

Appropriate Assessment for Green Volt Offshore Wind Farm and Associated Transmission Infrastructure. April 2024.

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**SCOTTISH MINISTERS ASSESSMENT OF THE PROJECT'S
IMPLICATIONS FOR DESIGNATED SPECIAL AREAS OF
CONSERVATION AND SPECIAL PROTECTION AREAS IN VIEW OF
THE SITES' CONSERVATION OBJECTIVES.**

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989, AND FOR MARINE LICENCES UNDER THE MARINE (SCOTLAND) ACT 2010 AND THE MARINE AND COASTAL ACCESS ACT 2009 FOR THE CONSTRUCTION AND OPERATION OF GREEN VOLT OFFSHORE WIND FARM AND ASSOCIATED TRANSMISSION INFRASTRUCTURE.

SITE DETAILS: GREEN VOLT OFFSHORE WIND FARM, APPROXIMATELY 80 KILOMETRES OFF ABERDEENSHIRE COAST.

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Glossary of Terms

AA	Appropriate Assessment
AEOSI	Adverse Effect on Site Integrity
CGR	Counterfactual Growth Rate
CPS	Counterfactual of Population Size
CRM	Collision Risk Modelling
EIA	Environmental Impact Assessment
HDD	Horizontal Directional Drilling
HPAI	Highly Pathogenic Avian Influenza
HRA	Habitats Regulations Appraisal
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
JNCC	Joint Nature Conservation Committee
km	Kilometres
km ²	Square kilometres
LAT	Lowest Astronomical Tide
LSE	Likely Significant Effect
m	Metres
m ³	Cubic metres
MW	Megawatts
NAF	Nocturnal Activity Factors
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PVA	Population Viability Analysis
RIAA	Report to Inform the Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SD	Standard Deviation
SNCB	Statutory Nature Conservation Body
SOAR	Supplementary Ornithological Assessment Report (Technical Appendix 12.8 to the EIA Report)
SPA	Special Protection Area
the Company	Green Volt Offshore Windfarm Limited
TLP	Tension Leg Platforms
UXO	Unexploded Ordnance
WTG	Wind Turbine Generators

SECTION 1: BACKGROUND

1 Appropriate assessment conclusion

- 1.1 This AA concludes that there will be no AEOSI on the Moray Firth SAC, Calf of Eday SPA, Cape Wrath SPA, Copinsay SPA, Coquet Island SPA, Fair Isle SPA, Farne Islands SPA, Fetlar SPA, Flamborough and Filey Coast SPA, Foula SPA, Handa SPA, Hermaness, Saxa Vord and Valla Field SPA, Hoy SPA, Marwick Head SPA, North Caithness Cliffs SPA, North Rona and Sula Sgeir SPA, Noss SPA, Rousay SPA, St Abbs Head to Fast Castle SPA, St Kilda SPA, Sule Skerry and Sule Stack SPA, Sumburgh Head SPA and West Westray SPA from the Green Volt OWF either in isolation or in combination with other plans or projects, providing that the conditions set out in Section 4 are complied with.
- 1.2 The Scottish Ministers consider that the most up to date and best scientific advice available has been used in reaching the conclusion that the Green Volt OWF will not adversely affect the integrity of the above sites and is satisfied that no reasonable scientific doubt remains.
- 1.3 However, the AA concludes there will be an AEOSI from Green Volt OWF in combination with other plans or projects for the following features and SPAs:
- Kittiwake at Buchan Ness to Collieston Coast SPA;
 - Kittiwake, razorbill and guillemot at East Caithness Cliffs SPA;
 - Gannet at Forth Islands SPA;
 - Kittiwake at Fowlsheugh SPA; and
 - Kittiwake at Troup, Pennan and Lion's Heads SPA.
- 1.4 Further, the AA was unable to conclude beyond reasonable scientific doubt that there will be no AEOSI from Green Volt OWF in combination with other plans or projects for the following features and SPAs:
- Guillemot at Fowlsheugh SPA; and
 - Puffin at Forth Islands SPA.
- 1.5 The Scottish Ministers therefore conclude that Green Volt OWF can only be consented if a derogation case is agreed under regulation 49 of the Conservation (Natural Habitats, &c.) Regulations 1994 and regulation 29 of the Conservation of Offshore Marine Habitats and Species Regulations 2017.

