Derogation Case

2024

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For and on behalf of Ossian OWL	Paul Darnbrough	28 June 2024

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GLOSSARY

Term	Description
Bycatch	The accidental capture of species other than the target fish species. In the context of this report, seabird bycatch is discussed.
Compensation/Compensatory Measures	If an Adverse Effect on the Integrity (AEoI) on a designated site is determined during the Appropriate Assessment, compensatory measures for the impacted site (and relevant features) will be required. The term compensatory measures is not defined in the Habitats Regulations. Compensatory measures are however, considered to comprise those measures which are independent of the project, including any associated mitigation measures, and are intended to offset the adverse effects of the plan or project so that the overall ecological coherence of the national site network is maintained.
Guga hunt	The annual tradition of capturing juvenile gannets from the rocky islet of Sula Sgeir in Scotland.
Habitat Enhancement	The improvement of a breeding habitat to encourage seabird colonisation and breeding productivity.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017.
Habitats Regulations Appraisal (HRA)	A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of a multi step assessment which incorporates screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures.
National Site Network (NSN)	The network of European Sites in the UK. Prior to the UK's exit from the EU and the coming into force of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 these sites formed part of the EU ecological network knows as "Natura 2000".
Ossian Offshore Wind Farm Limited (OWFL)	The Applicant for the proposed Ossian Offshore Wind Farm.
Ossian Array (or the 'Array')	The wind turbines, offshore substation platforms and inter-array/interconnector cabling collectively that make up the Ossian Wind Farm development.
Ossian Offshore Wind Farm	A floating offshore wind farm within the Sectoral Marine Plan E1 Plan Option Area, following award of an Option to Lease Agreement by the Crown Estate Scotland as part of the first ScotWind Leasing Round.
Ossian Offshore Wind Farm Limited (OWFL)	The Applicant for the proposed Ossian Wind Farm Development Consent Order (DCO).
Predator Control and Eradication	The removal of invasive non-native predators from seabird breeding grounds. In the context of this report, rat eradication and mink control are discussed.
Report to Inform Appropriate Assessment (RIAA)	The information that the Competent Authority needs to inform an Appropriate Assessment at Stage 2 of the HRA process, and which has been provided by the Applicant in the RIAA (Volume 2, Annex 2: Report to Inform Appropriate Assessment).
Special Area of Conservation (SAC)	Strictly protected sites designated pursuant to Article 3 of the Habitats Directive (via the Habitats Regulations) for habitats listed on Annex I and species listed on Annex II of the directive.
Special Protection Area (SPA)	Strictly protected sites designated pursuant to Article 4 of the Birds Directive (via the Habitats Regulations) for species listed on Annex I of the Directive and for regularly occurring migratory bird species.

ACRONYMS

Acronym	Description
AA	Appropriate Appraisal
ACAP	Agreement on the Conservation of Albatrosses and Petrels
AEOI	Adverse Effect on the Integrity
AFBINI	Agri-Food and Biosciences Institute of Northern Ireland
ANS	Artificial Nesting Structure
AoS	Areas of Search
BTO	British Trust for Ornithology
BMP	Bycatch Monitoring Program
Cefas	Centre for Environment Fisheries and Aquaculture Science
CES	Crown Estate Scotland
CfD	Contracts for Difference
CIMP	Compensation Implementation and Monitoring Plan
CIP	Copenhagen Infrastructure Partners
CO_2	Carbon dioxide
CSP	Catch Sampling Programmes
cSAC	Candidate Special Area of Conservation
pSAC	Possible Special Area of Conservation
Defra	Department for Environment, Food and Rural Affairs
DESNZ	UK Government's Secretary of State for Energy, Security and Net Zero
DPO	Draft Plan Option
EC	European Commission
ECJ	European Court of Justice
ECO	Electricity System Operator
EIA	Environmental Impact Assessment
EU	European Union
GHG	Greenhouse Gas Emissions
GIS	Geographic Information System
HNDFUE	National Grid Holistic Network Design Follow Up Exercise
HRA	Habitats Regulations Appraisal
ICES	International Council for the Exploration of the Sea
INTOG	Innovation and Targeted Oil and Gas Decarbonisation
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
MCAA	Marine and Coastal Access Act
MCP	Mink Control Project
MD-LOT	Marine Directorate – Licensing Operations Team
MD-SEDD	Marine Directorate Science, Evidence, Data and Digital
MGN	Marine Guidance Note
MoU	Memoranda of Understanding
MPA	Marine Protected Area
MSS	Marine Scotland Science
NSN	National Site Network
NRW	Natural Resources Wales
OSP	Offshore Substation Platform
Ossian OWFL	Ossian Offshore Wind Farm Limited
OTNR	Offshore Transmission Network Review
PBR	Potential Biological Removal
PO	Plan Option
REZ	Renewable Energy Zone

Acronym	Description
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SCI	Sites of Community Importance
SEA	Strategic Environmental Assessment
SEIA	Social and Economic Impact Assessment
SFF	Scottish Fishermen’s Federation
SISI	Scottish Invasive Species Initiative
SMP	Sectoral Marine Plan
SMRU	Sea Mammal Research Unit
SNCB	Statutory Nature Conservation Bodies
SOI	Scottish Oceans Institute
SPA	Special Protection Area
SPEA	Portuguese Society for the Study of Birds (Sociedade Portuguesa para o Estudo das Aves)
SSER	SSE Renewables Limited
SSI	Species Sensitivity Index
TCE	The Crown Estate
TEC	Transmission Entry Capacity
UK	United Kingdom

UNITS

Unit	Description
%	Percentage
gCO_2e/kWh	Grams of carbon dioxide equivalent per kilowatt hou
GW	Giggawattes
ha	Hectares (area)
km	Kilometres (distance)
km^2	Kilometres Squared
m	Metre (distance)
MW	Mega Watts

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1. INTRODUCTION

1.1. OVERVIEW

1. Under the Habitats Regulations, where adverse effects on the integrity (AEOI) of a European Site cannot be excluded, decision-makers may grant consent for a plan or project that must be carried out for imperative reasons of overriding public interest (IROPI) where there are no alternative solutions and subject to compensatory measures to ensure that the overall coherence of the national site network is maintained. These three tests (no alternative solutions, IROPI and compensatory measures) form the "Derogation Case" on which the decision-maker should be satisfied before granting consent for a plan or project.

2. Conclusions reached in the RIAA have identified the potential for AEOI on seven Special Protection Areas (SPAs) supporting populations of black-legged kittiwake, Northern gannet and razorbill. In view of these conclusions, it is necessary to provide the requisite information and justification (the Derogation Case) to satisfy the HRA Derogation Provisions in respect of the species for the SPAs identified. This Derogation Case made as part of the Application provides robust and sufficient information to allow the Scottish Ministers to grant the application for the Array in compliance with the Habitats Regulations.

3. It is also noted that in circumstances where AEOI are identified for a European site outside Scotland or the Scottish offshore region, the Scottish Ministers must notify the relevant Competant Authority and can only agree to the project after having been notified of the Competant Authority's agreement. As such, the enclosed documents provide a comprehensive Derogation Case that can be relied upon by the Scottish Ministers and any Competant Authority to the extent required.

1.2. PROJECT BACKGROUND

4. Ossian Offshore Wind Farm Limited (Ossian OWFL) (hereafter referred to as the "Applicant") is proposing to develop Ossian Offshore Wind Farm (the Project), within the E1 Plan Option (PO) Area as part of the ScotWind Leasing Round. The Project is a joint venture between SSE Renewables Limited (SSER), Copenhagen Infrastructure Partners (CIP) and Marubeni Corporation.

5. The Project will include offshore and onshore infrastructure including an offshore generating station (the Array), offshore export cables to landfall and onshore transmission cables leading to an onshore convertor station connecting to the electricity transmission network.

6. This application seeks permission from Scottish Ministers to construct and operate the Array. To do this the Applicant is seeking the following consents and licences:

   - a Section 36 consent under the Electricity Act 1989 for an offshore generating station in the Scottish offshore region (12 to 200 nm) where generating capacity exceeds 50 MW; and
   - Two Marine Licences under the Marine and Coastal Access Act 2009 (MCAA) (Scottish waters beyond 12 nm) for the following:
     - generating station (wind turbines, including their floating substructures and mooring and anchoring systems and inter-array cables); and
     - transmission infrastructure (OSPs and interconnector cables within the Array Area site boundary).

7. The proposed offshore export cable corridor(s) and proposed onshore cable corridor(s) (including all infrastructure such as onshore converter station(s) at the Proposed landfall location(s)) are not included within the application. This is because the proposed landfall location(s) have yet to be agreed and will be decided following the ongoing Offshore Transmission Network Review (OTNR) and National Grid Holistic Network Design Follow Up Exercise (HNDFUE).

8. The Array comprises of up to 265 floating wind turbines. At this stage the overall capacity for the Array is not defined. However, the exported capacity for the Array is expected to be 3.6 GW. The Array will be approximately 80 km south-east from the nearest point of Aberdeen.

1.3. REPORT TO INFORM APPROPRIATE ASSESSMENT

9. A Report to Inform Appropriate Assessment (RIAA) accompanies the application for the Array. The RIAA assesses whether the Array could have an adverse effect, either alone, or in-combination with other plans or projects, on the integrity of any European site. European sites include Special Areas of Conservation (SACs), candidate SACs (cSACs), Sites of Community Importance (SCI), Special Protection Areas (SPAs) and, as a matter of policy (Scottish Government, 2020), possible SACs (pSACs), potential SPAs (pSPAs) and Ramsar Sites (listed under the Ramsar Convention on Wetlands of International Importance).

10. For SACs with designated features including diadromous fish and marine mammals, the RIAA concluded 'No adverse effect on the integrity of the site', either from the project alone or in-combination with other developments. For SPAs, the RIAA again concluded 'no adverse effect on the integrity of the site' for project-alone impacts. However, the RIAA concludes that a potential adverse effect cannot be ruled out, when considered in-combination with other plans and projects, at seven sites and for three qualifying seabird species. This impact is a result of disturbance and displacement and/or collision during the operation and maintenance phase of the Array. The predicted impacts are set out in Table 1.1.

Table 1.1: Summary of the Array Predicted Impacts on Relevant SPA Features

Species	SPA	Adult Annual Mortality (Low) (Number of Animals)	Adult Annual Mortality (High) (Number of Animals)
Razorbill	Fowlsheugh SPA	**4.8**	**28.4**
Kittiwake	Buchan Ness to Collieston Coast SPA	1.6	6.6
	East Caithness Cliffs SPA	1.0	4.2
	Flamborough and Filey Coast SPA	1.6	6.7
	Forth Islands SPA	0.5	2.0
	Fowlsheugh SPA	2.3	9.8
	North Caithness Cliffs SPA	0.1	0.4
	Troup, Pennan and Lion's Heads SPA	0.8	3.3
	Total	**7.9**	**33.0**
Gannet	Flamborough and Filey Coast SPA	2.0	4.4
	Forth Islands SPA	26.8	58.0
	Total	**28.8**	**62.4**

2. REQUIREMENT FOR A DEROGATION CASE

11. Ultimately it is the duty of the Scottish Ministers to apply the HRA process and to carry out an Appropriate Assessment (AA) for the Array. Should the AA undertaken by Scottish Ministers align with the Applicant's RIAA, Scottish Ministers can only agree to the Array if the requirements of the derogation provisions in the Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Habitats Regulations) are met. These provisions are set out at Regulations 29 and 36 of the Habitats Regulations.

12. Regulation 29 of the Habitats Regulations states that the competent authority may agree to a project if:

- firstly, it is satisfied that there are no alternative solutions;
- secondly, the project must be carried out for imperative reasons of overriding public interest (IROPI), notwithstanding a negative assessment of the implications for a European site.
- Thirdly, regulation 36 of the Habitats Regulations requires that where a project is agreed to in accordance with regulation 29, notwithstanding a negative assessment of the implications for a European site, the Scottish Ministers shall secure that any necessary compensatory measures are taken to ensure that the overall coherence of the UK site network is protected.

13. These three derogation tests must be considered by the Scottish Ministers sequentially and each one must be satisfied before consent can be granted on the basis of these provisions.

14. The following sections provide the information for the Scottish Ministers to consider in respect of each of these tests. In this document the three tests are presented in the following sequential order:

- Assessment of Alternatives;
- Imperative Reasons of Overriding Public Interest; and
- Compensatory measures put forward to ensure the protection of the overall coherence of the network.

3. CONSULTATION

15. The Applicant has undertaken pre-submission consultation with relevant stakeholders and Statutory Nature Conservation Bodies (SNCBs) as part of the preparation of the Derogation Case (including, Marine Directorate – Licencing Operations Team (MD-LOT), Marine Directorate – Science Evidence, Data and Digital (MD-SEDD), NatureScot, and the RSPB). Further detail on this pre-submission consultation is presented in the Consultation Log which is found in Annex A of Appendix 2 of the Derogation Case.

4. GUIDANCE AND PRECEDENT

4.1. GUIDANCE

16. All relevant guidance has been considered during the development of this Derogation Case, including the following:

4.1.1. SCOTTISH GUIDANCE

17. Scottish guidance considered includes:

- NatureScot (2022). European Site Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)
- CMS (2021) report for SOWEC (Habitats Regulations Appraisal (HRA) Derogations for Offshore Wind Projects in Scotland - Legal Framework for Decisions)
- Scottish Government (2018). Marine Scotland Consenting and Licensing Guidance: For Offshore Wind, Wave and Tidal Energy Applications

18. In addition to the above published guidance, and of relevance to Scottish projects, is an advice note prepared by DTA Ecology called 'Policy Guidance Document on Demonstrating the Absence of Alternative Solutions and Imperative Reasons of Overriding Public Interest under the Habitats Regulations for Marine Scotland'. This was circulated to offshore windfarm developers in 2021, but it is yet to be formally consulted on or published.

4.1.2. UK AND EUROPEAN GUIDANCE

19. UK and European Guidance considered includes:

- Defra (2021a) Habitats regulations assessments: protecting a European site.
- Defra (2021b). Draft best practice guidance for developing compensatory measures in relation to Marine Protected Areas
- (Defra, 2024c) Consultation on policies to inform updated guidance for Marine Protected Area (MPA) assessments
- DTA (2021) The Habitats Regulations Assessment Handbook.
- European Commission (2020): EU Guidance on wind energy development in accordance with EU nature directives.
- Defra (2012): Habitats and Wild Birds Directives: guidance on the application of article 6(4) Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures.
- European Commission (2001). Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC. November 2001.
- European Commission (2018). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000) published by the EC in 2000 but updated in November 2018.

4.2. PLANNING PRECEDENT

20. The Applicant has developed this Derogation Case in view of the precedent set by all previous derogation cases attached to UK offshore windfarm decisions.

21. Scottish Ministers have to date consented one offshore wind farm with a derogation case. This was the Green Volt windfarm, which was consented in April 2024. A derogation case was required because Scottish Ministers were unable to conclude beyond reasonable scientific doubt that the project in-combination with other plans and projects would have no adverse effect on seabird features of five SPAs.

22. In England the UK Government's Secretary of State for Energy, Security and Net Zero (DESNZ) has consented to eight offshore wind farm projects with associated derogation cases. These are: Hornsea Three (2020); East Anglia ONE North, East Anglia TWO, Norfolk Vanguard, Norfolk Boreas (2022); Hornsea Four (2023) and the Dudgeon and Sheringham Shoal Extensions (2024). A Derogation Case has also been made for the Round 4 Plan Level HRA.

