



F I V E 
ESTUARIES
OFFSHORE WIND FARM

FIVE ESTUARIES
OFFSHORE WIND FARM
SHORTLISTED ORNITHOLOGICAL
COMPENSATION OPTIONS - NEXT STEPS

Document Reference 004755321-01
Revision A
Date May 2023





Project	Five Estuaries Offshore Wind Farm
Sub-Project or Package	Work Package 1
Document Title	Shortlisted Ornithological Compensation Options - Next Steps
Document Reference	004755321-01
Revision	A

COPYRIGHT © Five Estuaries Wind Farm Ltd

All pre-existing rights reserved.

This document is supplied on and subject to the terms and conditions of the Contractual Agreement relating to this work, under which this document has been supplied, in particular:

LIABILITY

In preparation of this document Five Estuaries Wind Farm Ltd has made reasonable efforts to ensure that the content is accurate, up to date and complete for the purpose for which it was contracted. Five Estuaries Wind Farm Ltd makes no warranty as to the accuracy or completeness of material supplied by the client or their agent.

Other than any liability on Five Estuaries Wind Farm Ltd detailed in the contracts between the parties for this work Five Estuaries Wind Farm Ltd shall have no liability for any loss, damage, injury, claim, expense, cost or other consequence arising as a result of use or reliance upon any information contained in or omitted from this document.

Any persons intending to use this document should satisfy themselves as to its applicability for their intended purpose.

The user of this document has the obligation to employ safe working practices for any activities referred to and to adopt specific practices appropriate to local conditions.

Revision	Date	Status/Reason for Issue	Originator	Checked	Approved
A	May-23	Final for issue	GoBe	GoBe	VE OWFL



CONTENTS

1	Introduction	5
1.1	Background	5
	Five Estuaries Offshore Wind Farm	5
	Derogation preparation.....	5
1.2	Aims and objectives.....	6
1.3	Strategic compensation	7
2	Lesser black-backed gull at AOE SPA	8
2.1	Shortlisted option selection.....	8
2.2	Next steps for compensation development.....	8
3	Kittiwake at FFC SPA.....	10
3.1	Shortlisted option selection.....	10
3.2	Next steps for compensation development.....	11
4	Gannet at FFC SPA	12
4.1	Shortlisted option selection.....	12
4.2	Next steps for compensation development.....	12
5	References.....	14



DEFINITION OF ACRONYMS

Term	Definition
AEoI	Adverse Effects on Integrity
AOE	Alde-Ore Estuary
DCO	Development Consent Order
FFC	Flamborough & Filey Coast
HRA	Habitats Regulations Assessment
IROPI	Imperative reasons of overriding public interest
LSE	Likely Significant Effect
MMF	Mean-max foraging range
RAG	Red, Amber, Green
RIAA	Report to Inform Appropriate Assessment
SD	Standard Deviation
SPA	Special Protection Area
VE	Five Estuaries Offshore Wind Farm
VE OWFL	Five Estuaries Offshore Wind Farm Limited



1 INTRODUCTION

1.1 BACKGROUND

FIVE ESTUARIES OFFSHORE WIND FARM

- 1.1.1 Five Estuaries Offshore Wind Farm (VE) is a proposed extension to the operational Galloper Offshore Wind Farm. VE will be situated approximately 37 km off the coast of Suffolk, England (at its closest point).
- 1.1.2 As part of the Development Consent Order (DCO) application, Five Estuaries Offshore Windfarm Ltd (VE OWFL) is required to produce a Report to Inform Appropriate Assessment (RIAA) in order to provide the information required by the Competent Authority in order to undertake its Habitats Regulation Assessment (HRA) and Appropriate Assessment. If the HRA process concludes that Adverse Effects on Integrity (AEol) cannot be excluded, a derogation process is followed. In the event that no alternative solutions can be found, and if there are imperative reasons of overriding public interest (IROPI), the final stage of the derogation process is to develop measures to compensate for adverse effects on the integrity of a site.