2 Introduction

- 2.1 This is a record of the AA undertaken by the Scottish Ministers in regards to the Company's proposal to construct and operate Green Volt OWF and associated transmission infrastructure located approximately 80 km off the Aberdeenshire coast as required under Regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 and Regulation 28 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 (collectively known as "the Habitats Regulations"). The Scottish Ministers as the 'competent authority' under the Habitats Regulations, can only agree to a project after having ascertained that the project will not adversely affect the integrity of any European site (SACs or SPAs), either alone or in combination with other plans or projects. If AEOSI is identified through the AA then a competent authority can only agree to a project if the requirements of the derogation provisions in the Habitats Regulations are met. The derogation process is not part of the AA and, given the conclusions of the AA, is considered separately in other documentation relating to the application for Green Volt OWF.
- 2.2 NatureScot, operating name of Scottish Natural Heritage, and Natural England have been consulted in accordance with Regulation 48(3) of the Conservation (Natural Habitats, &c.) Regulations 1994 and Regulation 28(4) of the Conservation of Offshore Marine Habitats and Species Regulations 2017.

3 Details of proposed project

- 3.1 The Company has submitted three separate marine licence applications in respect of the generating station and the transmission works under part 4 of the Marine and Coastal Access Act 2009 and part 4 of the Marine (Scotland) Act 2010. Additionally, the Company has submitted an application for consent under Section 36 of the Electricity Act 1989 in respect of the project. A full description of the project can be found in [volume 1, chapter 5](#) of the EIA Report, as submitted on 20 January 2023. The section 36 consent and marine licences applied for are for an operational period of 35 years. As part of the application, the Company also submitted a [RIAA](#) and [SOAR](#) which have been used to inform the AA.
- 3.2 The Company proposes to construct and operate a floating offshore wind farm approximately 80 km off the Aberdeenshire coast in East Scotland with a generating capacity of up to 560 MW, consisting of up to 35 floating WTGs with foundations comprising of either semi-submersible platforms or TLPs. One OSP is proposed to be installed on a 4-legged jacket foundation secured to the seabed either by pile driving or suction piling.

- 3.3 A summary of the physical parameters of the WTGs as provided in the [EIA Report](#) is presented below in Table 1:

Table 1: WTG Parameters

Parameter	Green Volt OWF
Number of WTGs	Up to 35
Capacity (MW)	Up to 16
Rotor hub height (m)	Maximum of 143
Rotor tip height (m above LAT)	Maximum of 264
Blade tip clearance (m above LAT)	Minimum of 22
Blade width (m)	Maximum of 8
Rotor diameter (m)	Maximum of 242
Wind farm total rotor swept area (km ²)	Maximum of 1610
Turbine spacing (m)	Maximum of 1936

- 3.4 If semi-submersible platform or barge is the chosen WTG foundation option, catenary mooring lines will be used with a radius of up to 650 m and a maximum of 6 drag embedment anchors per WTG with no scour protection. If TLP is the chosen WTG foundation option, TLP tendons will be used with a mooring line radius of up to 100 m and a maximum of 6 suction pile anchors per WTG, with a total area of 1,414 m² of scour protection.
- 3.5 There will be up to 35 inter-array cables, arranged in 7 groups/strings each connecting 5 WTGs. Each inter-array cable will be approximately 3.2 km long with a maximum total of 134 km for all the inter-array cables.
- 3.6 The preferred method of the laying of the inter-array cables is still to be confirmed, however the Company is considering trenching, jetting, ploughing and mechanical cutting, and surface laid with cable protection. For all trenching techniques, burial depth is expected between 0.6 to 1.5 m, with an expected trench width of 3 m. Jetting and ploughing options would result in a seabed disturbance width of 10 m, and a total area of disturbance of 1.34 km². Where possible, the Company aims to actively backfill the cable trench to achieve the required cable burial depth.
- 3.7 The alternative non-buried installation technique being considered is a surface laid cable with external protection achieved by means of rock berm or matting. The average width of rock berm for this option is expected to be 10 m with a height of 1.5 m. The volume of rock berm protection required per km of inter-array cable would be 8,250 m³ /km. It is anticipated that a small 20

m portion of inter-array cable approaching each turbine foundation will need to be surface laid with rock berm protection. Rock berm for each of these sections is expected to have a width of 5 m and have a seabed coverage of 100 m².

