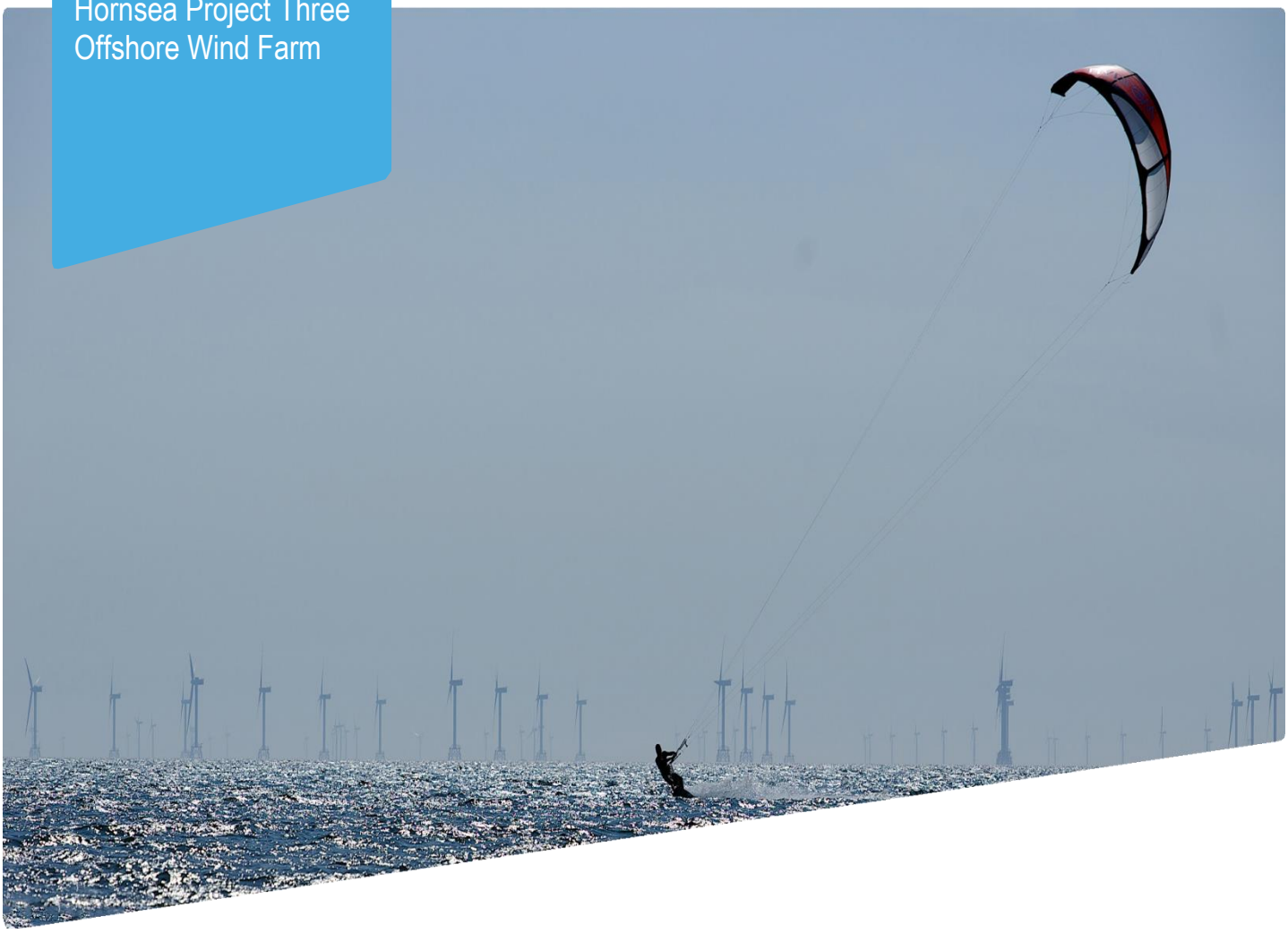
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Appendix 3 to Applicant's Response to Secretary of State's Consultation - Marine Conservation Zones: MCZ Derogation Case

Date: February 2020

Hornsea 3
Offshore Wind Farm

Ørsted

Marine Conservation Zones: MCZ Derogation Case

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Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2018.

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Acronyms

Acronym	Description
BEIS	Department for Business, Energy and Industrial Strategy
CSCB	Cromer Shoal Chalk Beds
DCO	Development Consent Order
DML	Deemed marine licence
EC	European Commission
European sites	Sites protected under the EC Habitats and Birds Directives, i.e. Special Areas of Protection (SPAs) and Special Areas of Conservation (SACs).
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons for Overriding Public Interest
MCAA	Marine and Coastal Access Act 2009
MCZ	Marine Conservation Zone
MEEB	Measures of equivalent environmental benefit
MPA	Marine Protected Area (an umbrella term which includes MCZs)
MT	Markham's Triangle
NSIP	Nationally Significant Infrastructure Project
OMP	other means of proceeding
SoS	Secretary of State for Business, Energy and Industrial Strategy

1. Introduction & Scope

1.1 Hornsea Three is a proposed offshore wind farm located within the southern North Sea, promoted by Orsted Hornsea Project Three (UK) Limited (the "Applicant").

1.2 A Development Consent Order (DCO) for Hornsea Three was submitted by the Applicant in accordance with the Planning Act 2008 in May 2018 and its examination (by the Planning Inspectorate) completed in April 2019.

1.3 On 27 September 2019 the Secretary of State for Business, Energy and Industrial Strategy (the "Secretary of State") issued a request inviting further evidence and representations from the Applicant on certain matters, including submissions and evidence relating to in section 126(7) of the Marine and Coastal Access Act 2009 ("MCAA"), in respect of impact of the following elements of Hornsea Three on the following Marine Conservation Zones ("MCZ") features:

Table 1.1: MCZ relevant features and impact on Hornsea Three

MCZ	Relevant Feature	Identified Impact from Hornsea Three
Markham's Triangle MCZ ("**MT MCZ**")	"Subtidal sand"	Impacts from cable protection
Cromer Shoal Chalk Beds MCZ ("**CSCB MCZ**")	"Subtidal sand"	Impacts from cable protection

1.4 Section 126(7) provides a derogation process, which is engaged if the conditions of section 126(6) of the MCAA are not met. The derogation requires that three pre-conditions are satisfied:-

- there is no other means of proceeding;
- the benefit to the public of proceeding clearly outweigh the risk of damage to the MCZ; and
- measures of equivalent environmental benefit ("MEEB") can or will be taken.