DEROGATION PREPARATION

- 1.1.3 In order to allow for sufficient time to engage with stakeholders and develop robust compensation plans for impacts that have the potential to cause AEol at a designated site, VE OWFL is investigating compensation options at this stage in the pre-application period, but it should be noted that this does not prejudice the outcome of the ongoing HRA process.
- 1.1.4 Based on assessments completed at this early stage of the process, VE OWFL is investigating compensation options for species deemed likely to require compensation, this includes lesser black backed gull of the Alde-Ore Estuary (AOE) Special Protection Area (SPA). In terms of kittiwake and gannet of the Flamborough and Filey Coast (FFC) SPA, the applicant maintains a conclusion of no AEol, however a without prejudice derogation case has been presented for these species, in the event that the Secretary of State disagrees with this position.

AOE SPA

- 1.1.5 AOE SPA is 15 km away from the VE array, which is within the mean-max foraging range (MMF) of breeding lesser black-backed gull, a protected feature of AOE SPA. There is therefore potential connectivity between the SPA and VE array during the breeding and non-breeding seasons for this species. Lesser black-backed gull is considered a collision risk species due to their flight behaviour and there has been concern raised by Natural England (NE) regarding the impacts on this feature from other OWF projects, as demonstrated by recent decisions on other offshore wind projects (e.g. Norfolk Boreas, Norfolk Vanguard, East Anglia ONE North and East Anglia TWO) which concluded that AEol could not be ruled out for lesser black-backed gull at AOE SPA when considered in-combination with other projects. The conclusion of AEol in respect of the other projects increases the likelihood that the same conclusion for this project will be reached. Given the proximity of VE to the AOE SPA and results of preliminary assessment, it is considered likely that there will be an AEol in relation to the LBBG feature of the AOE SPA from VE in-combination with other projects, and that compensation for this effect will thus be required.



FFC SPA

- 1.1.6 FFC SPA is 251 km from the VE array. VE screening (VE OWFL, 2021) concluded potential for Likely Significant Effect (LSE) for two species which are qualifying features of this SPA; kittiwake and gannet. Given the distance of VE from the FFC SPA and results of preliminary assessment, any impacts on kittiwake and gannet from VE are predicted to be very small (predicted additional mortality of less than one individual per annum), and indistinguishable from natural fluctuations in the population (as presented in the draft VE RIAA). It is therefore not considered likely that impacts are of a significant magnitude to make a material contribution to natural mortality rates, and thus VE OWFL do not anticipate compensation will be required for kittiwake and gannet. However, concerns regarding impacts on kittiwake and gannet have been raised for other OWF projects in the North Sea, and in addition the SoS has concluded an AEoI at FFC SPA due to in-combination collision mortality for a number of consented projects within the southern North Sea. In anticipation that similar concerns may be raised in relation to VE, VE has therefore commenced the preparation of compensation plans for kittiwake and gannet on a without prejudice basis, in the event that the Secretary of State determines that compensation will be required for these species.
- 1.1.7 VE OWFL has identified potential compensation measures for VE and created a longlist of all possible compensation options to offset their predicted impact at the relevant sites. The longlisted options are based on the existing VE project proposal, experience with HRA derogation matters in the UK and stakeholder feedback received to date. These longlisted options are discussed in 'Five Estuaries Offshore Wind Farm: Potential compensation measures longlist report' (VE OWFL, 2022a).
- 1.1.8 The longlist options were narrowed down to a shortlist following a ranking criteria assessment (otherwise known as a Red-Amber-Green (RAG) assessment) and discussed in 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note' (VE OWFL, 2022b). The ranking approach is provided in 'Five Estuaries Offshore Wind Farm: Compensation measures ranking approach note' (VE OWFL, 2022c). In short, longlisted measures were scored against a number of categories, with scores for each category summed to provide a total score. The measures were then allocated to “red”, “amber” and “green” groups based on their total score, and “green” measures taken forward to the shortlist of compensation options.