- 3.8 Up to four HVAC export cables are proposed. Two of the HVAC export cables are proposed to run from the wind farm array area to the Buzzard oil and gas platform for electrification purposes (60 km total of cable). The remaining two export cables are proposed to run to landfall near Peterhead (240 km total of cable). There are two potential landfall sites in the vicinity of Peterhead under consideration. The Company has confirmed that the installation at landfall will be via HDD rather than open trenching. The installation methods being considered for the export cables are trenching, jetting, ploughing and mechanical cutting. For all trenching techniques, burial depth is as detailed above for inter-array cables, and a total area of disturbance of 0.6 km² to Buzzard and 2.4 km² to landfall.
- 3.9 As part of the Company's proposal, pre-installation works will be carried out for the export cable corridors and inter-array cables, including geophysical surveys and UXO and boulder clearance activities. The geophysical surveys will include the use of side scan and sub bottom profiling.
- 3.10 Construction is scheduled to take three years, with the aim of connecting Buzzard to the UK grid by Q4 2027 and thus beginning the project's operation and maintenance phase, which is due to last 35 years.
- 3.11 Pre-construction site investigation surveys and seabed preparation activities are due to be completed by Summer 2024 with offshore construction due to last 2 years. This includes WTG assembly, pre-commissioning and commissioning, which is due to take up to 12 months. HDD installation is due to take 6 months to complete. Substation piles, jacket and topside installation and export cable installation is also due to take up to 9 months to complete with array cable installation and pull in completed last. Figure 2.2 of the [Non-Technical Summary](#) provided alongside the EIA Report sets out the outline construction timeline from the Company, however this is dependent on the timing of any consent or licences that may be granted.

4 Consultation

- 4.1 NatureScot was consulted on 3 February 2023 and it provided a response on all aspects excluding ornithological receptors on 30 March 2023. A response on ornithological receptors was provided on 19 April 2023.

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- 4.2 RSPB Scotland, as an interested party, was consulted on 3 February 2023 and responded on 24 April 2023.
- 4.3 Natural England was consulted in respect of impacts to European sites in English waters on 3 February 2023 and responded on 3 April 2023.
- 4.4 In its response of 19 April 2023, NatureScot requested additional information on ornithological receptors. This additional information was requested from the Company on 6 June 2023 and received 20 October 2023. NatureScot, RSPB Scotland and Natural England were consulted on the additional information on 3 November 2023 and responded on 29 January 2024, 16 January 2024 and 14 December 2023, respectively.
- 4.5 Further clarification was sought from NatureScot on 9 April 2024 and received on 11 April 2024.

5 Main points raised during consultation

- 5.1 The main points by each of the respondents that included HRA specific comments are summarised below. Copies of all consultation comments received by the Scottish Ministers can be found [here](#) for the original consultation and [here](#) for the additional information consultation.
- 5.2 Where conclusions varied between NatureScot and RSPB Scotland, additional text is included in the relevant species/SPA sections. Otherwise only statements from NatureScot for Scottish SPAs are included for each individual species and SPA combination.
- 5.3 Consultee conclusions on AEOSI based on information provided by the Company in the SOAR are presented below.

Table 2: SPA interest features for which Scottish Ministers (AA), the Company, NatureScot and RSPB Scotland concluded AEOSI from either Green Volt OWF in combination with other UK North Sea OWFs, either including or excluding Berwick Bank OWF. A question mark is listed where AEOSI is not concluded but cannot be ruled out.