1.5 The Applicant's position is that the conditions of section 126(6) are met, for the reasons set out in the updated Stage 1 MCZ Assessment (Appendix 5 to Applicant's Response)). Without prejudice to that, this report is provided on a precautionary basis to demonstrate that the Secretary of State can be satisfied that the conditions required for a derogation under section 126(7) of the MCAA are met in the event that it is necessary to apply them to Hornsea Three.

2. Content and Structure of this Submission

2.1 This report is structured as follows:

- **Section 3:** identifies the maximum design scenario ("MDS") for Hornsea Three as it relates to relevant MCZ.
- **Section 4:** briefly describes the relevant MCZ feature affected and its condition.
- **Section 5**: identifies the relevant statutory framework and guidance and sets out some guiding principles of approach.

- **Section 6**: demonstrates that there are no other means of proceeding.
- **Section 7:** describes the clear public benefit of proceeding with Hornsea Three and why that outweighs the impact on the relevant features of the MCZ.
- **Section 8:** summarises the MEEB that have been identified by the Applicant, and how they can be secured.

2.2 The conclusion of this report is that, in the event that the Secretary of State considers it necessary to apply the derogation provisions in section 126(7) of the MCAA, the Secretary of State can be satisfied that all the conditions can demonstrably be met.

2.3 It should be noted that the Applicant considers the deployment of cable protection to be a long-term temporary impact, as decommissioning of cable protection is committed to in the draft DCO, but should the Secretary of State conclude that cable protection results in a permanent impact it is the Applicant's position that this MCZ Derogation Case is equally robust and applicable to that permanent impact.

3. Hornsea Three Reduced MDS and Implications for the MCZs

3.1 It is important to first consider the manner in which Hornsea Three would interact with the relevant MCZ. Additional mitigation and design optimisation work since the completion of Examination has enabled the project to avoid and/or reduce impacts on the MT MCZ and CSCB MCZ site features.

3.2 These changes and the justification for them are described in detail in Appendix 4 to Applicant's Response) and summarised below.

MT MCZ

3.3 The Applicant has now committed to exclude all infrastructure from the MT MCZ.

3.4 This commitment is secured within the generation assets dMLs (see Schedule 11, Part 2, Condition 2(9) and Schedule 12, Part 2 Condition 2(11)) of the updated dDCO; Appendix 9 to Applicant's Response).

3.5 As there will not be any Hornsea Three infrastructure within the MT MCZ (including cable protection within the Subtidal Sand feature) there can be no significant risk of hindering the conservation objectives of MT MCZ (see updated Stage 1 MCZ Assessment; Appendix 5 to Applicant's Response). It is not therefore necessary for the MT MCZ to be addressed in the remainder of this submission on the section 126(7) derogation requirements.

CSCB MCZ

3.6 In relation to the CSCB MCZ and the Subtidal Sand feature, the request from the Secretary of State is focused on one impact: placement of cable protection in the CSCB MCZ, leading to long term temporary habitat loss during the operational phase, where cable protection may be required for sections of the export cables.

3.7 The reduced MDS and implications for CSCB MCZ are as follows:

Table 3.1: Summary of changes to MDS for CSCB MCZ

Parameter	MDS in Examination	Revised MDS	Implications MCZ Assessment
Maximum % of cables where remedial cable protection may be required	10%	**7%**	The maximum area affected by placement of cable protection (up to 7% of export cables within the MCZ) represents up to **0.016%** of the Subtidal Sand broadscale habitat feature within the MCZ (previously 0.02% of the Subtidal Sand feature), a reduction of 1,260m[12]. The impact on the MCZ as a whole equates to **0.0009%**% of the MCZ extent.
MDS Footprint of cable protection (m^2)	4,200 m^2	**2,940 m^2**	

3.8 The implications of the reduced MDS for CSCB MCZ are considered in detail and assessed in the updated Stage 1 MCZ Assessment (Appendix 5 to Applicant's Response). In short, the reduction does not alter the Applicant's conclusion that there is no significant risk of hindering the conservation objections for the Subtidal Sand feature of the CSCB MCZ. However, acknowledging that Natural England previously highlighted residual uncertainties, it is considered that the reduction should provide the necessary confidence in the Applicant's conclusion.

4. CSCB MCZ Subtidal Sand Feature

4.1 The CSCB MCZ came into effect on 29 January 2016 (Defra, 2016a). It lies approximately 200 m from the low water mark off the north Norfolk coast and extends 10 km out to sea in waters of up to 25 m depth (Defra, 2015). It covers a total area of approximately 321 km^2.

4.2 The conservation objective is to ensure the relevant protected features are either maintained or brought into a favourable condition. Favourable condition is achieved when the extent of the Subtidal Sand habitat is stable or increasing and relevant structures and functions, quality and composition of characteristic biological communities are in a healthy condition and not deteriorating[2].

4.3 Subtidal Sand is one of ten protected features (see Table 4.1 in the updated Stage 1 MCZ Assessment (Appendix 5 to Applicant's Response)) and its recorded spatial extent and current status (favourable) and management approach are confirmed in Table 4.1 below.

Table 4.1: Subtidal Sand feature of CSCB MCZ.

