

WEST OF ORKNEY WINDFARM

Derogation Case

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Role	Company	Name	Aconex Signature
Author	OWPL	JF	N/A
Checker	S&W	Various	N/A
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PART A: BACKGROUND INFORMATION

1. Introduction

This without prejudice derogation case contains evidence from Offshore Wind Power Limited (“the Applicant”) on the Habitats Regulations Assessment (HRA) Derogation Provisions. It demonstrates that the HRA Derogation Provisions can be satisfied if it is necessary to resort to them to authorise the offshore components of the West of Orkney Wind Farm (“the Project”).

The Applicant's submission is provided without prejudice to the Applicant's position that it can be concluded beyond reasonable scientific doubt that the Project would not give rise to any Adverse Effect on Integrity (AEOI), either alone or in combination with other plans or projects.

The first section gives an overview of the Project and provides information on the relevant Scottish and UK legislation. It summarises the Applicants' position on AEOI which is explained in relation to the precaution applied within Applicant's Report to Inform the Appropriate Assessment (RIAA), and the need for a derogation case is set out, if required by Scottish Ministers. The Applicants' RIAA effectively presents two conclusions – if Scottish Ministers follow the advice and guidance from NatureScot it is not possible to conclude no AEOI, if Scottish Ministers use the best scientific knowledge available then they can conclude no AEOI.

Section two gives more detail on the guidance and planning precedent that has informed the development of the derogation case and demonstrates that the Applicant has considered, in detail, all the relevant information. Section three provides a summary of the need case for the Project and the key role that the Project must play in delivering Scottish and UK targets. This section is supported by a Statement of Need, which is provided with the application and demonstrates that the Project is an essential part of the future generation mix.

Without the Project, it is probable that delivery of a multitude of policies will fall short, including: Scotland's Sectoral Marine Plan, Scottish Energy Strategy, the Ten Point Plan, UK Net Zero Strategy and UK Offshore Wind Sector Deal, as well as the targets set by the Climate Change (Scotland) Act 2009, Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, the (UK) Climate Change Act 2008 (as amended) and the Net Zero Strategy: Build back Greener.

Subsequent sections deal with the legal tests that must be considered under the Habitat Derogation provisions. Firstly, alternative solutions to the Project are considered by identifying the core objectives of the project, then considering the “Do Nothing” scenario before assessing feasible alternatives. A robust case is presented that sets out a comprehensive assessment of possible alternative locations and a range of potential alternative designs to meet the project objectives. In all cases no feasible alternative solutions were identified that could meet the Project's objectives.

A compelling case demonstrates there are Imperative Reasons of Overriding Public Interest (IROPI) to consent the Project. The project must be carried out for IROPI given the urgent need to address climate change and meet government's legally binding targets. There is an overriding, long-term public interest in both the decarbonisation and security of supply of affordable energy which demonstrably outweighs any AEOI.

The process whereby the Applicant has identified and assessed the feasibility of the necessary compensation measures is set out in the Compensation Measures Plan and the Compensation Implementation and Monitoring Plan which will become an Adaptive Management Plan, if required.

1.1 The Project

The Applicant is proposing the development of the Project an Offshore Wind Farm (OWF), located at least 23 kilometres (km) from the north coast of Scotland and 28 km from the west coast of Hoy, Orkney. Crown Estate Scotland (CES) awarded OWPL the Option Agreement Area (OAA) in January 2022 for the development of the proposed Project following the ScotWind leasing round which launched in June 2020.

The OAA lies wholly within the “N1” Plan Option, which is one of 15 areas around Scotland which the Scottish Government considered suitable for the development of commercial scale OWFs. The Scottish Government published the Sectoral Marine Plan for Offshore Wind Energy in October 2020 following over two years of extensive analysis, consideration and engagement with a wide range of stakeholders.

The Project has a connection agreement with National Grid for a connection to the grid network in Caithness on mainland Scotland. Connection will be to a new Scottish Hydro Electric Transmission plc (SHET-L) substation located at or near Spittal, Caithness.

The proposed Flotta Hydrogen Hub (Flotta, Orkney) provides a second power export opportunity for the Project. OWPL are currently negotiating the terms of this private wire export option through a 'Power Purchase Agreement'. These negotiations will provide clarity on the timing for the availability of this power export option and will determine the timing of subsequent applications. A separate Marine Licence application and Planning application for the offshore and onshore transmission infrastructure to the Flotta Hydrogen Hub will be submitted in due course.

1.2 Origins of HRA: EU Habitats and Birds Directives

The European Union (EU) Habitats Directive¹ and Wild Birds Directive² seek to conserve certain natural habitats and wild species across the territory of the EU by, amongst other measures, establishing a core network of sites for the protection of certain habitat types, species and wild birds ("European sites").

The overall aim is to ensure the long-term survival of viable populations of Europe's most valuable and threatened species and habitats, throughout their natural range, to maintain and promote biodiversity. European sites make up an EU-wide network known as "Natura 2000".

The UK has withdrawn from the EU. However, legislation transposing the Habitats and Birds Directives remains in place (subject to technical amendments), and case law and guidance referenced in this Report largely reflect or continue to refer to the Habitats and Birds Directives. Therefore, before turning to the UK legislation, it is useful to set out their terms for context.

The protection and management of European sites is governed by Article 6 of the Habitats Directive. Amongst other things, Articles 6(3) and 6(4) lay down an assessment and permitting process concerning the authorisation of any plan or project likely to have a significant effect on any European site.

Articles 6(3) and 6(4) prescribe a staged process: firstly, any such plan or project must be subject to an assessment to determine whether it would adversely affect the integrity of any European site and if so that plan or project may not proceed (Article 6(3)); secondly, a derogation process such that a plan or project found to adversely affect site integrity may still proceed, despite a negative assessment, if certain requirements are met (Article 6(4)). The relevant legal text is set out in Table 1.

Table 1 Legal text of Articles 6(3) and 6(4) Habitats Directive 92/43/EEC

Article 6(3)
<i>"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."</i>
Article 6(4)
<i>"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission to other imperative reasons of overriding public interest."</i>

1.3 Scotland and UK Habitats Regulations

Articles 6(3) and 6(4) of the Habitats Directive were transposed into UK law by, amongst others, the regulations identified in Table 2, each commonly referred to as the Habitats Regulations.

¹ Council Directive 92/43/EEC.

² Council Directive 2009/147/EC.

Where in this Report the need arises to refer to a specific legislative provision, for simplicity reference is made only to The Conservation of Offshore Marine Habitats and Species Regulations 2017. However, the relevant provisions in the different sets of Habitat Regulations are materially the same and there is no legal or practical need to differentiate between them in this Report and the term Habitats Regulations is used as a collective reference encompassing all three sets of Regulations.

Table 2 Habitats Regulations relevant to the Project

Regulations	Relevance
<i>The Conservation (Natural Habitats, &c.) Regulations 1994</i>	<i>Applicable to plans or projects in Scotland or Scottish territorial waters (0 – 12nm).</i>
<i>The Conservation of Habitats and Species Regulations 2017</i>	<i>Applicable to applications for consent under section 36 of the Electricity Act 1989.</i>
<i>The Conservation of Offshore Marine Habitats and Species Regulations 2017</i>	<i>Applicable to plans or projects in the Scottish offshore region (beyond 12nm).</i>

The procedure established by Articles 6(3) and 6(4) of the Habitats Directive relating to the authorisation of plans or projects, is known in Scotland as Habitats Regulations Appraisal (HRA) and is commonly regarded as a four-stage process, which is summarised in Sections 1.4 and 1.5 below.

In Scotland and the wider UK, the HRA process is applied, either as a matter of law or policy, to Special Areas of Conservation (SAC), Sites of Community Importance, candidate SACs and Special Protection Areas (SPAs), potential SPAs and possible SACs.

The substantive HRA process and requirements are largely unchanged notwithstanding the UK's withdrawal from the EU, albeit the Habitats Regulations have been subject to some technical changes. In particular, the Habitats Regulations continue to use the term "European sites", but they now comprise a UK network which is called the "national site network" (previously they were part of Natura 2000). Therefore, references in the Habitats Regulations to the "coherence of Natura 2000" must now be read as references to the coherence of the UK's "national site network".

1.4 Overview of HRA Stages 1-2: Screening and AA

The Habitats Regulations require that a project³ not directly connected with or necessary to the management of a European site, and "likely to have a significant effect" (LSE) on a European site (whether alone or in combination with another plan or project) must be subject to an "appropriate assessment" (AA) of the implications for that European site in view of the site's conservation objectives.

The legal obligation to undertake an AA ultimately rests with the relevant "competent authority" under the Habitats Regulations. For the Section 36 Consent and Marine Licence applications, that is the Scottish Ministers. However, the Applicant has an obligation to provide such information as the Scottish Ministers may reasonably require for the purposes of carrying out an AA⁴.

The identification of LSE is commonly referred to as HRA stage 1 and typically an applicant will conduct a screening exercise and provide an HRA Screening Report to inform this stage. The carrying out of an AA is commonly referred to as HRA stage 2 and typically an applicant will provide the Competent Authority with the necessary evidence to complete their Appropriate Assessment in a Report to Inform an Appropriate Assessment (RIAA).

Subject to a derogation process (HRA stages 3 and 4) as outlined in Section 1.5 below, a project can only be authorised if at the end of HRA stage 2, the Competent Authority is able to conclude, beyond reasonable scientific doubt in light of the findings of the AA, that the Project will not adversely affect the integrity of any European site(s).

Further information on HRA stages 1 and 2 is contained in the Applicant's RIAA so is not repeated here.

³ The process applies equally to a plan as to a project, but for simplicity we focus on its application to a project since this Report is concerned with a project rather than a plan.

⁴ Regulation 28(3) of The Conservation of Offshore Marine Habitats and Species Regulations 2017

1.5 Overview of HRA Stages 3-4: Derogation Provisions

The Habitats Regulations provide an exception to the general prohibition set out above, known as a “derogation”. A project can be allowed to proceed notwithstanding a conclusion that there will be an adverse effect on site integrity (AEOI) in respect of any European site(s) if the competent authority is satisfied that the following tests are met⁵:

- There are no alternative solutions to the project (Stage 3A); and
- There are “imperative reasons of overriding public interest” (IROPI) for the project to proceed (Stage 3B).

If the Stage 3 requirements are met, the Scottish Ministers are then subject to a legal obligation to “secure that any necessary compensatory measures are taken to ensure that the overall coherence of the [national site network] is protected”⁶ (HRA Stage 4).

For ease of reference, the applicable legal text (hereinafter the HRA Derogation Provisions) which provide the framework for HRA Stages 3 and 4 is set out in Table 3. The process for HRA Stages 3 and 4 is addressed in extensive detail in Parts B, C and D of this Report.

Table 3 Relevant Scottish / UK Derogation Provisions⁷

Regulation	Provision
29 (1)	<i>“If it is satisfied that, there being no alternative solutions, the plan or project referred to in regulation 28(1) 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 competent authority may agree to the plan or project notwithstanding a negative assessment of the implications for the site.”</i>
29 (2)	<i>Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either - (a) reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or (b) any other imperative reasons of overriding public interest.</i>
31(4)	<i>Where a competent authority in Scotland agrees to a plan or project under regulation 29 notwithstanding a negative assessment of the implications for a European site in Scotland or for a European offshore marine site in the Scottish offshore region, it must notify the Secretary of State as soon as practicable following that agreement.</i>
31(5)	<i>Where the Scottish Ministers propose to agree to a plan or project under regulation 29 notwithstanding a negative assessment of the implications for a European site outside Scotland or a European offshore marine site outside the Scottish offshore region— (a) they must notify the Secretary of State; and (b) they may agree to the plan or project only after having been notified of the Secretary of State's agreement, which may be given subject to such conditions or restrictions as the Secretary of State may specify.</i>
36 (1)	<i>This regulation applies where, notwithstanding a negative assessment of the implications for a European offshore marine site or European site - (a) a plan or project is agreed to in accordance with regulation 29.</i>
36 (2)	<i>The [Scottish Ministers] must secure that any necessary compensatory measures are taken to ensure that the overall coherence of [the national site network] is protected.”</i>

1.6 RIAA and Applicant’s position on AEOI

While ultimately it is the duty of the Scottish Ministers to apply the HRA process and to carry out an AA, the Applicant has compiled the necessary evidence and information to support an AA decision by the Scottish Ministers and this information is contained in the RIAA. The Applicant’s RIAA considers NatureScot’s advice and guidance to be over-precautionary and a departure from advice and practice in the rest of the UK. Nevertheless, the Applicant’s RIAA presents two conclusions:

⁵ Regulation 29 of The Conservation of Offshore Marine Habitats and Species Regulations 2017

⁶ Regulation 36 of The Conservation of Offshore Marine Habitats and Species Regulations 2017

⁷ See the Conservation of Offshore Marine Habitats and Species Regulations 2017. There are other provisions not set out which only apply where the relevant Competent Authority is not the Scottish Ministers

While it was not possible to conclude no adverse effect on site integrity for all SPA using the advice and guidance from NatureScot, by applying additional “best scientific knowledge in the field”, it is highly likely that predicted impacts on kittiwake, guillemot, puffin and gannet would be greatly reduced, both from the Project alone and in-combination.

Current guidance from Natural England, if applied to the assessment here, would reduce the predicted collisions on kittiwake at the East Caithness Cliffs SPA and North Caithness Cliffs SPA and the predicted collisions on gannet at the Sule Skerry and Sule Stack SPA by a large enough level that it would be possible to conclude no adverse effect on site integrity.

Existing empirical data on displacement effects of offshore wind farms in Scotland show there is no displacement to kittiwakes, guillemots and puffins. By applying this evidence, it would be possible to conclude no adverse effect on site integrity for the North Caithness Cliffs SPA and Sule Skerry and Sule Stack SPA.

Scottish Ministers Appropriate Assessment must be based on the best available scientific knowledge⁸.

Table 4 sets out the annual adult bird mortalities from the Project alone, apportioned to each SPA where NatureScot’s advice and guidance presents an AEOI. For all features where the conclusion of AEOI is made, this is solely due to the in-combination effect of other plans and projects.

Table 4 SPAs and qualifying features for which AEOI has been concluded based on the NatureScot’s advice and guidance.

Special Protection Area	Qualifying Features			
	Kittiwake	Great black-backed gull	Guillemot	Puffin
East Caithness Cliffs	6.13	0.18	0	0.05
North Caithness Cliffs	4.96	0	0	0
Sule Skerry and Sule Stack	0	0	173.04	0
Total (rounded up)	12	1	174	1
<i>Cause</i>	<i>Collision risk and displacement</i>	<i>Collision risk</i>	<i>Displacement</i>	<i>Displacement</i>

The European courts Waddenzee judgement requires that:

*“an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site’s conservation objectives must be identified in the light of the **best scientific knowledge** in the field assessment must be based on the best available scientific knowledge in the field” [emphasis added]*

Nevertheless, the Applicant has provided the necessary information and justification (the Derogation Case) to satisfy the HRA derogation provisions in respect of all features identified if Scottish Ministers follow NatureScot’s current advice and guidance, however the Applicant considers this advice overly precautionary. This Derogation Case demonstrates that sufficient compensation can be secured for any scenario. As such, this report provides a comprehensive Derogation Case that may be relied upon by the Scottish Ministers, if required.

1.7 Consultation to date

The Applicant recognises the importance of engaging with relevant stakeholders with respect to its Derogation Case, in particular with statutory nature conservation bodies (SNCBs) with regards to the development of potential compensation measures.

The Applicant has sought the advice of the SNCBs and other key stakeholders and kept them updated on project developments. The Applicant has engaged openly and transparently via a series of meetings and correspondence from January 2022 to September 2023 with MD-LOT, NatureScot, Orkney Island Council and the Orkney Native Wildlife Project.

⁸ Waddenzee (C-127/02) para 54

1.8 Supporting Information

This Report refers to other documents which have been submitted as part of the Application. For brevity, this information is not reproduced in full here. A list of the key documents supporting the Applicant's Derogation Case is provided below:

- Report to Inform Appropriate Assessment (RIAA)
- Compensation Measures Plan
- Compensation Implementation and Monitoring Plan
- Planning Statement
- Offshore EIA Report: Need for the Project (Chapter 2)
- Offshore EIA Report: Site Selection & Consideration of Alternatives (Chapter 4)
- Offshore EIA Report: Project Description (Chapter 5)
- Offshore EIA Report: Socio-economics (Whole Project) (Chapter 19)

2. HRA Derogations – Guidance and Precedent

Introduction

This section provides an overview of the guidance and precedent relating to HRA Stages 3 and 4: No Alternative Solutions, IROPI and Compensatory Measures.

2.1 Guidance

In preparing this Report a range of guidance has been reviewed and drawn upon, as listed below:

Scottish Guidance

SNH (2010). SNH Guidance 'Natura sites and the Habitats Regulations. How to consider proposals affecting SACs and SPAs in Scotland. The essential quick guide'.

DTA (2015) Habitats regulations appraisal of plans: Guidance for plan-making bodies in Scotland.

Scottish Government (2015). Scotland's National Marine Plan: A Single Framework for Managing Our Seas.

Scottish Government (2020a). Policy paper 'EU Exit: The Habitats Regulations in Scotland'.

DTA Ecology (2021a: in draft). Policy guidance document on demonstrating the absence of Alternative Solutions and imperative reasons for overriding public interest under the Habitats Regulations for Marine Scotland.

DTA (2021b) Framework to Evaluate Ornithological Compensatory Measures for Offshore Wind. Process Guidance Note for Developers. Advice to marine Scotland.

UK Guidance

Defra (2012). Habitats Directive: guidance on the application of article 6(4).

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.

DTA (2021) The Habitats Regulations Assessment Handbook.

EU Guidance

EC (revised 2018). Managing Natura 2000 Sites (MN 2000): The provisions of Article 6 of the Habitats Directive 92/43/EEC.

EC (revised 2021). Guidance document on wind energy developments and EU nature legislation

EC (revised 2021). Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC and Annex (the EC Methodological Guidance);

2.2 EC Opinions

Where it is proposed to rely upon an HRA derogation concerning a European site hosting a priority habitat and/or a priority species, in certain circumstances it is necessary for EU member states to obtain an opinion from the EC⁹. Following the UK's withdrawal from the EU, the UK is no longer subject to this requirement.

⁹ An EC opinion is required unless the IROPI relate to human health or public safety or to beneficial consequences of primary importance for the environment.

The EC has adopted and published several opinions on Article 6(4) derogation cases between 1996 and 2022. These EC opinions have also been reviewed and considered; however each EC opinion is project and fact specific and none concern an OWF project. Furthermore, all current EC opinions concern cases concerning priority habitat and/or priority species, which is not applicable in this case.

2.3 Planning precedent

To date, only Berwick Bank Windfarm has presented a “without prejudice” derogation case for a Scottish OWF. This application was submitted in December 2022 and a decision is expected in 2023. In the UK, six OWF and the round four plan have received consent pursuant to a derogation. At the time of application, none of these decisions has been subject to legal challenge relating to the approach taken for the HRA derogation.