Species	SPA	In-combination including Berwick Bank OWF				In-combination excluding Berwick Bank OWF			
		Scottish Ministers	Company	NatureScot	RSPB Scotland	Scottish Ministers	Company	NatureScot	RSPB Scotland

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Kittiwake	Buchan Ness to Collieston Coast	Y		Y	Y?	Y		Y	Y?
	Troup, Pennan and Lion's Heads	Y		Y	Y?	Y		Y	Y?
	Fowlsheugh	Y		Y	Y?	Y		Y	Y?
	East Caithness Cliffs	Y		Y	Y?	Y		Y	Y?
	North Caithness Cliffs			Y?				Y?	
	Forth Islands			Y?	Y?			Y?	Y?
	St Abb's Head to Fast Castle			Y?	Y?			Y?	Y?
	West Westray			Y?	Y?			Y?	Y?
Guillemot	Buchan Ness to Collieston Coast								
	Troup, Pennan and Lion's Heads								
	East Caithness Cliffs	-		Y	Y?			Y	Y?
	North Caithness Cliffs	-				Y			
	Fowlsheugh	Y		Y	Y?	Y?		Y?	Y?
	Copinsay	-							
Razorbill	Troup, Pennan and Lion's Heads								
	Fowlsheugh			Y?				Y?	
	East Caithness Cliffs	Y		Y		Y		Y	
Puffin	Forth Islands	Y?		Y?	Y?	Y?		Y?	Y?
Gannet	Forth Islands	Y		Y		Y		Y	
	Hermaness, Saxa Vord & Valla Field				Y?				Y?

5.4 NatureScot

Annex I Habitats

- 5.4.1 In its consultation response of 30 March 2023, NatureScot agreed with the RIAA that there will be no LSE on the vegetated sea cliffs qualifying feature of the Buchan Ness to Collieston Coast SAC. This is due to HDD being proposed to be used at the landfall which will avoid the habitat, rather than open trenching which was originally considered. Additionally, construction works at the landfall will adhere to best practice and legislation to prevent spilling and pollution events.
- 5.4.2 The Scottish Ministers agree with this conclusion and this site and feature has therefore not been taken forward for further assessment in the AA.

Diadromous Fish

- 5.4.3 Based on advice provided at the pre-application stage, the RIAA considered that there would be LSE on the diadromous fish and freshwater pearl mussel qualifying interests of the River Dee SAC, River Spey SAC, South Esk SAC,

River Oykel SAC and River Moriston SAC. Part of the life stage of freshwater pearl mussels is reliant on Atlantic salmon so there is the potential for them to be indirectly affected by Green Volt OWF.

- 5.4.4 NatureScot advised that due to the extremely limited knowledge of distribution and behaviour of diadromous fish in the marine environment, it was unable to advise on connectivity and therefore impacts to populations within natal rivers from Green Volt OWF or apportioning back to natal SAC sites. NatureScot advised therefore that it was unable to carry out an assessment on diadromous fish to the level required under the Habitats Regulations. NatureScot advised that from an EIA perspective, based on the information provided in the RIAA and EIA Report, it considered Green Volt OWF was unlikely to have significant adverse effects either alone or cumulatively on diadromous fish. The Scottish Ministers agree with NatureScot and these sites and species have therefore not been carried forward for assessment in the AA. The effects and consideration of any appropriate mitigation will however be considered further within the EIA decision notice.

Marine Mammals

- 5.4.5 In its consultation response of 30 March 2023, NatureScot agreed with the RIAA that the Green Volt OWF has potential to cause disturbance to bottlenose dolphins which transit along the East Coast to and from the Moray Firth SAC. NatureScot advised that there is LSE on the bottlenose dolphin qualifying feature of the Moray Firth SAC but agreed with the conclusion reached in the RIAA of no AEOSI.

Ornithology

- 5.4.6 In its response to the original application documentation (specifically the EIA Report and RIAA), dated 19 April 2023, NatureScot was unable to progress its assessment of the application due to deviations and discrepancies from agreed guidance, and therefore requested additional information. To address this request, the Company provided additional information in the SOAR.
- 5.4.7 In response to the SOAR, NatureScot confirmed that it was largely content that the issues had been addressed. The exception to this was the continued use of Range Rule Standard Deviation in the collision risk modelling in the SOAR, which NatureScot described as “*simplistic and non-standard*”. However, NatureScot stated that they were prepared to accept this method in this case, albeit with reduced confidence.

5.4.8 NatureScot advised no AEOSI for features of Scottish SPAs from the Green Volt OWF in isolation. However, NatureScot advised AEOSI for multiple features across multiple SPAs for Green Volt OWF in combination with other OWF at UK North Sea spatial scales. Whilst NatureScot agreed with some of the conclusions of the SOAR, they either disagreed with the SOAR and concluded AEOSI for some qualifying features of some SPAs, or were unable to conclude no AEOSI, considering in combination options both with and without Berwick Bank OWF. However, for some features at some SPAs they acknowledge that the Green Volt OWF contribution to annual mortality is very low.