Protected feature (Defra, 2016a)	Spatial extents within MCZ (Defra, 2015)	General Management Approach
Subtidal Sand	18 km^2	Maintain in favourable condition

5. Legal Framework and Matters of Approach

The Legal Framework

[1] No asset crossings will be required for the Cromer Shoal Chalk Beds MCZ.
[2] Cromer Shoal Chalk Beds Marine Conservation Zone Designation Order; Defra, 2016a

5.1 If the Secretary of State (SoS) is not satisfied that the condition in section 126(6) of the MCAA is met, section 126(7) provides that authorisation may still be given for Hornsea Three if the SoS is "satisfied" as to the following matters:

- Section 126(7)(a): There is no other means of proceeding with the act which would create a substantially lower risk of hindering the achievement of the conservation objections for the relevant MCZ; consideration should be given to proceeding (a) in another manner, or (b) at another location;
- Section 126(7)(b): The benefit to the public of proceeding with the act clearly outweighs the risk of damage to the environment that will be created by proceeding with it.
- Section 126(7)(c): The person seeking the authorisation will undertake, or make arrangements for the undertaking of, measures of equivalent environmental benefit to the damage which the act will or is likely to have in or on the MCZ. The measures are referred to as MEEB for short.

5.2 In addition, given the powers in the Planning Act 2008 allow for the imposition of obligations, requirements and/or conditions (attached to DMLs), the Secretary of State must exercise those powers to make it an obligation, requirement or condition of the authorisation that MEEB are undertaken.

5.3 The MMO Guidance (see paragraph 5.4 below) refers to stages (b) and (c) above as "*Stage 2 MCZ Assessment*". This submission relates to section 126(7)(a) - (c) and so the MMO terminology has not been adopted in this submission. Instead the statutory requirements are referred to collectively as the MCZ Derogation Provisions.

Policy, Guidance & Precedent

5.4 Guidance on the interpretation and application of the MCZ Derogation Provisions is limited. Neither PINS nor BEIS have published guidance or advice notes on this matter. Reference has been made to the following generic guidance, where applicable and appropriate:

- Guidance on the duties on public authorities in relation to Marine Conservation Zones - Note 2 (Defra, 2010)("DEFRA 2010");
- Marine conservation zones and marine licensing (MMO, 2013) (the "MMO Guidance").

5.5 There is no case law relating to the interpretation or application of the MCZ Derogation Provisions. The Applicant is also not aware of any previous examples of the application of the MCZ Derogation Provisions in relation to a UK offshore wind farm, or any other NSIP that may provide any precedent that can be drawn upon.

5.6 Given the MCZ Derogation Provisions have not been applied before, it is important to first consider the precise statutory language.

Legal Submissions

5.7 The requirements of section 127(7) must be approached within the context of and with the wording of the statutory provisions of the MCAA firmly in mind (and no other regime). MCZs are subject to a standalone legal and policy framework which sets the parameters for the assessment of impacts on MCZs. Case law relating to other regimes (e.g. Habitats Regulations) may provide a reference point, by analogy only, and should be applied cautiously.

5.8 The following specific points are made in this regard:

i. section 126(7)(a) expressly provides that 'other means of proceeding' ("OMP") must substantially reduce the risk of hindering the achievement of the conservation objectives of the relevant MCZ. The ordinary meaning of "substantially" is "*to a large degree*"[3]. It follows that options which only reduce the risk to a trivial or minor degree cannot be OMP.

ii. section 126(7)(b) involves a balancing exercise – that is plain from the use of the word "*outweighs*". The risk of "*damage to the environment*" refers to the identified risk to the conservation objectives of the CSCB MCZ as they relate to Subtidal Sand only. That risk is to be weighed against the public benefit of Hornsea Three.

iii. The adjective "clearly" as used in section 126(7)(b) does not set any particular threshold or imply any particular weight which must be attached to the benefit (see also iv below). It simply means it must be obvious or demonstrable that the benefit outweighs the identified damage.

iv. Unlike the Habitats Regulations, it is not necessary for the purposes of section 126(7)(b) that the public benefit is an "imperative". On the other hand, a public benefit which is an "imperative" (such as climate change), and which is an IROPI for HRA purposes, would be relevant and weigh heavily in the balancing exercise for MCZ purposes.

v. Also unlike the Habitats Regulations, there are no identified categories of public benefit to be considered in any given case. The SoS has a very wide discretion (subject to challenge only on grounds of *Wednesbury*[4] unreasonableness) as to the relevant benefits that may be taken into account and the weight that attaches to them. Any form of benefit, economic or otherwise, national, regional or local can be relied upon, so long as it serves a public (and not an exclusively private) function.

vi. MEEB may encompass a wide spectrum of measures extending far beyond "compensation" as understood in the context of the Habitats Regulations. As a matter of straightforward statutory interpretation that is plain from: (1) the word "compensation" has not been used in the MCAA and (2) Parliament's use of the word "equivalent": meaning 'equal or equivalent in value'[5]; i.e. not necessarily the same. It must be presumed that Parliament's use of "equivalent environmental benefit" in section 126(7)(c) (and not compensation) was deliberate.

vii. It follows that the European Union law and European Commission (**EC**) guiding principles that apply to compensatory measures (under the Habitats Regulations) do not as a matter of law apply or constrain MEEB. MEEB could lawfully involve measures for the benefit of another unaffected habitat, provided it can be demonstrated that there is equivalence in value. Any other, narrow interpretation of "equivalent benefit" would be contrary to the clear intention of Parliament and unlawful.

viii. There is nothing in the statutory provisions to suggest MEEB must be carried out/ implemented before the act/damage takes place. The only legal requirement is that, at the point of grant of

[3] Oxford English Dictionary
[4] *Associated Provincial Picture Houses Ltd. v Wednesbury Corporation* [1948] 1 KB 223
[5] Oxford English Dictionary

authorisation, it is a condition of the authorisation that MEEB are or will be undertaken. A time-lag is permissible.

5.9 In summary, it is important to recognise that the MCAA requirements are similar in some respects to but also materially different from (as a matter of substance and statutory interpretation) the Habitats Regulations. It follows that case law and EC guidance (e.g. MN 2000[6]) concerning the specific legal text for the HRA process is neither binding nor directly applicable to MCZs. Those relate to the specific legal tests within the Habitats Regulations. It is acknowledged that there may comparisons to be drawn in some areas, but the approach taken in relation to European sites should not be applied slavishly and unthinkingly to MCZs. This is fundamental to ensure a lawful approach.