In the absence of planning decisions for a Scottish OWF which relies upon an HRA derogation, it is relevant to consider these UK OWF planning decisions as they have been made under the same legal framework¹⁰, against the background of the same guidance, as set out above. Table 5 sets out the relevant, without prejudice, derogation cases for other UK OWFs alongside the Berwick Bank derogation case which is currently being determined by Scottish Ministers.

The derogation cases that have been determined or adopted demonstrate how HRA derogation provisions and associated guidance can be relied upon to consent OWFs both at the project and plan level, notwithstanding the identification of AEOI.

Table 5 Previous UK OWFs that have submitted a without prejudice Derogation Case

Type	Name	Nature of Relevant Site/Feature	Status
OWF	Hornsea Three	Kittiwake at Flamborough and Filey Coast SPA Sandbanks at North Norfolk Sandbanks and Saturn Reef SAC Sandbanks at Wash and North Norfolk Coast SAC	Planning Decision granted on 31 December 2020
OWF	Norfolk Boreas	Kittiwake at Flamborough and Filey Coast SPA Lesser black-backed gull at Alde-Ore Estuary SPA Sandbanks and reef at Haisborough, Hammond and Winterton SAC	Planning Decision granted on 20 December 2021
OWF	Norfolk Vanguard	Kittiwake at Flamborough and Filey Coast SPA Lesser black-backed gull at Alde-Ore Estuary SPA Sandbanks and reef at Haisborough, Hammond and Winterton SAC	Planning Decision granted on 11 February 2022
OWF	East Anglia ONE North	Kittiwake at Flamborough and Filey Coast SPA Lesser black-backed gull at Alde-Ore Estuary SPA Red-throated diver at Outer Thames Estuary SPA	Planning Decision granted on 31 March 2022
OWF	East Anglia TWO	Kittiwake at Flamborough and Filey Coast SPA Lesser black-backed gull at Alde-Ore Estuary SPA Red-throated diver at Outer Thames Estuary SPA	Planning Decision granted on 31 March 2022
OWF	Hornsea Four	Kittiwake, Guillemot and Razorbill at Flamborough and Filey Coast SPA	Planning Decision granted on 12 July 2023

¹⁰ Conservation of Offshore Marine Habitats and Species Regulations 2017 and the Conservation of Habitats and Species Regulations 2017.

Type	Name	Nature of Relevant Site/Feature	Status
Plan	Round Four Plan Level Derogation Case	Kittiwake at Flamborough and Filey Coast SPA Sandbanks at Dogger Bank SAC	Derogation Case adopted in April 2022. Round 4 leasing complete
Application submitted			
OWF	Berwick Bank	Kittiwake, Guillemot, Razorbill and Puffin at Forth Islands SPA Kittiwake, Guillemot and Razorbill at St Abbs Head to Fast Castle SPA Kittiwake, Guillemot and Razorbill at Fowlsheugh SPA Kittiwake at Farne Islands SPA Kittiwake and Razorbill at East Caithness Cliffs SPA Kittiwake at Troup, Pennan & Lion's Heads SPA Kittiwake at Buchan Ness to Collieston Coast SPA Kittiwake at Flamborough and Filey Coast SPA	Application submitted December 2022. Decision expected 2023.

3. Need Case

Introduction

HRA Stages 3A (Alternative Solutions) and 3B (IROPI) are intertwined with and framed by the need for a given project. It is convenient to address the topic of need at this stage, to inform and limit later repetition in Parts B and C of this Report.

The factors which support and define the clear and urgent need case for the Project are set out comprehensively in the Need for the Project and Planning Statement so are only summarised below. In short, the need case is predicated upon the critical contribution of the Project to four important pillars of energy policy:

1. Decarbonisation - to achieve "Net Zero" as soon as possible, to mitigate climate change.
2. Security of supply - geographically and technologically diverse supplies.
3. Affordability - energy at lowest cost to consumers.
4. Action - before 2030 and sustained action thereafter - time is of the essence, meaning early deployment, at scale, is critical (owing to points 1 – 3 above).

3.1 Climate Change, Net Zero, Decarbonisation and the Climate Emergency

Climate change is the defining challenge of our time. The impacts of climate change are global in scope and unprecedented in human existence.

The United Nations (UN) has been leading on global climate summits ('Conference of the Parties', COP) for nearly three decades. International consensus on the need to tackle climate change is reflected in The Paris Agreement¹¹, adopted at COP21 in 2015 by 196 parties to the UN Framework Convention on Climate Change. For the first time it created a legally-binding, international agreement towards tackling climate change. The UK (and Scotland) is legally bound to the Paris Agreement. The member governments agreed:

- A long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels;
- To aim to limit the increase to 1.5°C since this would significantly reduce risks and the impacts of climate change;
- On the need for global greenhouse gas (GHG) emissions to peak as soon as possible; and
- To undertake rapid reductions thereafter in accordance with the best scientific guidance available.

This international ambition underpins the Scottish and UK legislation on climate change mitigation, addressed below.

Despite action to date, human-induced warming has reached approximately 1°C above pre-industrial levels, as confirmed by the recent Inter-Governmental Panel on Climate Change (IPCC) 6th Assessment Report (the AR6 Report), published in three parts across 2021 and 2022. The AR6 Report is the first major review of the science of climate change since 2013 and is addressed in further detail in the Applicant's Planning Statements and Statement of Need. The key messages are as follows:

- Without immediate, rapid and large-scale reductions in GHG, limiting warming close to 1.5°C or even 2°C will be beyond reach.
- Delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future.
- Limiting warming to around 1.5°C requires global GHG emissions to peak before 2025 at the latest, and be reduced by 43% by 2030.
- Limiting global warming will require major transitions in the energy sector. This will involve a substantial reduction in fossil fuel use, widespread electrification, improved energy efficiency and use of alternative fuels.

¹¹ <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

Thus, a key theme of the AR6 Report is that humanity is not on track to limit warming to the extent necessary, but that it is still just about possible to make the necessary progress by 2030 by, for example, moving rapidly to non-fossil fuel sources of energy. The next decade is therefore critical as is sustained decarbonisation thereafter.

Net Zero

The Scottish Government has recognised the gravity of the situation described above. The Scottish First Minister declared a "Climate Emergency" in her speech to the SNP Conference in April 2019. Climate Change Secretary Roseanna Cunningham subsequently made a statement to the Scottish Parliament on 14 May on the 'Global Climate Emergency' and said:

"There is a global climate emergency. The evidence is irrefutable. The science is clear and people have been clear: they expect action. The Intergovernmental Panel on Climate Change issued a stark warning last year - the world must act now. By 2030 it will be too late to limit warming to 1.5 degrees." [emphasis added].

An emergency is, by definition, a grave situation that demands an urgent response. In Scotland and the UK legal obligations to achieve Net Zero, to mitigate climate change, have accordingly been strengthened in recent years as follows:

- Scotland: the Climate Change (Scotland) Act 2009 was amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019; and
- UK: the Climate Change Act 2008 was amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019.

The Scottish and UK Governments are now legally bound to reach Net Zero (i.e. ensure that their respective net carbon account is at least 100% lower than the 1990 baseline) by 2045 in Scotland and by 2050 in the UK.

Challenging interim 'stepping-stone' targets are also in place. Scotland has interim targets of a 75% reduction target by 2030 and 90% by 2040. The 75% target by 2030 is especially challenging. The Committee on Climate Change (CCC) modelled five scenarios and none – even the optimistic scenario – shows Scotland achieving a 75% emissions reduction by 2030. The CCC has therefore stated:

"Scotland's 75% target for 2030 will be extremely challenging to meet, even if Scotland gets on track for net zero by 2045. Our balance net zero pathway for the UK would not meet Scotland's 2030 target – reaching a 64% reduction by 2030 – while our most stretching tail winds scenario reaches a 69% reduction".

COP26 was held in Glasgow in November 2021, allowing Scotland to demonstrate international leadership on climate change. COP26 recognised the urgent need to further reduce emissions before 2030 and parties made a commitment to revisit and strengthen their current emissions targets to 2030, in 2022. Agreements made at COP26 were detailed in the Glasgow Climate Pact (UNFCCC, 2021¹²). Paragraph 17 states that "*rapid, deep and sustained reductions in global greenhouse emissions*" are required to limit temperature increase to 1.5°C above pre-industrial times.

The twenty seventh COP (COP27) took place in Sharm el-Sheikh in November 2022. The COP expressed "alarm and utmost concern that human activities have caused a global average temperature increase of around 1.1 °C above pre-industrial levels to date and that impacts are already being felt in every region and will escalate with every increment of global warming"¹³ and agreed a package of decisions¹⁴ which reaffirmed their commitment to limit global temperature rise to 1.5°C above pre-industrial levels. However, it was acknowledged that current policies and actions are insufficient to achieve that objective.

The backdrop to COP27 was a report from UN Climate Change¹⁵, which indicates that implementation of current pledges by national governments put the world on track for a 2.5°C warmer world by the end of the century. Therefore, despite some notable breakthroughs, such as an agreement to provide "loss and damage" funding for vulnerable countries hit hardest by climate disasters, in his closing remarks, Simon Stiell, UN Climate Change Executive Secretary, reminded delegates that the 2020s are a critical decade for climate action. Governments were tasked with revisiting and strengthening the 2030 targets in their national climate plans by the end of 2023, as well as accelerate efforts to phase-out unabated coal power.

In the field of energy, the Sharm el-Sheikh Implementation Plan¹⁶ repeated "the urgent need for immediate, deep, rapid and sustained reductions in global greenhouse gas emissions ...across all applicable sectors, including through increase in low-

¹² Glasgow Climate Pact | UNFCCC

¹³ Decision -/CP.27, November 2022, Second periodic review of the long-term global goal under the Convention and of overall progress towards achieving it.

¹⁴ Decisions taken at the Sharm El-Sheikh Climate Change Conference - Advance unedited versions | UNFCCC

¹⁵ Climate Plans Remain Insufficient: More Ambitious Action Needed Now | UNFCCC

¹⁶ Decision -/CP.27, November 2022.

emission and renewable energy”. However, the Implementation Plan also recognised the importance of energy security of supply. It described an “unprecedented global energy crisis” which “underlines the urgency to rapidly transform energy systems to be more secure, reliable, and resilient, including by accelerating clean and just transitions to renewable energy during this critical decade of action”. This energy security of supply crisis underscores the importance of “enhancing a clean energy mix, including low-emission and renewable energy, at all levels as part of diversifying energy mixes and systems, in line with national circumstances and recognizing the need for support towards just transitions”.

In effect, the Scottish and UK Governments, in common with COP, have agreed that, beyond their own national targets, more must and can be done. This implies a greater target capacity of carbon-neutral power supply than currently pledged and a more rapid timeline for decarbonisation wherever possible.

Decarbonisation

Decarbonisation is the act of reducing the carbon footprint (primarily in the form of GHG) arising from the use of energy in society, to reduce the warming impact on the global climate.

The adoption of Net Zero commitments as described above requires a substantial reduction in the carbon emissions from transport, heat and industrial emissions.

This is reflected in Scottish and UK policy. The Scottish Energy Strategy (2017) establishes targets for 2030 to supply the equivalent of 50% of the energy for Scotland’s heat, transport and electricity consumption from renewable sources; and to increase by 30% the productivity of energy use across the Scottish economy (Scottish Government, 2017).

Similarly, the UK Clean Growth Strategy (BEIS 2017) provides measures to decarbonise all sectors of the UK economy through the 2020s and beyond.

However, while multiple pathways for the energy mix could achieve the previous 80% C-reduction target, Net Zero leaves a narrower choice of pathways which will lead to success and there is presently a gap between ambition and reality.

Ambition vs. reality gap

Figure 1 below shows the gap in carbon emissions between current global decarbonisation policies, current pipelines and pledges, and (in green) the pathway required to ensure that global warming does not increase over 1.5C by 2100.

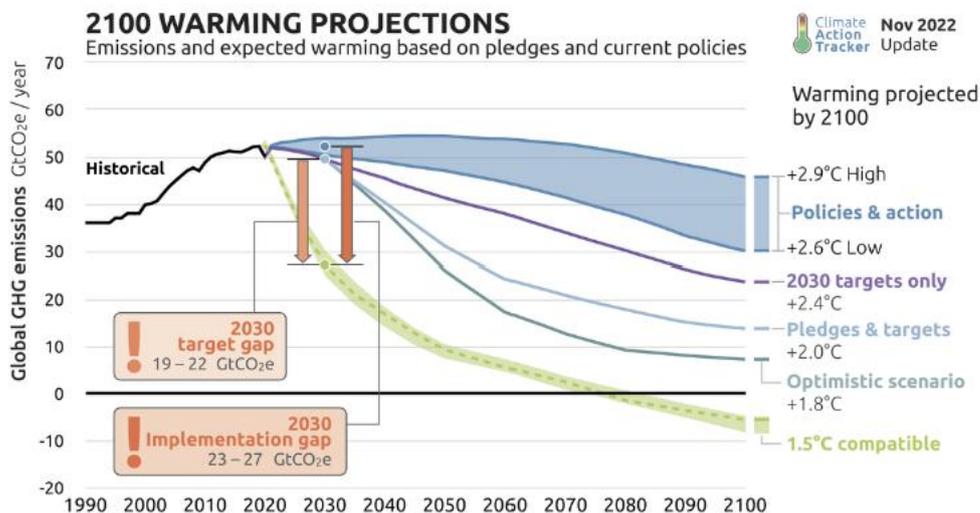


Figure 1 Global 2100 Warming Projections¹⁷

The world is lagging in decarbonisation progress and because carbon has a cumulative warming effect, targets associated with decarbonisation have correspondingly increased year-on-year. Therefore, although Scotland and the UK are leading decarbonisation efforts, their respective legal commitments of achieving Net Zero by 2045 and 2050 respectively are not

¹⁷ Temperatures | Climate Action Tracker

assured. The climate challenge is such that there is currently no limit or cap to the benefit that single countries can bring in the fight against global warming.

The need for additional generating capacity

Electricity generation is an important sector for climate change because, although historically a significant carbon emitter, it is now the critical enabler of deep decarbonisation across society. The decarbonisation of electricity is critical for Net Zero to be achieved and deeper decarbonisation requires deeper electrification.

Figure 2 below shows how National Grid’s Future Energy Scenarios electricity demand forecasts for GB are expected to increase in all scenarios towards 2050. The increased demand is driven by the growing electrification and decarbonisation of domestic heat, industry and transport. UK government forecasts for electricity demand in the 2050 timeframe use the value of 600TWh/year – double today’s consumption – which includes Scottish demand.

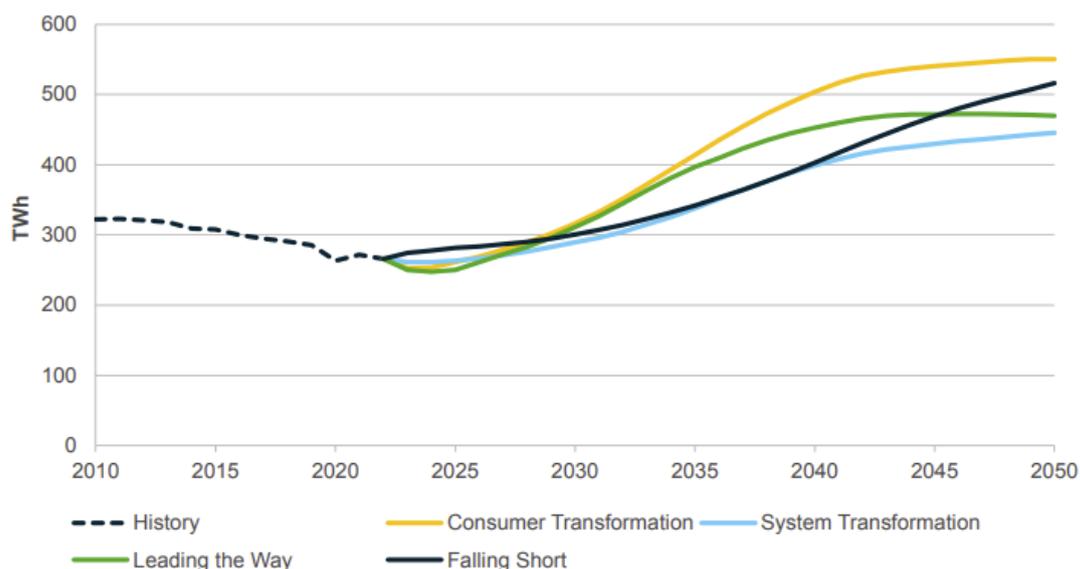


Figure 2 Future Energy Scenarios – Total annual consumer electricity demand forecasts¹⁸

The need for additional offshore wind capacity, at scale

The UK has plentiful wind resource. Therefore, a significant focus of Scottish and UK energy policy is the vital role and need for rapid large-scale deployment of GWs of offshore wind. The policy is detailed fully in the EIA chapter 2 “Need for the Project” which includes:

- Revised National Planning Framework 4¹⁹ – offshore wind developments proposed in excess of 50MW are categorised as “national development” (Strategic Renewable Electricity Generation and Transmission Infrastructure), the need for which is assumed.
- Offshore Wind Policy Statement²⁰ – sets an ambition for up to 11 GW of OWF by 2030;
- Scotland’s Energy Strategy Position Statement²¹ – identifies offshore wind as a major component of Scottish energy strategy from the perspective of being an important low-carbon primary energy generator and from the perspective of continuing to develop world-leading support and development services to the global offshore wind industry.
- Scotland Sectoral Marine Plan for Offshore Wind²² - identified 15 Plan Option areas, split across 4 regions in Scottish waters.

¹⁸ National Grid ESO Future Energy Scenarios series, July 2023.

¹⁹ Scottish Government, November 2022.

²⁰ Scottish Government, October 2020

²¹ Scottish Government, 2021

²² Scottish Government, October 2020

- Scotland's National Marine Plan (2015) - includes the objectives of sustainable development of offshore wind in suitable locations, to contribute to achieving the decarbonisation target by 2030
- Crown Estate Scotland's ScotWind leasing round ScotWind was the first round of offshore wind leasing round in Scottish waters for a decade. It resulted in 20 projects, with a capacity of almost 28GW securing seabed option agreements.
- Crown Estate Scotland Innovation and Targeted Oil & Gas (INTOG) leasing round. On 24 March 2023, it was announced that 13 projects had been offered Exclusivity Agreements 13 lease options totalling 5.5GW have been awarded.
- HM Government British Energy Strategy (2022) targeting 50 GW offshore wind by 2030.
- Net Zero Strategy for the UK (HM Government, 2021a)
- Build Back Greener (HM Government, 2021a) goes on to take action so that by 2035, all the UK's electricity will come from low carbon sources, including offshore wind.
- UK Offshore Wind Sector Deal (BEIS 2019).
- Energy White Paper (HM Government, 2020b).
- National Policy Statements (NPS) for England and Wales and draft NPS (EN-1, EN-3, EN-5)²³.
- Electricity System Operator National Grid ESO: Future Energy Scenarios requirement for 38 – 47 GW offshore wind in 2030, 68 – 83 GW in 2040, and 87 – 113 GW by 2050²⁴.