1.2 AIMS AND OBJECTIVES

- 1.2.1 This document sets out the next steps of compensation development for ornithological features. It assesses shortlisted compensation options (VE OWFL, 2022b) that are deemed most suitable to take forward for further development, based on available evidence, past project experience, expert judgement, and stakeholder feedback from Natural England. It then sets out proposed next steps for compensation development for each of the relevant species.



1.3 STRATEGIC COMPENSATION

- 1.3.1 It should be noted that whilst this document focuses on the delivery of compensation by VE OWFL alone, options for strategic delivery of compensation measures will also be explored. This includes measures developed through collaboration between multiple OWF projects and developers, as well as the potential for contributions to a centrally funded initiative, such as the planned Marine Recovery Fund.¹

¹ Energy Security Bill factsheet: Offshore wind environmental improvement package.
<https://www.gov.uk/government/publications/energy-security-bill-factsheets/energy-security-bill-factsheet-offshore-wind-environmental-improvement-package>. Accessed January 2023.



2 LESSER BLACK-BACKED GULL AT AOE SPA

2.1 SHORTLISTED OPTION SELECTION

2.1.1 The following lesser black-backed gull compensation options scored green as part of the RAG shortlisting procedure, and have therefore been taken forward to the shortlist:

- > Supplementary feeding;
- > Predator exclusion fencing;
- > Predator management;
- > Disturbance reduction; and
- > Habitat creation.

2.1.2 Further details on each of these compensation options, and the rationale for shortlisting, are presented in 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note' (VE OWFL, 2022b).

2.1.3 Based on a high-level review of evidence for effectiveness and feasibility, expert judgement, and Natural England feedback on the longlist and shortlist of compensation options (VE OWFL, 2022a; VE OWFL, 2022b), supplementary feeding, predator management and disturbance reduction were deemed to represent less suitable options than predator exclusion fencing and habitat creation. Supplementary feeding was deemed to potentially have negative side effects on non-target species and the wider food chain. Predator management measures in order to reduce nest predation and competition was deemed to be a measure that could be implemented alongside predator exclusion fencing rather than a standalone measure. Disturbance reduction was deemed to be hard to quantify the impact with measures normally already in place at suitable breeding sites. At this stage therefore, focus is placed on further developing compensation through predator exclusion fencing and/or habitat creation. The other shortlisted compensation options could be revisited (or considered as a supporting measure) at a future date if deemed necessary or beneficial.

2.2 NEXT STEPS FOR COMPENSATION DEVELOPMENT

2.2.1 Next steps for the development of predator exclusion fencing and habitat creation will consist of:

- > Collating and reviewing ecological evidence to demonstrate feasibility and effectiveness:
 - > For predator exclusion fencing: review lesser black-backed gull predation issues and effectiveness of exclusion fencing for improving breeding performance and population size;
 - > For habitat creation: review lesser black-backed gull habitat requirements and evidence of effectiveness of habitat creation;
- > Developing a roadmap for compensation development and implementation;
- > Site selection:
 - > For predator exclusion fencing: identify breeding sites with a predation issue, assess the feasibility of installing predator exclusion fencing (including



ensuring additionality is provided), establish connectivity to AOE SPA or the wider national site network to ensure compensation meets the Habitat Regulations requirements of maintaining site network coherence;

- > For habitat creation: identify sites, preferably near existing breeding sites/SPAs where habitat creation could improve LBBG breeding success and/or population size (i.e. sites where breeding habitat availability is limited). Potential limiting factors at candidate sites (e.g. predation, anthropogenic disturbance, conflicts with other land-uses), and ways to mitigate these, should also be taken into consideration. Establish connectivity to AOE SPA or the wider national site network to ensure compensation meets the requirements of maintaining site network coherence;
- > Identifying key stakeholders and planning consultation;
- > Developing an outline implementation plan; and
- > Developing an outline monitoring plan.

2.2.2 It should be noted that following the identification of potential sites, details such as land ownership and any site constraints would need to be investigated by VE OWFL as part of the site selection process.