6. No Other Means of Proceeding (OMP)

Introduction

6.1 The first requirement of the MCZ Derogation Provisions is that the SoS is satisfied that there is no OMP with the "act" that would create a substantially lower risk of hindering the achievement of the conservation objections for the CSCB MCZ.

6.2 There is no case law or detailed guidance[7] on this aspect of the Derogation Provisions. The MCAA does not define the phrase "other means of proceeding", beyond the fact the decision-maker is directed to consider proceeding (a) "*in another manner*", or (b) "*at another location*". Each is considered below.

6.3 DEFRA 2010 advises (at page 13) that, in considering whether there are any OMP, consideration should be given to whether there are, or are likely to be, other suitable and available sites. The possibility of resorting to different approaches, timings, equipment and infrastructure, activities or methods should also be considered, insofar as they would create a significantly lower risk.

6.4 The focus of the statutory provision is on the "act", which can be interpreted as the specific activity which gives rise to the damage to the relevant MCZ. That could be a project in it's entirely or, as in this case, a specific element of the project (i.e. placement of cable protection on the seabed). As the cable protection must relate to export cabling, consideration has been given to the number and routing of the export cables relative to CSCB MCZ. As it is normal to consider the "do nothing" or "zero option", that has also been considered.

[6] Managing Natura 2000 sites The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, European Commission, C(2018) 7621 final

[7] In relation to OMP, the MMO Guidance merely re-states the statutory text of section 126(7)(a). The MMO Guidance also treats the OMP stage as part of the so-called "Stage 1 MCZ Assessment", somewhat akin to mitigation/ alternatives in the context of EIA.

6.5 Subject to the important caveat that any OMP must substantially reduce the risk to the conservation objectives of CSCB MCZ, in the absence of any indication to the contrary in the MCAA or case law or guidance, the Applicant considers it reasonable to approach the task of considering OMP in a broadly similar way as it has approached the consideration of "alternative solutions" under the Habitats Regulations (see Part 2 of Appendix 1 to Applicant's Response). That may well be a more exacting standard than is required by the MCZ Derogation Provisions, but ensures a comprehensive and robust analysis.

Approach to OMP for Hornsea Three

6.6 The Applicant's approach to "alternative solutions" under the Habitats Regulations is described and justified in detail in Part 2 of Appendix 1 to Applicant's Response and is not repeated here.

6.7 In summary, it requires that the relevant need and project objectives are identified as a first step. Any options obviously out of the question or improbable are then immediately discounted. Next consideration is given to the feasibility of remaining options: financially, legally and technically. That includes consideration of cost and viability. Finally, the relevant impact of any remaining OMP is considered to determine if they would substantially reduce the risk.

6.8 The above translates to the following main steps, approached in the sequence set out in Table 6.1 below.

Table 6.1: Stepped Approach to Consideration of OMP

STEP	DETAIL
Step 1	Identify need and core project objectives for Hornsea Three
Step 2	Identify relevant works and potential residual harm to CSCB MCZ
Step 3	Discount OMP that are theoretical or improbable
Step 4	Consider feasibility of remaining potential OMP
Step 5	Assess and compare impact of any feasible OMP to determine if there would be a substantially reduced risk to CSCB MCZ

Need for Hornsea Three

6.1 The basis of the clear and urgent need for Hornsea Three has been described in section 4 of the Report to Demonstrate No Alternatives (Part 2 of Appendix 1 to Applicant's Response), which is relied upon for the purposes of the MCZ Derogation Provisions.

6.2 In summary, with an anticipated capacity of at least 2.4 GW, Hornsea Three is capable of delivering a substantial, near-term contribution to GB decarbonisation, supply chain and security of supply, while helping to lower bills for consumers throughout its operational life, thereby addressing all important aspects of existing and emerging Government policy.

Core Project Objectives of Hornsea Three

6.3 The above environmental, regulatory, market and economic factors all drive and are fundamental to the core project objectives for Hornsea Three, set out in Table 6.2 below:

Table 6.2: Core project objectives for Hornsea Three

ID	Objectives	Basis for the Objective
Project-wide (Government policy and social demand)		
1	Support decarbonisation and security of supply by developing a large-scale offshore wind farm in the former Hornsea Zone	
2	Support cost reduction and generation efficiency by being competitive in the Contract for Difference (CfD) auction process	
Project-wide: Timing		
3	Generating power from Q4 2025 / Q4 2026	
Project-wide (Geographic Location)		
4	Promote further offshore wind farm, through Round 3 offshore wind leasing round, via further development within former Hornsea Zone	
5	Develop eastern portion of former Hornsea Zone, (due east of Hornsea One and Hornsea Two)	
6	Develop an array which makes efficient use of available seabed within eastern portion of former Hornsea Zone	
7	Make efficient use of available grid connection capacity	
8	Secure consent which allows construction in either one or two phases	
Offshore Transmission Infrastructure		
9	Secure consent to allow AC or DC transmission technology, to ensure delivery in mid 2020s.	
10	To utilise the shortest and straightest feasible export cable corridor route from the offshore array area to landfall site	
11	To be delivered in a safe and efficient manner	

Consideration of OMP

"Do Nothing"

6.4 In the context of Hornsea Three, the "do nothing" option would comprise either: (i) not proceeding with the project (removes any possibility of damage to CSCB MCZ) or (ii) in the case of the Subtidal Sand MCZ feature only, excluding all cable protection from the MDS for Hornsea Three.

(1) No Project Scenario

6.5 This can be immediately discounted as a potential OMP as it would threaten efforts to respond to the clear and urgent need for offshore wind deployment at scale before 2030 to help mitigate the effects of climate change. This would not meet any of the core project objectives.

(2) Commit to no cable protection

6.6 The Applicant presented evidence of the need for a degree of cable protection within designated sites in REP1-138 of the Hornsea Three Examination. The Applicant's clear preference and objective is and will be to bury all cables as that affords the best asset protection and reduces risks to other sea users, as well as being a better environmental outcome.

6.7 However, regardless of the extent of site investigations, there are factors that can lead to inadequate cable burial and consequently a need for cable protection, which cannot be predicted (e.g. tool failure, unforeseen ground conditions). As such, excluding all cable protection from CSCB MCZ would fail core objective ID 11 and is not a feasible OMP (technically or legally, considering the risks of unprotected cables).