In short, the need for a massive amount of additional offshore wind capacity is a robust and constant theme of current Scottish and UK energy policy. National Grid's Future Energy Scenarios contemplates the requirement for offshore wind (and other technologies) required to meet the forecast growth in electricity demand. Figure 3 shows National Grid's assessment which shows the likely growth of offshore wind required to meet future demand.

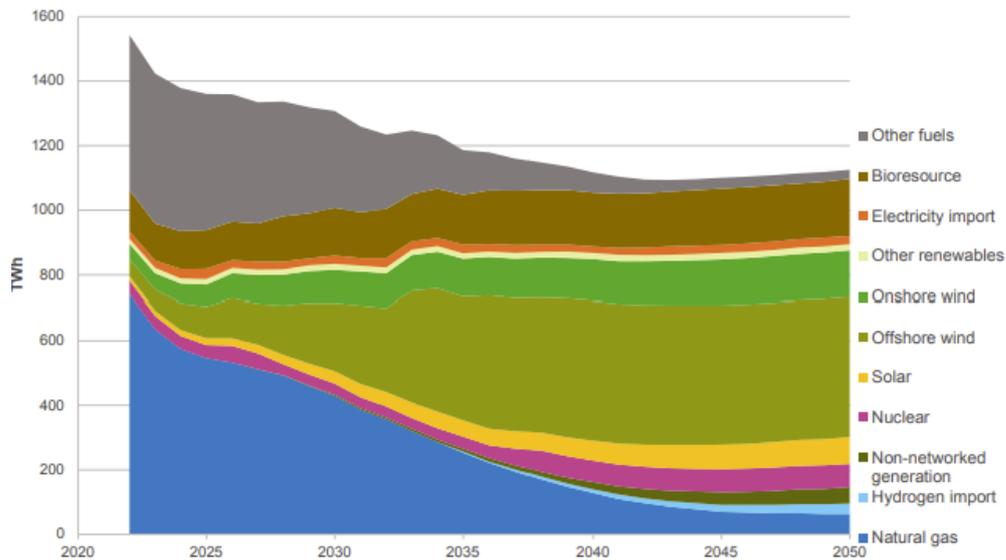


Figure 3 Future Energy Scenarios offshore wind capacity requirements to meet 2050 targets²⁵

Importantly, these offshore wind projections need to be read and pursued in the knowledge that there is attrition during project development so not all proposed offshore wind projects reach commercial operation, and some do so at reduced

²³ DECC, 201.1, DESNZ 2023

²⁴ National Grid, 2021

²⁵ National Grid ESO Future Energy Scenarios series, July 2023

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 vital to meet Net Zero.

In its 2021 progress report²⁶, the CCC emphasised that to achieve Net Zero requires a

“rapid scale up in low carbon investment.....and speed up the delivery which will need to accelerate even where ambition is broadly on track. For example, although the Government’s 2030 target for offshore wind is in line with the CCC pathway, a minimum of 4 GW of additional offshore wind capacity will be needed each year from the mid-2020s onwards, significantly greater than the current 2GW per year”.

It should be noted that the target referred to in the above extract is the previous target of 40GW by 2030, which suggests that more than 4GW per year growth in offshore wind capacity is required from the mid-2020s to achieve the 50GW target.

In conclusion, a massive increase in energy generation from offshore wind is important to reduce electricity-related emissions, and to provide a timely next-step contribution to a future generation portfolio which can deliver the massive increase in electricity demand, which is expected because of decarbonisation via the electrification of transport, heat and industrial demand.

3.2 Security of supply

Energy security is a key pillar of energy policy in Scotland, the UK and Europe. Although Scotland has its own decarbonisation targets, the connectedness of the electricity systems across Great Britain means that security of supply and decarbonisation of the electricity sector need to be considered at the GB level. The electricity systems of Scotland, Wales and England are essentially one system.

Security of supply means keeping the lights on. That entails, amongst other things, ensuring that there is enough electricity generation capacity available to meet maximum peak demand (not just average demand), and with a safety margin or spare capacity to accommodate unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events.

And while technologies such as batteries or green hydrogen will ensure that peak demand is met by storing energy at times of oversupply and discharging it at times of overdemand, more renewable generation capacity is required to meet demand than would be required of conventional generation, because of its intermittent nature.

Recent European events have challenged the UK’s prevailing view on and approach to energy security, in particular UK dependency on imported gas. The British Energy Security Strategy (BESS), which applies across GB, was published by BEIS following concerns over the security of international hydrocarbon supplies and increasingly volatile international markets in early 2022.

Reducing the UK’s dependency on imported gas hydrocarbons is already essential for decarbonisation but recent world events have brought into sharp focus that reducing dependency on foreign hydrocarbons has important security of supply, electricity cost and fuel poverty avoidance benefits. Actions already urgently required in the fight against climate change are now required even more urgently for global political stability and insulation against dependencies on other nation states.

The UK imports 100 Million Tonnes of Oil Equivalent (MTOE) of coal, oil and gas each year. Prior to the war in Ukraine and the subsequent Belarusian sanctions, approximately 8 MTOE was supplied by Russia. 8 MTOE is equivalent to approximately 93 TWh of energy²⁷.

1 GW of offshore wind, at a conservatively assumed load factor of 48%, has the potential to generate 4.2TWh/year, or 4.5% of Russian energy imports averaged over 2019/2020. This metric also demonstrates the enormous challenge ahead to maintain national independence on Russian energy imports. The equivalent of nine West of Orkney Windfarm’s would be required to replace energy imports from Russia.

A diverse mix of all types of power generation helps to ensure security of supply, however a low-cost, net zero consistent system is likely to be composed predominantly of wind and solar²⁸. The diversification of the GB’s electricity supplies through the commissioning of offshore wind assets to the NETS, alongside other low carbon generation technologies, provides benefits in the functioning of the NETS and ensuring power is available to consumers across the country when it is required, due to its requirement to operate within the stringent operability and control requirements of the Grid Code²⁹.

²⁶ Committee on Climate Change 2021 Progress Report

²⁷ BEIS, Digest of UK Energy Statistics, DUKES 2021

²⁸ HM Government. Energy White Paper: Powering our Net Zero Future. 2020

²⁹ National Grid plc. Grid Code, National Grid Electricity Transmission plc. National Grid plc, Warwick [online], 2014

As part of a diverse generation mix, wind generation contributes to improve the stability of capacity utilisations among renewable generators. By being connected at the transmission system level, large-scale offshore wind generation can and will play an important role in the resilience of the GB electricity system from an adequacy and system operation perspective. Further generation of offshore wind in Scotland will avoid the need for more / extended imports of electricity from the wider UK to meet its growing electricity demand. It will also ensure a lower carbon content of electricity owing to Scotland being further ahead than the wider UK in decarbonising its electricity supply.

This demonstrates how offshore wind has, and must continue to contribute, to the security of supply for GB consumers as it is a dependable supply of low carbon, affordable power.

3.3 Affordability

In Just Transition: A Fairer, Greener Scotland³⁰, the Scottish Government identified its priority to achieve a “just transition” to Net Zero, that is to deliver the desired outcome – a net zero and climate resilient economy – in a way that delivers fairness and tackles inequality and injustice.

The UK and especially Scotland has plentiful wind resource and costs are competitive versus other technologies, which is an important factor in ensuring affordability for consumers. This is reflected in the Offshore Wind Policy Statement³¹, which states (page 2):

“Offshore wind is one of the lowest cost forms of electricity generation at scale, offering cheap, green electricity for consumers, with latest projects capable of generating power at below wholesale electricity prices.”

Cost reduction and affordability have been particularly important in the development of OWF development. UK policy and regulatory objectives seek to ensure affordability to consumers, through the Contract for Difference (CfD) auction process (generation assets) and Offshore Transmission Owner regime (offshore transmission assets).

In broad terms, both seek to incentivise investment in low carbon electricity generation and transmission assets, ensure security of supply and help the UK meet its carbon reduction and renewables targets, whilst reducing cost to the consumer.

The CfD mechanism plays a very important role in bringing forwards new large-scale low carbon generation, and Allocation Round 4 (AR4) contracts awarded in the summer of 2022 provide an indicator of the importance of wind as a technology class within the GB electricity system, and an indicator of the competitive cost of the technology: over 8.5GW of wind capacity across 22 projects secured Contracts for Difference in AR4, at an initial strike price ranging from £37.35/MWh (Offshore Wind) to £87.30/MWh (Floating Offshore Wind). All CfDs commence in either 2024/25 (Onshore Wind) or 2026/27 (all Offshore Wind technologies).

As a result, Scottish and UK OWF projects are increasing in capacity, and decreasing in unit cost. To date, each subsequent project has demonstrated that size and scale works for the benefit of GB consumers. Other conventional low-carbon generation (e.g. tidal, nuclear or conventional carbon with Carbon Capture, Utilisation and Storage) remain important contributors to achieving the 2050 Net Zero obligation, but their contributions will not be significant before 2030 or into the 2030s due to the associated policy, technical, commercial and development timeframes.

For the reasons summarised above, the economic and technical competitiveness of offshore wind makes it the preferential power supply to the UK and Scottish electricity consumer.

3.4 The need for action before 2030

Both the Scottish Energy Strategy³² and the UK Net Zero Strategy³³ make a case for a low or no regrets approach to decarbonisation. This framework, set by the Nation Engineering Policy Centre (2017) promotes rapid decision making in net zero policy in order to make urgent progress.

The Scottish Energy Strategy thus sets a 2030 target to supply the equivalent of 50% of the energy for Scotland’s heat, transport and electricity consumption from renewable sources; and to increase by 30% the productivity of energy use across the Scottish economy. Scotland’s Offshore Wind Policy Statement in turn sets an ambition (but not limit) for 11 GW of offshore wind capacity in operation in Scottish waters by 2030. There is good reason for this focus on near-term action before 2030. The need for decarbonisation grows stronger each year. Every year during which no action is taken, more carbon is released into the atmosphere, global temperatures rise and the global warming effect accelerates. A rise in global

³⁰ Scottish Government, September 2021

³¹ Scottish Government, October 2020

³² Scottish Government, 2017

³³ HM Government 2021

temperatures above 1.5°C has potential to cause irreversible climate change, the potential for widespread loss of life, wildlife and severe damage to livelihoods.

Time is of the essence and action is critical to meet our 2030 targets and must be sustained to reach our 2050 targets.

3.5 The need for sustained action to achieve net zero

Sustained decarbonisation stands as an inescapable responsibility to achieve net zero by 2045. The UK has legally binding targets to reduce greenhouse gas emissions by 78% by 2035. These points are emphasised by the Intergovernmental Panel on Climate Change (IPCC), which states, "Limiting global warming to 1.5°C requires rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems." The urgency of this need is echoed by the International Energy Agency (IEA), declaring that "reaching net-zero emissions by or before 2050 is vital to limit global temperature rise."

Renowned economist and climate advocate, Lord Nicholas Stern, underscored the cost of inaction, stating,

"The benefits of strong, early action on climate change outweigh the costs." This sentiment is corroborated by the World Bank, which warns that without decarbonisation, "increasing temperatures could lead to irreversible impacts on agriculture, ecosystems, water resources, and human health."

The call for rapid and then sustained decarbonisation is echoed across scientific research, economic analysis, and corporate leadership. With the gravity of the climate crisis in mind, decisions must align with these calls to ensure a habitable future for all.

3.6 Role of and need for the Project

Against the backdrop outlined above, the need for and benefits of the Project are manifest and include:

- With the potential to generate an estimated 2GW, the Project is a substantial infrastructure asset, capable of delivering substantial amounts of low-carbon electricity – enough to power more than 2 million homes each year, starting with 750MW in 2029 with a further 1500MW in 2031.
- The Project would deliver a substantial near-term contribution to decarbonisation, helping to reduce GHG emissions, by offsetting millions of tonnes of CO₂ emissions per annum from 2029.
- More than 750MW of OWF capacity is required in Scotland and the wider UK to meet policy aims and legal targets for 2030. Any capacity not developed at the Project will need to be made up elsewhere and will not be on stream before 2030.
- The Project is the only ScotWind Project that is likely to start generating power (750MW) before 2030. Berwick Bank may generate power (2.1GW) before 2030, subject to receiving consent in 2023, although this is uncertain.
- Decarbonisation is urgent. The scale of and timelines associated with the Project align with that urgency. The 2030 ambition gap will be closed only by bringing projects like the West of Orkney Windfarm forward in order to connect as much capacity as possible, as early as possible.
- Development of the Project is well advanced and there is a high degree of certainty attached to its deliverability for a number of reasons including:
 - The seabed at the Project is shallower and closer to shore than the majority of other ScotWind sites;
 - The shallow seabed allows for a fixed bottom turbines to be used, a tried, tested and bankable foundation solution which can be developed at lower cost than other foundation technologies;
 - The seabed at the Project is well surveyed and understood; and
 - The established track record of the partners Corio Generation, TotalEnergies and RIDG, in delivering offshore wind in Scottish and UK waters.
- The Project's location (relatively shallow waters), design (fixed bottom turbines) and large scale (~2GW):
 - supports UK electricity system adequacy to help meet peak electricity demand, dependability and security of supply requirements; growth in offshore wind capacities, is expected to improve the dependability of those assets as a combined portfolio, and to reduce further any integration costs associated with such growth;

-
- enables efficiencies and reduce costs, ensuring affordability for the GB consumer
 - brings forward an important near-term opportunity for supply chain investment in Scotland

For all these reasons, the Project is an essential part of the future generation mix. Without the Project, it is probable that delivery of the multitude of policies will fall short, including: the Scotland Sectoral Marine Plan, Scottish Energy Strategy, the Ten Point Plan, UK Net Zero Strategy and UK Offshore Wind Sector Deal, as well as the targets set by the Climate Change (Scotland) Act 2009, Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, the (UK) Climate Change Act 2008 (as amended) and the Net Zero Strategy: Build Back Greener.

PART B: NO ALTERNATIVE SOLUTIONS

4. The assessment of alternatives

Introduction

PART B addresses HRA Stage 3A (no alternative solutions). It examines whether there are any feasible alternative solutions to the Project. A range of potential alternatives have been considered. These range from “doing nothing”, to alternative sites, designs, scales and methods of operation. The conclusion is that there are no feasible alternative solutions to the Project.

The analysis set out in this Part B is supported by and draws in particular upon the following documents which accompany the Section 36 Consent and Marine Licence applications:

- Planning Statement
- Offshore EIA: Site Selection & Consideration of Alternatives (Chapter 4)
- Offshore EIA: Project Description (Chapter 5)

Approach

The Habitat Regulations do not define the concept of “no alternative solutions” or the parameters of the exercise, and there is limited case law at the UK and EU level. Therefore, the approach adopted by the Applicant primarily draws upon relevant Scottish (DTA 2021: draft), UK (Defra 2012) and EC guidance (MN 2000 and the EC’s Methodological Guidance) and precedent from previous UK OWF derogation decisions.

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

Step 1 – Project Objectives

A consistent theme of guidance³⁴ and previous OWF derogation planning decisions, is that possible alternative solutions must achieve the core objectives of the Project. Table 6 outlines the core project objectives adopted by the Secretary of State in previous offshore wind farm derogation cases.

In this regard, EC MN 2000 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 MN 2000 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.

This approach has also been endorsed by the English High Court in *Spurrier*³⁵, which commented as follows [underlining added]:

“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.”³⁶

This approach was also endorsed by the Court of Appeal in *R (Plan B Earth) v Secretary of State for Transport*³⁷: [underlining added]:

“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.”

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 OWF:

³⁴ Marine Scotland (DTA, 2021: in draft), Defra 2012 and MN 2000 and EC Interpretive Guidance

³⁵ *Spurrier, R (On the Application of) v The Secretary of State for Transport* [2019] EWHC 1070 (Admin).

³⁶ *Spurrier*, at paragraph 334

³⁷ [2020] EWCA Civ 214 at para 116

“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 not other options for importing freight.”³⁸

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”.

Finally, Defra’s 2012 guidance makes the obvious but important point that documents setting out Government policy provide important context for a competent authority when considering the scope of alternative solutions that require to be considered.

In conclusion, the first step is to identify the core objectives of the Project. These core objectives respond to and must be understood in the context of the policy context and need case which the Project serves, as set out in Section 3 of this Report. A similar approach has been followed in all UK OWF HRA derogation cases to date and is set out below.

Step 2 – “Do Nothing”

A second consistent theme of HRA guidance³⁹ is that a “do nothing” or “zero option” should be considered, i.e. the outcome of not proceeding with the project at all.

For example, MN 2000 states:

“Crucial is the consideration of the ‘do nothing’ scenario, also known as the ‘zero’ option, which provides the baseline for comparison of alternatives.”⁴⁰

DTA 2021 (in draft) similarly suggests it allows a baseline from which to gauge other alternatives and provides a different viewpoint from which to understand the need for the proposal.

The English courts⁴¹ 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 would fail to achieve any core objectives of a given project and would immediately be discounted where it is clear there are IROPI to proceed with a given project. However, for completeness, and given reference to it in pre-existing guidance, the “do nothing” option is considered in this Report. This is consistent with the approach adopted by the SofS in the six UK OWF derogation decisions taken to date.

Step 3 – Identify feasible alternative solutions

If the “do nothing” option is discounted, the next step is to identify any/ 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.

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.

At this point it is relevant to note that in each of the six previous OWF HRA derogation decisions, the SofS concluded that alternative forms of energy generation would not meet the core objectives for the proposed OWF and that alternatives can consequently be limited to either “do nothing” or “alternative wind farm projects”⁴². This reflects Defra’s 2012 and 2021a guidance and has not been subject to legal challenge and is therefore adopted in this Report.

European Court of Justice (ECJ) case law confirms that hypothetical options can be discounted⁴³. MN 2000 similarly makes clear that the consideration of alternative solutions should be limited to “feasible” alternative solutions. Defra 2021a helpfully explains that a potential alternative should be: “financially, legally and technically feasible”.

Guidance does not define or illustrate the boundaries of ‘financial’, ‘legal’ or ‘technical feasibility’. However, logically, a potential alternative would not be feasible if the cost would render the Project unviable or uncompetitive, or if a particular

³⁸ At paragraph 10

³⁹ Marine Scotland (DTA, 2021: in draft), Defra 2012 and MN 2000 and EC Interpretive Guidance.

⁴⁰ MN 2000, section 3.3.1 at page 68.

⁴¹ Humber Sea Terminal Ltd v Secretary of State for Transport and another [2005] EWHC 1289 (Admin), comments at paragraph 84.

⁴² See for example paragraph 17.25 of the SofS’s decision letter for East Anglia ONE North Limited, dated 31 March 2022.

⁴³ See Attorney General’s opinion C-209/04 (Lauteracher Ried) where it is noted that the examination of alternatives does not require “every theoretically imaginable alternative” to be considered.

design was considered technically unsound or unsuitable for deployment or would not meet industry safety and regulatory requirements.

As for legal feasibility, a relevant practical example can be found in the recent UK OWF derogation decisions. By way of example (and in common with the Sof's earlier decisions), in the HRA for East Anglia ONE North Limited, the SofS concluded as follows:

“The site selection for all offshore wind proposals in the UK is controlled by The Crown Estate leasing process. Sites not within the areas identified by The Crown Estate 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.”