4.3. EC OPINIONS

23. The EC has adopted and published a number of opinions on Article 6(4) derogation cases between 1996 and 2022 (European Commission, 2018). These EC opinions have also been reviewed and considered during the development of this Derogation Case.

5. ASSESSMENT OF ALTERNATIVES

5.1. INTRODUCTION

24. This section examines whether there are any feasible alternative solutions to the Array. A range of potential alternatives have been considered in this Part, as set out in more detail below, ranging from "doing nothing", to alternative sites, designs, scales and methods of operation.

25. The conclusion reached is that there are no feasible alternative solutions to the Array.

26. The analysis set out in this section is supported by, and draws upon, the following documents that accompany the Section 36 Consent and Marine Licence applications for the Array.

- Ossian OWFL (2024a). Ossian Array Environmental Impact Assessment Report:
  - volume 1, chapter 1: Introduction;
  - volume 1, chapter 3: Project Description;
  - volume 1, chapter 4: Site Selection and Consideration of Alternatives;
  - volume 1, chapter 5: Stakeholder Engagement and Consultation;
  - volume 2, chapter 17: Climatic Effects; and
  - volume 3, appendix 6.3: Commitments Register;
- Ossian OWFL (2024b). Ossian Array: Report to Inform Appropriate Assessment; and
- Ossian OWFL (2024c). Planning and Need Statement.

5.1.1. APPROACH TO ASSESSMENT OF ALTERNATIVES

27. The legal context of the Habitats Regulations Assessment process surrounding the Array application and this Derogation Case is set out in section 2. The Habitats Regulations do not define the concept of "no alternative solutions" or the parameters of the exercise, and there is limited case law at a UK or EU level. Therefore the approach adopted by the Applicant primarily draws upon relevant Scottish, UK and EC guidance and precedent from previous Offshore Wind Farm derogation decisions (Section 4).

Project Objectives – Step 1

28. A consistent theme of guidance and previous Offshore Wind Farm derogation decisions is that possible alternative solutions must achieve the core objectives of the Array.

29. In this regard, European Commission (2018) provides [underlining added]: "it is for the competent national authorities to ensure that all feasible alternative solutions that meet the plan/project aims have been explored to the same level of detail". The EC's Methodological Guidance reflects European Commission guidance (2018) and suggests a three-step approach for examining the possibility of alternative solutions, the first step being to identify the key objectives of the project in question.

30. This approach has also been endorsed by the English High Court in *Spurrier*[1], which commented as follows [underlining added]:

31. "Even by itself, the noun "alternative" carries the ordinary, Oxford English Dictionary meaning of a "thing available in place of another", which begs the question what are the relevant objectives or purposes which an alternative would need to serve. However, article 6(4) does not refer simply to the absence of an "alternative" but to an "alternative solution", "alternative" appearing as an adjective, which makes this meaning plain beyond any doubt. In our view, "an alternative" must necessarily be directed at identified objectives or purposes; but it is beyond doubt that "an alternative solution" must be so aimed,"

32. This approach was also endorsed by the Court of Appeal in *R (Plan B Earth) v Secretary of State for Transport* [underlining added]*:*

33. "Under the Habitats Directive, if a suggested alternative does not meet a central policy objective of the project or plan in issue, then it is no true alternative and will properly be excluded. It is not then, and cannot be, an "alternative solution". In short, the Habitats Directive has a determining effect on the inclusion or exclusion of alternatives".

34. Defra (2012) similarly states that alternative solutions are "limited to those which would deliver the same overall objective as the original proposal". In making this point, it uses the example of an offshore wind farm:

35. "For example, in considering alternative solutions to an offshore wind renewable energy development the competent authority need only consider alternative offshore wind renewable energy developments. Alternative forms of energy generation are not alternative solutions to this project as they are beyond the scope of its objective. Similarly, alternative solutions to a port development will be limited to other ways of delivering port capacity, and no other options for important freight".

36. Defra's 2021 guidance echoes this advice: "Examples of alternatives that may not meet the original objective include a proposal that…offers nuclear instead of offshore wind energy".

37. The Appropriate Assessment made by the Secretary of State for the Hornsea Project 4 Offshore Wind Farm adopted this approach, stating that: "In accordance with relevant guidance, the Secretary of State does not consider that alternative forms of energy generation meet the objectives for the Project. Alternatives to the Project considered by the Secretary of State, and assessed by the Applicant, are consequently limited either to 'do nothing' or to alternative offshore wind farm projects".

38. Additionally, Defra's 2012 guidance states that documents setting out Government policy provide important context for a competent authority when considering the scope of alternative solutions.

39. In conclusion, the first step in a Derogation is to identify the core objectives of the Array. These core objectives respond to and must be understood in the policy context and needs case which the Array delivers. It is noted that a similar approach has been followed in all UK offshore wind farm Habitats Regulations derogation cases to date and as illustrated below.

Do Nothing – Step 2

40. A second consistent theme of HRA guidance is that a "do nothing" or "zero option" should be considered, i.e. the outcome of not proceeding with the project at all.

41. For example, European Commission (2018) states: "Crucial is the consideration of the 'do nothing' scenario, also known as the 'zero' option which provides the baseline for comparison of alternatives." DTA Ecology 2021 (in draft) similarly suggests this allows a baseline from which to gauge other alternatives and provides a different viewpoint from which to understand the need for the proposal.

42. The English courts[2] have cast doubt on the proposition that "do nothing" is a true alternative, though it was recognised by the judge that whether there are IROPI clearly raises the question of whether it is better to do nothing. The do nothing option, which in the context of the Array would comprise not proceeding with the proposed development at all, would fail to achieve any core project objective and would immediately be discounted where it is clear there are IROPI to proceed with a given project.

[1] *Spurrier, R (on the application of) v The Secretary of State for Transport* [2019] EWHC 1070 (Admin)

[2] *Humber Sea Terminal Ltd v Secretary of State for Transport and another* [2005] EWHC 1289 (Admin), comments at paragraph 84

43. However for completeness and given reference to it in pre-existing guidance, the "do nothing" option is considered in this Derogation Case. This is consistent with the approach adopted by the decision-makers in the existing offshore wind farm derogation decisions taken to date.

Identify Feasible Alternative Solutions – Step 3

44. If the "do nothing" option is discounted, the next step is to identify any or all feasible alternative solutions that meet the core project objectives and would avoid or be materially less damaging for the European site(s) in question, whilst also not resulting in AEOI for another (unaffected) European site.

45. Again, all guidance is aligned in indicating that this could (subject to the core project objectives) theoretically include consideration of different location(s), scale(s), design(s) of development or alternative operational processes. However, there are practical limitations to this exercise.

46. At this point it is relevant to note that in each of the previously granted English offshore wind farm HRA derogation decisions, the decision-maker concluded that alternative forms of energy generation would not meet the core objectives for the proposed offshore wind farm and that alternatives can consequently be limited to either "do nothing" or "alternative wind farm projects". This reflects Defra's 2012 and 2021 guidance and is therefore adopted in this Report. It also reflects the Appropriate Assessment recently made by the Scottish Ministers in determining the Green Volt Offshore Wind Farm project:

47. "The Scottish Ministers do not consider alternative forms of renewable technologies or onshore wind farms to be "alternatives" to offshore wind given the policy objectives identified for the Project. It follows that identification of reasonable alternative solutions will consist of either a 'Do Nothing' approach, or consideration of an alternative project location, scale or design."

48. European Court of Justice (ECJ) case law confirms that hypothetical options can be discounted. European Commission (2018) similarly makes clear that the consideration of alternative solutions should be limited to "*feasible*" alternative solutions. Defra 2021 helpfully explains that a potential alternative should be: "*financially, legally and technically feasible*". The recent Appropriate Assessment made by the Scottish Ministers for the Green Volt Offshore Wind Farm also confirms this approach for Scottish Offshore Wind Farms:

49. "Any alternative identified must be capable of meeting the identified policy objectives, be legally, technically and financially feasible, and have a lower impact on the designated sites."

50. On legal feasibility, relevant practical examples can be found in English Offshore Wind Farm derogation decisions. In the HRA for East Anglia ONE North Limited, the Secretary of State concluded:

51. "The site selection for all offshore wind proposals in the UK is controlled by The Crown Estate (TCE) leasing process. Sites not within the areas identified by TCE leasing process or outside of that which the Applicant has secured (the southern East Anglia Zone) are not legally available, and therefore do not represent alternative locations."

52. Similarly, in the HRA for Hornsea Project 4 the Secretary of State found that:

53. "In his assessment of alternatives, the Secretary of State has not constrained himself solely to those alternatives that could be delivered by the Applicant. Nevertheless, the Secretary of State acknowledges that any alternative must be economically feasible for the developer and allow the developer to fulfil the terms of its lease with TCE."

54. This establishes that feasible alternative locations can only be within areas or sites currently identified for leasing either by Crown Estate Scotland (CES) or TCE.

Assessment of any Identified Alternative Solutions – Step 4

55. Finally, European Commission (2018) advises that where feasible alternative solutions that meet the core project objectives are identified, those alternatives should each be analysed and compared with regard to their relative impact (if any) on any European Site(s).

56. An assessment of feasible alternative solutions should comprise an assessment of the adverse effects on the specific European site in question, but also any adverse effects on other European sites and qualifying features must be considered.

57. At this stage it is not necessarily the case that any feasible alternative that reduces effects on the European site in question results in failure of the alternatives test. Some ECJ case law and EC opinions indicate that the impact of a feasible alternative solution should be materially lower in order for a potential alternative to be considered a genuine alternative.

5.1.2. CONTENT AND STRUCTURE

58. Drawing on the guidance and planning precedent identified above, a staged process has been adopted, to provide a structured and sequential method for examination of alternative solutions:

- Step 1 Identify the core project objectives for the Array, in the context of the identified need
- Step 2 Consider the "do nothing" scenario
- Step 3 Identification of any feasible alternative solutions that meet the core project objectives
- Step 4 Comparative assessment of any feasible alternative solutions on European site(s)

5.2. NO ALTERNATIVE SOLUTIONS CASE: STEP 1 – THE CORE OBJECTIVES

59. The need for the Array is demonstrated comprehensively in the Planning and Need Statement. In short, offshore wind must be deployed urgently, starting as soon as possible, and at scale.

60. Against this backdrop, the project objectives for the Array are set out in Table 5.1. These core project objectives respond to the environmental, decarbonisation, regulatory, market and economic factors.

Table 5.1: Ossian Project Objectives

Objective	Need Case	How the Array achieves the Objective
Decarbonisation –To support the UK and Scottish Governments' decarbonisation and climate change targets by developing a floating offshore windfarm at a large scale with ambitions to generate low carbon electricity within the early 2030's	• Both Scottish and UK governments are committed to decarbonisation and climate change mitigation through a suite of time-bound legislation and policy commitments, including Scottish Government's statutory target to achieve net zero by 2045 (see Planning and Need Statement). • A core pillar of these commitments is delivering substantial volumes of renewable energy from offshore wind. The expansion of offshore wind can only be maximised with floating wind technology as it allows areas of seabed, previously constrained by depth, to be developed.	• The electricity generated by the Array will substantially reduce carbon emissions when compared to other, conventional higher carbon emitting forms of energy generation (see Climatic Effects (volume 2, chapter 17)). • The Array is at an advanced stage of development and is the largest floating windfarm currently being progressed through the planning system in Scotland and the UK. With the expectation that it will generate energy by the early 2030's, the Array will provide an important contribution to achieving UK and Scottish legislative and policy commitments. • By developing a floating offshore windfarm in an area of seabed unavailable to other foundation types, the Array is maximising the potential for decarbonisation and climate change targets to be met.
Energy Security - Helping ensure Scottish and UK energy supply security through increasing the proportion of electricity coming from domestic renewables rather than volatile international fossil fuel markets.	• A reduced dependency on fossil fuel imports will reduce market volatility and, in turn, provide greater energy security for the Scottish and UK consumer. It will also reduce opportunities for geopolitical intrusion. • Oil and gas extraction within the UK Continental Shelf (UKCS) can improve energy security in the short-term, but to meet Scottish and UK net zero commitments, renewables are the only long-term solution.	• With the potential to generate 3.6GW of clean energy, the Array will make a significant contribution to the UK's offshore wind network and domestic energy supply – enough to power up to 6 million homes annually. • The Array's connection to the National Grid Network means that 100% of the energy generated will be available for use by UK consumers.
Affordability – Driving down the cost of floating wind technology to achieve the lowest viable cost of low carbon energy for the UK consumer which can be delivered at scale	• Global energy costs have been rising for some time. Increased demand since COVID-19 and recent geopolitical events have pushed prices higher than ever before.	• The Offshore Wind Industry has a strong track record of driving down the cost of electricity. This is evidenced by the falling strike price due to the competitive Contracts for Difference (CfD) scheme. • Upon gaining consent, the Applicant will apply for a CfD. This scheme is subject to a competitive tender mechanism, whereby projects must submit 'sealed bids' of strike prices in an auction for a fixed quantity of funding. This process will be key to ensuring that the floating wind technology at Ossian will be built out at the lowest viable cost to the consumer.
Generate renewable power on UK seabed at greater depths- Deploying floating wind technology at scale to generate renewable, low-carbon electricity within the constraint of available Scottish sites.	• To make full use of Scotland and the UK's seabed resources, deeper areas of the seabed that have previously not been developed due to constraints in fixed foundation technology must become accessible to windfarm development.	• To maximise energy generation at this deep water site, the Array will install 100% floating wind technology. This will allow the Array to make the most efficient use of this site in view of the site's environmental features and constraints.
Leading the step change for the industry by deploying floating technology at a large scale – kick-starting and sustaining a floating wind industry	• For floating wind to be delivered at scale, substantial investment is required to develop the technology and the supply chain.	• The Array is in an optimal position to kickstart the floating wind industry. The size of the Array positions it as a project that will demonstrate that floating wind is a technology applicable to other large offshore windfarm projects. • Particularly given the scale of the Array, it will generate substantial investment in the supply chain and facilitate the development of floating wind technology. In doing so, the Array will strengthen the knowledge base and experience of floating offshore wind deployment.
Facilitating Socio-economic Development within the floating wind sector - Delivering project skills and employment for Scotland and UK and supporting investment in the Scottish economy through the supply chain.	• Facilitating socio-economic development is a key ambition in Scotland's Just Transition Plan, which aims to maintain or increase employment as the sector moves from high carbon to low carbon energy generating technologies, such as floating wind.	• The Array will facilitate socio-economic development within the floating wind sector in multiple ways: – By generating new low-carbon jobs – By investing in new technologies that can facilitate long term development of the offshore wind sector – By increasing opportunities for Scottish suppliers. – By working with Scottish suppliers from oil and gas to transition into offshore wind. – By supporting new market entrants. – By developing the future offshore workforce, skills and employability. – By working with academia and industry on important research supporting the development of offshore wind.

5.3. NO ALTERNATIVE SOLUTIONS CASE: STEP 2 – DO NOTHING

61. The “do nothing” scenario would comprise not proceeding with the Array, and the loss of up to 3.6GW of offshore wind generation capacity. A “do nothing” scenario would not meet any of the Array core project objectives and can be discounted on that basis, for the reasons set out below.

62. If the Array does not proceed, a significant area of seabed (the site boundary located within the E1 Plan Option (PO) Area identified in the Sectoral Marine Plan (SMP)) will not be utilised for renewable energy generation, at least in the foreseeable future. The E1 PO Area was identified in the SMP and subsequent ScotWind leasing round as suitable, hence was made available, for large-scale offshore floating wind development in Scottish offshore waters. If the Array is not consented and constructed the area of seabed secured through the ScotWind leasing process would not be developed in the near-term (if at all).