At Another Location

Routes avoiding CSCB MCZ

6.8 The process leading to and justification for the Applicant's selection of the Hornsea Three array area, landfall location and corresponding routing of the offshore cable corridor between those fixed points is described in the following:

i. Volume 1, Chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement [APP-059]

ii. Volume 4, Annex 4.1 - Grid Connection and Refinement of the Cable Landfall of the Environmental Statement [APP-092]

iii. Volume 4, Annex 4.2 - Selection and Refinement of the Offshore ECR and HVAC Booster Station of the Environmental Statement [APP-093].

6.9 For technical and cost reasons offshore cable routing is a minimisation exercise to find the shortest and straightest feasible route from point A (the offshore array area) to point B (selected landfall site), subject to avoiding hard constraints dictated by engineering limitations, physical obstructions, third party assets (e.g. cable crossings), competing seabed use (e.g. MOD testing ranges, aggregates extraction, CCS, other offshore renewables developments) and environmental constraints (e.g. designated sites).

6.10 Avoiding or minimising the intersection with all designated sites (European sites and MCZ) was a key objective for Hornsea Three. However, the number, location and spread of designated sites between the Hornsea Three array area and landfall made complete avoidance of all designated sites impractical.

6.11 Figure 3.1 of the RIAA [APP-051] illustrates the location of the Hornsea Three array relative to designated sites. When Figure 4.6 of Volume 1, Chapter 4: is considered alongside Figure 3.1 of the RIAA, the significant constraining factors (legal, technical and financial) are readily apparent. All feasible export cable routes to shore intersect with one designated site or another (or more than one designated site) to various extents. Avoiding or reducing impacts on one designated site increases the impact for another.

6.12 Specifically, regarding the CSCB MCZ, the route was re-designed during the pre-application stage to avoid irreparable damage to features of the MCZ (i.e. peat and clay exposures) within the CSCB MCZ. This re-route substantially reduced the footprint within the CSCB MCZ but increased the footprint of the export cable corridor within the adjacent The Wash and North Norfolk Coast SAC ("WNNC SAC").

6.13 A route to the east of the CSCB MCZ would not meet core objective ID 10 or 11 and is not considered feasible given other constraints. Specifically, Volume 4, Annex 4.2 of the Environmental Statement (APP-093) gave consideration to alternative landfalls which were located outside the boundary of the Cromer Shoal Chalk Beds MCZ (e.g. to the east of the MCZ), however, these were considered unfeasible due a number of reasons, including the requirement for a large number of pipeline crossings associated with the Bacton Gas Terminal facility and the potential for interaction with the Haisborough, Hammond and Winterton SAC.

6.14 As such, the only way to completely avoid the CSCB MCZ, would be to route the export cable corridor further west and therefore exclusively through the WNNC SAC. That is not considered a feasible OMP as it would increase the impact on the WNNC SAC and potentially other onshore designated sites (e.g. North Norfolk Coast SAC).

Further re-route to reduce extent of export cable corridor within CSCB MCZ

6.15 The current maximum footprint of cable protection within CSCB MCZ is only 2,940 m^2. The only way to reduce that footprint further (save for reducing the number of cables – see further below), would be to re-route the cable further west, which would increase the footprint within the WNNC SAC by a corresponding amount and potentially result in direct effects on features of the North Norfolk Coast SAC, which is currently entirely avoided by Hornsea Three.

6.16 Given the very small extent of the existing footprint within the CSCB MCZ, any re-routing exercise, short of moving the whole export cable corridor into the WNNC SAC (which is not feasible for reasons noted above), would not lead to the required substantial reduction in the risk to the Subtidal Sands feature of the CSCB MCZ. Any further re-routing retaining cabling within the MCZ would be trivial and is therefore not a valid OMP.

In Another Manner

Reduce Cable No. within CSCB MCZ

6.17 Hornsea Three seeks the option to use High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) transmission, or a combination of both technologies in separate electrical systems[8]. Of those options, HVDC technology would involve fewer cables as the maximum number of HVAC cable circuits is six, and the maximum number of HVDC cables is four. Each worst case assessment (as they extend to the export cables) could be scaled by a factor of 2/3rds based on the reduced maximum number of HVDC cable circuits and would therefore give rise to less impact.

6.18 The Applicant's position on the need to include HVAC and HVDC transmission system options is set out in Appendix 22 of the Applicant's Deadline 2 submission (Transmission System (HVAC/HVDC) Briefing Note (REP1-164 of the Hornsea Three Examination) and was also addressed in the Applicant's oral case put at Issue Specific Hearing 1 (see written summary in REP3-003 of the Hornsea Three Examination).

[8] If a combination of the two technologies is used, the total infrastructure installed will not exceed the maximum values assessed within this application.

6.19 In summary, the option to use HVAC technology is considered essential to ensure deliverability of Hornsea Three in a competitive market and a low cost of energy to the UK consumer. Removing the option of HVAC would not meet core objectives ID 3, 9, 10 and 11 and is not feasible (on technical grounds).

Other types of cable protection

6.20 Other forms of protection (e.g. concrete mattresses and grout bags) were discounted as they represent a greater change to the baseline environment than appropriately sized rock protection (REP1-138 of the Hornsea Three Examination). While appropriately sized rock protection will allow for some ecological function to continue within the affected areas (e.g. by limiting the change in the baseline sediment/substrates through infilling of gaps in rock protection or through colonisation of smaller rocks by local fauna), other forms of protection would result in a more profound change to the seabed/sediment, which would exclude biological communities from re-colonising/recovering into the areas affected once this cable protection is in place (REP1-138 of the Hornsea Three Examination). These other forms of protection would therefore not result in a decrease in the risk to conservation objectives of the MCZ, and particularly the biological communities.

6.21 Whilst frond mattresses can be deployed in some areas, there are concerns as to their effectiveness at providing adequate protection for the cable over the operational life of the project.