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

Step 4 – Assessment of any identified alternative solutions

Finally, MN 2000 guidance 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).

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.

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 alternative⁴⁴.

⁴⁴ In Case C-239/04 (paragraph 44), the ECJ stated: “the choice does not inevitably have to be determined by which alternative least adversely affects the site concerned. Instead, the choice requires a balance to be struck between the adverse effect on the integrity of the SPA and the relevant reasons of overriding public interest”. In similar vein, EC Opinion C(2018) 466, 2018 notes “None of the alternatives would give rise to a significantly lower impact”.

Table 6 Core project objectives adopted by SofS in previous OWF HRA derogation cases

Theme	Hornsea Three	Norfolk Boreas	Norfolk Vanguard	EA ONE North	EA TWO	Hornsea Four	TCE Round 4
Low carbon electricity generation from offshore wind farm for UK supply	To generate low carbon electricity from an offshore wind farm in support of the decarbonisation of the UK electricity supply						<p>To deliver greater volumes of low carbon electricity, as established by National Policy Statements EN-1 and EN-3, the UK government's Ten Point Plan for a Green Industrial Revolution¹, the Offshore Wind Sector Deal², the 2020 Energy White Paper, the Climate Change Act 2008 (as amended).</p> <p>To maximise social and economic opportunities for the UK from energy infrastructure investment and (respond to the Clean Growth Strategy (BEIS 2017) and the UK "Offshore Wind Sector Deal" (BEIS 2019).</p>
Commitment to offshore wind and security of supply	To export electricity to the UK National Grid to support UK commitments for offshore wind generation and security of supply						<p>To support the decarbonisation and security of UK electricity supply.</p> <p>To support the UK's long-term plans for energy security and to increase domestic energy generation</p>
Optimisation, utilising available sites and grid capacity	To optimise generation and export capacity within the constraints of available sites and onshore transmission infrastructure.			-	-	-	To deliver at least 7 GW of new seabed rights in England and Wales.
Carbon reduction commitments	To deliver a significant volume of offshore wind before 2030 and in 2031.	Contribute to the UK's drive to meeting carbon reduction commitments.		-	-	-	To facilitate the delivery of new offshore wind generation capacity in a timely manner to help meet UK government targets to cut greenhouse gas emissions to net zero by 2050

5. No Alternative Solutions Case: Steps 1 – The core objectives

5.1 Core Project objectives

As summarised in the Need Case in Section 3 of this Report, offshore wind must be deployed urgently, starting as soon as possible, and at scale. This backdrop has shaped the Project’s core objectives (Table 7). These six core objectives respond directly to the environmental (decarbonisation), regulatory, market and economic factors summarised above.

Table 7 Core project objectives

No.	Core objective	Basis
1	Develop a largescale OWF to generate low carbon electricity to support Scottish and UK decarbonisation targets	<ul style="list-style-type: none"> • Urgent action is needed to deliver decarbonisation and limit global warming to less than 1.5 degrees • Scottish First Minister declared a climate emergency in April 2019 and Scotland has legally binding targets to reduce greenhouse gas emissions by 75% by 2030 and to “Net Zero” by 2045 • UK Parliament declared a climate emergency in May 2019 and the UK has legally binding targets to reduce greenhouse gas emissions by 78% by 2035 and to “Net Zero” by 2050 • Delivery at scale is needed to make this change in the time available • Fixed foundation offshore wind is a proven technology which can deliver substantial low carbon electricity generation in the short to medium term (and beyond) and which cannot be replicated by other technologies or in other settings (e.g. floating wind, onshore wind etc)
2	Maximise generation and export capacity within the constraints of available UK sites.	<ul style="list-style-type: none"> • There is limited seabed available in Scotland and in the UK where fixed bottom OWFs can be located • Scottish offshore wind sites were identified through the Sectoral Marine Plan which included a Strategic Environmental Assessment and plan level HRA and are consider suitable for the deployment of offshore wind • Generation capacity should be maximised within the available seabed to maximise benefits for Scottish and UK decarbonisation targets • Maximising capacity supports the diversity of generation portfolio within the UK and contributes towards security of supply • Regions with high-capacity factors and windspeeds should be prioritised and developed efficiently • Economies of scale of large projects result in a more efficient delivery methodology but also in decreased costs, and a more viable delivery methodology, as described in Objective 4 below • Grid connection has been secured for over 2GW
3	Make efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters	<ul style="list-style-type: none"> • Seabed capacity for fixed foundation OWFs is extremely limited in Scottish waters • Fixed foundations are a proven and reliable technology with a strong supply chain • Fixed foundations can be delivered at commercial scale and at lower cost than other technologies including floating wind • The Project will make efficient and essential use of the crucial resource to deliver low-cost, low carbon electricity generation

4	Deliver low carbon electricity at the lowest possible cost to the UK consumer	<ul style="list-style-type: none"> • The Project will make efficient and essential use of this crucial resource to deliver low-cost low carbon electricity generation • ~25% of Scottish customers are classified as living in fuel poverty, of which ~12.4% are living in extreme fuel poverty⁴⁵ • New low carbon energy generation capacity at the lowest possible cost is needed to deliver a just and fair energy transition • Lowest possible levelised cost of energy (LCoE) is required to enable the Project to be competitive in CFD auctions, and therefore be viable • Efficient use of limited grid resource will further reduce costs to the consumer
5	Deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030	<ul style="list-style-type: none"> • A substantial volume of capacity is required in time to contribute to 2030 legally binding targets for both Scotland and the UK • Scottish Government has an ambition to increase offshore wind capacity to 11GW of energy installed by 2030. • UK Government has pledged to deliver 50GW of offshore wind capacity by 2030 • The delivery of low carbon electricity generation capacity is required as soon as possible to meet targets and importantly to limit the magnitude and impacts of climate change • Grid connection has been secured for over 2GW, including 750MW in 2029 • Fixed foundation OWFs are a mature technology and there is high degree of certainty on deliverability at scale before 2030
6	Helping ensure UK energy supply security through increasing the proportion of electricity coming from domestic renewables and thus reducing exposure to volatile fossil fuel markets.	<ul style="list-style-type: none"> • Significantly increased consumer bills due to the UK being particularly exposed to high gas prices, because 85% of households use gas boilers to heat their homes and around 40% of electricity is generated in gas-fired power stations ('CarbonBrief', August 2022). • The production of low carbon domestic energy is urgently required to meet 2030 decarbonisation targets and importantly to reduce reliance on foreign energy sources and address the current UK cost of energy crisis.

⁴⁵ Scottish House Condition Survey: 2019 Key Findings (www.gov.scot). The latest available figures are from 2019 and were published by the Scottish Government in December 2020. Fuel poverty is defined by the Scottish Government as any household spending more than 10% of their income on energy - after housing costs have been deducted. No. the Project Objective Basis for the Objective

6. No Alternative Solutions Case: Step 2 – Do Nothing

The “do nothing” scenario would mean not proceeding with the Project and the loss of over 2GW of offshore wind capacity. A “do nothing” scenario would not meet any of the core project objectives and can be discounted on that basis.

If the Project does not proceed, a significant area of seabed identified by the Scottish Government’s Sectoral Marine Plan as suitable and made available for large-scale offshore wind development would not be developed in the near-term, if at all. There would likely be ramifications for the delivery of future ScotWind applications.

The Project is the most advanced ScotWind site with a connection date before 2030. Without the Project, Scotland would not substantially increase its installed offshore wind beyond Moray West and, subject to consent, Berwick Bank. No other substantive offshore wind capacity would be available until other ScotWind sites start to commission.

In the “do nothing” scenario there would be a gap between Scottish AR3 OWFs (coming online in the next three years) and future ScotWind developments (likely to mostly come online from 2033).

In the absence of the Project, Scotland cannot be expected to even meet its lower target of 8GW of offshore wind capacity set in the Offshore Wind Policy Statement. Scottish supply chain opportunities would also be missed.

Thus, doing nothing (no West of Orkney Windfarm) would substantially hinder decarbonisation and security of supply efforts during the critical 2020s and is to ignore the clear need for rapid OWF deployment at scale. The importance of the decarbonisation, energy security and related affordability challenges mean that no viable OWF projects should be passed over in the development process. It is not compatible with a climate emergency to “do nothing”. For all these reasons, the “do nothing” option is discounted.

Table 8 Performance of “Do Nothing” scenario against the Project objectives

Alternative solution	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6
	Develop a large-scale OWF to generate low carbon electricity to support Scottish and UK decarbonisation targets	Maximise generation and export capacity within the constraints of available UK sites	Make efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters	Deliver low carbon electricity at the lowest possible cost to the UK consumer	Deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030	Helping ensure UK energy supply security through increasing the proportion of electricity coming from domestic renewables and thus reducing exposure to volatile fossil fuel markets
Do Nothing	Hinders progress toward Scotland and UK decarbonisation targets	Ignores an opportunity for large-scale capacity within an available site	Does not make use of shallow seabed in Scotland	Unlikely to be at lowest possible consumer cost	Significant contribution to the UK national grid by 2030 and in 2031 is lost	Hinders / delays progress toward achieving energy security from domestic sources in near term

7. No Alternative Solutions Case: Step 3 – Identify any feasible alternatives

7.1 Scope of alternatives considered

The approach to the identification of feasible alternative solutions in this section is informed by the guidance and previous OWF derogation cases discussed above (Section 4) and the core project objectives for the Project (Section 5).

The “do nothing” option has been considered and discounted at Step 2 above.

Consistent with Defra guidance (2012 and 2021a) and the six UK OWF HRA derogation decisions to date, the consideration of feasible alternative solutions is limited to alternative wind farm projects / locations / designs. Alternative (non OWF) forms of energy generation would not meet any of the Project core project objectives and would not support fundamental Scottish and UK Government policy aims as articulated in the Offshore Wind Policy Statement and the BESS, amongst others.

Therefore, the scope for consideration of potentially feasible alternative solutions is as follows:

- Alternative OFW array locations:
 - Alternative array locations not in the UK Renewable Energy Zone (REZ);
 - Alternative array locations within the UK REZ, excluding the N1 Plan Option;
 - Alternative array locations within the N1 Plan Option.
- Alternative design and modes of operation:
 - Alternative scale: developable array area, within constraints of the N1 Plan Option;
 - Alternative design: turbines and layout and minimum lower tip height.

Each of the above is considered in turn below, in the context of the Project core project objectives, and with regards to their feasibility (financial, legal and technical).

7.2 Alternative locations not in the UK

Scotland and the UK have legal obligations in relation to carbon emission reductions to achieve Net Zero, and corresponding policy aims in respect of the deployment of renewable energy generation and energy security. Conversely, other international and EU countries similarly have their own emission reduction and renewable energy targets and security of energy supply aims.

Sites outside the UK REZ have not been claimed by the UK under the Energy Act 2004 for exploitation for energy production, are not subject to TCE/CES 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 OWF to connect to the GB network.

For the above reasons alternative sites for OWFs outside UK REZ would provide no contribution to:

- Scottish and UK interim emission reduction targets (2030) or the 2045/50 Net Zero targets
- Scotland’s target of 8 – 11GW of offshore wind capacity by 2030
- The UK target for 50GW of offshore wind capacity by 2030
- Energy security of supply in Scotland and the UK

This alternative would also fail to meet any of the Project core project objectives as set out in Table 9. It is therefore concluded that locations outside the UK REZ cannot reasonably be considered a feasible alternative solution to. It is noted

that a similar conclusion was reached by the SofS in each of the six previous UK OWF HRA derogation cases. For example, the SofS's HRA for East Anglia ONE North states⁴⁶:

“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.”

Table 9 Performance of alternative array locations not in the UK REZ against the Project objectives

Alternative solution	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6
	Develop a large-scale OWF to generate low carbon electricity to support Scottish and UK decarbonisation targets	Maximise generation and export capacity within the constraints of available UK sites	Make efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters	Deliver low carbon electricity at the lowest possible cost to the UK consumer	Deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030	Helping ensure UK energy supply security through increasing the proportion of electricity coming from domestic renewables and thus reducing exposure to volatile fossil fuel markets
Alternative array locations not in UK REZ	Provides no contribution towards Scottish and UK decarbonisation targets	Location outside UK REZ not available. Fails to utilise an available UK site	Does not make use of available seabed in Scotland	Very unlikely to be at lowest possible consumer cost	No contribution to the UK national grid	Would not support the aim of achieving energy security from domestic sources – capacity would be dependent on foreign state allowing OWF to operate and export to UK

7.3 Alternative locations in the UK, outside the N1 Plan Option Area

This section considers the potential for alternative array sites in Scottish waters and the wider UK REZ, excluding the N1 Plan Option Area where the Project is located.

The potential for alternative array locations within the N1 Plan Option Area is considered separately in Section 7.4 of this Report.

Legal feasibility of alternative sites

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.

⁴⁶ Section 9.1.3.2, p84

As noted earlier, in recent OWF HRA derogation decisions the SofS 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 example⁴⁷:

“The site selection for all offshore wind proposals in the UK is controlled by The Crown Estate leasing process. Sites not within the areas identified by The Crown Estate 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.”

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.

Future offshore wind leasing rounds

CES has concluded the ScotWind leasing round and Innovation and Targeted Oil and Gas Decarbonisation (INTOG) leasing round (both discussed further below). TCE is currently planning the Celtic Sea leasing round (also discussed below).

Outside of Celtic Sea and INTOG, any future alternative array location to replace the Project would depend on a fresh site leasing process being initiated by TCE and CES. 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 theoretical⁴⁸ (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 OWF leasing round do not constitute feasible alternative solutions.

Future locations released via future OWF leasing rounds can additionally be discounted on timing grounds. Figure 4 below is indicative and reflective of historic and not necessarily future OWF development timescales. However, areas of seabed developed to date were identified as areas of least constraint / greatest opportunity for OWF, and there is no reason to automatically assume any future sites would be less challenging or can be more rapidly developed than previously, or that it will be possible to do so while avoiding any adverse effects on European sites.



Figure 4 Indicative historic time frames for delivering OWF Projects (Source TCE)

Even if the highly optimistic assumption is made that historic timescales could be condensed by as much as 50%⁴⁹, a fresh OWF leasing round starting now would not deliver any additional installed OWF capacity before 2036. Moreover, as discussed further below and in the Need for the Project, grid connection dates for other ScotWind projects in development now (e.g. other ScotWind and INTOG sites) are typically from 2033 onwards.

The huge scale of Scotland and UK targets for offshore wind, the short timescales now to meet 2030 targets (7 years) and prevalence of offshore environmental and technical constraints, mean that lost capacity (at the scale of around 2GW) cannot be offset by future, uninitiated leasing rounds - even on the most optimistic outlook.

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.

⁴⁷ Section 9.1.3.3, p84

⁴⁸ Hypothetical options can be discounted per Attorney General's opinion C-209/04 (Lauteracher Ried).

⁴⁹ Noting that Round 4 and ScotWind leasing stages were both subject to delays and took longer than originally envisaged.

Active leasing rounds

UK leasing rounds completed or underway are summarised in Table 10 and further detailed in the subsequent sections, where relevant.

The Project is located within the N1 Plan Option Area, a region identified by Scottish Governments Sectoral Marine Plan and leased by Crown Estate Scotland in the ScotWind leasing round.

Table 10 Offshore wind leasing rounds in Scotland and the UK Leasing Round Area Year awarded Sites awarded Capacity awarded Source Capacity currently in operation in 2022

Leasing Round	Area	Year Awarded	Sites Awarded	Capacity Awarded (GW)	Source	Capacity currently in operation in 2023 (GW)
TCE R1	Generally offshore (>12nm) England and Wales	2000	27	1.2	Catapult Offshore Renewable Energy (Undated)	0.93 (78% of awarded, i.e., 22% attrition)
TCE R2	Inshore and offshore Scotland	2003	15	7.2	Catapult Offshore Renewable Energy (Undated)	6.27 (87% of awarded, i.e., 13% attrition)
Scottish Territorial Waters	Inshore and offshore Scotland	2009	10	7.2	4c Offshore (undated)	0.58 (8.19% of awarded, i.e., 91.81% attrition)
TCE Extensions (from R1 and R2)	Inshore and offshore England and Wales	2010	7	3.66	4c Offshore (undated)	2.5 (53.47% of awarded, i.e. 46.53% attrition)
TCE R3	Inshore/offshore England and Wales and offshore Scotland	2010	6	30	4c Offshore (undated)	2.49 (8.3% of awarded, i.e. 91.7% attrition) ⁵⁰
TCE Extensions Round 2017	Inshore and offshore England and Wales	2017	7	2.85	TCE	0

⁵⁰ It is acknowledged that there is 7.6GW of Round 3 projects in construction (Dogger Bank (3.6GW), Hornsea 2 (1.4GW), Sofia (1.4GW) and Seagreen Phase 1 (1.1GW) and a further ~15GW consented but not yet in construction. Nevertheless, it is notable that it has taken over 10 years to consent and build only ~2.5GW from the target capacity of 30GW.

Leasing Round	Area	Year Awarded	Sites Awarded	Capacity Awarded (GW)	Source	Capacity currently in operation in 2023 (GW)
TCE Round 4	Offshore England and Wales	2021	6	7	TCE	0
ScotWind	Offshore Scotland	2022	20	27.6	CES	0
INTOG	Offshore Scotland	2023	13	5.5	CES	0
Celtic Sea	Offshore England and Wales	2023	TBC	4	TCE	0
Total				96.21		12.7

Operational/ existing OWF projects from Rounds 1, 2 and 3, the TCE Extensions Round (2010) and the STW round have already been fully or largely developed and form part of existing baseline of OWF installed capacity so do not provide additional installed capacity (as an alternative to the Project) that is required to achieve current Scottish and UK OWF capacity targets of 11GW and 50GW respectively. Accordingly, they can be discounted as alternatives to the Project.

TCE Project Listings lists 1.9GW of built offshore wind in Scotland, with a further 3.9GW of consented and/or committed projects which are currently scheduled to deliver before 2025. These projects include Neart na Gaoithe (0.4GW), Seagreen Phase 1 (1.1GW), Inch Cape (1.1GW), Moray West (0.9GW) and Seagreen Phase 1A (0.4GW). No other large scale offshore wind farms are yet consented in Scottish waters. Berwick Bank and Green Volt are currently listed as in determination, at the time of application.

Other ScotWind sites have grid connection agreements however few are effective before 2033. In any case, challenges clearly remain in securing National Grid connection agreements which could result in delays to some projects. In May 2018, the Applicant concluded a detailed grid connection feasibility study for the project and initiated discussions with SHE-Transmission. Following 12 months of engagement and design optimisation, OWPL then applied for a 2.25GW grid connection in May 2019, in advance of the 2GW capacity limit being set for the N1 Draft Plan Option in December 2019.