63. The Applicant’s expertise in developing offshore wind in Scottish waters allows for deployment, at scale, of floating offshore wind in Scottish offshore waters, which is essential in meeting Scotland’s and the UK’s path to net zero.

64. One of the key Array objectives, which would not be achieved under the “do nothing” scenario, is to support the Scottish and UK Governments’ decarbonisation targets by development a floating offshore windfarm at a large scale to generate low carbon electricity within the early 2030s. The Array will make an essential contribution to increasing Scottish low-carbon energy supply. Maximising the generating capacity of the Array will provide the greatest possible support to Scotland to achieve its legally binding net zero commitment by 2045, and to the UK to achieve the same by 2050. As detailed in the Array Planning & Need Statement, the cumulative capacity of consented or submitted projects is unlikely to be of sufficient scale to meet the required capacity growth in renewable energy delivery without the successful delivery of a significant capacity of floating offshore wind, of which the Array is a key contributor. Not delivering the Array poses a significant threat to the UK’s plans to deliver net zero by 2050. Therefore, projects forming part of the ScotWind round must be delivered if Scotland’s net zero commitments are to remain within reach. Not developing the Array would be contrary to achieving Scotland and the UK’s net zero goals as well as failing to achieve any of the Array objectives.

65. The Planning & Need Statement also sets out that National Grid Electricity System Operator (ESO)’s Future Energy Scenarios (2023) predicts the need for between 97 GW and 115 GW of offshore wind capacity in the UK by 2050 to reach net zero. National Grid’s TEC Register[3] shows that in the UK, the capacity of offshore wind farms either already operational or in construction was 17.6 GW with a further 113.6 GW at scoping stage. Scottish offshore wind farm sites comprise approximately one third of this capacity.

66. Scottish Renewables recommended a 30% MW attrition rate in their 2018 “An industry view of the Draft Sectoral Marine Plan for Offshore Wind” 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[4]. More recently, analysis by National Grid ESO shows that only 30-40% of projects in the queue go on to deliver to the National Grid[5]. The Applicant has produced a table of the attrition rates of UK leasing rounds, which shows on average substantially higher attrition rates in the three most recent leasing rounds in which projects have started construction (Table 5.2).

[3] https://www.nationalgrideso.com/data-portal/transmission-entry-capacity-tec-register/tec_register, accessed 23 May 2024

[4] Sectoral Marine Plan for Offshore Wind Energy, p31

[5] ESO leads the way with major initiative to accelerate connections to the electricity transmission grid | ESO (nationalgrideso.com) (27 February 2023)

Table 5.2: Attrition Rates for UK Leasing Rounds

Leasing Round	Area	Year Awarded	Sites Awarded	Capacity Awarded	Capacity Currently in Operation	Capacity under Construction	Capacity with Government Support on Offer	Attrition
TCE R1	Inshore (<12nm) England and Wales	2000	18	1.2GW	1.2GW	0	0	0%
TCE R2	Generally offshore (>12nm) England and Wales	2003	15	7.2GW	5.62GW	0	0	22%
Scottish Territorial Waters	Inshore and offshore Scotland	2009	9	5.8GW	0.59GW	0.45GW	1.08GW	64%
TCE Extensions Round (from R1 and R2)	Inshore and offshore England and Wales	2010	7	2GW	1.32GW	0	0	34%
TCE R3	Inshore/offshore England and Wales and offshore Scotland	2010	9 zones	32GW	5.75GW	7.53GW	4.4GW	45%
TCE Extensions Round 2017	Inshore and offshore England and Wales	2019	7	2.85GW	0	0	0	-
TCE R4	Offshore England and Wales	2021	6	8GW	0	0	0	-
ScotWind	Offshore Scotland	2022	20	26.7GW	0	0	0	-
INTOG	Offshore Scotland	2023	13	5.4GW	0	0	0	-
Celtic Sea (TCE R5)	Offshore England and Wales	Expected 2025	3 (plus 3 demo sites)	Up to 4.8GW	0	0	0	-

67. Therefore offshore wind projections need to be read and pursued in the knowledge that there is attrition during project development. Not all proposed offshore wind projects reach commercial operation, and some do so at reduced scale, or later than planned. Therefore, consenting a much larger offshore wind capacity than provided for in the various targets, as quickly as possible, is necessary to meet Net Zero

68. After accounting for anticipated attrition, it is clear that the delivery of substantial Scottish offshore wind is necessary for Scotland and the UK to meet its net zero legal obligations.

69. Other key Ossian objectives include security of supply, to lead a step-change for industry by deploying floating technology at large scale and kick-starting the floating technology industry, and to facilitate socio-economic development specifically within the floating wind sector. Ossian will become one of the largest floating wind farm projects globally, providing several GW of low-carbon electricity for the consumer through deployment of floating turbines at scale. This will make a significant contribution towards the Scottish and UK Governments' net zero targets, whilst enabling the development of a home-grown market for industrial-scale floating wind technology.

70. Further, because electricity generated by floating offshore wind is not dependent on input fuels, the price of the electricity generated at Ossian, will provide a shield for electricity consumers against volatile international fuel markets.

71. In the absence of the Array, it will be substantially more difficult for the Scottish and UK Governments to achieve their offshore wind, particularly floating offshore wind, targets, and the floating industry will not be kick-started by the roll-out of such a large floating wind development. Therefore, Scottish and UK supply chain opportunities would also be missed.

72. Thus, the no-Array scenario would substantially hinder decarbonisation, security of supply and would not deliver the economic benefits of kick-starting a floating wind industry.

73. The importance of the decarbonisation, energy security and economic benefits objectives mean that no viable floating Offshore Wind Farm projects should be passed over in the development process. It is not compatible with a climate emergency to "do nothing".

74. It is notable that the recent Derogation Case in respect of the Green Volt Offshore Wind Farm accords with this approach, with the Scottish Ministers finding that the "do nothing" approach would remove the risk of impacts to the qualifying features of designated sites but would not be consistent with the emissions reductions requirements of the Climate Change (Scotland) Act 2009 to mitigate the effects of climate change, and *"in addition, the Scottish Ministers consider that taking a 'do nothing' approach would hinder meeting the ambitions set out in the British Energy Security Strategy. The Scottish Ministers do not consider the 'do nothing approach' to be a feasible alternative solution."*

75. In summary, this alternative would fail to meet all the Ossian core project objectives, as set out in Table 5.3.

76. For these reasons, the "do nothing" option is discounted and does not form an alternative solution to the Array.

Table 5.3: Performance of "Do Nothing" Scenario Against Array Objectives

Alternative Solution	Objective 1: Decarbonisation – support the UK and Scottish Governments' decarbonisation and climate change targets by developing a floating offshore windfarm at a large scale to generate low carbon electricity in the early 2030's	Objective 2: Energy Security – help ensure UK energy supply through increasing the proportion of electricity coming from domestic renewables rather than volatile international fossil fuel markets	Objective 3: Affordability – drive down the cost of floating wind technology to achieve the lowest viable cost of low carbon energy for the UK consumer which can be delivered at scale	Objective 4: Generate renewable power on UK seabed at greater depths – deploy floating wind technology at scale to generate renewable, low-carbon electricity from deep locations	Objective 5: Leading the step change for the industry by deploying floating technology at a large scale – kick starting and sustaining a floating wind industry	Objective 6: Facilitating socio-economic development within the floating wind sector – delivering project skills and employment for Scotland and the UK and supporting investment in the Scottish economy through the supply chain
Do Nothing	Not achieved - Makes no contribution to Scottish and UK decarbonisation and climate change targets, and would not develop an area of seabed identified as suitable for a renewable development	Not achieved - Does not support UK energy security	Not achieved - Will not help in driving down the cost of floating wind	Not achieved - will not facilitate generation of renewable power at all, including from deep water locations	Not achieved - Does not support the kick starting or sustaining of a floating wind industry	Not achieved - Will not facilitate socio-economic development within the floating wind sector, making no contribution to the delivery of skills and employment or supply chain

5.4. NO ALTERNATIVE SOLUTIONS CASE: STEP 3 – IDENTIFY ANY FEASIBLE ALTERNATIVES

5.4.1. SCOPE OF ALTERNATIVES CONSIDERED

77. The approach to the identification of feasible alternative solutions in this section is informed by the guidance and previous Offshore Wind Farm derogation cases as well as the core objectives for the Array (Table 5.1).

78. The "do nothing" option has been considered and discounted at Step 2 above.

79. Consistent with Defra guidance (2012 and 2021) and the consented English and Scottish Offshore Wind Farm HRA derogation decisions to date, the consideration of feasible alternative solutions is limited to alternative offshore wind farm projects, locations and designs. Alternative (non-Offshore Wind Farm) forms of energy generation would not meet the Ossian core project objectives and would not support fundamental Scottish and UK Government policy aims as articulated in the Planning and Need Statement. Therefore, the scope for consideration of potentially feasible alternative solutions is as follows:

- Alternative array locations not within the UK Renewable Energy Zone (REZ);
- Alternative array locations within the UK REZ, excluding the SMP PO Areas and ScotWind Leasing Round; and
- Alternative array locations within the SMP PO Areas and the ScotWind Leasing Rounds
- Alternative scale: array size, turbine layout and number within constraints of the E1 PO Area; and
- Alternative design: turbines, layout and minimum lower tip height.

80. Each of the above is considered in turn below, in the context of the Array project objectives and with regards to their financial, legal and technical feasibility.

5.4.2. ALTERNATIVE ARRAY LOCATIONS NOT IN THE UK REZ

81. Scotland and the UK have legal obligations in relation to carbon emissions reductions to achieve net zero, and corresponding policy aims in respect of the deployment of renewable energy generation and energy security. Similarly, other international and EU countries have their own emission reduction and renewable energy targets, and security of energy supply aims.

82. Sites outside of the UK REZ have not been claimed by the UK under the Energy Act 2004 for exploitation for energy production, are not subject to CES or TCE offshore wind leasing rounds and are not available to the Applicant. Moreover, such sites are required for other EU member states and countries to achieve their own respective targets pursuant to the Paris Agreement in respect of climate change and renewable energy, and to ensure their own security of energy supply. Therefore, it is considered unlikely any such site would be made available for an Offshore Wind Farm to connect to the GB network.

83. For the above reasons alternative sites for offshore wind farms outside the UK REZ would provide no contribution to:

- Scottish and UK 2045/2050 net zero targets (Array objective 1); or
- Energy security of supply in UK (Array objective 2);

84. This alternative would also fail to meet the remaining Ossian core project objectives, as set out in Table 5.4.

Table 5.4: Performance of Alternative Array Locations not in the UK REZ Against the Array Objectives

Alternative Solution	Objective 1: Decarbonisation – support the UK and Scottish Governments' decarbonisation and climate change targets by developing a floating offshore windfarm at a large scale to generate low carbon electricity in the early 2030's	Objective 2: Energy Security – help ensure UK energy supply through increasing the proportion of electricity coming from domestic renewables rather than volatile international fossil fuel markets	Objective 3: Affordability – drive down the cost of floating wind technology to achieve the lowest viable cost of low carbon energy for the UK consumer which can be delivered at scale	Objective 4: Generate renewable power on UK seabed at greater depths – deploy floating wind technology at scale to generate renewable, low-carbon electricity from deep locations	Objective 5: Leading the step change for the industry by deploying floating technology at a large scale – kick starting and sustaining a floating wind industry	Objective 6: Facilitating socio-economic development within the floating wind sector – delivering project skills and employment for Scotland and the UK and supporting investment in the Scottish economy through the supply chain
Alternative array locations not in the UK REZ	Not achieved - Makes no contribution to Scottish and UK decarbonisation and climate change targets, and would not develop an area of seabed located in the UK REZ of seabed identified as suitable for a renewable development	Not achieved - Would not support the aim of achieving energy security from domestic source, as the electricity would be dependent on a foreign state allowing the offshore wind farm to operate and export to the UK	Not achieved - Unlikely to drive down the cost of floating wind technology for the UK consumer	Not achieved – Non-UK REZ sites are not guaranteed to involve the development of deep water locations, neither is it guaranteed that alternative non-UK REZ locations would use floating technology	Not achieved - May involve use of floating technology but there is no guarantee other projects will be large-scale floating wind such as to support a kick-starting and sustaining of the floating industry	Not achieved – non-UK REZ sites are not guaranteed to involve floating projects or to support the floating wind sector, and are highly unlikely (given they are not located in the UK REZ) to deliver project skills, employment and support the UK and Scottish supply chain or economy

85. It is therefore concluded that locations outside the UK REZ cannot reasonably be considered a feasible alternative solution to the Array.

86. It is noted that a similar conclusion was reached by the Secretary of State in previous English Offshore Wind Farm HRA derogation cases. For example, the Secretary of State's HRA for East Anglia ONE North states [underlining added]:

87. "Although the UK is party to international treaties and conventions in relation to climate change and renewable energy, according to the principle of subsidiarity and its legally binding commitments under those treaties and conventions, the UK has its own specific legal obligations and targets in relation to carbon emission reductions and renewable energy generation. Other international and EU countries similarly have their own (different) binding targets. Sites outside the UK are required for other countries to achieve their own respective targets in respect of climate change and renewable energy."

5.4.3. ALTERNATIVE ARRAY LOCATIONS OUTSIDE THE SMP OPTION AREAS AND SCOTWIND LEASING ROUND

Overview

88. This section considers the potential for alternative array sites in Scottish waters and the wider UK REZ, excluding the SMP PO Areas and ScotWind Leasing Round sites (in which the Array is located).

Legal Feasibility – Available Sites

89. TCE and CES own or exercise exclusive rights to manage the leasing of and exploitation of the seabed for offshore wind development within UK territorial waters and, through the Energy Act 2004, the wider UK REZ. TCE/CES make areas of seabed available for offshore wind development selectively in successive offshore leasing rounds, usually several years apart.

90. As noted above, in recent offshore wind farm HRA derogation decisions the Secretary of State has concluded that sites outside of areas secured by the respective applicant do not represent alternative locations. For example, again taking the HRA for East Anglia ONE North as an example:

91. "The site selection for all offshore wind proposals in the UK is controlled by TCE leasing process. Sites not within the areas identified by TCE leasing process or outside of that which the Applicant has secured (the southern East Anglia Zone) are not legally available, and therefore do not represent alternative locations."

92. The Applicant also notes the comments of the Scottish Ministers in their recent Appropriate Assessment made in respect of the Green Volt Offshore Wind Farm:

93. "The Scottish Ministers are aware that some of the Company's objectives for the Project are set within the mechanisms for promoting the development of offshore wind and INTOG projects, notably Crown Estate Scotland's exclusivity agreements in relation to the areas of the seabed to be developed. The Scottish Ministers note the Company's reference to the Buzzard oil and gas platform complex but have not constrained themselves to solely assessing those alternatives that could be delivered by the Company. The Scottish Ministers however note that any alternative must be economically feasible for the Company (although it is acknowledged that higher cost alternatives to the Project can be considered) and allow it to fulfil the terms of its exclusivity agreement with Crown Estate Scotland."

94. Outside of ScotWind, other areas of seabed are not available to the Applicant and are not feasible alternative solutions on that basis. However there are many additional reasons to discount other locations / leasing rounds as alternatives, as set out in the following sections.

95. The Applicant notes its comments above outlining the attrition rate applicable for UK offshore wind projects.

Future Offshore Wind Leasing Rounds

96. CES concluded the ScotWind leasing round (discussed in more detail in the following section of this Derogation Case) and the Innovation and Targeted Oil and Gas Decarbonisation (INTOG) leasing round. TCE is currently managing the leasing tender process for the future Celtic Sea (Round 5) leasing round.