Reduce volume of maximum cable protection within CSCB MCZ

6.22 The need for a realistic allowance for cable protection in designated sites is outlined in REP1-138 of the Hornsea Three Examination. In the same way that no cable protection within the MCZ is not feasible (outlined in paragraph **Error! Reference source not found.** above), it is not considered realistic or feasible (technically or legally, considering the risks of unprotected cables) to commit to further reduce the maximum volume of cable protection.

6.23 The Applicant has investigated the potential for alternatives to deployment of cable protection, which has included consideration of remedial burial[9] within the part of the offshore cable corridor which coincides with the CSCB MCZ, based on the ground conditions present in this area. The results of these investigations are presented in Appendix 4, Annex C to Applicant's Response and have resulted in the project design envelope reductions set out in **Error! Reference source not found.**.

6.24 However, ultimately, the need for secondary cable protection (i.e. rock protection) is required for asset integrity. Regardless of the extent of site investigations, there are factors that can lead to inadequate cable burial, and a need for cable protection, which cannot be definitively predicted.

[9] Remedial burial may involve tools such as jet trenchers or controlled flow excavators, or similar tools, to lower the cable beneath surface sediments in order to achieve the target depth of burial in the particular ground types present. This may be used in suitable sediments as an alternative to secondary cable protection (e.g. rock protection).

6.25 In the Applicant's judgement, based on its technical assessment and experience, any further reduction in the maximum volume of cable protection from CSCB MCZ would create a risk of exposed cables and fail core objective ID 11. Leaving cables unburied, as set out in REP1-138 of the Hornsea Three Examination, is not a viable and safe option for the protection of the asset, or for protection of marine users.

6.26 In addition, given the very small maximum footprint of cable protection within CSCB MCZ (2,940 m^2), any further reduction would be trivial, and therefore would not meet the legal requirements in terms of OMP; it would not result in a "substantially lower risk" of hindering the conservation objectives.

Summary of Conclusions on OMP

6.27 The Applicant has given careful consideration to a range of OMP as summarised in Table 6.3 below but has not identified any feasible OMP which would substantially reduce the risk of hindering the conservation objectives of the CSCB MCZ.

Table 6.3: Other Means of Proceeding

Category	OMP Considered	Reason OMP Discounted
Do nothing	Not progressing Hornsea Three	Does not meet project need and does not deliver any of the project objectives
	No cable protection	Does not meet project objective ID 11 and is not feasible (technical grounds)
In Another Location (Alternative Routes)	Export cable corridor wholly avoiding CSCB MCZ	Does not meet project objective ID 10 or 11 and is not feasible (technical or legal grounds)
	Further re-route to reduce export cable corridor (and therefore cable protection) within CSCB MCZ	Would not substantially reduce the risk of hindering the conservation objectives for CSCB MCZ. Not feasible (legal grounds)
In Another Manner (scales or designs or methods of construction)	Reduce no. of export cables	Removing the option of HVAC would not meet core objectives ID 3, 9, 10 and 11 and is not feasible (technical).
	Alternative form of cable protection (e.g., concrete mattresses)	Not feasible (legal grounds). May lead to greater negative effects on biological communities (i.e. reduced colonisation/recovery).
	Reduce maximum footprint of rock protection within CSCB MCZ	Would not meet core objective ID 11 and is not feasible (technical grounds)

7. Clear Public Benefits

Introduction

7.1 As set out in Section 5.8 above, there are no legal constraints on or preferred types of public benefit that can be relied upon in the context of the MCZ Derogation Provisions and no legal requirement that those benefits are "imperative". The potential public benefits that may be relied upon must be clear (i.e. demonstrable) but are potentially broad in scope (and broader that can be relied upon for HRA purposes).

7.2 This is supported by DEFRA 2010 which advises:

> "*…this stage may involve an assessment of the purpose, location, size, timing, significance and importance of the development/activity. The benefit to the public must clearly (and hence demonstrably) outweigh damage to the environment and must result in wider public benefit rather than a private benefit to a small number of individuals*." (page 14)

7.3 DEFRA 2010 advises that a development can be considered to provide a benefit to the public not only if it is "*indispensable"* (akin to the "imperative" requirement for HRA purposes) but also if it is "*desirable*" (clearly a lower bar than IROPI). It goes on to suggest this requirement can be considered not only in the context of national policy but also regional and local policy (page 14):

- national policies;
- actions or policies to protect public health and safety;
- activities of an economic, environmental or social nature, to fulfil specific public service or statutory obligations;
- services or benefits to a population or community at a regional or local level.

7.4 The MMO Guidance similarly advises benefits can be considered "*at a national, regional or local level*" (page 7), again acknowledging that the "clear public benefit" requirement is a wider and lower bar than the IROPI requirement for HRA purposes.

The Clear Public Benefits of Hornsea Three

7.5 The Planning Statement accompanying the Application (see Section 4 of the Planning Statement [APP-177) explained the demonstrable need for large-scale deployment of offshore wind as recognised within the relevant National Policy Statements (EN-1 and EN-3). Hornsea Three is clearly within and supported in principle by national policy applicable to NSIPs.

7.6 That case has increased in strength since publication of EN-1 and EN-3. There have been significant developments to UK energy and climate policy since 2011 (e.g. Offshore Wind Sector Deal and the new "net zero" target). The Applicant's Response to the Consultation is therefore supported by a Statement of Need (Annex C of Appendix 1 to Applicant's Response), which demonstrates that the deployment of offshore wind, and specifically Hornsea Three, is needed to make a significant contribution to the Government's national policy objectives of:

- Decarbonisation;
- Ensuring security of supply; and
- Affordability.

7.7 While the public benefits in play within the framework of the MCZ Derogation Provisions are broader in scope, where a project is subject to the Habitats Regulations, and the decision maker is satisfied that IROPI exist, it is beyond doubt that the same reasons that constitute IROPI would be equally relevant to and weigh very heavily in the balance required by the MCZ Derogation Provisions.

7.8 The Applicant has prepared a detailed Report to Demonstrate IROPI (Part 3 of Appendix 1 to Applicant's Response), which demonstrates a compelling case that Hornsea Three must be carried out for IROPI, and that report is relied upon for the purposes of the MCZ Derogation Provisions.