OWPL has subsequently signed a post-Connection Infrastructure and Options Note (CION) connection agreement with National Grid for delivery of transmission capacity in two stages: 750MW in October 2029 and 1,500MW in 2031. Unlike all other ScotWind grid agreements, OWPL's post-CION agreement is not subject to material change resulting from the Holistic Network Design process, because OWPL initiated its connection application process before this approach was introduced. OWPL's connection therefore provides far greater certainty on connection capacity, location and timing than any other ScotWind site. As grid capacity is allocated on a first-come, first-served basis, new generators behind OWPL in this queue will need to wait for further reinforcements before connecting. Due to the uncertainty around National Grid connection options and potential supply chain issues it is likely that other projects leased through the Scotwind project could have varied timelines for project development. As a result, it is unlikely that other ScotWind projects will contribute to 2030 targets with most projects likely to come online in or after 2033.

To meet Scotland's Offshore Wind installed capacity target, between 8 and 11GW of offshore wind must be commissioned before 2030. Only by consenting the Project can Scotland be sure to meet the 8GW lower target threshold by 2030 and maintain the necessary trajectory towards the 11GW target.

To achieve the BESS target of 50GW by 2030, requires other projects currently in planning, including the Project, to be delivered according to their current connection dates and requires other pipeline projects (e.g. ScotWind, INTOG) to be accelerated.

TCE data on delivered capacity shows that historically, the attrition rate for UK OWF projects has been around 30%. For some OWF leasing rounds the attrition rate has been even higher (e.g. Scottish Territorial Waters round). The inclusion of a

project on a future project pipeline does not indicate that the project will go ahead, or if it does, at a particular generation capacity; attrition occurs for various reasons, including the consenting process, financial reasons, construction reasons or supply chain issues. A 100% success rate for future new projects is neither a reasonable nor a credible assumption.

Without the Project the 2030 targets at Scottish and UK level will therefore not be met. Any suggestion that other OWF projects could make up for the loss of 2GW fundamentally misunderstands the history of the industry and the scale of the task to make substantial progress by 2030. Other OWF projects either provide part of the existing baseline of installed capacity or are part of a future pipeline of projects, all are required.

Accordingly, it is concluded that other projects are needed in addition to, not instead of, the Project. Other OWF projects are not alternative solutions to the Project.

For completeness, further commentary on and justification for discounting other current OWF leasing rounds is provided in the following sections.

TCE Extension Round 2017

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

- The purpose of the extension projects is to provide additional capacity towards the UK's 50GW target, not make up a "capacity gap" created by a failure to deliver ScotWind projects.
- TCE Extensions Round (2017) projects will not contribute to Scotland's domestic decarbonisation targets (and would only partially achieve the Project core project objective 1).
- TCE Extension Round (2017) projects would not achieve the Project core project objective 3 (efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters).
- It has been concluded in previous Sections of this Report that "do nothing" (i.e. no Project) is not an alternative solution and that Scottish and UK OWF capacity targets for 2030 will not be met without the Project's contribution. The existence of the TCE Extensions Round (2017) does not alter that conclusion.

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

Round 4 Sites

Six Round 4 projects in English and Welsh waters were selected in February 2021 with a total estimated combined capacity of 7,980MW. Five of the six projects have proposed total capacities of 1,500MW, with the remainder proposing a total capacity of 480MW⁵¹. In August 2022, following completion of the plan-level HRA process TCE indicated it would be moving forwards to conclude Agreements for Lease.

The following observations are made:

- Round 4 projects will not contribute to Scotland's domestic decarbonisation targets (and would only partially achieve project objective 1).
- The maximum R4 individual project size is set at 1.5GW so no individual project progressed via Round 4 would make the same overall contribution as the West of Orkney Windfarm
- Even assuming an improvement on historic OWF development timescales (Figure 4), Round 4 projects are unlikely to be generating power before 2030.
- The purpose of the Round 4 projects is to provide additional capacity towards the UK's 50GW target, not make up a "capacity gap" created by a failure to deliver ScotWind projects.
- Round 4 projects do not achieve the Project's 3rd core objective (efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters).
- It has been concluded above that "do nothing" (i.e. no the Project) is not an alternative solution and that Scottish and UK OWF capacity targets for 2030 will not be met without the Project's contribution. The existence of the Round 4 does not alter that conclusion.

⁵¹ Offshore Wind Leasing Round 4 - Tender process outcome (thecrownestate.co.uk).

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

Other ScotWind sites

There are 20 ScotWind projects with seabed option agreements with a combined generating capacity of 27.6GW. The first 17 successful projects, including the West of Orkney Windfarm, were announced in January 2022. These were joined in October 2022 by three further projects, granted agreements through the Clearing process.

A strategic plan-level HRA was carried out to underpin the Sectoral Marine Plan and this is to be updated through an Iterative Plan Review process and to take account of INTOG (see above). It is understood that the updated plan-level HRA will not be available until at least late 2023.

The following observations are made:

- The N1 Plan Option is one of only four areas within the Sectoral Marine Plan for Offshore Wind Energy that include substantial areas of seabed with water depths below 60m. It is therefore a prime location for the delivery of large-scale, competitive fixed-bottom offshore wind from ScotWind that will contribute substantially to the Scottish Government's interim target to reduce all greenhouse gas emissions by 75% by 2030.
- Even assuming improvements on historic OWF development timescales, other ScotWind projects are unlikely to be generating power before 2030, with most connection dates in 2033 or later. Timescales may increase for some ScotWind projects due the sites being in deeper waters, as well as the low proportion of fixed offshore wind (a quarter of capacity awarded).
- As noted earlier, there is 3.7GW of ScotWind projects listed with grid connection agreements effective from 2033. Due to the uncertainty around National Grid connection options and potential supply chain issues it is likely that projects leased through ScotWind could have varied timelines for project development. As a result, it is unlikely that other projects will contribute to 2030 targets with most projects likely to come online in the 2030s.
- 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.
- The purpose of the remaining ScotWind projects is to provide additional capacity towards the Scotland target of 8 – 11G and the UK target of 50GW, not make up a "capacity gap" created by a failure to deliver the Project.
- It has been concluded above that "do nothing" (i.e. no the Project) is not an alternative solution and that Scottish and UK OWF capacity targets for 2030 will not be met without the Project's contribution.

For all these reasons, it is concluded that reliance on other ScotWind projects (alone or in aggregate) is not an alternative solution to the Project in the context of the legal commitments and policy objectives to be delivered by 2030 and the need for sustained decarbonisation thereafter.

Celtic Sea Floating Offshore Wind round

TCE is currently planning a leasing round for floating wind projects in the Celtic Sea. The Celtic Sea round is intended to provide up to 4GW of floating wind energy capacity by 2035⁵². Eligible projects must be located within one of four Project Development Areas identified by TCE.

TCE formally launched the three-stage tender process in July 2023, with a view to awarding Agreements for Lease by the end of 2023.

The following observations are made:

- Celtic Sea projects will not contribute to Scotland's domestic decarbonisation targets (and would only partially achieve project objective 1).
- Given their location (outside Scottish waters) and the aim to accelerate commercial scale floating offshore wind, Celtic Sea projects would not achieve the Project core project objective 3 (efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters).

⁵² TCE update, October 2022. 2022 - The Crown Estate updates developers on latest steps in the leasing process for floating wind in the Celtic Sea | 2022 - The Crown Estate updates developers on latest steps in the leasing process for floating wind in the Celtic Sea

- Even assuming improvement on historic OWF development timescales (Figure 4, which largely relate to fixed bottom OWF, not floating), these projects are unlikely to be generating power before 2030.
- Connecting these projects to the grid will depend on the outcome of phase 2 of the Holistic Network Design (HND) process, with connection dates anticipated to be from 2030 onwards.
- Given the above, Celtic Sea round projects will not achieve the Project core project objective 5 (deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030) nor core project objective 6 (helping ensure the UK energy supply security from the mid-2020s).
- The purpose of the projects is to provide additional floating capacity towards the UK's 50GW target, not make up a "capacity gap" created by the loss of a fixed bottom, ScotWind project.
- It has been concluded above that "do nothing" (i.e. no the Project) is not an alternative solution and that Scottish and UK OWF capacity targets will not be met without the Project's contribution. The existence of the Celtic Sea round does not alter that conclusion.

For all these reasons, reliance on Celtic Sea Round projects (alone or in aggregate) is not an alternative solution to the Project.

INTOG

The INTOG leasing application round closed in March 2023; 13 projects were awarded Exclusivity Agreements to provide low carbon electricity to power oil and gas installations as well as alternative outputs such as hydrogen. The overall capacity of the INTOG leasing round is currently expected to be 5.5GW.

The following observations are made:

- The INTOG Sectoral Marine Plan is under review and is due to conclude in winter 2023. Therefore, at this stage, there remains a risk of delay and spatial planning uncertainty/ risk.
- CES has indicated Option Agreements will only be signed with successful bidders after the Sectoral Marine Plan update is complete, which is not expected until 2024. Therefore, significant development work on these projects is unlikely to start until 2024 or later.
- Even assuming improvement on historic OWF development timescales (Figure 4, which largely relate to fixed bottom OWF, not floating), these projects are unlikely to be generating power at scale before 2030.
- It is expected that many TOG projects will connect to an off-grid solution (i.e., an oil and gas installation), to facilitate the North Sea energy transition. Thus, these projects would not be exporting power to the UK national grid.
- In view of all the above, INTOG Round projects will not achieve project objective 5 (deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030) nor project objective 6 (helping ensure the UK energy supply security).
- Due to the greater distance from shore and bathymetry / deeper water depths, floating offshore wind turbines are likely to be the primary technology. As such INTOG projects would not achieve project objective 3 (efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters).
- Fixed bottom offshore wind deployed this decade (such as the Project) is likely to be significantly cheaper over its lifetime than floating offshore wind deployed over the coming twenty years (see comparative analysis in section 8.4 of the Applicant's Statement of Need). INTOG projects would not achieve the Project core project objective 4 (deliver low carbon electricity at the lowest possible cost to the consumer).
- It has been concluded above that "do nothing" (i.e. no Project) is not an alternative solution and that Scottish and UK OWF capacity targets will not be met without the Project's contribution. The existence of the INTOG round does not alter that conclusion.

For all these reasons, reliance on the INTOG Round projects (alone or in aggregate) is not an alternative solution to the Project.

Repowering existing offshore windfarms

Most operational wind farms to date typically have an expected operational life span of between 20 and 35 years (although TCE / CES lease periods can be much longer) before either decommissioning or repowering is considered. To date only Blyth OWF has been decommissioned (in 2019, 4 MW). As wind turbine technology continues to evolve and the understanding of turbine condition and performance monitoring grows, OWF assets may be expected to operate for longer periods than originally anticipated. However, it is possible that some existing OWFs will be repowered in the next decade.

The following observations are made:

- Even if some of the earliest OWFs (2003 onwards) are repowered in the future (using larger turbines), these will not contribute materially towards the 2030 targets as the majority or at least a proportion of their capacity is already accounted for in the existing baseline.
- Not all existing OWFs necessarily repower.
- Many of the earlier OWFs (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 and delay.
- Given all the above, it cannot be assumed that repowering will have a material additive effect in terms of increasing the baseline of installed OWF capacity, or that it would provide anything approaching 2GW of additional/new installed OWF capacity.
- While it could reasonably be assumed that consenting and development timescales will be shorter than for new locations, that may be offset by downstream complexities around decommissioning (old) / construction (new) stages. Furthermore, to contribute to 2030 targets, any such repowering projects would need to be coming forward in the next few years at the very latest.
- Repowering of existing OWF projects will not achieve project objective 5 (deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the UK national grid before 2030).
- It has been concluded above that “do nothing” (i.e. no Project) is not an alternative solution and that Scottish and UK OWF capacity targets will not be met without the Project’s contribution. The possibility that some existing schemes will repower over the next decade does not alter that conclusion.

For all these reasons, reliance on repowering of existing OWF projects (alone or in aggregate) is not an alternative solution to the Project.

Summary

The analysis in this section has demonstrated the Project is critical to achieve the Scottish and UK Government targets for 2030 and there are no alternative offshore locations which constitute feasible alternative solutions to the Project. This conclusion is reached on one or more of the following key grounds:

- Existing / in construction / consented OWF projects form part of the baseline which is ‘baked’ into the 2030 11GW and 50GW installed capacity targets – these projects do not provide additional new installed capacity.
- The Project has a 2029 grid connection, is in planning and can substantially contribute to Scotland 2030 targets and provide substantive additional capacity in 2031. Conversely, even assuming improvements on historic OWF development timescales (Figure 4), OWF projects without a grid connection and not yet in planning are unlikely to be operational before 2030.
- Without the Project’s contribution, Scottish and UK OWF installed capacity targets for 2030 will not be met. There is no other currently proposed single alternative project capable of generating the 750MW of energy of the Project.
- Current and any future OWF leasing rounds are complementary and required in addition (and are not an alternative) to 2GW from the Project, given the scale and urgency of the need case (as described in Section 3);
- TCE Extensions Round (2017), Round 4 and the Celtic Sea Round projects do not meet the Project core project objectives 2, 3, 5 or 6.
- There are more complex pathways and cost premiums associated with the floating wind OWF projects (as compared to fixed bottom in shallower waters) that will come forward in the ScotWind, INTOG and Celtic Sea Rounds. Such projects in these rounds do not or are unlikely to meet the Project core project objectives 3, 4, 5 or 6.

Table 11 Performance of alternative locations outside N1 Plan Option Area against project objectives

Alternative Solution	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6
	Develop a large-scale OWF to generate low carbon electricity to support Scottish and UK decarbonisation targets	Maximise generation and export capacity within available UK sites	Make efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters	Deliver low carbon electricity at the lowest possible cost to the UK consumer	Deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the national grid before 2030	Helping ensure UK energy supply security by increasing the proportion of electricity coming from domestic renewables and thus reducing exposure to volatile fossil fuel markets
Future leasing rounds	Sites not available to Applicant and any such alternative is hypothetical - when / where / if any further areas of the seabed may be made available by CES or TCE is unknown. Therefore, does not meet any of the Project objectives. Furthermore, a fresh OWF leasing round starting in 2023 would not deliver substantial if any additional installed OWF capacity before 2030. Therefore, does not meet core project objectives 4, 5 and 6					
Rounds 1, 2 and 3, TCE Extensions Round (2010) and STW	Sites not available to Applicant. Therefore, does not meet any of the Project objectives. Furthermore, operational/ existing and consented OWF projects from earlier leasing rounds form part of existing baseline of OWF installed capacity and do not provide additional installed capacity (as an alternative to the Project) that is required to achieve Scottish and UK OWF capacity targets of 11GW and 50GW respectively.					
Round 4	Not fully met – Round 4 sites do not contribute to Scottish targets	Not met – Round 4 sites not available to Applicant	Not met – Round 4 sites would not make use of seabed in Scottish Waters	Unable to determine at this stage	Unlikely to be met – Round 4 projects unlikely to be generating power before 2030	
Celtic Sea	Not met – maximum individual project size is set at 1.3GW	Unable to determine at this stage	Not met – Celtic Sea sites are for floating technology and would not make use of seabed in Scottish Waters	Not met – fixed bottom deployed this decade is likely to be cheaper than floating wind deployed over coming twenty years	Not met – timeline is for build out of projects to occur in the period 2030 – 2035	
ScotWind	Unlikely to be met – ScotWind projects unlikely to be generating power before 2030 without significant acceleration of	Partly met – One ScotWind site available to Applicant	Partly met – Majority of ScotWind sites leased for floating technology.	Not met – fixed bottom deployed this decade is likely to be significantly cheaper than floating offshore		

Alternative Solution	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6
	Develop a large-scale OWF to generate low carbon electricity to support Scottish and UK decarbonisation targets	Maximise generation and export capacity within available UK sites	Make efficient use of very limited seabed available for fixed foundation OWFs in Scottish waters	Deliver low carbon electricity at the lowest possible cost to the UK consumer	Deliver a significant volume of new low carbon electricity generation as soon as possible, with a substantial contribution to the national grid before 2030	Helping ensure UK energy supply security by increasing the proportion of electricity coming from domestic renewables and thus reducing exposure to volatile fossil fuel markets
	historic development timescales and changes to bring forward grid connection dates			wind deployed over the coming twenty years		
INTOG	Not met 500MW capacity cap for Innovation projects No individual project will offset 2GW from the Project	Unable to determine at this stage	Not met – INTOG projects in deeper water and likely to be floating technology	Not met – as above floating solutions likely to be more expensive than fixed in near term	Not met – TOG projects expected to connect off-grid power to the UK national grid.	Unlikely to be met – INTOG projects unlikely to be generating power before 2030 without significant acceleration of historic development timescales
Re-powering	Not all schemes will re-power Even if some OWFs are re-powered, these will not contribute materially towards 2030 targets as capacity is largely accounted for in existing baseline.	Unlikely to be met - Earlier OWFs closer to shore and smaller sites and so unlikely to be able to maximise generating capacity using larger turbine no's / models owing to, e.g. landscape and visual impacts.	Unable to determine at this stage		Unlikely to be met - Any re-powering projects would need to be coming forward in the next few years at the very latest and even then are unlikely to be operational by 2030 (on historic development timelines).	

7.4 Alternative locations within the N1 Plan Option Area

In arriving at the final application boundaries for the Project, a wide array of alternative options and constraints affecting the N1 Plan Option were considered during an extensive and iterative set of exercises to identify the most suitable, feasible site within the N1 Plan Option to achieve the Project's core project objectives.

Further information on site selection and boundary refinements is presented in Offshore EIA Chapter: Site Selection and Consideration of Alternatives (Volume 1, Chapter 4). Key information is summarised in the following sections below.

7.5 Identification of the Project Area

The Applicant has undertaken six years of development work to date and has an unrivalled understanding of the key project-specific, regional and national sensitivities to the development of commercial scale, fixed bottom offshore wind within the N1 Plan Option.

The Applicant has built an extensive database which consolidates over 3,000 layers of information covering benthic ecology, fish ecology, ornithology, shipping and navigation, commercial fisheries, other sea users, aviation, seascape and landscape designations, cultural heritage and other reasonably foreseeable projects. Key technical layers were also assessed, including bathymetry, wind resource, ground and metocean conditions, turbine sizing, foundation technology options as well as layout flexibility.

The OAA is 657km². In selecting the OAA, the Applicant strived to achieve an efficient use of the seabed whilst avoiding the key constraints within the N1 Plan Option. Figure 5 summarises the key constraints affecting the selection of the OAA within the N1 Plan Option.