97. Outside of Celtic Sea and INTOG, any future alternative location to replace the Array would depend on a fresh site leasing process being initiated by TCE and CES. There is no prospect of that in the short term.

98. When and where (or indeed if) any further areas of the seabed may be offered by either CES or TCE is unknown and a matter of speculation. At this stage, the availability of alternative locations outside of current TCE/CES leasing rounds is theoretical (as well as legally unavailable – see above) and can be discounted on that basis. Therefore, any parts of the UK REZ not currently the subject of an offshore wind farm leasing round do not constitute feasible alternative solutions.

99. Future locations released via future offshore leasing rounds can additionally be discounted on timing grounds. In the UK, the time between an announcement of a new leasing round and an offshore windfarm becoming operational can be more than 15 years. An example comes from TCE's Round 3. The first public announcement for this leasing round was made by TCE in 2008, however as of 2024 turbines at some Round 3 projects are still being erected, and some planned projects are yet to initiate construction (Table 5.2).

100. Even if an optimistic assumption is made that such timescales could be condensed by 1/3rd (e.g. assuming ten years from the announcement of a new leasing round to project becoming operational), a fresh offshore wind farm leasing round announced in 2025 would not deliver substantial additional installed offshore capacity within the early 2030s. Indeed, the current Round 5 in the Celtic Sea, which was first announced in 2020, is programmed to deliver by 2035[6].

101. These timescales are compounded by the allocation of grid connection dates, as demonstrated by Figure 5.1, which demonstrates that there are several GWs of capacity in the pipeline that do not yet have an allocated connection date. The grid connection position for any future leasing rounds is entirely unclear.

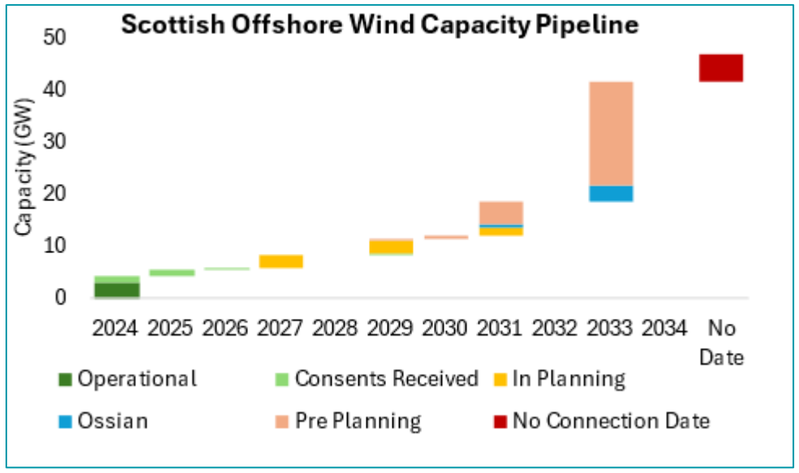

Figure 5.1 Scottish Offshore Wind Capacity Pipeline

102. The huge scale of Scotland and UK targets for offshore wind and the statutory requirement to achieve net zero carbon emissions by 2045 (Scotland) and 2050 (UK) and prevalence of offshore environmental and technical constraints mean that lost capacity at the scale of Ossian cannot be expected to be offset by other future uninitiated leasing rounds, even on the most optimistic of outlooks.

103. For the reasons set out above, it is concluded that alternative locations outside areas / sites currently identified for leasing either by CES or TCE are not alternative solutions to the Array.

[6] Celtic Sea Floating Offshore Wind Programme (arcgis.com)

Active Crown Estate Offshore Wind Farm Leasing Rounds

Overview

104. CES and TCE leasing rounds completed or underway comprise TCE Rounds 1 (2000), 2 (2003), 3 (2010) and 4 (2021); the two extension rounds (2010 and 2017), the Scottish Territorial water round (2009), ScotWind (2022), INTOG (2023) and the latest Round 5 in the Celtic Sea (expected 2025)). The Array is located within the SMP E1 PO Area, a region identified and made available by CES during the ScotWind Leasing Round.

105. Operational / existing offshore wind farm projects from Rounds 1, 2 and 3, the TCE Extensions Round (2010) and the Scottish Territorial Waters rounds have already been fully or largely developed and form part of the existing baseline of offshore wind farm installed capacity. They do not provide additional installed capacity (as an alternative to the Array) that is required to achieve current Scottish and UK Offshore Wind Farm capacity targets. Accordingly, they can be discounted as alternatives to the Array.

106. TCE Project Listings lists 1.9 GW of built offshore wind in Scotland, with a further 4.1 GW of consented and/or committed projects which are currently scheduled to deliver before 2025. These projects include Neart na Gaoithe (0.4 GW), Seagreen Phase 1 (1.1 GW), Inch Cape (1.1 GW), Moray West (0.9 GW) and Seagreen Phase 1A (0.5 GW).

TCE Extension Round 2017

107. Seven extension sites in English and Welsh waters were awarded in 2017 with a total combined capacity of 2.85 GW. The following observations are made:

- It would be necessary for all seven extension projects to be delivered to their maximum anticipated capacity, and even then their combined maximum capacity would offset just ~80% of the capacity of the Array.
- None of the TCE Extension 2017 round projects utilise floating turbine technology. Therefore, the TCE Extension Round 2017 projects would not achieve the Array core project objectives 3 (driving down the cost of floating wind to achieve the lowest viable cost of low carbon electricity for the UK consumer that can be delivered at scale), 4 (generate renewable power on seabed at greater depths), 5 (leading the step-change for industry by deploying floating technology at a large scale), or 6 (facilitating socio-economic development within the floating wind sector).
- None of the TCE Extension Round 2017 projects contribute to Scottish domestic decarbonisation targets.

108. It has been concluded in previous Sections of this Report that “do nothing” (i.e. the no Array scenario) is not an alternative solution and that Scottish and UK Offshore Wind Farm capacity targets will be substantially more difficult to achieve without the Array’s contribution. The existence of the TCE Extensions Round (2017) does not alter that conclusion.

109. For all these reasons, reliance on TCE Extensions Round (2017) projects (alone or in aggregate) is not an alternative solution to Ossian.

TCE Round 4 Sites

110. Six Round 4 projects in English and Welsh waters were selected in February 2021 with a total estimated combined capacity of 7,980 MW. None of the projects use floating turbine technology. Five of the six projects have proposed total capacities of 1,500 MW, with the remainder proposing a total capacity of 480 MW[7]. TCE concluded signing Agreements for Lease with the Round 4 developers in January 2023.

111. The following observations are made:

- The Applicant does not hold any development rights in any Round 4 sites. None of the Round 4 sites are available to the Applicant.
- The maximum individual project size is set at 1.5GW and no individual project progressed via Round 4 would make the same contribution as the Array.
- None of the TCE Round 4 projects utilise floating turbine technology. Therefore the Round 4 projects would not achieve the Array core project objectives 3 (driving down the cost of floating wind to achieve the lowest viable cost of low carbon electricity for the UK consumer that can be delivered at scale), 4 (generate renewable power on seabed at greater depths), 5 (leading the step-change for industry by deploying floating technology at a large scale), or 6 (facilitating socio-economic development within the floating wind sector).
- None of the TCE Extension Round 2017 projects contribute to Scottish domestic decarbonisation targets.

112. It has been concluded in previous Sections of this Report that “do nothing” (i.e. the no Array scenario) is not an alternative solution and that Scottish and UK Offshore Wind Farm capacity targets will be substantially more difficult to achieve without the Array’s contribution. The existence of the Round 4 sites does not alter that conclusion.

113. For all these reasons, it is concluded that reliance on Round 4 projects (alone or in aggregate) is not an alternative solution to the Array.

Celtic Sea Floating Offshore Wind Farm Round

114. TCE is currently inviting tenders for a leasing round for floating wind projects in the Celtic Sea. The Celtic Sea round is intended to provide up to 4.5GW of floating wind energy capacity by 2035 across three project development areas. Each project development area has a maximum potential energy generation capacity of 1.5 GW.

115. The tender process is currently underway, with auction outcomes and the award of Agreements for Lease expected from Summer 2025.

116. The following observations are made:

- Grid connection dates for the Celtic Sea projects are currently indicative, pending the outcome of the HNDFUE exercise. Further to the grid connection timescales information provided above (Figure 5.1) there is already several GW of capacity in the pipeline with no connection date. The grid connection dates for the Celtic Sea projects are yet to be clarified, and are likely to be in the early to mid-2030s at the earliest.
- The maximum individual project size is set at 1.5 GW and no individual project progressed via the Celtic Sea round would make the same contribution as the Array. All Celtic Sea projects will need to come forward to match (and surpass) the contribution made by the Array. However factoring in a conservative attrition rate of 30%, the Celtic Sea projects may only deliver 3.15 GW.
- Celtic Sea projects will not contribute to Scotland’s domestic decarbonisation targets.

117. It has been concluded in previous Sections of this Report that “do nothing” (i.e. the no Array scenario) is not an alternative solution and that Scottish and UK Offshore Wind Farm capacity targets will be substantially more difficult to achieve without the Array’s contribution. The existence of the Celtic Sea leasing round does not alter that conclusion.

118. For all these reasons, it is concluded that reliance on the Celtic Sea projects (alone or in aggregate) is not an alternative solution to the Array.

[7] Offshore Wind Leasing Round 4 - Tender process outcome (thecrownestate.co.uk).

INTOG

119. The INTOG leasing round has been established to allow future OWFs to provide low carbon electricity to power oil and gas installation as well as alternative outputs such as hydrogen. Two types and scales of project are envisaged by CES:

- "IN" – small scale projects of less than 100 MW; and
- "TOG" – projects connected directly to oil and has infrastructure, to provide electricity and reduce the carbon emissions associated with production.

120. CES has set a maximum aggregate capacity limit that can be awarded exclusivity of 5.7 GW for TOG projects and 500 MW for IN projects. Therefore, the overall capacity of the INTOG leasing round is currently expected to be close to 6.2 GW.

121. The application window for INTOG closed on 18 November 2022. Option agreements are expected to be offered in 2024.

122. The following observations are made:

- Current data shows that 5.4GW of INTOG projects are listed on Crown Estate Scotland's database. Of these, it is the Applicant's understanding that nine projects (totalling 4.8GW) currently have no Transmission Entry Capacity (TEC). Three projects (GreenVolt, Salamander and Scaraben, totalling 600MW) have TEC, however those projects are of substantially smaller capacity than the Array (comprising 300 MW, 200 MW and 100 MW respectively compared to the Array's up to 3.6 GW capacity). The projects are therefore not on the same 'large-scale' as the Array (which is relevant to Array Objective 1).
- It is expected that many of the TOG projects will connect to an off-grid solution (i.e., an oil and gas installation), to facilitate the North Sea energy transition. Thus, in the case of these projects the intention is primarily to decarbonise oil and gas infrastructure.
- Even if some of the INTOG projects are brought forward as floating offshore wind farm projects, as per comments above the individual INTOG projects are not being delivered at the scale of the Array. Accordingly, it is unlikely that the INTOG round would achieve the Array objective 1 (developing a floating offshore windfarm at a large scale) or objective 5 (leading the step-change for industry by deploying floating technology at a large scale).

123. As set out above, historic data shows an average attrition rate of approximately 30% to 40% of OWF rounds. Therefore applying a precautionary attrition rate of 30% it can be anticipated that the INTOG Round will deliver 4.3 GW of power.

124. It has been concluded in previous sections of this document that "do nothing" (i.e. the no Array scenario) is not an alternative solution and that Scottish and UK Offshore Wind Farm capacity targets will be substantially more difficult to achieve without the Array's contribution. The existence of the INTOG leasing round does not alter that conclusion.

125. For all these reasons, it is concluded that reliance on INTOG projects (alone or in aggregate) is not an alternative solution to the Array.

5.4.4. REPOWERING EXISTING OFFSHORE WIND FARMS

126. Most operational wind farms to date typically have an expected operational life span of between 20 years and 35 years (although TCE/CES leasing periods can be longer) before either decommissioning or repowering is considered. To date, only Blyth Offshore Wind Farm has been decommissioned (in 2019, 41.5 MW). As wind turbine technology continues to evolve and the understanding of turbine condition and performance monitoring grows, offshore windfarm assets may be expected to operate for longer periods than originally anticipated. However, it is possible that some existing offshore windfarms will be repowered in the short to medium term.

127. The following observations are made:

- Not all existing offshore wind farms will necessarily repower[8].
- Many of the earlier offshore wind farms (Rounds 1 and 2) are closer to shore and larger/modern scale turbines may give rise to greater landscape and visual impacts, with additional consenting risk.
- Given all the above, it cannot be assumed that repowering will have a material additive effect in terms of increasing the baseline of installed offshore wind farms capacity, or that it would provide anything approaching the Array's up to 3.6 GW of additional/new installed offshore wind farm capacity.
- While it could reasonably be assumed that consenting and development timescales will be shorter than for new 'greenfield' locations, that may be offset to some degree by downstream complexities around decommissioning old infrastructure and constructing the repowering infrastructure.
- It is unclear whether existing offshore wind farms would be offered continued or new grid connections, and when those connections would be able to come 'online' for delivering power to the grid. As set out in Figure 5.1 above there is substantial capacity of projects that have not yet been offered connection dates.
- Repowering of existing offshore windfarm projects will not achieve the Array project objectives: 1 (To support the Scottish and UK Governments' decarbonisation and climate change targets by developing a floating offshore windfarm at a large scale to generate low carbon electricity in the early 2030's); 3 (Driving down the cost of floating wind technology to achieve the lowest viable cost of low carbon energy for the UK consumer which can be delivered at scale); 4 (Deploying floating wind technology at scale to generate renewable, low-carbon electricity from deep locations); 5 (leading step change for the industry by deploying floating technology at scale) or 6 (Delivering project skills and employment for Scotland and UK and supporting investment in the Scottish economy through the supply chain).

128. It has been concluded in previous Sections of this Report that "do nothing" (i.e. the no Array scenario) is not an alternative solution and that Scottish and UK Offshore Wind Farm capacity targets will be substantially more difficult to achieve without the Array's contribution. The existence of repowered offshore wind farms does not alter that conclusion.

129. For all these reasons, it is concluded that reliance on repowered offshore wind farms (alone or in aggregate) is not an alternative solution to the Array.

5.4.5. SUMMARY AND CONCLUSIONS

130. The analysis in this section demonstrates that the Array is critical to achieving Scottish and UK Government targets and there are no alternative offshore locations that constitute feasible alternative solutions to the Array.

131. This conclusion is reached on one or more of the following grounds and as summarised under Table 5.5 when comparing the other sites to the Array objectives. The Array will deliver up to 3.6 GW of floating renewable electricity and has a grid connection within the early 2030s. No other project considered in this section can achieve that large-scale floating renewable development in those timescales.

132. Other than Celtic Sea and INTOG, no other leasing round projects comprise floating wind technology. Compared to Celtic Sea and INTOG, the Array offers the floating development at scale with an early 2030s grid connection that can support the kick-starting of the floating sector and sustain that, to the benefit of Scottish and UK consumers, the floating supply chain, and the Scottish and UK economy.

133. When considering the challenging UK and Scottish decarbonisation and net zero targets and the typical attrition rate in offshore wind, it is clear that more offshore wind development is necessary to achieve these binding renewables targets.

[8] Experience onshore shows only 55% of onshore windfarms have been repowered in Scotland and similar proportion across the UK (Renewable UK 2019).