2.2.3 Next steps for compensation development could, where deemed beneficial, also include the identification of key knowledge and evidence gaps and designing and carrying out (desk-based or field-based) studies to fill these gaps.



3 KITTIWAKE AT FFC SPA

3.1 SHORTLISTED OPTION SELECTION

- 3.1.1 The following kittiwake compensation options scored green as part of the RAG shortlisting procedure, and have therefore been taken forward to the shortlist:
- > Artificial nest sites;
 - > Fisheries management;
 - > Directed offal discards;
 - > Prey habitat enhancement;
 - > Crow control; and
 - > Disturbance reduction.
- 3.1.2 For further details on each of these compensation options, and the rationale for shortlisting, see 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note' (VE OWFL, 2022b).
- 3.1.3 Based on a high-level review of evidence for effectiveness and feasibility, expert judgement, and Natural England feedback on the longlist and shortlist of compensation options (VE OWFL, 2022a; VE OWFL, 2022b), the provision of artificial nest site was deemed the most feasible compensation option. Although fisheries management options can be a highly effective way of increasing fish stocks there is currently no mechanism for individual OWF developers to manage fisheries as a compensation measure, thus substantial work on delivery mechanisms would be needed before this could be implemented as a compensation measure. Directed offal discards were deemed to potentially have negative side effects on non-target species and the wider food chain. Prey habitat enhancement by creating new nursery habitats to enhance fish populations would have a high environmental value but further work to understand the links between seagrass, fish and seabird breeding and/or populations sizes would be beneficial to better understand the scale of the benefits that this measure may deliver. Crow control was deemed to lack enough evidence about the effectiveness of this measure having any impact of kittiwake populations. Disturbance reduction was deemed to be hard to quantify the impact with measures normally already in place at suitable breeding sites. At this stage therefore, focus is placed on further developing compensation through delivering artificial nest sites. The other shortlisted compensation options could be revisited (or considered as a supporting measure) at a future date if deemed necessary or beneficial.
- 3.1.4 It should be noted that the assessment undertaken to date for VE does not reach a conclusion of AEol for the kittiwake feature of the FFC SPA, and so these compensation plans are being developed on a without prejudice basis for this species, in the event that the Secretary of State determines that compensation would be required (see paragraph 1.1.6).



3.2 NEXT STEPS FOR COMPENSATION DEVELOPMENT

- 3.2.1 As preliminary assessment concludes that impacts from VE on kittiwake are likely to be very small and that there is no AEoI of the FFC SPA, the provision of entire artificial nesting structures, as proposed by other recent OWF projects, is not deemed proportionate in this context. For this reason, the next step in the development of kittiwake compensation comprises identifying sites where the addition of (small numbers of) artificial nest sites could benefit breeding kittiwake. This could include for example the installation of carved nesting ledges or metal kittiwake “hammocks” at or near existing breeding sites. This could be delivered through partnership with other organisations, for example through financial contributions to the improvement or expansion of existing and/or planned artificial nest sites for kittiwake. Alternatively, it could also be realised by VE OWFL leading on the identification and installation of new nesting sites independently. Following this, next steps will consist of:
- > Contacting relevant parties to commence discussions about collaboration opportunities, and/or identifying sites for the delivery of smaller quantities of nest site provision (e.g. ledges or hammocks)
 - > Preparing ecological evidence documents
 - > Identifying stakeholders and planning consultation
 - > Developing outline implementation and monitoring plans
- 3.2.2 It should be noted that following the identification of potential sites, details such as financial agreements with partners or land owners, and feasibility of permission/purchase would need to be progressed by VE OWFL as part of the site selection process.



4 GANNET AT FFC SPA

4.1 SHORTLISTED OPTION SELECTION

4.1.1 The following gannet compensation options scored green as part of the RAG shortlisting procedure, and have therefore been taken forward to the shortlist:

- > Artificial nest sites;
- > Directed offal discards;
- > Bycatch reduction;
- > Plastic waste removal from colonies; and
- > Prey habitat enhancement.