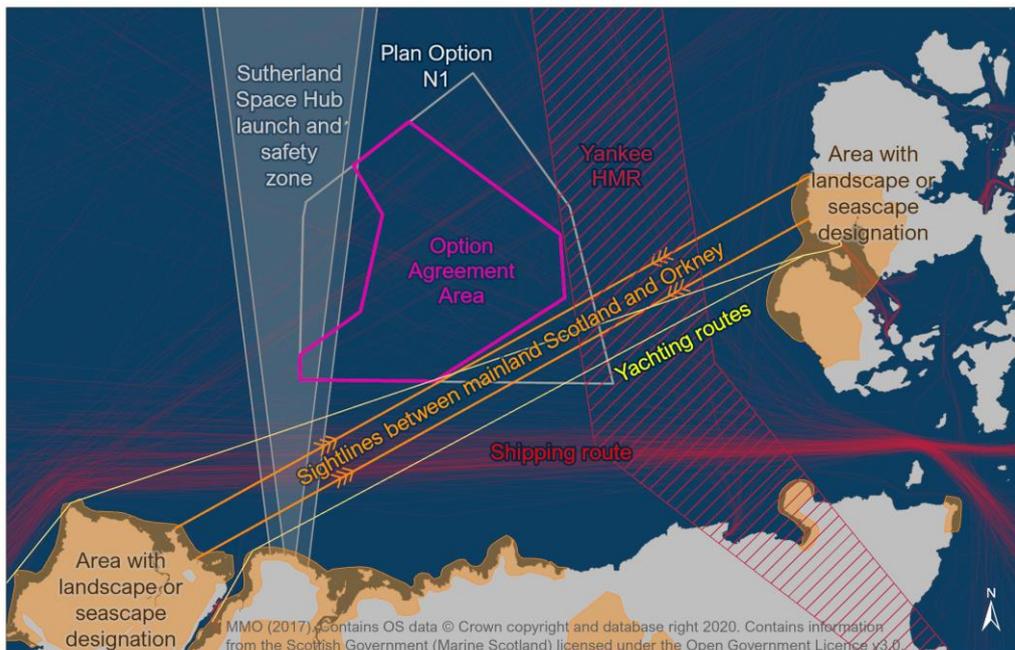


Figure 5 Key constraints influencing the final position of the Option Agreement Area

The constraints affecting the location of the OAA within the N1 Plan option area are summarised as:

- **Bathymetry:** The N1 Plan Option is one of only four areas within the Sectoral Marine Plan (SMP) for Offshore Wind Energy that include substantial areas of seabed with water depths below 70m. It is therefore a prime location for the delivery of large-scale, competitive fixed-bottom offshore wind from ScotWind that will contribute substantially to the Scottish Government's interim target to reduce all greenhouse gas emissions by 75% by 2030. The majority of the OAA occupies waters less than 70m deep. The deeper water outside the OAA and within the N1 Plan Option are not suited to fixed bottom wind.

- **Visual impact:** Pre-application advice from The Highland Council (received 11/02/21) highlighted the need to maintain key sightlines between key landscape/seascape designations on Sutherland and Orkney. The area to the south east of the OAA and within N1 Plan Option would have a greater visual impact because it would encroach on the sightlines between Orkney and Sutherland.
- **Shipping and navigation:** Analysis of AIS vessel data from 2017, improving on the 2015 data presented in the Sectoral Marine Plan, which highlighted new vessel movement trends, were considered in the soft constraints analysis. The OAA avoids Royal Yachting Association (RYA) cruising routes to Orkney. The area to the east of the OAA is not suitable as this would increase the impact on shipping and navigation.
- **Aviation:** The Applicant sought to maintain a 2nm buffer from the Yankee Helicopter Main Route (HMR). Consultation with Space Hub Sutherland highlighted a potential launch exclusion zone (LEZ), not identified in the Sectoral Marine Plan. Development to the west or east of the OAA and within the N1 Plan Option area is not suitable as it would increase impacts on aviation.
- **Commercial fisheries:** Fishing data from SFF and SWFPA, indicated the need to avoid the area east of the 4-degree line. Development to the east of the OAA and within the N1 Plan Option area would increase impacts on commercial fisheries.
- **Ornithology** - Given the foraging range and behaviour of several of the qualifying species of the affected SPAs, all possible locations for commercial scale OWF within the N1 Plan Option have connectivity with one or more species from the SPAs. There is no location within the N1 Plan Option Area where a 2GW windfarm could be developed without impacts on species from these SPAs. Locations further to the west would be in closer proximity to or encroach on the marine extent of the Sule Skerry and Stack Skerry SPA.

None of the above points were considered in isolation. The final location of the OAA, within the N1 Plan Option was the result of an iterative, data driven and exhaustive process, one that supports the conclusion that there are no feasible alternative locations remaining within the N1 Plan Option Area to achieve the Projects core objectives.

7.6 Alternative Design Solutions for the Project

The Applicant is a joint venture comprising of three experienced offshore wind development companies.

	<p>CORIO - Corio Generation is a Macquarie Green Investment Group portfolio company, operating on a standalone basis. Corio has a project pipeline of over 20 GW. Their global team of offshore wind specialists take projects from origination, through development and construction, and into operations.</p>
	<p>TotalEnergies – one of the largest offshore operators on the UK continental shelf, majority owner of Seagreen OWF and the Shetland Gas Plant. Targeting 35 GW of renewables by 2025 and 100 GW by 2030.</p>
	<p>Renewable Infrastructure Development Group (RIDG) – Scottish offshore wind project developer with over 40 years' experience in the sector, set up to deliver high value projects alongside strategic partners.</p>

The Applicant is following a layout optioneering process and integrated lifecycle cost model to examine different macro and micro layout options available within the OAA. The aim is to establish layouts that present the lowest technical, commercial and environmental risk to deliver a fixed bottom offshore windfarm with an installed capacity of around 2GW.

To date the Applicant has completed the environmental surveys and early technical studies. The Applicant is working towards a site-specific ground model and shall incorporate onsite wind and metocean data. Consequently, presenting anything other than indicative layouts is not possible at this point. Prematurely constraining projects further within the OAA will result in sub-optimal and inefficient use of areas of seabed identified as being least constrained / most suitable. That of itself is contrary to fundamental policy aims and objectives articulated in Section 3 of this Report. Moreover, if the available and least-constrained seabed areas are used sub-optimally, more projects need to be delivered in more challenging and constrained locations.

The scale and urgency of the need for offshore wind as described earlier in Section 3 of this Report necessitates solutions that maximise the feasible installable capacity at each available offshore site.

The consideration of alternative solutions must be approached on a reasonable basis and must be grounded in real world considerations of feasibility (legally, technically and commercially). These decisions involve the exercise of a degree of judgement, drawing on experience and available information and analysis of future market trends.

In this context it is relevant and reasonable for the Scottish Ministers to place weight on the site-specific experience and expertise of the Applicant in offshore wind development.

The nature and viable scale of an OWF has to be considered in the context of the specific characteristics of the individual site (e.g. water depths), grid connection availability and the highly competitive commercial framework within which such projects are delivered. In addition to environmental impacts, factors which have influenced the PDE include:

- grid connection availability and capacity (~2GW in this case)
- viable generation capacity (GW size) to optimise secured grid connection capacity
- commercial expectations prescribed by funding mechanisms (such as CfD)
- construction costs of array, transmission and grid connection
- technology availability, cost and reliability
- health and safety considerations
- supply chain capacity and availability
- project execution schedule (relative to Scottish and UK targets, e.g. before 2030 and in the early 2030s).

In this context, the Applicant has continued to re-appraise all elements of the Project Design Envelope for the Project, to ensure that all feasible mitigation has been deployed. The Project has adopted commitments (primary design principles inherent as part of the Project, installation techniques and engineering designs/modifications) as part of their pre-application phase, to avoid and/or reduce the negative effects arising from a number of impacts (as far as possible). The full detail of all mitigation and monitoring is set out in the offshore EIA.

The Applicant has been working on this Project since 2017. The Applicant has been through an exhaustive constraints analysis process which analysing over 3,000 layers of data and has conducted extensive and detailed surveys across the entire OAA. The Applicant has commissioned detailed environmental assessments, legal reviews and working groups to test its assumptions. The Applicant has engaged with over 300 stakeholders via hundreds of meetings and engaged with over 1,600 people through the pre-application consultation. The Applicant has amassed millions of pounds worth of data, spent hundreds of thousands of staff-hours acquiring and examining that data so has an unrivalled understanding of this site and the technical, environmental, social and commercial context around the Project. The Applicant's broad knowledge and deep understanding of this Project, combined with the evidence below, should give the Scottish Ministers absolute confidence that the Applicant has considered all feasible options to avoid or reduce harm to European sites whilst ensuring a viable and deliverable project.

7.7 Scope of consideration of alternative design

The scope to resort to feasible alternative solutions has been considered throughout the development process for the Project. This has been a fundamental driver for decision making, from the technical options in engineering through to macro-siting (avoidance of large-scale features and designated sites).

Details of refinements to date to the PDE are set out in Offshore EIA: Chapter 4: Site Selection and Alternatives.

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

- Array location (relative to SPA);
- Array size / number of turbines;
- Height of turbine blades above sea surface.

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

- A reduced/refined or alternative developable array area - aimed at further reducing/refining the geographical extent of the wind turbines to avoid sensitive areas for seabirds;
- A reduced number of turbines (and/or a change in their layout) - aimed at reducing the scale of potential effects from the wind turbines; and
- A higher minimum lower tip height (height of turbine blades above sea surface) – which reduces collisions by raising the rotor to heights where bird densities are lower due to the skewed nature of bird flight height distribution.

7.8 Reduction in turbine numbers or array area

The Applicant has carefully considered the size of the OAA and the number of turbines taken forward to consent application. This has necessarily involved balancing environmental, engineering and economic constraints, access to other marine users, consenting and commercial considerations, alongside technical feasibility for construction.

The WTG layout will be determined through the design optimisation process (post-consent). This is an iterative process that balances multiple disciplines and key considerations including WTG model choice, WTG spacing arrangements, wind direction, geophysical characteristics, metocean conditions, foundation structure (and associated supporting structures) and navigational safety considerations, as well as environmental constraints such as key seabird populations, fisheries interests, sensitive seabed habitats, archaeological interests and the seascape and landscape and visual impact. Within the OAA, each individual WTG will be micro-sited to consider positioning accuracy and any technical and environmental constraints at the time of installation.

The WTG layout will follow specific design principles that have been developed throughout the EIA process in order to avoid or reduce adverse environmental effects.

It is not possible at this stage to further reduce turbine numbers and, consequently, not possible to further reduce the Option Agreement Area (Figure 6), because the accelerated development timeline for the Project makes it critical for the PDE to encompass turbine models which the Applicant is confident can be procured cost effectively and will be available within the Project's delivery timelines (both of which flow from making an order at sufficient scale). This engineering and commercial flexibility is essential to secure a competitive and deliverable project that can generate low carbon, affordable and secure power before 2030.

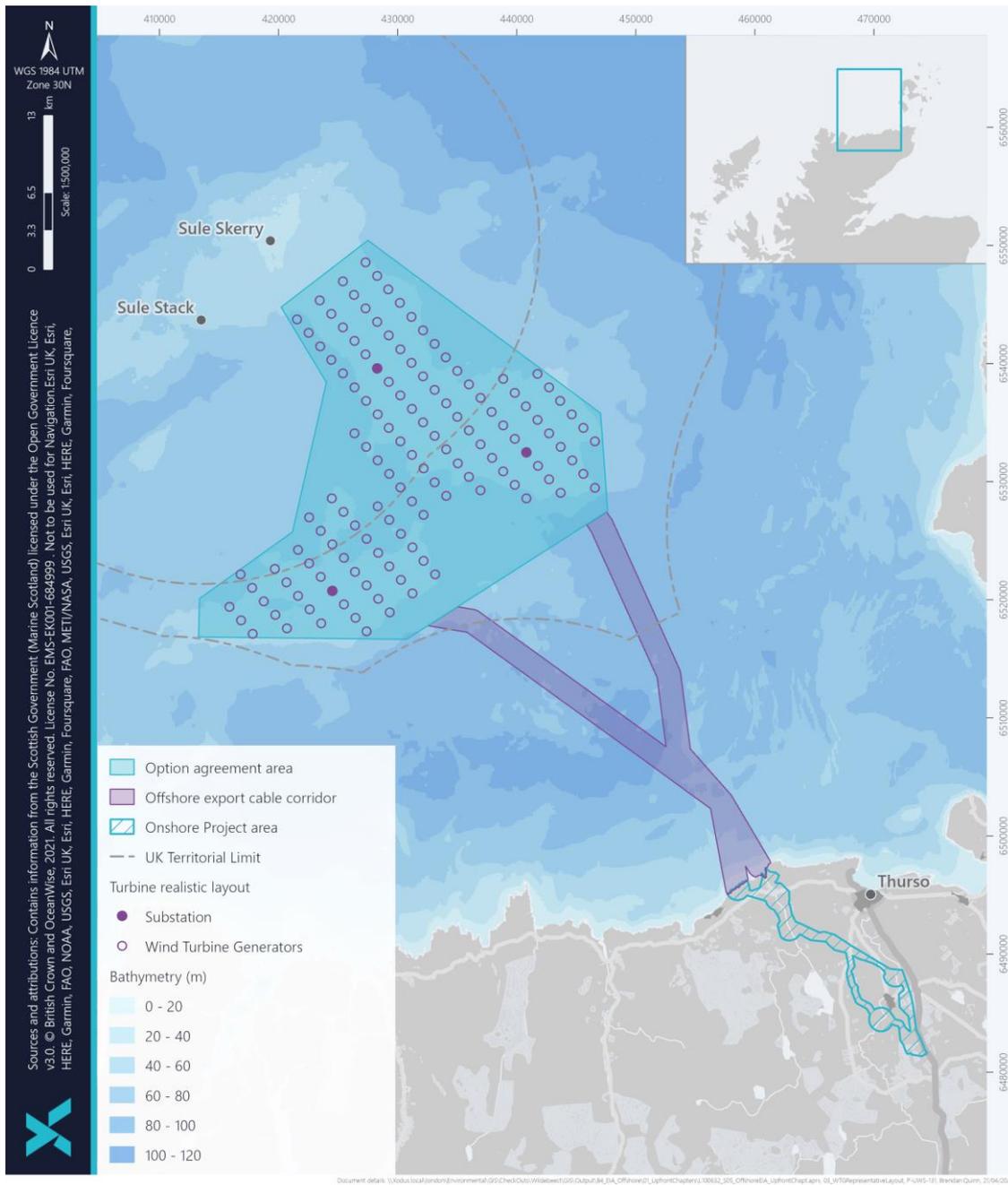


Figure 6 Indicative turbine layout

Any reduction in the OAA / minimum turbine numbers at this stage gives rise to an unacceptable risk of one or more of the following outcomes:

- Failure to achieve 2GW installed capacity;
- Failure to maximise export cable capacity and grid connection capacity;
- Inefficient use of seabed (i.e. lower overall capacity);
- Reduced flexibility to 'micro-site' turbine locations to optimise array layout, e.g. to account for ground conditions, to avoid any previously unknown constraints (e.g. UXO) and/or to accommodate other sea users;

-
- Suboptimal array layout / failure to maximise energy yield, with a higher density turbine layout within a reduced array area, potentially causing wake loss effects that decrease productivity and increase the cost of electricity;
 - Delays (and consequent additional cost) owing to lack of turbine availability when needed;
 - Failure to maximise economies of scale, restricting ability to decrease the levelised cost of energy over that established in recent CfD auction rounds and achieve a further decrease in generation cost per MW;
 - Jeopardise the Applicant's ability to be able to put forward a competitive proposition in a future CfD auction round.

A further reduction to the proposed maximum of 125 turbines is accordingly not considered feasible. Optimising the business case to fulfil the Project need and objectives is essential to develop a viable project. The Project must compete for a CfD in a competitive tender – without which it may not attract finance to be constructed and therefore not contribute to the mitigation of the “climate emergency” and would not help to address security of energy supply risks.

The Project has secured grid connection capacity for 2GW and for urgent decarbonisation and security of supply reasons it is important to maximise that available export capacity and bring as much low carbon electricity online as quickly as possible, before 2030 and deliver capacity in the early 2030s. A failure to maximise the generation and export capacities of the Project is not compatible with the core project objectives or the urgent need which they serve.

A lower capacity would also have a ratcheting effect on the number and capacity of additional OWFs required in order to hit Net Zero and corresponding timescales. Delivering low carbon generation capacity later than is achievable allows time for carbon emissions to further accumulate increasing the magnitude of subsequent action required.

For all these reasons, further array area or turbine reductions are not feasible alternative solutions.

Increase Minimum Tip Height

The iterative project design process has culminated in raised turbine blade lower tip height of 27.05m above Mean Sea Level (MSL)). The current 27.05m above MSL 'is a material design change (i.e. alternative design solution) that has been implemented and increases the 'air draught' by 5m as compared to the minimum sea clearance of 22m above LAT.

A minimum air draught of 27.05 m MSL is considered to be the maximum technically feasible as increasing the minimum air-draught beyond 27.05m above MSL limits the installation vessels available. The water depths, metocean conditions and turbine heights preclude the use of jack-up vessels with higher hook heights, consequently the Project must use one of the largest, floating heavy lift crane vessels available on the global market. There are less than five heavy lift vessels, globally, that have the required hook height and lifting capacity to install the turbines. The Applicant has dedicated specialists who monitor the global fleet and engage with the vessel operators, so The Applicant has a very detailed understanding of the limited number of vessels that can meet the Project's needs. Any further increase in air draught height is neither technically nor commercially feasible because it would further restrict the already extremely limited number of suitable vessels to the extent that it would jeopardise the early delivery of low-cost generation for the benefit of UK electricity consumers.

8. No Alternative Solutions Case: Step 4 – Comparative Analysis

In this case, Steps 1 – 3 have not identified any feasible alternative solutions to the Project which require to be assessed. Accordingly, Step 4 is not required.

It follows that there are no feasible alternatives to the Project.

8.1 Summary of Part B: No Alternative Solutions

An exhaustive design and mitigation process underpins the PDE for the Project.

Sections 6 and 7 above address the range of potential alternatives considered by the Applicant in determining the PDE for the Project. A total of eight potential alternative solutions have been considered but discounted for the reasons set out in PART B above.

This demonstrates to the Scottish Ministers that there are no feasible alternative solutions to the Project. This overall conclusion reflects the need for and benefits of the Project as described in section 3 of this Report, which include:

- An estimated 2GW, delivering enough low-carbon electricity to power more than 2 million homes each year, starting from 2029.
- A substantial contribution (0.75GW) to Scotland's 2030 targets and a sustained contribution of 1.5GW thereafter, offsetting millions of tonnes of CO₂ emissions per annum from 2029.
- Significant contribution to energy security of supply and affordability.
- Low cost to consumer owing to efficiencies from large scale, location closer to shore in shallower waters and use of proven fixed foundation technology.
- the Project is an essential part of the future Scottish and UK generation mix.

PART C: IMPERATIVE REASONS OF OVERRIDING PUBLIC INTEREST

9. Approach to Stage 3B: IROPI

Introduction

PART C provides the evidence which demonstrates that the Scottish Ministers can be satisfied that there are IROPI to authorise the Project.

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

The IROPI case is supported by and draws in particular upon the following documents which accompany the different planning applications for the Project:

- Need for the Project;
- Planning Statement;
- Offshore EIA Report: Chapter 19, Socio-economics

The Habitats Regulations provide that the Scottish Ministers may agree to consent the Project if “satisfied” that it “must be carried out for imperative reasons of overriding public interest (which...may be of a social or economic nature)...”⁵³

It is important to note the RIAA does not identify any AEOL in respect of priority habitat types or species. However, as a barometer, it is helpful to note that where a priority habitat or species is adversely affected, the Habitats Regulations provide that “reasons relating to human health, public safety or beneficial consequences of primary importance to the environment” can constitute IROPI of greater importance than the nature conservation objective of protecting priority habitats/ species. Beyond the above, the Habitats Regulations do not define the scope or nature of IROPI that may be relied upon, and it is necessary to consider the limited case law, EC opinions, guidance, and previous decisions, where relevant.