5.4.9 NatureScot stated that a number of seabird species have been significantly affected by HPAI and that this has implications not just for the baseline (reference population) but also the context within which impacts from the Green Volt OWF are assessed.

5.4.10 For the following features and SPAs, NatureScot concluded AEOSI in combination with other projects, as a result of displacement effects (guillemot, razorbill and puffin) or combined displacement and collision mortality (gannet and kittiwake), in its response of 29 January 2024:

- Buchan Ness to Collieston Coast SPA, kittiwake (both with and without Berwick Bank OWF);
- East Caithness Cliffs SPA, razorbill and kittiwake (both with and without Berwick Bank OWF);
- East Caithness Cliffs SPA, guillemot (without Berwick Bank OWF);
- Forth Islands SPA, gannet (both with and without Berwick Bank OWF);
- Fowlsheugh SPA, kittiwake (both with and without Berwick Bank OWF);
- Fowlsheugh SPA, guillemot (with Berwick Bank OWF and potential AEOSI without); and
- Troup, Pennan and Lion's Heads SPA, kittiwake (both with and without Berwick Bank OWF).

5.4.11 For the following features and SPAs, NatureScot was unable to conclude no AEOSI in combination with other projects in its response of 29 January 2024. However, it considered that the Green Volt project contribution to the in-combination impacts is small and as such does not make a tangible contribution to the impacts:

- Forth Islands SPA, kittiwake and puffin (both with and without Berwick Bank OWF);

- Fowlsheugh SPA, razorbill (both with and without Berwick Bank OWF);
- North Caithness Cliffs SPA, kittiwake (both with and without Berwick Bank OWF);
- St Abbs Head to Fast Castle SPA, kittiwake (both with and without Berwick Bank OWF); and
- West Westray SPA, kittiwake (both with and without Berwick Bank OWF).

5.5 Natural England

Diadromous Fish and Marine Mammals

- 5.5.1 In its response of 3 April 2023, Natural England agreed with the conclusions of the RIAA with respect to English waters.
- 5.5.2 Natural England stated that the Green Volt OWF can be excluded of having a significant effect on diadromous fish or marine mammals of English SACs. Natural England noted that as is best practice, the JNCC guidelines “Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling” should be followed.

Ornithology

- 5.5.3 Having examined the original EIA and RIAA documents submitted by the Company, in its response dated 3 April 2023 Natural England noted the differences between the Natural England assessment approach and the NatureScot assessment approach regarding the treatment of sabbatical birds and age structure for apportioning, and acknowledged the importance of considering OWF impacts on the wider SPA network, not just those in Scotland. Natural England highlighted the potential for cumulative OWFs to lead to adverse impacts on English and Scottish birds in the future. It also highlighted the importance of adopting a precautionary approach to assessments due to the impacts of HPAI on the seabird feature species of SPAs in assessments.
- 5.5.4 Natural England agreed with the conclusions in the RIAA regarding the SPAs and species for which LSE was identified and also agreed that there would be no AEOSI for English SPAs and species. These are:

- Coquet Island SPA: kittiwake, puffin, seabird assemblage;
- Farne Islands SPA: kittiwake, puffin, guillemot, seabird assemblage; and

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- Flamborough and Filey Coast SPA: gannet, kittiwake, razorbill, guillemot, seabird assemblage.