Table 5.5: Performance of Alternative Array Locations outside SMP Option Areas and ScotWind Leasing Round Against Array Objectives

Alternative Solution	Objective 1: Decarbonisation – support the UK and Scottish Governments' decarbonisation and climate change targets by developing a floating offshore windfarm at a large scale to generate low carbon electricity in the early 2030's	Objective 2: Energy Security – help ensure UK energy supply through increasing the proportion of electricity coming from domestic renewables rather than volatile international fossil fuel markets	Objective 3: Affordability – drive down the cost of floating wind technology to achieve the lowest viable cost of low carbon energy for the UK consumer which can be delivered at scale	Objective 4: Generate renewable power on UK seabed at greater depths – deploy floating wind technology at scale to generate renewable, low-carbon electricity from deep locations	Objective 5: Leading the step change for the industry by deploying floating technology at a large scale – kick starting and sustaining a floating wind industry	Objective 6: Facilitating socio-economic development within the floating wind sector – delivering project skills and employment for Scotland and the UK and supporting investment in the Scottish economy through the supply chain
Future Offshore Wind Leasing Rounds	Not achieved - Future sites are not available to the Applicant and any such alternative is hypothetical. When, where or if any further areas of the seabed may be made available by CES or TCE is unknown. A future offshore wind leasing round starting in 2025 would not deliver substantial additional installed offshore capacity before within the early 2030s. It is also unclear when any future projects would connect into the National Grid. Future offshore wind leasing rounds therefore do not meet any of the Array objectives.					
TCE Extension Round 2017	Not achieved - no TCE Extension Round 2017 projects contribute to Scottish decarbonisation and climate change targets and they do not comprise a floating offshore wind farm	Achieved - Would contribute to UK energy security as a domestic renewable energy source.	Not achieved – would not drive down the cost of floating wind technology for the UK consumer	Not achieved – would not support the deployment of floating wind technology in deeper water locations	Not achieved – would not support the kick starting or sustaining of a floating wind industry	Not achieved -does not support socio-economic development within the floating wind sector
TCE Round 4 Sites	Not achieved - no TCE Extension Round 2017 projects contribute to Scottish decarbonisation and climate change targets and they do not comprise a floating offshore wind farm	Achieved - Would contribute to UK energy security as a domestic renewable energy source.	Not achieved – would not drive down the cost of floating wind technology for the UK consumer	Not achieved – would not support the deployment of floating wind technology in deeper water locations	Not achieved – would not support the kick starting or sustaining of a floating wind industry	Not achieved -does not support socio-economic development within the floating wind sector
Celtic Sea	Not achieved - Celtic Sea projects will not contribute to Scottish decarbonisation and climate change targets. None of the Celtic Sea projects are comparable in scale to the Array and is highly unlikely that any Celtic Sea projects will be constructed and connected to the National Grid by the early 2030s.	Achieved - Would contribute to UK energy security as a domestic renewable energy source.	Partially achieved – future smaller scale floating projects will likely support continuing efficiencies and therefore reduced costs, however none of the Celtic Sea projects are of a sufficient scale to deliver the initial investment necessary establish floating offshore wind as a scalable industry, delivering renewable electricity at the lowest viable cost to consumers.	Achieved – use of floating technology will support generating renewable energy from deeper water locations.	Not achieved – none of the Celtic Sea projects are of sufficient scale to drive the early investment necessary to kick-start the floating industry.	Partially achieved – would support socio-economic development within the floating sector but not directly within Scotland
INTOG	Not achieved – INTOG projects do not deliver floating offshore wind at scale and are highly unlikely to deliver renewable power in the early 2030s.	Achieved - Would contribute to UK energy security as a domestic renewable energy source	Partially achieved – future smaller scale floating projects will likely support continuing efficiencies and therefore reduced costs, however none of the INTOG projects are of a sufficient scale to deliver the initial investment necessary establish floating offshore wind as a scalable industry, delivering renewable electricity at the lowest viable cost to consumers.	Achieved – use of floating technology will support generating renewable energy from deeper water locations.	Not achieved – none of the INTOG projects are of sufficient scale to drive the early investment necessary to kick-start the floating industry.	Achieved – would support socio-economic development within the floating sector
Repowering Existing Offshore Wind Farms	Not achieved – repowered projects do not deliver floating offshore wind at scale and are highly unlikely to deliver renewable power in the early 2030s. Additionally, not all projects will necessarily repower.	Achieved – if repowered projects come forward, they would contribute to energy security as a domestic renewable energy source	Not achieved – would not drive down the cost of floating wind technology for the UK consumer	Not achieved – would not support the deployment of floating wind technology in deeper water locations	Not achieved – would not support the kick starting or sustaining of a floating wind industry	Not achieved -does not support socio-economic development within the floating wind sector

5.4.6. ALTERNATIVE ARRAY LOCATIONS WITHIN THE SECTORAL MARINE PLAN OPTION AREAS AND THE SCOTWIND LEASING ROUND

Overview

134. In November 2017, Crown Estate Scotland (CES) announced its intention to launch a leasing round for commercial scale offshore wind energy projects within Scottish waters (Scottish Government, 2020a). The SMP for Offshore Wind Energy provided the spatial framework for this leasing round through identification of which areas of seabed could be available for leasing by CES. The development of the SMP for Offshore Wind Energy began in 2018, with Draft Plan Options (DPOs) published in early 2019.

135. The first ScotWind Leasing Round was subsequently launched by CES in June 2020. In the ScotWind Leasing Round, developers were able to apply for the rights to build offshore wind farms in Scottish waters within specified lease areas initially based upon the DPOs as per the SMP. The final Plan Option (PO) Areas were published in October 2020.

136. In November 2020, the Applicant announced that they were in the process of preparing bids for PO Areas offered as part of the ScotWind Leasing Round (SSER, 2020).

137. Based on the lease areas put forward as part of the ScotWind Leasing Round, it was expected that up to 10 GW of new generating capacity would be built over the following ten years. The application window for registered applicants opened in January 2021 and closed in July 2021, with Option to Lease Agreements offered in January 2022.

Sectoral Marine Plan – identification and development of Plan Option areas

138. The SMP for Offshore Wind Energy was published by the Scottish Government in October 2020. The SMP outlines a spatial strategy for commercial scale offshore wind development in Scotland and provides a strategic framework for the ScotWind Leasing Round (Scottish Government, 2020a) through the identification of 15 final PO Areas across four regions (West (W), North (N), North East (NE) and East (E)) for renewable energy generation, with a national limit on generating capacity of 10 GW.

139. An iterative process was followed to develop these final PO Areas. Firstly, initial Areas of Search (AoS) were identified and subsequently refined through two iterations of Opportunity and Constraint Analysis. The first iteration of Opportunity and Constraints Analysis, published as part of the AoS scoping report in 2018, built upon work undertaken by Marine Directorate – Science Evidence, Data and Digital (MD-SEDD; formerly Marine Scotland Science (MSS)) in 2011, and draft Regional Locational Guidance for potential deep water floating offshore wind test sites in 2014 (Scottish Government, 2018). The aim of this first iteration was to develop broad AoS which could be viable for offshore wind development and serve as a starting point in the development of PO Areas (Scottish Government, 2018).

140. This process resulted in the production of a map depicting broad AoS, showing varying degrees of constraint with higher levels of constraint typically located closer to shore and lower levels of constraint typically located further offshore. From this map, six broad AoS were identified. A refinement process was then carried out which considered the spatial extent of single-issue activities which included individual species fishing activity, combined shipping routes and marine nature protection designations. This resulted in 24 distinct AoS within the six broad AoS identified which were taken forward into the planning process of the SMP (Scottish Government, 2018).

141. In June and July 2018, Scottish Ministers consulted on the screening and scoping stages of the SMP. Following this, a third iteration of Opportunity and Constraints Analysis was undertaken to consider stakeholder responses received during Scoping consultation. Certain AoS were either removed or refined to avoid or incorporate certain areas of Scottish waters. Areas of seabed which were proposed by stakeholders via the Scoping consultation were also considered. Although a number of the areas proposed by stakeholders overlapped with existing AoS, some overlapped with areas with higher levels of constraint and some areas proposed were completely new areas. Following the review of this information, a number of areas were identified to move forward in the plan process, including some additional areas where there was significant stakeholder interest but also increased constraint (Scottish Government, 2020a).

142. Following the third iteration of Opportunity and Constraints Analysis, 22 revised AoS were brought forward to the SMP Project Board and Project Steering Groups for consideration and comment. Scottish Ministers then reviewed these, resulting in the selection of 17 revised AoS as DPOs (Scottish Government, 2020a).

143. The DPOs were subject to a Sustainability Appraisal process, comprising a Strategic Environmental Assessment (SEA), Habitats Regulations Appraisal (HRA) and Social and Economic Impact Assessment (SEIA), which examined cross-sectoral impacts of the DPOs to support sustainable development of renewable energy generation in Scottish waters. The Sustainability Appraisal was undertaken on a technology neutral basis, and the impacts of individual DPOs were assessed using a realistic maximum deployment scenario (in GW) for each DPO, equating to a proportion of the overall area of the DPO. The potential impacts were assessed at regional and national levels and used a range of deployment scenarios in order to assess a wide range of impacts.

144. The SEA provided broad recommendations on the DPOs from a strategic perspective and identified potential strategic environmental constraints to steer future development. The SEIA considered the adverse and beneficial socio-economic impacts of the SMP on a range of sectors.

145. The HRA was undertaken as it was identified that the possibility of likely significant effects on European site(s) from the SMP could not be excluded, either due to development within an individual DPO or in combination with other plans or projects (Scottish Government, 2020a). The HRA considered Special Areas of Conservation (SACs), candidate and possible SAC (cSACs and pSACs), Special Protected Areas (SPAs), proposed SPA (pSPAs), Sites of Community Importance (SCIs) and Ramsar sites (listed under the Ramsar Convention on Wetlands of International Importance), to identify sites where there is a potential for likely significant effects. A total of 468 European/Ramsar sites were identified within a 100 km screening buffer around the DPOs. An Appropriate Assessment was undertaken to determine whether there would be an adverse effect on integrity (AEOI) on any of the sites with reference to their conservation objectives (Scottish Government, 2019). It was concluded that development of offshore wind farm projects at DPOs E3, NE2, NE3, NE4, and NE5 could lead to an AEOI due to in-combination effects with other wind farm projects. The possibility that an AEOI from in-combination effects could also occur with other wind farm projects (including those already consented within the Moray region) if development at NE6 were to occur was also noted due to the increased risk to Kittiwake as a qualifying feature of the Troup, Pennan and Lion's Heads SPA, however, this would be dependent upon NE4 and NE5 also being developed (Scottish Government, 2019).

146. The findings of the HRA have advised plan level and project level mitigation measures to avoid potential adverse impacts on site integrity. Plan level mitigation included classification of E3, NE2, NE3, NE4, NE5 and NE6 as being subject to high levels of ornithological constraint and development of these DPOs could only progress if sufficient scientific evidence could be provided to reduce the risk to an acceptable level (unless it can be determined that there are imperative reasons of overriding public interest that require development to proceed). In addition, project level mitigation for DPOs E1 and E2 was put forward, noting that regional level surveys should be carried out to address knowledge gaps regarding potential impacts arising from development of these DPOs (Scottish Government, 2020a; Scottish Government, 2019).

147. Statutory consultation was held between 18 December 2019 and 25 March 2020 to seek feedback on the DPOs. A Consultation Analysis Report was produced to inform the Scottish Ministers' decision on which DPOs to progress (Scottish Government, 2020b), following which, the SMP was published which identified the refined, final PO Areas (Scottish Government, 2020a). Of the 17 DPOs, 15 final PO Areas were identified.

148. The PO Areas and the SMP have been considered by the Applicant ahead of its identification of and successful bid for an area of seabed in the E1 PO Area, referred to during bid phase as 'E1 East'. Further details of the Applicant's selection process are set out in full in the Site Selection and Consideration of Alternatives (volume 1, chapter 4). In terms of a brief summary, the Applicant's site selection and

alternatives process identified the following key factors of the E1 East PO Area (see paragraph 154 for an explanation of the E1 East PO Area).

149. The Applicant considered, following review of metocean data and based on the Applicant's significant experience in the offshore wind industry (Introduction (volume 1, chapter 1)), that the E1 East PO Area demonstrated the feasibility of designing, constructing and operating a floating offshore wind farm.

150. The E1 East PO Area does not overlap with any SACs or Nature Conservation Marine Protected Areas (NCMPAs) designated for benthic habitats or species, and there is generally limited diversity in the benthic species present in the E1 region.

151. The E1 East PO Area does not overlap with any existing or proposed designated sites. The E1 PO Area is located 40 km from the Firth of Forth Banks Complex NCMPA (designated for ocean quahog aggregations, offshore subtidal sands and gravels, shelf banks and mounds and moraines) and 115 km north-east of the Berwickshire and North Northumberland Coast SAC (designated for grey seal), therefore, any interaction between the E1 East PO Area and designated sites is considered to be negligible.

152. Potential impacts on fish species were determined to be limited.

153. Marine mammal species are known to be present in the E1 East PO Area, in lower densities in contrast to other more sensitive areas of the North Sea.

154. The E1 East PO Area is situated in an area of relatively low seabird density and away from seabird hotpots in the East region, during both breeding and non-breeding seasons. The E1 PO Area is located within the foraging range for limited key seabird colonies along the east coast of Scotland, and the distance from shore of the E1 PO Area further reduces ornithological constraints.

155. Commercial fishing activity within the E1 East PO Area was concluded to be negligible to very low in the western section, increasing from low to moderate activity towards the eastern boundary of the E1 East PO Area (i.e. east of the Array site boundary). In terms of commercial fishing constraints, consideration has been given to the areas identified by the Scottish Fishermen's Federation (SFF) and Scottish White Fish Producers Association (SWFPA) as preferred for development (due to lower fishing density) and as a result the site boundary overlaps with three of these areas. The E1 East PO area was therefore selected to reduce interaction with commercial fishing activity and reduce the risk of any exclusion from key fishing grounds.

156. The Applicant has concluded that there are no feasible alternative sites within the SMP and ScotWind leasing area sites that meet the Array core project objectives. The conclusion is reached on the following key grounds:

157. The SMP identified other PO Areas but not the E1 PO Area as being subject to high levels of ornithological constraint. The PO Areas subject to high ornithological constraint identified in the SMP were PO Areas E3, NE2, NE3, NE4 and NE6.

158. There will be project attrition in the years ahead and not all proposed ScotWind projects will progress on time, or at the full potential capacity. Some projects may not proceed at all. Indeed, analysis from National Grid[9] has shown that only 30-40% of projects in National Grid's connection queue make it to fruition. For further details of the project attrition rate in offshore renewable energy development, please see section 3.7 of the Applicant's Planning and Needs Statement.

159. Given the foraging range and behaviour of a number of the qualifying species of the affected SPAs, all possible locations for commercial scale OWFs within the Sectoral Marine Plan and ScotWind leasing areas have connectivity with one or more species from the SPAs. There is no location within the Sectoral Marine Plan and ScotWind leasing areas that could be developed without impacts on Scottish and/or UK SPAs.

160. Only the E1 East PO Area is available to the Applicant; other ScotWind sites are leased to other developers.

161. The purpose of the remaining ScotWind projects is to provide additional capacity towards Scottish and UK renewables and offshore wind targets, and particularly in light of the attrition rate noted above, substantially more offshore wind capacity is required to meet legally binding net zero requirements. As noted above, the Planning & Need Statement also sets out that National Grid ESO's Future Energy Scenarios (2023) predicts the need for between 97 and 115GW of offshore wind capacity in the UK by 2050 to reach net zero. National Grid's TEC Register[10] shows that in the UK, the capacity of offshore wind farms either already operational or in construction was 17.6GW with a further 113.6GW at scoping stage. Scottish offshore wind farm sites comprise approximately one third of this capacity. After accounting for anticipated attrition, it is clear that the delivery of substantial Scottish offshore wind is necessary for Scotland and the UK to meet its net zero legal obligations.