9.1 A balancing exercise

In terms of the nature of the exercise, the IROPI stage involves a balance of interests between the conservation objectives of the European site affected and the reasons for the project proceeding, and the competent authority must be satisfied that the balance weighs in favour of the latter⁵⁴.

This has been confirmed by the ECJ in several cases, for example in C-43/10 (2012):

“An interest capable of justifying, for the purposes of Article 6(4) of Directive 92/43, the implementation of a plan or project must be both ‘public’ and ‘overriding’, which means that it must be of such an importance that it can be weighed against that directive’s objective of the conservation of natural habitats and wild fauna, including birds, and flora”⁵⁵

In C-239/0482, in his Opinion, Advocate General Kokott put it this way:

“The necessity of striking a balance result in particular from the concept of “override”, but also from the word “imperative”. Reasons of public interest can imperatively override the protection of a site only when greater importance attaches to them. This too has its equivalent in the test of proportionality, since under that principle the disadvantages caused must not be disproportionate to the aims pursued.”

9.2 The components of IROPI

The components of IROPI which inform this balancing exercise are explored in MN 2000 (2018) and Defra (2012). Drawing from those, the following principles can be distilled:

- Public Interest
 - The interest(s) served must be a public interest rather than a solely private interest. However, a private interest can coincide with delivery of a public objective and projects developed by private bodies can be authorised if public interests are served.

⁵³ Regulation 29(1), the Conservation of Offshore Marine Habitats and Species Regulations 2017.

⁵⁴ See MN 2000 (2018) at section 5.3.2

⁵⁵ Nomarchiaki Aftodioikisi Aitolokarnanias and Others, C-43/10, paragraph 121.

- Long-term
 - The public interest would normally (but not always) be long-term; short-term interests are less likely to be overriding because the conservation objectives of the Habitats and Birds Directives / Habitats Regulations are long term interests.
- Imperative
 - There should be urgency to the objective(s) and its or their achievement should be "indispensable" (MN 2000) or "essential" (Defra). In practical terms, according to MN 2000, this may be demonstrated if the objective falls within a framework for one or more of the following:
 - actions or policies aiming to protect fundamental values for citizens' life (health, safety, environment);
 - fundamental policies for the State and the Society; or
 - activities of an economic or social nature, fulfilling specific obligations of public service.
 - Defra (2012) similarly advises that national policy and other documents setting out government policy may provide important context for the competent authority when considering whether there are IROPI and that projects which enact or contribute towards national plans or policies are more likely to imbue a high level of public interest.
- Overriding
 - The public interest of proceeding with a project must outweigh the public interest of conservation of the relevant European site(s). The recent DTA guidance (2021a: in draft) considers this in the context of offshore windfarms, expanding on EC and Defra guidance as follows:
 - **Climate change:** *"considerable weight should be given to their contributions to limiting climate change in accordance with the objectives of [climate change targets]" and "wind farm proposals deliver a national scale public interest on the grounds of energy security and supply as well as beneficial consequences of primary importance to the environment in respect of climate change"*;
 - **Likely outcome:** *"it is highly unlikely that the public interest served by delivery of offshore wind proposals will not override the conservation interest (...but there may be exceptional circumstances where the imperative reasons of overriding public interest test cannot be passed)"*.

In this context it is also relevant and important to note recent developments within the EU. In late November 2022, the European Council agreed a draft Regulation to adopt a EC proposal for a framework to accelerate the permitting and deployment of renewable energy projects throughout the EU⁵⁶. The draft Regulation is expected to be formally adopted, without substantial amendments, at the next extraordinary energy Council, which is expected to occur by mid-December 2022.

The purpose of accelerating the permit-granting process immediately is to support the deployment of technologies that contribute to EU overall energy security and, at the same time, have a low environmental impact. In this context, one of the measures (Article 2) is a new presumption that deployment of renewable energy generating stations (and related grid infrastructure) is generally a matter of overriding public interest:

"planning, construction and operation of plants and installations for the production of energy from renewable sources, and their connection to the grid and the related grid itself and storage assets shall be presumed as being in the overriding public interest and serving public health and safety when balancing legal interests in the individual cases for the purposes of Articles 6(4) and 16(1)(c) of Directive 92/43/EEC [Habitats Directive], Article 4(7) of Directive 2000/60/EC [Water Framework Directive] and Article 9(1)(a) of Directive 2009/147/EC [Birds Directive]".

Recital 8 of the draft Regulation explains that the presumption *"...reflects the important role that renewable energy can play in the decarbonisation of the Union's energy system, in offering immediate solutions to replace fossil-fuel based energy and in addressing the aggravated situation in the market"*.

⁵⁶ Draft Regulation available at: [st15176-en22.pdf \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022R1000). The legal basis for this new piece of legislation is Article 122 of the Treaty on the Functioning of the European Union, which provides for accelerated legislative procedures in cases of severe supply difficulties for Member States.

9.3 Relevant examples of IROPI decisions

It is also helpful to examine six previous UK OWF projects where the HRA Derogation Provisions have been relied upon. IROPI have been established in the context of six recent decisions to authorise OWFs in the UK: Hornsea Three, Norfolk Vanguard, Norfolk Boreas, East Anglia ONE NORTH, East Anglia TWO and Hornsea Four.

These are highly relevant to the Project. In each case, the SofS considered that the public benefit served by the OWF was “essential and urgent”⁵⁷. The SofS’s conclusions were predicated upon

“the principal and essential benefit of the Development as a significant contribution to limiting the extent of climate change in accordance with the objectives of the Climate Change Act 2008. The consequences of not achieving those objectives would be severely deleterious to societies across the globe, including the UK, to human health, to social and economic interests and to the environment.”

In each case, the SofS found that the Government’s “strategy for decarbonisation to achieve this commitment relies on contributions from all sectors delivered through multiple individual projects implemented by the private sector”.

In each case, the SofS accepted that:

“decarbonisation will lead to a substantially increased demand for electricity as other power sources are at least partially phased out or transformed. Simultaneously the supply of electricity must decarbonise. This will require the establishment of a reliable and secure mix of low-carbon electricity sources, including large-scale development of offshore wind generation”.

In each case, the SofS concluded that:

“Offshore wind generation schemes can only be developed through the mechanism put in place by The Crown Estate for leasing areas of the seabed in a structured and timely way. Projects, like the Development, which make a significant contribution to meeting the target capacity in the timeframe required are therefore both necessary and urgent”.

While the IROPI balancing exercise in each case will turn on its own specific factors, it is established as a matter of principle that the long-term public interests served by the deployment of OWF projects are urgent and imperative and can be overriding in the context of impacts on SPAs in the UK.

⁵⁷ See for example paragraphs 6.34 – 6.42 of the SofS’s decision letter for Hornsea Three

10. IROPI Case

10.1 IROPI Case: Step 1 Imperative reasons

The imperative reasons that justify the Project are considered in this Section under two headings:

- human health, public safety and beneficial consequences of primary importance to the environment; and
- socio-economic benefits.

10.2 Health, safety and beneficial environmental consequences

The imperative reasons that justify the Project primarily flow from and are consequent upon the need case summarised in Section 3 of this Report, which is predicated upon the critical near-term contribution the Project would make to the key pillars of climate and energy policy and security of energy supply. These are “reasons relating to human health, public safety or beneficial consequences of primary importance to the environment” which constitute IROPI.

Security of energy supply and affordability

For the reasons set out in Section 3 above, reducing our dependency on foreign hydrocarbons is an imperative for security of supply, reducing electricity cost and reducing fuel poverty.

The ECJ confirmed in 2019⁵⁸ 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”⁵⁹ [emphasis added].*

As noted by the UK government 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. The BESS describes this on page 5:

“European gas prices soared by more than 200% last year and coal prices increased by more than 100%. This record rise in global energy prices has led to an unavoidable increase in the cost of living in the UK, as we use gas both to generate electricity, and to heat the majority of our 28 million homes.”

The urgency for an electricity system which is self-reliant and not reliant 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.

With the prospect of providing 2GW of renewable electricity commencing in 2029 and a further 1,500MW in 2031, there are IROPI justifying the Project on grounds of energy security alone.

Combating climate change

As set out in Section 3 of this Report above, human-induced global warming has already reached approximately 1°C above pre-industrial levels and the impacts of climate change are global in scope and unprecedented in human existence (IPCC, 2021).

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 IPCC and UK CCC. The IPCC’s AR6 Report underscores the gravity of the risk to the environment and consequently to humans and all life.

AR6 Report (part 1)⁶⁰ 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”.

⁵⁸ Judgement of 29.7.2019 – Case C-411/17 Inter-Environnement Wallonie and Bond Beter Leefmilieu Vlaanderen.

⁵⁹ C-411/17 at paragraphs 157 and 159

⁶⁰ Published on 9th August 2021

AR6 Report (part 2)⁶¹ 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.”

AR6 Report (part 3)⁶² 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). The key message from the AR6 Report is that humanity is not on track to limit warming and action to ensure deep reductions in CO2 and other GHG emissions must occur this decade and next.

Action to address climate change is an imperative because the consequences of climate change include extreme weather events (flooding, heat waves and droughts), species extinctions and ecosystems collapse. These all threaten the health, safety, and environment of citizens in Scotland and the UK, for example by hindering food production, water resources and putting lives and settlements at risk. The climate stability that has enabled humans to prosper is now at risk.

The most recent UK climate change risk assessment published by the UK’s CCC Third Climate Change Risk Assessment, highlights 61 risks and opportunities resulting from climate change. The Project will contribute to tackling the climate change risks identified. As can be seen from Table 12, the risk is not only to humans. There has been a significant long-term warming trend (by around 2°C) in the UK seas over the past century, which is significantly faster than the rate of warming of global oceans (Cefas, 2020). Our understanding of the effects of warming on the physical processes and ecology continues to advance.

Table 12 Risks identified in the CCRA3 Technical Report (CCC, 2021)

Risk No.	Description
Natural Environment and Assets	
N1	Risks to terrestrial species and habitats from changing climatic conditions and extreme events, including temperature change, water scarcity, wildfire, flooding, wind, and altered hydrology (including water scarcity, flooding and saline intrusion).
N4	Risk to soils from changing climatic conditions, including seasonal aridity and wetness
N5	Risks and opportunities for natural carbon stores, carbon sequestration from changing climatic conditions, including temperature change and water scarcity
N6	Risks to and opportunities for agricultural and forestry productivity from extreme events and changing climatic conditions (including temperature change, water scarcity, wildfire, flooding, coastal erosion, wind and saline intrusion).
N14	Risks to marine species, habitats and fisheries from changing climatic conditions, including ocean acidification and higher water temperatures
Infrastructure	
I2	Risks to infrastructure services from river, surface water and groundwater flooding
I3	Risks to infrastructure services from coastal flooding and erosion
I4	Risks to bridges and pipelines from flooding and erosion
I10	Risks to energy from high and low temperatures, high winds, lightning
I11	Risks to offshore infrastructure from storms and high waves

⁶¹ Published on 28th February 2022

⁶² Published on 04 April 2022.

Risk No.	Description
Health, Communities and the Built Environment	
H1	Risks to health and wellbeing from high temperatures
H3	Risks to people, communities and buildings from flooding
H4	Risks to the viability of coastal communities from sea level rise
B1	Risks to businesses from flooding
B2	Risks to businesses and infrastructure from coastal change from erosion, flooding and extreme weather events
B3	Risks to business from water scarcity

Although Scotland and the wider UK are leading decarbonisation efforts around the world, as described in section 3 of this Report above, their respective legal commitments of achieving Net Zero by 2045 and 2050 respectively are not yet assured.

For the reasons set out in Section 3 of this Report, a massive increase in energy generation from offshore wind is important to reduce electricity-related emissions and provide a timely next-step contribution this decade to a future generation portfolio which can support the massive increase in electricity demand. As detailed in Table 5, in previous OWF decisions, the SofS has recognised that the consequences of not taking action to seek to limit the extent of climate change would be *“severely deleterious to societies across the globe, to human health, to social and economic interests and to the environment”*.

The Project is aligned with and serves to implement fundamental Government policy and state aims and would make a very substantial contribution to meeting the target capacity in the timeframe required (i.e. by 2030). It follows that the Project is both necessary and urgent and is justified by IROPI based on delivery of beneficial consequences of primary importance to the environment, and for human health and public safety.

10.3 Socio-economic benefits

It is clear from the Applicant’s Supply Chain Development Statement that the Project is structured to maximise the opportunities for Scottish industry to ensure a fair and just transition to clean energy.

Employment

Error! Reference source not found. Table 13 presents estimates for the average annual number of workforce jobs expected to be created within each spatial area during the construction stage for both the Low Case and the High Case scenarios. Estimates in the table are provided for both (1) Direct plus Indirect jobs and (2) Induced jobs, where:

- Direct jobs are people employed by both OWPL and the main contractors working on Project construction;
- Indirect jobs are people working on the construction of the Project employed by sub-contractors, and also jobs elsewhere in the supply chain for the Project that are attributable to Project expenditure; and
- Induced jobs are additional jobs within each spatial area that are supported by expenditure of remuneration earned by the Project workforce (including both direct and indirect jobs).

For complex construction projects, in practice it is difficult to predict with accuracy which roles will be undertaken by main contractors compared to sub-contractors. Hence, the approach taken is to combine Direct and Indirect jobs into a single figure. For both the Low Case and the High Case, a 5-year period is used to assess the significance of effects during the construction period (1-year of pre-construction activities, followed by a 4-year construction period; overall including site preparation, fabrication, marshalling, and installation activities). It should be noted that the figures in Table 14 are rounded to the nearest whole number.

Table 13 Expected Magnitude of annual employment effects during construction

INDICATOR	CAITHNESS AND SUTHERLAND LOW	CAITHNESS AND SUTHERLAND HIGH	HIGHLAND LOW	HIGHLAND HIGH	ORKNEY LOW	ORKNEY HIGH	SCOTLAND LOW	SCOTLAND HIGH	UK LOW	UK HIGH
Annual Direct + Indirect workforce jobs	81	200	167	453	123	281	538	1,562	1,266	3,059
Annual Induced jobs	15	32	31	76	23	49	101	283	265	662
Annual Total Jobs	96	232	198	529	147	330	640	1,845	1,530	3,721

Source: Development Economics Limited estimates, March 2023

Supply chain capacity, capability and skills development in Scotland and the UK

The Applicant's Supply Chain Development Statement made a series of strategic commitments to support supply chain capacity, capabilities and skills development in Scotland and the UK. The "news" page on the Applicant's website⁶³ includes a series of releases which demonstrate the substantive progress made to date.

Commitment	Status
<p>As part of the Supply Chain Development Statement (SCDS) agreed with Crown Estates Scotland, OWPL has committed £33.5 million into a supply chain investment fund to enhance key supplier capability and competitiveness prior to CfD award.</p> <p>In addition, OWPL is committed to a multi-million pound capital investment prior to the final investment decision to enhance key supplier readiness.</p> <p>From site award OWPL will fund UK supplier design and supply studies to allow suppliers to plan investment in additional capability and capacity, and to position themselves competitively in terms of OWPL's procurement requirements. OWPL will support smaller suppliers to engage and help enhance their preparedness and integration into the supply chain for the Project.</p>	<p>Secured via the SCDS and associated financial penalties for failing to deliver against agreed targets.</p>
<p>OWPL is committed to maximising the use of local ports and harbours and continues to work closely with Orkney Harbour Authority and Scrabster Harbour Trust to enable technical and commercial collaboration on the development of new facilities to support construction and operations.</p> <p>As part of the SCDS, OWPL is committed to £9.3 million of investment to support local port and harbour infrastructure in Orkney and Caithness. This investment will help facilitate local participation in both the Project construction and operational stages.</p>	<p>Secured through a Memorandum of Understanding with collaborating local ports and harbour operators.</p>
<p>OWPL is funding a bespoke programme with the European Marine Energy Centre (EMEC) to support innovation and cost reduction relevant to the Project and other ScotWind developments. The programme will support the long-term sustainability of the Centre which plays an important role in the Orkney economy.</p>	<p>Funding is already committed for this initiative.</p>
<p>As part of the Supply Chain Development Statement agreed with Crown Estate Scotland, OWPL has committed to a local skills development programme. This initiative forms parts of a continuing programme of collaboration and co-ordination with other project developers and operators – and other stakeholders – across the north of Scotland to develop a Local Workforce Strategy.</p>	<p>Secured via the SCDS and associated financial penalties for failing to deliver against agreed targets.</p>

⁶³ www.westoforkney.com/news

Commitment	Status
As part of a collaboration with Scottish Government and other ScotWind developers, OWPL has contributed towards a programme to fund a school STEM outreach programme delivered by UHI. A further £900,000 of funding announced in January 2023 will extend the programme to schools in Orkney, the Western Isles, Shetland, Argyll, Moray, and Perthshire, boosting the existing programme that will continue to operate in the Highland council area.	Funding is already committed for this initiative.
A community benefits programme will commence at first generation and continue for the operational life of the Project (35 years).	Secured via the SCDS.

Table 14 sets out the Applicant's SCDS commitments. The higher ambition figure reflects the potential for higher levels of supply within Scotland and the UK overall, including primary materials. These numbers will be refined over time; however, our clear intention is to use our supply chain alignment model to deliver expenditure as close to home as possible, working across industry and with governments at all stages.

Table 14 Applicants SCDS Commitments

	Commitments £ M					Ambitions £ M				
	Scotland	Rest of UK	Europe	Elsewhere	Total	Scotland	Rest of UK	Europe	Elsewhere	Total
Development	128	33	4	0	165	132	33	0	0	165
Manufacturing & Fabrication	371	517	730	1,139	2,757	531	981	696	549	2,757
Installation	200	99	448	0	747	208	120	419	0	747
Operations (first 6 years)	233	80	47	0	360	233	80	47	0	360
TOTAL	932	729	1,229	1,139	4,029	1,104	1,214	1,162	549	4,029

Summary

With the potential to generate over 2GW, the Project will deliver a nationally significant project with a near-term contribution to national decarbonisation and energy security of supply objectives, whilst also delivering substantial socio-economic benefits.

In the previous OWF Decisions, the SofS has determined that the consequences of not contributing to the objective of limiting the extent of climate change would be “*severely deleterious to societies across the globe, to human health, to social and economic interests and to the environment*” (e.g. BEIS, 2020a: para 6.37). That conclusion applies equally in the context of the Project. Rapid decarbonisation of the energy sector not only provides beneficial consequences for the environment, it is essential for human health and public safety reasons.

Furthermore, as the ECJ has held⁶⁴, the security of the electricity supply constitutes an IROPI “at all times”, a position recently underlined by the proposed Council Regulation to introduce a presumption that renewable energy projects are “of overriding public interest and serving public health and safety”⁶⁵.