4.1.2 For further details on each of these compensation options, and the rationale for shortlisting, see 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note' (VE OWFL, 2022b).

4.1.3 Feasibility concerns were raised by stakeholders around the proposed compensation options for gannet, mostly due to the limited availability of evidence of their effectiveness. However, the above list is deemed to consist of the most feasible compensation options for gannet. Based on a high-level review of evidence for effectiveness and feasibility, expert judgement, and Natural England feedback on the longlist and shortlist of compensation options (VE OWFL, 2022a; VE OWFL, 2022b), bycatch reduction and the provision of artificial nesting sites were deemed the most feasible compensation options. Directed offal discards were deemed to potentially have negative side effects on non-target species and the wider food chain. Bycatch from entanglement was considered as a compensation measure, however there is limited knowledge on the effectiveness of different bycatch reduction methods at present. Prey habitat enhancement through the creation of Marine SPAs were considered, however due to the technical and regulatory challenges involved it was deemed unsuitable for shortlisting. Plastic waste removal from colonies was deemed not to be a highly effective compensation measure. Prey habitat enhancement by creating new nursery habitats to enhance fish populations would have a high environmental value but further work to understand the links between seagrass, fish and seabird breeding and/or populations sizes would be beneficial to better understand the scale of the benefits that this measure may deliver.

4.1.4 It should be noted that the assessment undertaken to date for VE does not reach a conclusion of AEoI for the gannet feature of the FFC SPA, and so these compensation plans are being developed on a without prejudice basis for this species, in the event that the Secretary of States determines that compensation would be required (see paragraph 1.1.6).

4.2 NEXT STEPS FOR COMPENSATION DEVELOPMENT

4.2.1 If, following the findings from the RIAA and subsequent consultation, it is deemed likely that compensation may be required for gannet, VE OWFL proposes to develop compensation proposals on a without prejudice basis with the following next steps:

- > Review up-to-date evidence of benefits of bycatch reduction and/or artificial nesting in gannet
- > Identify techniques and best practice for delivering bycatch reduction and/or the provision of artificial nest sites



- > Identify delivery partners (e.g. fisheries partners, conservation organisations) to partner with for delivery and open discussions around suitable options and locations
- > Collate an ecological evidence document
- > Identify stakeholders and plan consultation
- > Produce implementation and monitoring plans

4.2.2 It should be noted that following the identification of potential options, details such as land ownership and feasibility of permission/purchase (for new artificial nest sites) and contracts with partners (for bycatch reduction) would need to be progressed by VE OWFL as part of the compensation development process.



5 REFERENCES

VE OWFL (2021). Habitat Regulations Assessment Screening Report.

VE OWFL (2022a). 'Five Estuaries Offshore Wind Farm: Potential compensation measures longlist report'.

VE OWFL (2022b). 'Five Estuaries Offshore Wind Farm: Compensation measures shortlist technical note'.

VE OWFL (2022c). 'Five Estuaries Offshore Wind Farm: Compensation measures ranking approach note'.

The logo for Five Estuaries Offshore Wind Farm. The word "FIVE" is written in a large, sans-serif font. The letter "I" is grey, "V" is purple, and "E" is pink. To the right of "FIVE" are three wavy lines representing water, colored blue, green, and yellow from top to bottom. Below "FIVE" is the word "ESTUARIES" in a large, grey, sans-serif font. At the bottom is the phrase "OFFSHORE WIND FARM" in a smaller, grey, sans-serif font.

FIVE
ESTUARIES
OFFSHORE WIND FARM

PHONE
EMAIL
WEBSITE
ADDRESS

0333 880 5306
fiveestuaries@rwe.com
www.fiveestuaries.co.uk

COMPANY NO

Five Estuaries Offshore Wind Farm Ltd
Windmill Hill Business Park
Whitehill Way, Swindon, SN5 6PB
Registered in England and Wales
company number 12292474