162. It has been concluded in previous sections of this Report that "do nothing" (i.e. the no Array scenario) is not an alternative solution and that Scottish and UK Offshore Wind Farm capacity targets will be substantially more difficult to achieve without the Array's contribution. The existence of other ScotWind sites does not alter that conclusion.

Conclusions on Alternative Sites within the Sectoral Marine Plan Option Areas and the ScotWind Leasing Round

163. The preceding sections demonstrates that the final site boundary for the Array was the result of an iterative, careful and exhaustive process, one that supports the conclusion that there are no feasible alternative locations remaining within the SMP and ScotWind leasing round POs open to the Array that meet the project objectives. This conclusion is reached on the following key grounds as summarised under Table 5.6 when comparing the other sites to the Array objectives:

164. Only the E1 East PO Area is available to the Applicant; other ScotWind sites are leased to other developers.

165. The purpose of the remaining ScotWind projects is to provide additional capacity towards Scottish and UK renewables and offshore wind targets, and particularly in light of the attrition rate noted above, substantially more offshore wind capacity is required to meet legally binding net zero requirements.

166. Given the foraging range and behaviour of a number of the qualifying species of the affected SPAs, all possible locations for commercial scale OWFs within the Sectoral Marine Plan and ScotWind leasing areas have connectivity with one or more species from the SPAs. There is no location within the Sectoral Marine Plan and ScotWind leasing areas that could be developed without impacts on Scottish and/or UK SPAs. However, it should be noted that the SMP identified other PO Areas as being subject to high levels of ornithological constraint, but this did not include the E1 PO Area.

[9] Published https://www.nationalgrideso.com/news/eso-leads-way-major-initiative-accelerate-connections-electricity-transmission-grid, 27th Feb 2023,

[10] https://www.nationalgrideso.com/data-portal/transmission-entry-capacity-tec-register/tec_register, accessed 23 May 2024

Table 5.6: Performance of Alternative Array Locations within the SMP Plan Option and ScotWind Leasing Round Site Areas against Array Objectives

Alternative Solution	Objective 1: Decarbonisation – support the UK and Scottish Governments' decarbonisation and climate change targets by developing a floating offshore windfarm at a large scale to generate low carbon electricity in the early 2030's	Objective 2: Energy Security – help ensure UK energy supply through increasing the proportion of electricity coming from domestic renewables rather than volatile international fossil fuel markets	Objective 3: Affordability – drive down the cost of floating wind technology to achieve the lowest viable cost of low carbon energy for the UK consumer which can be delivered at scale	Objective 4: Generate renewable power on UK seabed at greater depths – deploy floating wind technology at scale to generate renewable, low-carbon electricity from deep locations	Objective 5: Leading the step change for the industry by deploying floating technology at a large scale – kick starting and sustaining a floating wind industry	Objective 6: Facilitating socio-economic development within the floating wind sector – delivering project skills and employment for Scotland and the UK and supporting investment in the Scottish economy through the supply chain
Alternative location within SMP and ScotWind Leasing Round areas	Not achieved - No feasible alternative to deliver a large floating OWF	Not Achieved – not developing the E1 PO would not contribute to UK energy security.	Not achieved – would not drive down the cost of floating wind technology for the UK consumer	Not achieved – would not support the deployment of floating wind technology in deeper water locations	Not achieved – would not support the kick starting or sustaining of a floating wind industry	Not achieved - does not support socio-economic development within the floating wind sector

5.5. ALTERNATIVE DESIGN SOLUTIONS FOR THE ARRAY

5.5.1. MARKET CONTEXT

167. The scale and urgency of the need for offshore wind as described in the Planning and Need Statement necessitates solutions that maximise the feasible installable capacity at each available offshore site.

168. Historically, offshore wind development has been developed in easier to reach locations that are in shallower, nearer-shore locations. However, in order to optimise Scotland's full offshore wind potential, projects must increasingly be sited in deeper water locations. If only the most optimum and least-constrained shallower water sites are used, Scotland's deeper water resource will remain unutilised.

169. Additionally, if sites identified as having significant wind generating potential are used sub-optimally, a higher number of projects will be required, typically in ever more challenging and constrained locations, to hit renewable generation targets.

170. The consideration of alternative solutions must, as identified above, be undertaken on the basis of what is legally, technically and commercially feasible. There is therefore a degree of judgment involved in exercising these decisions, drawing on experience, available information, industry knowledge and analysis of future market trends.

171. It is relevant then for the Scottish Ministers to give weight to the experience and expertise of the Applicant. The Applicant holds vast experience in the renewables sector and an ever-growing portfolio in the offshore wind sector, as described in detail in section 1.3 of the Introduction (volume 1, chapter 1).

172. The nature and viable scale of a floating offshore wind farm has to be considered in the context of the individual site, including factors such as water depth, as well as grid connection availability within a highly competitive grid framework. A full list of the factors that have influenced the Array Project Design Envelope (PDE) in addition to environmental constraints includes:

- Grid connection availability and capacity;
- Viable generation capacity (GW size) to optimise the secured grid connection capacity;
- Commercial requirements prescribed by funding mechanisms (such as CfD);
- Technology availability, cost and reliability;
- Health and safety considerations;
- Supply chain capacity and availability;
- Project execution schedule.

173. The Applicant has undertaken a detailed appraisal of all elements of the PDE to provide for all feasible mitigation to be deployed. The Array has developed and adopted a number of commitments to eliminate and reduce adverse effects as part of the pre-application phase (as far as practicable). These are outlined in the Commitments Register (volume 3, appendix 6.3).

174. The final PDE for the Array is informed by expert judgment combined with market leading expertise of the realities and challenges of delivering viable projects in the marine environment. The Scottish Ministers can have confidence that the Applicant has considered all feasible options in forming the PDE to avoid or reduce harm to protected sites whilst delivering a viable project.

5.5.2. SCOPE OF CONSIDERATION OF ALTERNATIVE DESIGN

175. The scope for consideration of feasible alternative solutions has been considered throughout the development process for the Array and has been a fundamental driver for design and decision-making. Details of refinements to the PDE are set out in Site Selection and Consideration of Alternatives (volume 1, chapter 4)

176. The AEOI identified in the RIAA would arise from collision and/or displacement risk related to the operation of the wind turbines, and so the primary project design parameters which may influence these impact pathways during operation are considered to be:

- Array location;
- Array size and turbine number; and
- Individual turbine parameters, including height of turbine blades above sea surface

177. It should be noted that the specific layout of a project's turbines within a site boundary (i.e. the location of each turbine) does not materially affect ornithological impacts resulting from seabird collision risk or displacement as this is not a parameter that is incorporated within displacement and collision risk models.

178. The justification for the Array location (and the absence of feasible alternative locations) has been set out in Section 5.4.6 of this Report. Accordingly the further potential alternative design solutions considered during this stage of the Derogation Case are:

- Array size and the number of turbines, which is aimed at optimising the generation potential of the Array;
- The blade tip height above sea surface, which has been subject to detailed consideration of technical and commercial constraints of turbines and floating foundations whilst balancing impacts on ornithological receptors.

179. Consultation has been a key part of the design refinement for the Array and has been undertaken through informal and formal consultation activities as detailed in Stakeholder Engagement and Consultation (volume 1, chapter 5). The Applicant has also considered data analysis, constraints mapping and other information sources to help identify environmental constraints.

Array size and number of turbines

180. The explanation and justification of the Array PO Area is set out in Section 5.4.6 of this report. Subsequent to the award of the Option to Lease Agreement to the Applicant of the E1 East PO Area, the Area has been subject to geological assessment, as well as site condition surveys and other environmental surveys, that have informed the development of the Array size and number of turbines.

181. Wind climate conditions were assessed and modelled, giving insight into the wind resource at the E1 East PO Area, and allowing the Applicant to make robust informed decisions regarding site layout, design and optimal array alignment reflective of wind directional distribution and wind turbine stability. In addition, FLiDAR data provided an understanding of the wind climate across the full rotor diameter, which provided an appreciation of site characteristics and determination of wind turbine suitability.

182. The Applicant's desktop geological assessment of the E1 East Plan Option area identified an average water depth of 73 m Lowest Astronomical Tide (LAT). These depths were considered to be suitable for the siting of floating turbines, with discrete locations shallow enough to accommodate offshore substation platforms (OSPs). Water depth was a key driver for the selection of floating technology as the preferred solution for the wind turbine generators. Due to the limited areas of shallow depth that could accommodate fixed foundations the Applicant aimed to deploy a single floating foundation solution across the entire site. A floating solution across the site supports streamlined engineering and technical approaches, is more efficient from a cost perspective and helps to ensure eligibility for a single and more competitive floating CfD bid.

183. Site-specific geophysical surveys conducted across the Array provided greater detail on the site bathymetry and seabed conditions which indicated that there was a greater area of favourable ground conditions for turbine installation that could support an increased capacity to maximise the lease area potential. This has resulted in an increase from 145 wind turbines (originally put forward in the ScotWind bid) to up to 265 (being put forward within the EIA).

184. If an amended array size and reduced number of turbines is considered, the following observations are made:

185. It would not be possible to ensure that the current project capacity could be achieved if the E1 East PO area (the current Array site boundary) was reduced. Reduction in spacing between turbines can result in wake effects that can impact energy yield. Minimum spacing for turbines is a requirement of Marine Guidance Note 654 (MGN654) (MCA, 2021) which provides guidance to accommodate safe and effective search and rescue operations in the event of an emergency.

186. A smaller site boundary for the Array and reduced number of turbines would not support the Array project objectives: 1 (supporting Scottish and UK Government decarbonisation and climate change targets); 4 (deploying floating wind technology at scale to generate renewable power at greater depths); 5 (leading a step change by deploying floating technology at scale); or 6 (facilitating socio-economic development within the floating wind sector). A reduction in turbine numbers would only be feasible if individual turbine capacity is increased, and this is not considered technically viable for the floating offshore wind market. Therefore a reduction in turbine number would represent a failure to achieve 3.6 GW installed capacity and is considered an inefficient use of the E1 East PO Area, a failure to maximise energy yield and a failure to maximise economies of scale.

187. Furthermore, the Array must compete for a CfD in a competitive tender, without which it may not attract finance. An unviable project would not contribute to the mitigation of the climate emergency and would not help to address the security of energy supply risks. A failure to maximise generation and export capacities is anathema to the core project objectives of decarbonisation, supporting floating supply chain, and ultimately making a substantial contribution to meeting climate policy goals via renewable energy generation.

188. For these reasons, alternative array size and turbine reductions are not feasible alternative solutions to the Array.

Height of turbine blades above sea surface

189. Within the Array EIA Scoping Report (Ossian OWFL, 2023), the Applicant committed to identifying an appropriate air gap to reduce and mitigate collision mortality of seabird species that may forage in the vicinity of the Array. Development of floating wind turbine foundations is still in relative infancy when compared to fixed bottom sites, therefore, there remains uncertainty over the limitations of floating foundations to support larger wind turbine towers. Due to the horizontal and vertical movements resulting from the pitch of floating foundations, increases in minimum blade tip clearance can result in increased stress on the tower, and greater wear on the turbine generator within the nacelle. The full implications of this on offshore turbines is not fully understood due to reliance on experience from smaller demonstrator sites with limited deployment periods. However, increased turbine heights could result in reduced operational lifespans of wind turbine generators and require additional design elements to stiffen the tower and floating foundation and associated mooring and anchors therefore impacting the technical and commercial feasibility of Ossian.

190. A precautionary comparison of collision mortality, based on preliminary collision risk modelling, was undertaken to understand the point of diminishing returns. The minimum blade tip clearance has been set at 36 m to balance the reduction in collision mortality whilst remaining cognisant of the potential limitations of floating foundations and the uncertainty around feasibility of deployment of wind turbines with larger towers. At 36 m (above LAT) the greatest reduction in collision mortality is achieved with the smallest increase in minimum blade clearance.

191. For these reasons, an increased minimum turbine blade height is not technically feasible and therefore is not an alternative solution to the Array.

Table 5.7: Performance of Alternative Design Options Against Array Objectives

Alternative Solution	Objective 1: Decarbonisation – support the UK and Scottish Governments' decarbonisation and climate change targets by developing a floating offshore windfarm at a large scale to generate low carbon electricity in the early 2030's	Objective 2: Energy Security – help ensure UK energy supply through increasing the proportion of electricity coming from domestic renewables rather than volatile international fossil fuel markets	Objective 3: Affordability – drive down the cost of floating wind technology to achieve the lowest viable cost of low carbon energy for the UK consumer which can be delivered at scale	Objective 4: Generate renewable power on UK seabed at greater depths – deploy floating wind technology at scale to generate renewable, low-carbon electricity from deep locations	Objective 5: Leading the step change for the industry by deploying floating technology at a large scale – kick starting and sustaining a floating wind industry	Objective 6: Facilitating socio-economic development within the floating wind sector – delivering project skills and employment for Scotland and the UK and supporting investment in the Scottish economy through the supply chain
Array Size and number of turbines	Not achieved – reducing the array size and scale of the turbine numbers would not support decarbonisation or achieving Scottish and UK net zero and climate change targets. Reduced scale of development of the Array would require more development elsewhere, at an undetermined location, to hit the same targets. The existing Array layout has been maximised based on detailed geophys surveys. An altered layout would therefore represent a suboptimal layout and would lead to a reduced capacity. ,	Not Achieved – a reduced development would not contribute to UK energy security.	Not achieved – a reduced development would not drive down the cost of floating wind technology for the UK consumer	Not achieved – a reduced development would not be the support the deployment of floating wind in deeper locations at scale	Not achieved – a reduced development would not support the kick starting or sustaining of a floating wind industry	Not achieved -a reduced development does not support socio-economic development within the floating wind sector
Height of turbine blades above sea surface	36m blade tip clearance above the sea surface is the optimum technical and commercially feasible balance for the floating turbine technology to be utilised by the Array. Therefore, alternative blade tip clearance heights would not be feasible and would not meet the Array objectives.					

5.6. SUMMARY: NO ALTERNATIVE SOLUTIONS

192. The Applicant has undertaken an extensive design, optioneering and mitigation process, which underpins the project design envelope for the Array.

193. Section 5 of this document outlines the range of potential alternatives considered by the Applicant in determining the Array's project design envelope, including numerous alternative locations and design options. This thorough consideration of potential alternatives demonstrates that there are no feasible alternative solutions to the Array.

194. The results of this detailed consideration are summarised in Table 5.8. The Array is an essential part of the future Scottish and UK generation mix and there are no feasible alternative solutions to this.