The imperative nature of the reasons applicable in this case flow from their urgency as well as their importance. The energy security of supply crises necessitates urgent action this decade. Similarly, the 2030 global ambition gap in relation to climate

⁶⁴ Judgement of 29.7.2019 – Case C-411/17 Inter-Environnement Wallonie and Bond Beter Leefmilieu Vlaanderen

⁶⁵ See Recital seven. st15176-en22.pdf (europa.eu).

change mitigation will be closed only by bringing forward projects such as the Project which connect as much capacity as possible to as early as possible.

The imperative reasons to urgently deliver the Project are thus clear and demonstrable. The requirement to deliver significant volumes of renewable energy generating capacity is important not only to meet Scotland's legally binding Net Zero commitment by 2045 and the UK's by 2050, in response to the latest climate science but also to address the energy security of supply crisis which also constitutes a threat to human health and public safety. In turn, the size of the contribution expected from offshore wind by 2030, up to 11 GW in Scotland and 50 GW in the UK, demonstrates the scale and urgency of the task in hand.

In conclusion, the Project is justified for imperative reasons relating to human health, public safety and beneficial consequences of primary importance to the environment, and additionally by delivery of important socio-economic benefits in the form of investment and supply chain opportunities during the 2020s.

10.4 IROPI Case: Step 2 – Clear Public Interest

Whilst the Applicant is a private entity; the Project serves a clear public interest. The drivers for offshore wind in general and for the Project specifically clearly stem from a suite of national and international law and policy (see Section 3 of this Report above) designed to serve fundamental public interests in dealing with the challenges and risks identified and summarised at IROPI Step 1 above. Those public interests, in short, are:

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

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. All six previous OWF derogation decisions acknowledge this essential reality.

Offshore wind is an important technology for low-carbon generation and the urgent need for large additional capacities of low-carbon generation to come on-stream is clear. The identification and development of offshore sites for that purpose is a fundamental national policy pursued within a clear framework, which seeks to protect the environment and human health from the consequences of energy supply shortages and climate change and promote public safety.

As concluded earlier, without the Project, it is probable that delivery of multitude policies will fall short, including: the BESS, the Scottish Offshore Wind Policy Statement, the Sectoral Marine Plan for Offshore Wind, Scottish Energy Strategy, the UK Net Zero Strategy and UK Offshore Wind Sector Deal, as well as the targets set by the Climate Change (Scotland) Act 2009, Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, the (UK) Climate Change Act 2008 (as amended) and the Net Zero Strategy: Build back Greener.

The Project can make a large, meaningful and timely contribution to decarbonisation and security of supply, while helping lower bills for consumers throughout its operational life, thereby addressing all important aspects of Scotland and the UK's legal obligations and existing and emerging government policy.

The interests that would be served by authorising the Project are therefore of a public nature.

10.5 IROPI case: Step 3 – Long-term interest

The public interests identified through IROPI Steps 1 and 2 above 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 no longer contributing to climate change mechanisms.

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

The Project's contribution to these objectives is itself long-term. It will be capable of providing around 2GW of clean energy generation for 35 years. It will contribute to Scotland and the UK's future low carbon energy mix beyond 2045 and beyond 2050.

The contribution of the Project is also strategically important, to ensuring continuity in the offshore wind sector. Large energy infrastructure projects have a long lead time and the Project is expected to be the first ScotWind project that is expected to

generate power before 2030. Therefore, the Project can “plug the gap” between any generation from Berwick Bank and the remaining ScotWind projects which are expected to start generating power from around 2033. The Project therefore provides continuity for the supply chain. This lends greater long-term importance to the Project.

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

10.6 IROPI Case: Step 4 – An overriding interest

A balancing exercise

The IROPI stage of the HRA process necessarily involves a balancing exercise and the exercise of judgement by the decision maker. Scottish Ministers will determine whether the substantial, long-term public interests that the Project serves, outweigh the public interest in the conservation of the qualifying species of the affected SPAs. The Scottish Ministers’ must exercise that judgement in a rational and a reasonable manner in the context of the HRA framework described in earlier sections of this Report. However, ultimately it is a matter of discretion as to the balance to be struck.

The Relevant Conservation Interests

The Applicant’s position remains that it can be concluded beyond reasonable scientific doubt that the Project would not give rise to any Adverse Effect on Integrity (AEOI), either alone or in combination with other plans or projects.

While it was not possible to conclude no AEOI for all SPAs using the advice and guidance from NatureScot, by applying additional “best scientific knowledge in the field”, it is highly likely that predicted impacts on kittiwake, guillemot, puffin and gannet would be greatly reduced, both from the Project alone and in-combination. The relevant SPAs and features are set out in Table 4. Further background information on the affected SPAs including the reasons for their designation, population size and conservation status can be found in the RIAA.

The overriding factors

The Applicant is confident that the long-term public interests served by the Project override the AEOI in respect of the above SPAs (individually and cumulatively) for the reasons set out in this Part C.

The qualifying interests affected in this case are not priority habitats or species, to which the Habitats Regulations attach especial importance. The type and amount of Compensatory Measures proposed reflect the level of predicted impact and would secure the overall coherence of the national site network.

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

Both fall within the core IROPI category which is “reasons relating to human health, public safety or beneficial consequences of primary importance to the environment”, being reasons which the Habitats Regulations mandate 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 the reasons set out in the preceding sections. The ECJ affirmed in 2019⁶⁶ that ensuring the security of the electricity supply “at all times” constitutes an IROPI. Either reason, then, even in isolation, can and would constitute IROPI. Together, the case is beyond doubt.

On this point, it is noted that the recent DTA guidance (draft, 2021a) suggests that, in general, the interests served by OWF development are likely to outweigh and override the 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.”

This advice is also consistent with the conclusions reached by the SofS in each of the six previous UK OWF decisions which relied upon the HRA Derogation Provisions.

In conclusion, the Project is of national strategic and overriding importance for reasons set out at length above but which can be distilled as follows:

⁶⁶ Judgement of 29.7.2019 – Case C-411/17 Inter-Environnement Wallonie and Bond Beter Leefmilieu Vlaanderen.

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- Delivery of over 2GW of low-carbon electricity – enough to power more than 2 million homes each year, starting from 2029.
 - A substantial near-term contribution to decarbonisation, offsetting millions of tonnes of CO2 emissions per annum from 2029.
 - More than 0.75GW of OWF capacity is required in Scotland and the wider UK to meet policy aims and legal targets for 2030. Without the Project, the 2030 targets would not be met.
 - Decarbonisation and energy security are both urgent imperatives. The scale of and timelines associated with the Project align with that urgency.
 - the Project is the first ScotWind project so provides continuity for the supply chain between the potential Berwick Bank project and the remaining ScotWind projects which are likely to start to come on stream from the 2033.
 - Development of the Project is advanced and there is a high degree of certainty attached to its deliverability and cost efficiency for many reasons including location (shallow waters), design (fixed bottom turbines) and large scale (2GW).
 - the Project enacts, to a large measure owing to its scale, Scottish and UK energy, climate change, planning and marine planning policies, serving the long-term public interests (as set out at a) – g) above. Without the Project, it is probable that delivery of multitude policies will fall short, including: the Scotland Sectoral Marine Plan, Scottish Energy Strategy, the Ten Point Plan, UK Net Zero Strategy and UK Offshore Wind Sector Deal, as well as the targets set by the Climate Change (Scotland) Act 2009, Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, the (UK) Climate Change Act 2008 (as amended) and the Net Zero Strategy: Build back Greener.

For all these reasons, the Project is an essential part of the future generation mix.

The long-term public interests that the Project serves therefore demonstrably outweigh the predicted harm to each and all affected SPAs which are the subject of this Derogation Case.

10.7 Summary of Part C: IROPI

The Project would contribute substantially to Scotland's and the UK's legally binding climate change targets, providing a significant near-term contribution to decarbonisation of energy supply, whilst also contributing to the essential tasks of ensuring security of supply and providing low-cost energy for consumers in line with the Scotland and UK Government's national policies. These are reasons which fall within the core IROPI category of human health, public safety or benefits of primary importance of the environment.

There is an overriding public interest in authorising the Project to further the fundamental policy objectives it will serve, which demonstrably outweighs the AEOI which is predicted in respect of the identified SPAs. The Project will also contribute materially to the economic and social landscape in Scotland and the UK and can provide substantial employment opportunities and skills development, particularly in coastal communities, whilst also playing a major role in supporting Scotland and the UK's supply chains.

This Report demonstrates a compelling case that the Project is indispensable and must be carried out for IROPI.

PART D: COMPENSATORY MEASURES

11. Introduction to Compensatory Measures

Introduction

Having demonstrated in Parts B and C, that there are no Alternative Solutions and that there are IROPI for the Project, Part D now demonstrates to the Scottish Ministers that the compensatory measures, as set out in the Compensation Measures Plan, can be put in place if necessary to ensure the overall coherence of the national site network.

This is presented should the Scottish Ministers adopt the most precautionary assessment conclusions of the RIAA and conclude AEOL in respect of the three SPAs, as outlined in Table 4.

11.1 Compensation Measures Plan

For brevity, the contents of the Compensation Measures Plan are not reproduced in full here.

Potential compensation measures for seabirds were identified and reviewed using the framework established by Furness et al. (2013) and updated by Furness (2021). These reports formed the primary source of information used to create a long list of potential measures that could be applied to the Project. Each species was considered separately, with the aim of identifying a measure or measures that could be applied to all four species requiring compensation. Compensation measures may be required to maintain the coherence of the UK SPA network for kittiwake, great black-backed gull, guillemot and puffin.

A range of potential compensation measures were considered. Based on the available evidence, and the scale of compensation that may be needed, the removal of brown rats and feral cats from islands within Orkney were identified as most able to provide the level of compensation needed with a good likelihood of success. The islands that meet the requirements for the application of predator eradications were identified as Rousay, Hoy, Flotta, Stronsay and Gairsay as these have, or have had, the species requiring compensation present and the presence of terrestrial predators.

Given the scale of compensation that may be required and the presence of both human habitation and agriculture on the short-listed islands, the application of predator proof fences is likely to be the measure that would provide the highest likelihood of success in protecting breeding seabirds from rats and feral cats.

11.2 Detailed feasibility assessment of proposed compensatory measures

The Applicant’s detailed feasibility assessment has been carried out to ensure each of the measures selected meets the key criteria for compensation. The list of key criteria was developed in view of the suite of guidance documents available on compensation (see section 2.2). The assessment is presented below in Table 15 and demonstrates to Scottish Ministers that each of the chosen measures is feasible in respect of all criteria assessed.

Table 15 Detailed Feasibility Assessment for rat eradication and feral cat removal at Rousay, Hoy, Flotta, Stronsay and/or Gairsay

Feasibility Assessment	Yes/No?	Explanation
Is the measure technically feasible?	Yes	The eradication of rats has been successful on islands throughout the UK. Rats were eradicated from: the Calf of Man in 2012, Canna in 2005, Handa in 1997, Lundy in 2003, Puffin Island 1998, Ramsay Island 1998,
Is the measure financially feasible?	Yes	OWPL, is directly funded by Corio and TotalEnergies. Corio Generation is a Macquarie Green Investment Group portfolio company, operating on a standalone basis. Corio has a project pipeline of over 20 GW. TotalEnergies is one of the largest offshore operators on the UK continental shelf, majority owner of Seagreen OWF and the Shetland Gas Plant. Given the strong financial positions of both Corio and TotalEnergies, OWPL can meet the financial obligations of any necessary compensatory measures and does not require external funding raises.

Feasibility Assessment	Yes/No?	Explanation
Is the measure legally feasible?	Yes	<p>MD-LOT have stated that the Applicant's approach to delivery can be secured via condition. This aligns with all previous UK OWF compensatory measures, which have been secured by condition.</p> <p>Key landowners have been identified via the land registry. Key landowners have been contacted via letters to secure access, if required. Land will be secured by a deed of servitude, or similar.</p> <p>Orkney Islands Council have confirmed the process and timescales required to screen for EIA and planning permission, if required.</p> <p>Predator control is already an established process on Orkney. The Orkney Native Wildlife Project already controls predators on the Orkney mainland.</p>
Is the measure deliverable?	Yes	<p>Evidence in the Compensation Measures Plan and the Compensation Implementation and Monitoring Plan demonstrates that predator control measures work and are deliverable.</p> <p>The Compensation Implementation and Monitoring Plan describes the approach to delivery, including various stages comprising pre-eradication/removal monitoring, eradication, implementing biosecurity, post-eradication monitoring (both in the immediate term and long term), seabird monitoring, seabird habitat management and implementing an incursion response plan in case of re-incursion. The Compensation Implementation and Monitoring Plan provides detail on how each of these stages would be delivered, including indicative timescales.</p> <p>The Compensation Implementation and Monitoring Plan demonstrates how the measures would be implemented and monitored. The Applicant's approach to delivery is captured in the Compensation Implementation and Monitoring Plan that may be periodically updated and submitted to Scottish Ministers for approval, if required. The Compensation Implementation and Monitoring Plan will, eventually, become an Adaptive Management Plan to ensure all necessary measures are both deliverable and sufficient, and remain so. The Adaptive Management Plan would be managed by the Applicant and based on the Compensation Implementation and Monitoring Plan. Any changes would be made in consultation with all relevant stakeholders.</p>
Is the measure ecologically effective (i.e. sufficient)?	Yes	<p>Evidence in the Compensation Measures Plan and the Compensation Implementation and Monitoring Plan demonstrates that seabird colonies have responded to predator control, including anti-predator fencing.</p> <p>The Compensation Implementation and Monitoring Plan will, eventually, become an Adaptive Management Plan to ensure all necessary measures are both deliverable and sufficient, and remain so.</p>
Will the measure be effective before adverse effects arise?	Yes	<p>The Applicant expects the compensation measures will, subject to consent and condition(s), be in place two years prior to operation.</p> <p>Removal of predators increases adult survival rates and therefore productivity immediately. We not dependant on intrinsic growth within the population to provide the value of compensation that may be needed. The compensation measures would be applied within existing SPAs and so the coherence of the network will be maintained so recruitment of immature birds is not required for the measure to be effective.</p> <p>Removal of predators increases the availability of nest sites immediately which are within the existing SPA network.</p>
Can be measure be secured?	Yes	<p>Key landowners have been identified via the land registry. Key landowners have been contacted via letters to secure access, if required.</p> <p>Orkney Islands Council have confirmed the process and timescales required to screen for EIA and planning permission, if required.</p>

Feasibility Assessment	Yes/No?	Explanation
		Predator control is already an established process on Orkney. The Orkney Native Wildlife Project already controls predators on the Orkney mainland.
Can success of the measure be monitored?	Yes	<p>It is anticipated that the Applicant's approach to monitoring would be captured in a Colony Measures Implementation Plan (CMIP) that will be submitted to Scottish Ministers for approval post consent. The CMIP would be developed by the Applicant based on the IMP, and in consultation with all relevant stakeholders. The IMP, therefore, describes the Applicant's outline approach to monitoring of this compensatory measure.</p> <p>Monitoring will take place both before and after the implementation of rat eradication, feral cat removal and biosecurity measures and will include surveillance of rats, feral cats and seabird demographics over the lifespan of the Project. This monitoring is integral to the success of the compensatory measure as it allows reoccurrences of rats to be dealt with swiftly and/or determines the necessity of adaptive management should it be found that the desired conservation targets are not progressing as forecasted.</p> <p>Monitoring two things – absence of predators within the fenced area(s) and the response to seabirds to the absence of predators and additional nesting sites.</p> <p>Annual colony counts inside and outside of the fenced area(s)</p> <p>Chew sticks/camera traps for rats/cats</p> <p>Trapping of rats will be monitored and reported through the Adaptive Management Plan and the trap locations and types will be monitored to ensure predators are removed from the fenced area(s). Further monitoring (e.g. using chew sticks or camera traps) will be used to detect and adapt to address potential recursion of predators.</p>
Have uncertainties been addressed?	Yes	<p>The uncertainties of predicted impact have been addressed in the layers of precaution in the RIAA and statutory advice to date.</p> <p>Post construction monitoring within the wind farm and an appropriate buffer will be used to determine whether the predict impacts were larger, or smaller, than the realised impacts.</p> <p>Recent evidence from other windfarms in Scotland have shown no displacement of Kittiwakes and Auks.</p>
Is the measure additional?	Yes	There is no current prospect of or evidence of previous predator control on the islands identified in the Compensation Measures Plan.

11.3 Step 4 – Sufficiency of proposed compensatory measures

The Applicant has proposed colony-based measures which focus on improving productivity at relevant colonies. The section above and the Compensation Measures Plan and the Compensation Implementation and Monitoring Plan demonstrates that the proposed measures are feasible, ecologically effective and can be secured. The aim of implementing these compensatory measures is to ensure the overall coherence of the national site network.

11.4 Step 5 - Prepare implementation and monitoring plan

The Applicant has prepared a detailed Compensation Implementation and Monitoring Plan as part of its Derogation Case submission. This plan provides the evidence to Scottish Ministers that the selected compensatory measures can be delivered in a timely manner and can be relied upon to secure the overall coherence of the national site network.

11.5 Summary of Part D Compensation

The Applicant has proposed compensatory measures that are proportionate to the predicted impacts and have been selected through a rigorous iterative process involving careful consideration and testing of options, stakeholder consultation and refinement. There is sufficient evidence to support the rationale for the final selection, which is rat eradication, feral cat removal and biosecurity measures on one or more islands in Orkney.

The compensatory measures will provide significant additional kittiwakes, guillemots, razorbills and puffins into the UK population – with total numbers far in excess of those required to offset the impacts from the Project. These measures are substantial and provide a comprehensive solution that will maintain and enhance the national site network.

12. Derogation Case – Conclusions

This without prejudice derogation case contains evidence on the HRA Derogation Provisions. It demonstrates that the HRA Derogation Provisions can be satisfied if it is necessary to resort to them to authorise the offshore components of the Project. The Applicant's submission is provided without prejudice to the Applicant's position that it can be concluded beyond reasonable scientific doubt that the Project would not give rise to any Adverse Effect on Integrity (AEIOI), either alone or in combination with other plans or projects.

If required, this derogation case has provided an overview of the Project and the unique opportunity that it represents to deliver timely solutions to both the climate and the energy crisis. The need for the Project is established in this Derogation Case. The Project objectives are clear and derived from Scottish and UK policy and can be only met by a project of this scale in this location.

An overview of the relevant legislation has provided an explanation of the three tests that a derogation case must satisfy to receive consent from Scottish Ministers.

- There are no alternative solutions to the proposed project;
- The Project must be carried out for imperative reasons of overriding public interest; and
- Necessary compensation measures can be secured to ensure the overall coherence of the national site network is protected.

Reasons and evidence have been provided to demonstrate, that there are no alternatives to the Project and that it should be carried for IROPI. Based on extensive consultation and research, compensation measures have been developed that are proportionate to the level of impact, feasible, additional, can be secured (if required) and will deliver compensation that ensures that the overall coherence of the national site network is protected.

Scottish Ministers can be confident that this Derogation Case, the Compensation Measures Plan and the Compensation Implementation and Monitoring Plan provide the required level of evidence and information to allow the Project to be consented under the HRA Derogation Provisions, if required.

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