5.5.5 In its response of 14 December 2024, Natural England confirmed it had no further comments to make on the SOAR.

5.6 RSPB Scotland

Ornithology

5.6.1 In its original response dated 24 April 2023, RSPB Scotland, similarly to NatureScot, had many concerns with the methodology presented in the original EIA and RIAA for Green Volt OWF. These included inadequate consideration of the potential impacts on European storm-petrels, missing PVA outputs and misuse of PVA output metrics and a lack of inclusion of Berwick Bank OWF in the cumulative assessment. RSPB Scotland concluded that the predicted mortality impacts are so severe that there would be an AEOSI for the kittiwake population of the Buchan Ness to Collieston Coast SPA, the kittiwake and guillemot populations of the East Caithness Cliffs SPA and the kittiwake population of the Troup, Pennan and Lion's Heads SPA. RSPB raised several concerns with the Company's methodology and therefore was unable to reach a conclusion on the significance of impacts in combination with other projects for the following sites and species:

- Buchan Ness to Collieston Coast SPA, guillemot;
- Troup, Pennan and Lion's Heads SPA, guillemot and gannet;
- North Caithness Cliffs SPA, guillemot;
- Forth Islands SPA, gannet;
- Hermaness, Saxa Vord and Valla Field SPA, gannet;
- Mousa SPA, European storm petrel; and
- Sule Skerry and Sule Stack SPA, European storm petrel.

5.6.2 RSPB Scotland also highlighted the recent outbreak of HPAI and the need to consider the impact of this in any assessments undertaken.

5.6.3 In its response of 16 January 2024, RSPB Scotland considered that while the Green Volt OWF in isolation does not pose unacceptable impacts to seabirds, it is concerned about impacts in combination with other plans and projects.

5.6.4 RSPB Scotland acknowledged that the SOAR presented by the Company provided a more comprehensive picture than the original application, with improved structuring that aided review. However, RSPB Scotland found issues

with the labelling of tables in the PVA section which do not make clear whether collision has been included. It also acknowledged that it had been unable to fully interrogate model methods, inputs, and outputs so assumed the models have been carried out using the correct parameters and that the word 'collision' has been omitted from the PVA results table descriptions.

5.6.5 RSPB Scotland disagreed with the argument made by the Company that variable natural mortality makes additional mortality associated with the Green Volt OWF acceptable. It stated that seabirds are relatively long-lived, take longer to reach breeding age than other birds and have just one or two young per year. Therefore, RSPB Scotland stated that seabird populations are sensitive to small increases in adult mortality.

5.6.6 RSPB Scotland concluded that AEOSI for the Green Volt OWF in combination with other plans and projects cannot be ruled out for the following sites and species:

- Forth Islands SPA, puffin and kittiwake;
- St Abb's Head to Fast Castle SPA, kittiwake (particularly if Berwick Bank OWF is also consented);
- East Caithness Cliffs SPA, kittiwake and guillemot;
- Fowlsheugh SPA, kittiwake and guillemot;
- West Westray SPA, kittiwake;
- Buchan Ness to Collieston Coast SPA, kittiwake;
- Troup, Pennan and Lion's Heads SPA, kittiwake; and
- Hermaness, Saxa Vord and Valla Field SPA, gannet.

SECTION 2: INFORMATION ON EUROPEAN SITES

6 Background information and qualifying interests for the relevant European sites

6.1 This section provides links to the NatureScot SiteLink website and the Natural England Designated Sites View website where the background information on the sites being considered in this assessment is available. The qualifying interests for the sites are listed as are the conservation objectives.

Table 3 Name of European sites affected and relevant links

<p><u>Moray Firth SAC –</u> https://sitelink.nature.scot/site/8327</p>
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Buchan Ness to Collieston Coast SPA –

