net zero whilst ensuring the cost to consumers is minimised.

9.3.3 Financing

9.3.3.1 Contracts for Difference were first awarded to offshore wind projects in 2014 in the first Investment Contract round. These prices were administratively set. Government has subsequently run three competitive Allocation Rounds (ARs), awarded in 2015, 2017 and 2019 respectively. CfD Allocation Round 4 (AR4), is ongoing at the time of writing, having opened for applications in 2021.[5]

9.3.3.2 In its response to a consultation on proposed amendments to the CfD scheme issued in 2020, Government took the decision on an overall merits basis to implement a proposal to introduce a new, third pot for offshore wind projects ahead of the fourth Allocation Round. Government considered that this approach would allow auction parameters to be set in a way which better reflects project characteristics, recognising that offshore wind projects are generally much bigger in size and have lower costs than other renewable technologies. This would allow parameters to be set for each of the pots to reduce the risk of suboptimal auction outcomes (e.g. higher consumer costs than necessary) while minimising the potential loss of competition to offshore wind by separating the technology into a single pot. The Energy White Paper confirmed government's plans to double the capacity awarded in AR3 with the aim to deploy around 12GW of low-cost renewable generation through AR4, with offshore wind a 'key building block' of the future generation mix [9, p45]. AR4 includes a pot of £200M which has been established to bring forwards an uncapped capacity of offshore wind generation.

9.3.3.3 This policy approach recognises that offshore wind is increasingly competitive as an existing technology, partly due to cost reductions in manufacturing and installation of offshore wind infrastructure, and partly also due to the advances in wind turbine technology which have delivered an increase in the amount of electricity generated in a year from each unit of installed capacity.

9.3.3.4 In order to accelerate the deployment of low-cost renewable generation, in February 2022 BEIS increased the frequency of CfD allocation rounds to every 12 months (versus the previous c. 2 years cycle). Increasing the frequency of allocation rounds is anticipated to help to encourage low carbon electricity generation, which may also encourage investment in supply chains, and benefit the UK in the longer term not least by protecting consumers from potentially volatile global markets. More frequent rounds will also support the delivery of those renewable technologies, such as offshore wind, which are key to decarbonising the power sector, creating jobs and bringing even more investment to the UK's former industrial heartlands.

9.3.4 Funding

9.3.4.1 Offshore wind continues to receive other policy support, not only to accelerate the drive towards Net Zero 2050, but also to increase capability and resilience in the UK offshore wind supply chain, thereby progressing towards the 60% UK content ambition set out in the offshore wind sector deal and also deliver regional economic and social benefits while increasing export opportunities for the UK offshore wind industry.

[redacted]

9.3.4.2 For example, in October 2020, the Prime Minister announced the government's decision to allocate funding (distributed via the **Offshore Wind Manufacturing Investment Scheme**) towards the development of the offshore wind supply chain the UK. Allocation will be a competitive process for award of a sum expected to be up to around £70m, to enable delivery of a single large coastal manufacturing site for the offshore wind industry, able to generate manufacturing clusters where several large-scale producers can co-locate[6].

13 Conclusion

13.1 Government policy is clear insofar as CCUS and offshore wind are not considered as 'either/or' technologies, either nationally or locally, but both have essential benefits both for local communities and for the UK as a whole in achieving Net Zero, building a secure and affordable energy system and providing jobs and supporting a green recovery.

13.2 Government policy has supported the development and acceleration of deployment of offshore wind over the last decade, and continues to do so in a way which offers pathways to decarbonisation of the electricity sector while offering value for money to consumers.

13.3 Government policy has also supported plans to decarbonise industry and electricity generation, as well as support the production of green and blue hydrogen, through the development of industrial clusters in the UK.

13.4 In multiple cases, CCUS and offshore wind may be ideally suited to existing side-by-side in local communities and especially close to industrial clusters, gas and electricity networks, and the sea. Plans for up to four industrial clusters are now progressing with government support, alongside policy which will enable the delivery of ambitious UK offshore wind capacity targets.

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