Table 5.8: Summary of Potential Alternatives Discounted for the Array

Category	Alternative considered	Summary of Key Reason
Do Nothing	Do not develop the Array	• Ignores and does not address the urgent need for decarbonised renewable electricity • Loss of 3.6GW contribution to meeting Scottish and UK renewables targets • Does not meet any of the Array objectives
Alternative location	Array location not in the UK REZ	• Not legally feasible as not available to the Applicant • Ignores and does not address the urgent need for decarbonised renewable electricity • Loss of 3.6GW contribution to meeting Scottish and UK renewables targets • Does not meet any of the Array objectives
	Array location not in the SMP option area and ScotWind Leasing Round	• Not legally feasible as not available to the Applicant • Timing: future offshore wind leasing rounds and the INTOG and Celtic Sea leasing round are not subject to fixed grid connection dates or consenting timescales so do not meet Array objective 1. • Floating industry: Existing leasing round sites (TCE Extension Round 2017 and TCE Round 4) do not utilise floating technology so do not contribute to Array objectives 1, 3, 4, 5 and 6. • TCE Extension Round 2017, TCE Round 4 and Celtic Sea do not contribute to Scottish domestic decarbonisation targets. • Scale: INTOG not on a scale to lead a step change for the floating industry so does not contribute to objective 5.
	Repowering existing offshore wind farms	• Will not deliver floating offshore wind at scale and highly unlikely to deliver in the early 2030s. • Does not support kick-starting of floating supply chain, development in deeper water, or facilitate socio-economic development in the floating sector. • Loss of 3.6GW of new capacity.
	Array location within SMP option areas and ScotWind leasing round	• Not legally feasible as not available to the Applicant • Not developing the E1 East PO Area would not achieve any of the Array objectives including on timescales, energy security or kick-starting the floating industry.
Alternative design	Array size and number of turbines	• Developing the maximum Array Area maximises the renewable generate at the site, contributing to government decarbonisation targets and objective 1. • Reduced number of turbines not feasible
	Height of turbine blades above sea surface	• 36m blade tip clearance above the sea surface is the optimum technical and commercially feasible balance for the floating turbine technology to be utilised by the Array. Therefore, alternative blade tip clearance heights would not be feasible and would not meet the Array objectives.

6. IMPERATIVE REASONS OF OVERRIDING PUBLIC INTEREST

6.1. INTRODUCTION

6.1.1. OVERVIEW

195. This section provides the evidence which demonstrates that the Scottish Ministers can be satisfied that there are imperative reasons of overriding public interest (IROPI) to authorise the Array.

196. It is concluded that there is a compelling case that the Array must be carried out for IROPI, which are fundamental to achieve the Scottish and UK Governments' legal commitments and policy objectives.

6.1.2. SUPPORTING INFORMATION

197. The IROPI case is supported by and draws on the following documents which accompany the planning application for the Array:

- Ossian OWFL (2024a). Ossian Array Environmental Impact Assessment Report:
  - Project Description (volume 1, chapter 3)
  - Site Selection and Consideration of Alternatives (volume 1, chapter 4)
  - Stakeholder Engagement and Consultation (volume 1, chapter 5)
  - Climatic Effects (volume 2, chapter 17)
  - Commitments Register (volume 3, appendix 6.3)
- Ossian OWFL (2024b). Ossian Array: Report to Inform Appropriate Assessment.
- Ossian OWFL (2024c). Planning and Need Statement

198. In addition, this IROPI case draws from the other sections of this Derogation Case, particularly the Project Objectives (see section 5.2).

6.1.3. REGULATIONS

199. Regulation 29(1) of the Habitats Regulations provides: "if it is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), the [Scottish Ministers] may agree to the plan or project notwithstanding a negative assessment of the implications for the site.".

200. Regulation 29(2) states:

201. "Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either:

- reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or
- any other imperative reasons of overriding public interest"

202. It is important to note that in the case of the Array the RIAA does not identify any Adverse Effects on Integrity (AEOI) in respect of priority habitats or species.

6.1.4. APPROACH TO IROPI

203. The Applicant has used the above referenced guidance to identify the following principles relevant to establishing an IROPI case. The following sections of this part of the Applicant's Derogation Case are

structured around addressing these principles in order to establish that the Array must be carried out for IROPI.

- Question 1: Are the reasons for undertaking the Array imperative?
- Question 2: Are the reasons in the public interest?
- Question 3: Are the reasons for undertaking the Array long term?
- Question 4: Are the reasons for undertaking the Array overriding?

6.2. QUESTION 1: ARE THE REASONS FOR UNDERTAKING THE ARRAY IMPERATIVE?

204. There is an imperative need for the Array. Climate change is one of the defining global risks of our era, and challenging net zero targets have been set by the Scottish and UK Governments to try to address the global warming threat. The Array will help to tackle climate change and make an important and significant contribution to those targets. In addition, energy security and stability, free of fossil fuels and volatile international markets, is an important aim for Scottish and UK energy policy. Addressing climate change and energy security are "reasons relating to human health, public safety or beneficial consequences of primary importance to the environment" which constitute IROPI.

6.2.1. CLIMATE CHANGE

205. Climate change poses a risk to the health and safety of Scottish and UK citizens. The gravity of this risk has been made plain in recent reports by the Internation Panel on Climate Change (IPCC). The IPCC's. AR6 Report (part 1) provided new estimates of the chances of crossing the global warming level at 1.5°C in the next decade. It concludes that, without immediate, rapid, and large-scale reductions in GHG, limiting warming close to 1.5°C or even 2°C will be beyond reach. The UN Secretary General described the AR6 Report as a "Code Red for humanity".

206. AR6 Report (part 2) was accompanied by a press release which described a narrowing window for action to address the threat to human wellbeing: "The scientific evidence is unequivocal: climate change is a threat to human wellbeing and the health of the planet. Any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future."

207. AR6 Report (part 3) confirms the harmful and permanent consequences of failing to limit the rise of global temperatures. The press release highlights that the "next two years are critical" (page 1) and that, limiting warming to around 1.5°C, would require "global greenhouse gas emissions to peak before 2025 at the latest, and be reduced by 43% by 2030" (page 2).

208. Taken together this messaging of the AR6 report makes clear that significant reductions in CO2 emissions are required globally, at scale, and in the near term, both within this decade and into the next.

209. The most recent UN Emissions Gap Report (2023) also stresses the gravity of the risk of climate change to the environment and consequently to humans and all life. This report was published in advance of COP28 and provides the annual independent science-based assessment of the gap between the pledged greenhouse gas emissions (GHG) reductions and the reductions required to align with the long-term temperature goal of the Paris Agreement. It sets out that not only have temperature records continued to be broken, but global greenhouse emissions and atmospheric concentrations of carbon dioxide have increased since 2022. It also sets out that energy is the dominant source of GHG emissions, currently accounting for 86% of global CO2 emissions. On page 1 of the report it is stated that the world is witnessing a disturbing acceleration in the number, speed and scale of broken climate records.

210. Both Scottish and UK Governments are committed to climate change mitigation through a suite of time-bound legislation and policy commitments for decarbonisation. As set out in chapter 3 of the Planning and Needs Statement, the need to address climate change is the principal precept behind a long list of legislative acts and national policies. A selection of these are summarised in Table 6.1. Full details can be found in chapter 3 of the Planning and Needs Statement.

Table 6.1: Selected Climate Change and Renewable Energy Acts and Policies in the UK and Scotland

Legislation	Description
UK Climate Change Act 2008 & Carbon Budgets	Binds the UK to achieving 100% reduction in GHG by 2050 compared to 1990 levels. The 2008 Act also established the Climate Change Commission (now named the 'Climate Change Committee' - CCC) which advises the UK Government on emissions targets, and reports to Parliament on progress made in reducing GHG emissions. The CCC has produced six, four yearly carbon budgets, covering 2008 – 2037. These carbon budgets represent a progressive limitation on the total quantity of GHG emissions to be emitted over a five-year period. These legally binding 'carbon budgets' act as stepping-stones toward the 2050 target
Climate Change (Scotland) Act 2009	Binds the Scottish Government to reach Net Zero Scotland by 2045
Scottish Government's Offshore Wind Policy Statement 2020	The statement includes an ambition to achieve up to 8-11GW of offshore wind in Scottish waters by 2030. This is the basis for the planning assumptions for the existing Sectoral Marine Plan for Offshore Wind Energy, which set out a spatial footprint for a maximum potential capacity of up to 10GW. However, the Offshore Wind Policy Statement also highlights the Committee on Climate Change report, published in May 2019, which includes a scenario requiring at least 75GW of offshore wind in UK waters by 2050 in order to achieve net zero.
Scottish Governments draft Energy Strategy and Just Transition Plan	Final plan expected to be published in summer 2024 with commitments to maximise the delivery of clean energy generation under the ScotWind round to achieve Scotland's net zero ambitions, and to fulfil its role in meeting broader UK, European and worldwide offshore wind targets required to tackle the climate crisis.

211. These commitments emphasise that offshore wind must be delivered at significant pace if decarbonisation targets are to be met. The imperative nature of offshore wind in this context is underlined by National Policy Statements EN1 and EN3 (which are of material consideration to Scottish Ministers). The NPS classify offshore wind as Critical National Infrastructure (CNP), and state that "*starting from the position that energy security and decarbonising the power sector to combat climate change … are capable of amounting to imperative reasons of overriding public interest (IROPI) for HRAs … for CNP Infrastructure.*"

212. The assessment estimates that the Project will produce approximately 337,457,750 MWh of low carbon electricity during its 35-year operational phase. Over its lifecycle the Project will produce an emission intensity of 4.4 gCO_2e/kWh. The electricity generated by the Project will save up to 143,082,086 **tCO_2e** from being emitted into the atmosphere that would otherwise have been emitted from conventional, higher carbon emitting forms of energy generation (i.e. fossil fuels). When construction, operation and maintenance and decommissioning phase GHG emissions are included the Project will save up to 131,667,016 tCO_2e from being emitted into the atmosphere over its lifecycle (net emissions).

213. It will take approximately 2 years to 'pay back' the GHG emissions relating to the construction phase from the start of operation. This 'payback' period is in line with both the UK and Scottish Governments' net zero ambitions. Due to the carbon savings that the operation and maintenance phase will produce from low

carbon electricity generation, the Project is assessed in the EIA Report as having a significant beneficial effect on the climate.

6.2.2. ENERGY SECURITY AND AFFORDABILITY

214. Reducing our dependency on foreign hydrocarbons is an imperative for security of supply and controlling electricity costs (see Planning and Need Statement).

215. The ECJ confirmed in 2019[11] that ensuring the security of the electricity supply constitutes an IROPI. The ECJ has held that security of energy supply in the EU is one of the fundamental objectives of EU policy in the field of energy. The ECJ went further, saying that, in any event "*the objective of ensuring the security of electricity supply in a Member State* ***at all times*** *constitutes an imperative reason of overriding public interest, within the meaning of that provision*" [12] [emphasis added].

216. As noted by the UK government in the BESS, the imperative to ensure security of energy supply has been compounded by Russia's invasion of Ukraine. This has had a direct impact on the affordability of energy in the UK.

217. The urgency for an electricity system which is self-reliant and not dependent on fossil fuels is enormous, to protect consumers from high and volatile energy prices, and to reduce opportunities for destructive geopolitical intrusion into national electricity supplies and economics. The energy security and affordability benefits associated with developing electricity supplies which are not dependent on volatile international markets and are located within the UK's national boundaries are more important than ever.

218. The Offshore Wind Industry has a strong track record of driving down the cost of electricity. This is evidenced by the falling strike price due to the competitive CfD scheme.

219. Upon gaining consent, Ossian will apply for a CfD. This scheme is subject to a competitive tender mechanism, whereby projects must submit 'sealed bids' of strike prices in an auction for a fixed quantity of funding. This process will be key to ensuring that the floating wind technology at Ossian will be built out at the lowest possible cost to the consumer.

6.2.3. CONCLUSION ON IMPERATIVE

220. Amidst the risk that climate change poses to the health and the safety of Scottish and UK citizens, the Array is clearly imperative due to the near- and long-term contribution it will make to decarbonisation of the energy sector and achieving Scottish and UK net zero commitments. In addition, reducing Scotland's and the wider UK's dependency on hydrocarbons has important security of supply, electricity cost and fuel poverty avoidance benefits which urgently require to be realised now. Those actions already urgently required in the fight against climate change are now required more urgently for global political stability and insulation against dependencies on rogue nation states.

6.3. STEP 2: ARE THE REASONS FOR UNDERTAKING THE ARRAY IN THE PUBLIC INTEREST?

221. The Array serves a clear public interest in terms of its contribution to decarbonisation and energy security. It will contribute to meeting Scottish and UK net zero laws and policies, which are designed to serve fundamental public interests. Those public interests, in short, are:

- Rapid decarbonisation to mitigate climate change
- Ensuring security of energy supply at affordable cost

222. The Defra (2012) guidance notes that "*projects which enact or are consistent with national strategic plans or policies, may be more likely to show IROPI*". For the reasons set out above and in the Planning and Need Statement, the Array will make an important contribution to meeting Scottish and UK climate change legal and policy commitments, including the SMP, the Scottish Offshore Wind Policy Statement, the Scottish Energy Strategy, the UK Net Zero Strategy and the UK Offshore Wind Sector Deal, as well as the targets set by the Climate Change (Scotland) Act 2009, the Climate Change Act 2008 (as amended) and the Net Zero Strategy.

223. The Applicant is a private entity. However, the Array clearly serves the public interest, and all previously granted Scottish and UK offshore wind sector derogation cases acknowledge the essential reality that the strategy to harness Scotland's and the UK's offshore wind resource to produce renewable electricity can only be delivered through the private sector.

224. EC (2019) guidance acknowledges that whether the project is promoted by public or private entities is irrelevant to determining whether the public interest is served in determining IROPI: "As regards the 'other imperative reasons of overriding public interest' of social or economic nature, it is clear from the wording that only public interests, irrespective of whether they are promoted either by public or private bodies, can be balanced against the conservation aims of the Directive."

6.3.1. CONCLUSION ON PUBLIC INTEREST

225. The Array's contribution to decarbonisation of the energy sector and security of supply are clearly in the public interest. The Array fulfils a suite national and international law and policies designed to serve fundamental public interests. In supporting and delivering long term low carbon energy and contributing to security of supply and affordability of energy, the Array will serve public interests.

6.4. STEP 3: ARE THE REASONS FOR UNDERTAKING THE ARRAY IN THE LONG TERM INTEREST?

226. The imperative public interests identified earlier in this report are long-term Scottish and UK interests. The decarbonisation of society including the means of generating energy is a process that has been ongoing for decades and will continue for decades to come. The legal commitments to achieve net zero by 2045/2050 respectively are long term. However, net zero has to be maintained thereafter. It is not a temporary or fleeting interest, rather the objective is and must be a permanent condition whereby society is in better balance with the environment and is no longer contributing to climate change mechanisms. The transition to renewable energy is also a long-term public interest from an ecological standpoint.

227. Security of domestic energy supply, to ensure that the lights remain on, is a continuous long-term obligation of every successive domestic Scottish and UK Government. Energy supply security is a matter of long-term national interest and security against foreign powers.

228. The Array's contribution to these objectives is itself long-term. On current projections of available technology, it will be capable of up to 3.6GW (equivalent of 5% of current electricity consumption) of clean energy generation for around 35 years (possibly longer). It will contribute to Scotland and the UK's future low carbon energy mix beyond 2045 and beyond 2050.

229. The contribution of the Array to the development of the floating wind sector is also strategically important, to ensure the long-term continuity of the offshore wind sector. To make full use of the UK's seabed resources, deeper areas of the seabed that have previously not been developed due to constraints in fixed foundation technology must become accessible to windfarm development. This can only be achieved by developing floating wind in these areas. The Array is in an optimal position to kickstart the floating wind industry and the scale of the Array positions it as a project that will make a significant contribution to giving

[11] Judgement of 29.7.2019 – Case C-411/17 Inter-Environnement Wallonie and Bond Beter Leefmilieu Vlaanderen.

[12] C-411/17 *Inter-Environment Wallonie and Bond Beter Leefmillieu Vlaanderen* at paragraphs 157 and 159.

the floating wind supply chain the necessary confidence in the market to invest in and ultimately bring down the cost of floating wind and demonstrate that floating wind is a technology available for developing future offshore windfarm projects in other deep water locations.