7.9 The Report to Demonstrate IROPI concludes that Hornsea Three is imperative (indispensable) and serves an overriding long-term public interest for the following reasons (drawn from the Report to Demonstrate IROPI):

7.9.1 With an expected capacity of at least 2.4 GW, Hornsea Three can substantially contribute to the UK's legally binding climate change targets by helping to decarbonise the UK's energy supply, whilst contributing to the essential tasks of ensuring security of supply and providing low cost energy for consumers in line with the UK Government's national policies.

7.9.2 Hornsea Three will contribute to tackling the priority climate change risks identified in the UK Climate Change Committee's "UK Climate Change Risk Assessment", which touch on important matters of human health, public safety and the primary importance of the environment.

7.9.3 Hornsea Three would contribute significantly to the economic and social landscape in the UK as it can provide substantial employment opportunities and skills development, particularly in coastal communities, whilst also playing a major role in supporting the UK's supply chain. Adopting a precautionary and conservative approach, the socioeconomic assessment identified the following economic benefits:

Stage		**UK**
Construction	Direct	£260 - £940 million
	Indirect	£240 – £1,120 million
	Total	£500 - £2,060 million
Operation & Maintenance	Direct	£20 million GVA per year over 35 years
	Indirect	£70 million GVA per year over 35 years
	Total	£90 million GVA per year over 35 years
Decommissioning		£20 - £30 Million (£80,000 per MW, leading to £192 million).

7.9.4 Hornsea Three therefore has the potential to generate £90 million GVA per year over 35 years (excluding repowering and decommissioning benefits). A substantial contribution to the UK economy on any measure.

7.10 The public benefits summarised above are described more fully in the Report to Demonstrate IROPI (Part 3 of Appendix 1 to Applicant's Response), which is relied upon for and is considered to demonstrate a clear public benefit for the purposes of the MCZ Derogation Provisions. The next stage is to consider how that clear public benefit weighs in the balance against the relevant damage to the CSCB MCZ Subtidal Sands feature.

Weighing of Public Benefit against Damage to CSCB MCZ

7.11 According to DEFRA 2010 (at page 14), in determining whether the identified public benefits outweighs the damage, consideration may or should be given to seven factors, addressed in the following sections.

The impact on the conservation objectives for the MCZ(s) affected

7.12 The scale of the impact on the Subtidal Sand feature of the CSCB MCZ is very small. Long term habitat loss as a result of placement of cable protection will affect a maximum of 2,940 m^2 of subtidal habitat, with all of this habitat loss occurring within the Subtidal Sand broadscale habitat feature. This equates to approximately 0.016% of the total extent of the Subtidal Sand feature and 0.0009% of the total area of the MCZ.

7.13 It should be noted that the Subtidal Sand broadscale habitat feature is very extensive across the southern North Sea and is listed as a feature or sub-feature of a number of designated sites in the region. This includes the adjacent The Wash and North Norfolk Coast SAC, where it is the most extensive sub-feature of the Annex I sandbanks feature.

Any impact on the objectives, coherence and vision for the MPA network at the regional and national level

7.14 Subtidal Sand is one of ten designated features for the CSCB MCZ and is currently in favourable condition. The Applicant's assessment concludes that the structures and functions, quality and composition of characteristic biological communities will remain in a condition which is healthy and not deteriorating. In addition, it is predicted that there is potential for some ecological function of the protected feature (i.e. sediments and habitats) to continue even where cable protection is placed, either through sediment transport (e.g. infilling of spaces between rock protection) or through colonisation of rock protection by local epifaunal species/communities (see REP1-138 of the Hornsea Three Examination), further reducing the extent of any effects.

7.15 Furthermore, the biological communities associated with the areas of unaffected Subtidal Sand (i.e. >99.98% of these features within the CSCB MCZ) will remain in the pre-construction baseline condition, with no effects on the structures, functions, quality and composition of the communities. As outlined above, the Subtidal Sand feature is extensive across the southern North Sea and the communities associated with the Subtidal Sand feature within the Hornsea Three offshore cable corridor are typically of low diversity, with the species recorded in this area (e.g. polychaetes such as *Nephtys cirrosa*, *Ophelia borealis* and *Travisia forbesii* and the amphipod *Bathyporeia elegans*) known to occur widely across the southern North Sea and the wider UK continental shelf.

In view of the very small scale of the impact, the current favourable condition, set against the spread and prevalence of Subtidal Sands in the region, the Applicant is confident no impact on the objectives, coherence and vision for the MPA network would arise at regional and/or national level.

The impact of the activity on the delivery of sustainable development of the marine environment

7.16 The climate emergency is the defining issue of our time. When the substantial scale of Hornsea Three and its positive contribution to addressing climate change is set against the very localised and small scale impact on one feature of the CSCB MCZ, the Applicant believes it is clear that, overall, Hornsea Three can be regarded as sustainable development of the marine environment.

The impact of any activity on the delivery of measures aimed at achieving Good Environmental Status (GES) as set out in the Water Framework Directive (WFD)

7.17 Hornsea Three would have no impact on delivery of measures to achieve GES as set out in the WFD (see Volume 5, Appendix 2.2 of the Environmental Statement; APP-103).

The impact on the delivery of measures aimed at achieving GES as set out in the Marine Strategy Framework Directive (MSFD)

7.18 Hornsea Three would have no impact on delivery of measures to achieve GES as set out in the MSFD.

The cumulative, combined and synergistic impacts of the proposed activity, taken with other activities in the relevant area.

7.19 Consideration of the cumulative, combined and synergistic impacts of Hornsea Three with other plans and projects within the Cromer Shoal Chalk Beds MCZ has been given within the MCZ Assessment provided at the time of application (APP-104) and in the updated MCZ Assessment (Appendix 5 to Applicant's Response).

Conclusion

7.20 In conclusion, the Applicant considers that worst case long term temporary loss of 0.016% of the Subtidal Sand feature and 0.0009% of the MCZ from cable rock protection is substantially outweighed by the very clear and overriding public interest in the urgent delivery of 2.4GW or more of additional renewable energy.