230. Finally, economic benefits through the creation of jobs, work-force upskilling and investment in supply chain are also expected from the construction, operation and maintenance of the Array. The following socio-economic highlights have been taken from the EIA: Socio-economics chapter (volume 2, chapter 18).

- The Array is expected to result in [redacted] worth of construction-related contracts in Scotland and [redacted] worth of contracts in the UK (including Scotland), out of a total of [redacted] in expenditure. These are expected to generate substantial economic activity and employment, particularly associated with the manufacture of floating foundations in Scotland. It was estimated that in the peak year this could support 6,340 jobs in Scotland and 11,210 jobs in the UK (including Scotland).
- The Array is expected to support a peak direct employment of around 240 jobs at the main construction port and an annual direct employment impact of 70 jobs at the main operation and maintenance port. This is also expected to generate social impacts, such as population changes and increases in demand for housing.
- In addition to the impact of the Array there is also expected to be a wider impact of the Ossian project as a whole, which is expected to represent expenditure of [redacted] (including the Array).

231. The Applicant has developed a Supply Chain Development Statement (SCDS). The SCDS outlines an ambitious supply chain development strategy that will position the Scottish supply chain to secure orders at home and export opportunities abroad in the rapidly expanding floating offshore wind market. The following is a summary of the key commitments within the SCDS:

- Aim to achieve a minimum 62% UK content in the vast majority located in Scotland.
- Manufacture and assemble floating foundations and Wind Turbine Generator towers in Scotland.

232. Establish a [redacted] Supply Chain Fund to grow the Scottish supply chain.

233. Such benefits live on beyond the immediate construction of the Array and can provide a long-lasting legacy (e.g. skilled workers who go on to work on successive offshore wind farm projects in the years and decades to come).

6.4.1. CONCLUSION ON LONG-TERM INTEREST

234. Once built the Array will make a long-term contribution to decarbonising the energy sector and ensuring security of supply. The Array also affords the opportunity to kickstart the floating wind industry, which will ensure long term, continuity of the floating wind sector. This will lead to long-term economic benefits such as job creation, work force upskilling and investment in the supply chain.

6.5. STEP 4: ARE THE REASONS FOR UNDERTAKING THE ARRAY AN OVERRIDING INTEREST?

235. An assessment of the overriding interests of the Array necessarily involves a balancing exercise. It is for the decision-maker to determine whether the imperative, long-term public interests that the Array serves, outweigh the conservation interests of the qualifying species of the affected SPAs (as listed in section 1.3).

236. That judgment must be exercised in a rational and a reasonable manner in the context of the HRA framework as described in earlier sections of this Derogation Case. However, ultimately it is a matter of discretion as to the balance to be struck.

237. In view of the arguments presented above on decarbonisation and energy security, the Applicant considers that the benefits served by the Array clearly override the AEOI identified in the RIAA. The qualifying interests affected in this case are not priority habitats or species, to which the Habitats Regulations attach enhanced importance.

238. On the other side of the balance, the Array is necessitated by long-term public interests of the highest priority: decarbonisation and security of energy supplies.

239. Both of these benefits fall within the core IROPI category of "*reasons relating to human health, public safety or beneficial consequences of primary importance to the environment",* being reasons that the Habitats Regulations stipulate can be overriding even in circumstances where AEOI has been found in respect of priority habitats and / or species. Decarbonisation is imperative in order to protect human health and public safety, as well as to deliver beneficial consequences of primary importance to the environment, for all of the reasons set out above. The ECJ confirmed in 2019[13] that ensuring the security of electricity supply "*at all times*" constitutes an IROPI. Either reason, even in isolation, can and would constitute IROPI and together the case is even stronger.

240. It is noted that the draft DTA Ecology guidance (draft, 2021) suggests that, in general, the interests served by offshore wind farm development are likely to outweigh and override conservation interests: *"Given the urgency of the climate change crisis, and having demonstrated the absence of alternative solutions, Scottish Ministers anticipate that it is highly unlikely that the public interest served by delivery of offshore wind proposals will not override the conservation interests."*

241. This guidance is consistent with the conclusions reached by the decision-makers in each of the previous Scottish and UK offshore wind farm decisions that relied upon the HRA derogation provisions.

242. It is also recognised that in contributing to net zero and decarbonisation targets, the Array will provide long term environmental benefits including benefits to bird species within the SPAs as a result of the Array's contribution to climate change mitigation.

243. Climate change is likely to be the strongest influence on seabird populations in coming years, with anticipated deterioration in conditions for breeding and survival for most species of seabirds (Sandvik et al. 2012; Frederiksen et al. 2004, 2013; Burthe et al. 2014; Macdonald et al. 2015; Furness 2016; Capuzzo et al. 2018; JNCC 2021; NatureScot, 2021).

244. The EU funded SEANSE13 project has assessed the impact of climate change on key seabird species (Rijkswaterstaat Zee & Delta 2020). The research concluded that prey availability effects due to climate change is the pressure/pathway that currently has the largest impact on seabird population at the wider North Sea level and is likely to be responsible for a substantially greater effect than impacts resulting from any of the other activities (including collision risk or displacement from offshore wind). For all seabirds it is largely expected that climate change impacts will become more severe in the future as both temperatures, and possibly the rate of increase, become greater, and extreme weather events become more frequent.

6.5.1. CONCLUSION ON OVERRIDING

245. The imperative reasons for the Array are overriding interests. The benefits that the Array serves outweigh the predicted harm to the affected SPAs which are the subject of this Derogation Case. These benefits are clearly in the long-term public interests, and due to the Array's contribution to climate change mitigation, they also benefit those seabird species affected by the Array.

6.6. PRIORITY SPECIES

246. For priority habitat and species, a competent authority can only be satisfied that there are IROPI under specific conditions. This could, in effect, raise the bar on the test for IROPI, as it requires an applicant to

[13] Judgment of 29.7.2019 – Case C-411/17 *Inter-Environnement Wallonie and Bond Beter Leefmilieu Vlaanderen.*

demonstrate that a plan or project will be benefit certain areas (such as human health, public safety, or the environment) or have regard to the Opinion of the EC.

247. Section 4 lists all the SPAs and qualifying features identified by the RIAA that are predicted to be adversely affected by the Array in-combination with other plans and projects.

248. None of the qualifying features listed in section 4 are identified as priority habitats and species by the Habitats Directive. This means that for the Competent Authorities to be satisfied that there are IROPI, the specific conditions attached to priority species and habitat do not need to be addressed.

249. Nevertheless, while there is no requirement to address these specific requirements, the Array will clearly be beneficial for human health and the environment due to its contribution to the decarbonisation of the energy sector (as evidenced in the proceeding sections). The knowledge that the Array meets this higher test associated priority species and habitats should provide the Competent Authorities with additional comfort that the Array is of IROPI.

6.7. SUMMARY AND CONCLUSIONS

250. This section demonstrates the case that the Array must be carried out for IROPI. The RIAA has found that the Array, in-combination with other plans and projects, will have an AEOI on the qualifying features of seven SPAs (none of which are priority species as defined by the Habitat Directive). However, in the backdrop of climate change and in the pursuit of energy security and affordability, the reasons for the Array are imperative and in the long-term public interest. These reasons are overriding when weighed against the conservation interests of the qualifying features of the affected SPA. This position is emphasised when the contribution of the Array to decarbonisation is considered against the threat of climate change on these species.

7. COMPENSATION

7.1. INTRODUCTION

251. In sections 5 and 6 the Applicant has demonstrated that there are no Alternative Solutions and that there are IROPI for the Array. The third and final section of this Derogation Case demonstrates to Scottish Ministers that compensatory measures can be put in place if necessary to ensure the overall coherence of the national site network.

252. The Applicant is presenting two compensatory measures to offset the potential impact of the Array. The two proposed compensatory measures are (a) a predatory (mink) control measure in conjunction with the Scottish Invasive Species Initiative (SISI); and (b) a by-catch reduction measure in Portuguese waters in conjunction with the Portuguese Society for the Study of Birds (SPEA).

253. As summarised below, adequate reasons and evidence have been provided, to give Scottish Ministers confidence that these compensatory measures can be secured and will be effective compensation.

7.2. EVIDENCE PROVIDED

254. The Applicant has outlined the proposed compensation measures in the following reports, which are appended to this document (Table 7.1).

Table 7.1: Compensation Documents

Document Reference	Report Title	Detail
Ossian OWFL, (2024a)	Report to Inform the Appropriate Assessment	This report provides supporting information to Scottish Ministers to allow them to make an appropriate assessment of the implications of the Array upon relevant designated sites in view of the conservation objectives of those sites.
Derogation Case – Appendix 1	Ecological Evidence Report	This report presents the evidence base for the proposed Compensation Measures.
Derogation Case – Appendix 2	Compensation Plan	For each proposed Compensation Measure this Plan outlines an overview of the evidence base, the objective and scale of compensation, site selection, implementation, stakeholder engagement summary, adaptive management, a mechanism for monitoring and reporting, and an outline timeline. The purpose of this document is to provide the information required to robustly demonstrate to the Competent Authority that the compensation will ensure the overall coherence of the national site network, is feasible and deliverable, and can be secured by the Applicant.
Derogation Case – Appendix 2, Annex A	Compensation Stakeholder Consultation	This document details correspondence with statutory stakeholders on the proposed measures.
Derogation Case – Appendix 2, Annex B	Ossian - SISI Letter of Intent	This signed letter outlines the intention of Ossian and the Senior Responsible Owner for SISI to collaborate in the delivery and the extension of invasive species controls over the lifetime of the Ossian Array.
Derogation Case – Appendix 2, Annex C	SPEA Letter of Intent	This signed letter outlines SPEAs intention to collaborate with Ossian to undertake a programme of monitoring, testing and implementation of bycatch controls in Portuguese waters to compensate key impacted seabird species over the lifetime of the Ossian Array.
Derogation Case – Appendix 3	Outline Compensation Implementation and Monitoring Plan	This report provides an outline of the proposed Compensation Implementation and Monitoring Plan which will be developed post consent and will set out the detailed delivery proposals for the compensatory measures.
Derogation Case – Appendix 4	Compensation Environmental Impact Assessment	This report presents an environmental impact assessment of the likely significant environmental effects of the compensatory measures.
Derogation Case – Appendix 5	Compensation No Likely Significant Effects Report	This report presents an assessment under the Habitats Regulations of the compensatory measures.

7.3. OVERVIEW OF COMPENSATION PACKAGE

255. This final section provides an overview of the two compensatory measures proposed. In Table 7.2 each measure is described alongside a summary of the underlying ecological evidence base and key details on their implementation.

256. The Applicant is confident that the compensation package presented Derogation Case is sufficient to fully compensate for the impacts outlined in in the RIAA (summarised in section 1.3).

257. The measures will directly compensate UK populations of the species impacted by the array and bring about substantial benefits for several other seabird species breeding in the UK. The measures will provide high compensation ratios, which can allow for significant compensation surplus if required. As such, they will provide a comprehensive solution that will maintain (and enhance) the overall coherence of the national site network.

Table 7.2: Overview of Proposed Compensatory Measures and the Information Provided in the Cited Documents

Proposed Compensation Measure	Measure Description	Evidence	Location	Scale	Compensation Ratio	Implementation	Timeline
Document Reference for Further Detail	**Ecological Evidence Report**	**Ecological Evidence Report**	**Compensation Plan**	**Compensation Plan**	**Compensation Plan**	**Compensation Plan**	**Compensation Plan**
Mink Control in Scotland (R*azorbill and kittiwake)*	This measure has two objectives: A. Facilitate the continuation plus intensification (i.e. increased of the Scottish Invasive Species Initiative's (SISI) Mink Control Project (MCP) and wider invasive species controls at key locations across Scotland; and B. Increase the geographical coverage of the MCP to areas not currently within the control area.	American mink *Neovison vison* have been documented as a significant threat to seabird colonies in every part of their invasive range. Large scale impacts have been documented to razorbill and kittiwake. The prevalence of mink across Scotland, particularly along the coasts, has also contributed to 34 whole colony extinctions of terns, gulls, storm petrels *Hydrobates* spp., Manx shearwater *Puffinus puffinus* and auks.	The Applicant will secure funding to continue and increase resources to control mink at key Scottish SPAs.	To predict the potential impact of mink on seabirds during a single breeding season (as mink predation would be considered an annual impact), estimates are based on mink density within coastal habitat and scaled up to SPA coast habitat (length). The calculated potential mink predation events of seabirds assume a take of 200 birds per mink across the breeding season. This is a precautionary assumption based on a body of evidence of mink feeding habits.	The ratios presented here combine all SPAs considered within each objective (not all SPAs are planned for delivery of Ossian OWFL). **Objective A -** Razorbill: 1:5 Kittiwake: 1:27 **Objective B -** Razorbill: 1:31 Kittiwake: 1:90 SPA-specific ratios can be found in the Compensation Plan (Appendix 2). The detailed CIMP will set out the final delivery SPA and associated rations.	Implementation will be through a partnership agreement with SISI's MCP. An extensive monitoring and control network is currently run by a network of volunteers. The Applicant will provide Mink Wardens to improve the control and cover new areas.	2027: SISI and Ossian OWFL Partnership to take effect. The establishment of Objective A and planning for Objective B. 2028: Objective B, increasing mink control coverage to key SPAs. 2032: Ongoing mink monitoring and control at targeted SPAs.
Seabird Bycatch Reduction (*Gannet and razorbill))*	This measure will decrease the bycatch mortality rates of gannet and razorbill through the application of bycatch reduction techniques.	Gannet are the main by-caught species among Portuguese fisheries, comprising approximately 76% of all seabird bycatch, with an estimated 14,764 individuals by-caught annually in demersal longlines (>12 m) alone. Razorbill are also by-caught in Portuguese waters in high numbers, with 175 by-caught individuals reported in a study between 2021 and 2022. Gannets and razorbill that breed in Scotland rely on western Iberian waters for both wintering and migration. Lane *et al.* (2021) tracked 35 adult and 38 juvenile gannets from Bass Rock off the east coast of Scotland, and found that they migrated through Portuguese waters as far as the Atlantic coast of Africa. Additionally, the British Trust for Ornithology's (BTO) ringing report shows UK-breeding razorbills were recovered all along the coast of western Europe, with heavy overlap in Portuguese waters (BTO, n.d.).	Fisheries in Portugal will be targeted to reduce bycatch for gannet and razorbill.	The extent of implementation will be contingent upon the existing level of bycatch in a specific fishery and the effectiveness of the chosen bycatch reduction technique. An advantage of this measure is its scalability. A large number of birds could potentially be compensated for by implementing bycatch reduction techniques across the whole of the target fisheries. As a result, the numbers required to compensate for any impacts arising from the Array are deliverable under this measure.	Portuguese bycatch will not be allocated to specific SPAs and instead focus on reducing mortality to birds originating from SPAs in Scotland and the wider UK National Site Network. Compensation ratios will account for the distance of the compensation from the site of impact. Based on preliminary data of bycatch rates, compensation ratios will be, at the minimum, the following: Razorbill: 1:6 Gannet: 1:5	The implementation of this measure in Portugal will be through a partnership agreement with the Portuguese Society for the Study of Birds (SPEA). Reduction techniques exist with other bycatch mitigation techniques still being trialled, as efficacy is often location and species dependent. The bycatch mitigation technique that will be selected will therefore be in line with the guidance of SPEA.	2024 to 2026: Establish bycatch baseline and hotspots 2026 to 2029: Test mitigation method and monitor effectiveness. 2029 Onwards: Implement successful method and monitor.

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