8. Measures of Equivalent Environmental Benefit (MEEB)

Introduction

8.1 If the SoS is satisfied there are no OMP and the benefits of Hornsea Three clearly outweigh the damage to CSCB, the SoS must make it a condition of the DCO that MEEB are or will be undertaken.

8.2 The MMO guidance offers limited guidance on MEEB. It notes (consistent with the legal submissions at section 5 above) that, in determining MEEB, the types of "*compensatory measures that might be considered under the Habitats Directive would also be appropriate to put forward here,* ***although consideration will not be confined to those***" [our emphasis added].

8.3 The MMO Guidance adds that the MMO will consider any MEEB that are of relevance to any of the commitments the UK has made on MPAs at a national and international level. Furthermore, the reasons why an affected MCZ was designated (in addition to the features it was designated for) is considered by the MMO to be relevant in this context as this "*may offer a broader ecosystems context for the consideration of m*easures".

8.4 According to DEFRA 2010, the meaning of 'equivalent environmental benefit' will depend on the scale and nature of the impact. It will be for the public authority to decide on what measures are appropriate and of equivalent environmental benefit having regard to any advice provided by the relevant SNCB.

8.5 DEFRA 2010 provides some illustrative examples, which clearly show the breadth of possible MEEB goes beyond measures that would be regarded as "compensation" for HRA purposes. MEEB could include, for example:

- restoration of habitat (a presumption of the same feature unless this is not possible)
- conservation actions within the MCZ or elsewhere; or
- broader measures, such as monitoring and survey work (perhaps to help identify areas for future designation) or contributing to the financial cost of ending, or buying-out, other harmful activities.

8.6 DEFRA 2010 indicates a preference for first considering 'like for like' measures, but acknowledges this may not be possible or practicable and, alternatively, measures could be secured which benefit the same features (habitats, species, etc) or could comprise "*broader measures of equal value*" perhaps including a monitoring element.

MEEB developed for Hornsea Three

8.7 The Applicant has prepared an "In-principle MEEB Plan" (Annex A of this document), which sets out in outline the MEEB developed for the CSCB MCZ, in the event that the SoS concludes that the Derogation Provisions are engaged. A summary of the MEEB is set out in Table 8.1below. Preliminary discussions on this measure have been held with the Eastern Inshore Fisheries and Conservation Agency (IFCA) and it was advised that targeting this measure at the Subtidal Chalk feature in particular would be of greatest benefit to the MCZ as a whole, due to the sensitivity of this feature of the MCZ to the presence of fishing gear.

Table 8.1: Measures of Equivalent Environmental Benefit for the CSCB MCZ

Compensation measure	Description
Litter removal within the CSCB MCZ	Litter/fishing gear removal within the CSCB MCZ and measures to increase the recovery of future lost gear (within the Eastern Inshore Fisheries and Conservation Agency (EIFCA's) district), focused on lost/abandoned fishing gear within the MCZ and particularly the Subtidal Chalk MCZ feature.

8.8 Amongst other matters, the "In-principle MEEB Plan" (Annex A) sets out detail in relation to: (i) the objectives and scale of the measures; (ii) the delivery process, (iii) the delivery timescales, (iv) proposed monitoring and reporting.

Timing

8.9 The MMO Guidance indicates that, where it is the relevant authority, it will require commitment from an applicant that MEEB "*can be secured and functioning before they can be sat*isfied" for the purposes of the MCZ Derogation Provisions. As set out in the legal submissions at section 5 above, this goes beyond what is required by the law. The Applicant accepts that there must be a mechanism to secure the MEEB at grant of authorisation but a more flexible approach is lawful and supported by DEFRA 2010.

8.10 DEFRA 2010 advocates a pragmatic approach to the timing of MEEB, depending upon the circumstances. It advises that, where the level of impact is difficult to predetermine:

> "*…an approach based on variable risks might help evaluate possible damage to the environment and the equivalent environmental benefit required. If the public authority and applicant agree that a risk exists (even if they disagree about the likelihood and scale of the risk), they may choose to negotiate and sign up to a graduated range of equivalent beneficial measures reflecting the scale of possible impacts. This would be linked to a monitoring scheme (at the developer's expense) which would determine the actual level of impact, and hence the actual equivalent beneficial measures likely to be required (at the developer's expense). This approach could help avoid an open-ended liability*." (page 15).

8.11 It is proposed that the undertaker would seek approval for a final MEEB plan, no later than a year before commencement of licenced activities, or any phase of those activities, within the CSCB MCZ. Further detail on timing and rationale are provided in the "In-principle MEEB Plan" (Appendix 3A to the Applicant's Response).

Method of Securing the MEEB

8.12 Further to consultation with the MMO, the Applicant proposes that a new Article 44 (*Compensation and MEEB Measures*) is introduced to the DCO, which gives effect to a new Schedule (*Compensation and MEEB Measures*), which sets out the proposed obligations on the undertaker, and provides for detailed measures to be submitted to and approved by the SoS, in consultation with the MMO and Natural England.

8.13 In respect of MEEB, the new Schedule requires that at least 12 months prior to the commencement of licenced activities (or any phase of those activities), within the CSCB MCZ, a detailed "MEEB Plan" must be submitted to the SoS for approval. The MEEB Plan must accord with the principles set out in the "In principle MEEB Plan" and contain an implementation timetable.

8.14 Additionally, the Schedule requires that, prior to the submission of the MEEB Plan to the SoS, the undertaker must carry out pre-application consultation in accordance with that set out in the In principle MEEB Plan. Moreover, before approving the MEEB Plan, the Secretary of State would be required to consult the MMO and Natural England on the final details.

8.15 In order to facilitate this process, a Hornsea Three Offshore Environment Engagement Group would be established comprising the relevant SNCB(s) and potential delivery partner(s) for the MEEB . The purpose of this group would be to help shape and inform the nature and delivery of the MEEB, post consent. The Environment Engagement Group would be consulted on the proposed MEEB Plan prior to submission to Secretary of State and during the approval process. Further details of this process are set out in Appendix 3A to the Applicant's Response.