<https://sitelink.nature.scot/site/8473>

Calf of Eday SPA –

<https://sitelink.nature.scot/site/8478>

Cape Wrath SPA –

<https://sitelink.nature.scot/site/8481>

Copinsay SPA –

<https://sitelink.nature.scot/site/8485>

Coquet Island SPA –

<https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9006031>

East Caithness Cliffs SPA –

<https://sitelink.nature.scot/site/8492>

Fair Isla SPA –

<https://sitelink.nature.scot/site/8496>

Farne Islands SPA –

<https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9006021>

Fetlar SPA –

<https://sitelink.nature.scot/site/8498>

Flamborough and Filey Coast SPA –

<https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9006101>

Forth Islands SPA –

<https://sitelink.nature.scot/site/8500>

Foula SPA –

<https://sitelink.nature.scot/site/8504>

Fowlsheugh SPA –

<https://sitelink.nature.scot/site/8505>

Handa SPA –

<https://sitelink.nature.scot/site/8511>

Hermaness, Saxa Vord and Valla Field SPA –

<https://sitelink.nature.scot/site/8512>

Hoy SPA –

<https://sitelink.nature.scot/site/8513>

Marwick Head SPA –

<https://sitelink.nature.scot/site/8544>

North Caithness Cliffs SPA –

<https://sitelink.nature.scot/site/8554>

North Rona and Sula Sgeir SPA –

<https://sitelink.nature.scot/site/8558>

Noss SPA –

<https://sitelink.nature.scot/site/8561>

Rousay SPA –

<https://sitelink.nature.scot/site/8573>

St Abb's Head to Fast Castle SPA –

<https://sitelink.nature.scot/site/8579>

St Kilda SPA –

<https://sitelink.nature.scot/site/8580>

Sule Skerry and Sule Stack SPA –

<https://sitelink.nature.scot/site/8581>

Sumburgh Head SPA –

<https://sitelink.nature.scot/site/8582>

Troup, Pennan and Lion's Heads SPA –

<https://sitelink.nature.scot/site/8587>

West Westray SPA –

<https://sitelink.nature.scot/site/8589>

Table 4 Qualifying interests

Moray Firth SAC

Bottlenose dolphin (*Tursiops truncatus*)
Subtidal sandbanks

Buchan Ness to Collieston Coast SPA

Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Herring gull (*Larus argentatus*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding

Calf of Eday SPA

Cormorant (*Phalacrocorax carbo*), breeding
Fulmar (*Fulmarus glacialis*), breeding
Great Black-backed gull (*Larus marinus*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Seabird assemblage, breeding

Cape Wrath SPA

Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Puffin (*Fratercula arctica*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding

Copinsay SPA

Fulmar (*Fulmarus glacialis*), breeding
Great black-backed gull (*Larus marinus*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Seabird assemblage, breeding

Coquet Islands SPA

Arctic tern (*Sterna paradisaea*), breeding
Common tern (*Sterna hirundo*), breeding
Roseate tern (*Sterna dougallii*), breeding
Sandwich tern (*Thalasseus sandvicensis*), breeding
Seabird assemblage

East Caithness Cliffs SPA

Cormorant (*Phalacrocorax carbo*), breeding
Fulmar (*Fulmarus glacialis*), breeding
Great Black-backed gull (*Larus marinus*), breeding
Guillemot (*Uria aalge*), breeding
Herring gull (*Larus argentatus*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Peregrine (*Falco peregrinus*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding

Fair Isle SPA

Arctic skua (*Stercorarius parasiticus*), breeding
Arctic tern (*Sterna paradisaea*), breeding
Fair Isle wren (*Troglodytes troglodytes fridariensis*), breeding
Fulmar (*Fulmarus glacialis*), breeding
Gannet (*Morus bassanus*), breeding
Great skua (*Stercorarius skua*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Puffin (*Fratercula arctica*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding

Farne Islands SPA

Arctic tern (*Sterna paradisaea*), breeding
Common tern (*Sterna hirundo*), breeding
Guillemot (*Uria aalge*), breeding
Roseate tern (*Sterna dougallii*), breeding
Sandwich tern (*Thalasseus sandvicensis*), breeding

Seabird assemblage

Fetlar SPA

Arctic skua (*Stercorarius parasiticus*), breeding
Arctic tern (*Sterna paradisaea*), breeding
Dunlin (*Calidris alpina schinzii*), breeding
Fulmar (*Fulmarus glacialis*), breeding
Great skua (*Stercorarius skua*), breeding
Red-necked phalarope (*Phalaropus lobatus*), breeding
Seabird assemblage, breeding
Whimbrel (*Numenius phaeopus*), breeding

Flamborough and Filey Coast SPA

Gannet (*Morus bassanus*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage

Forth Islands SPA

Arctic tern (*Sterna paradisaea*), breeding
Common tern (*Sterna hirundo*), breeding
Cormorant (*Phalacrocorax carbo*), breeding
Gannet (*Morus bassanus*), breeding
Guillemot (*Uria aalge*), breeding
Herring gull (*Larus argentatus*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Lesser black-backed gull (*Larus fuscus*), breeding
Puffin (*Fratercula arctica*), breeding
Razorbill (*Alca torda*), breeding
Roseate tern (*Sterna dougallii*), breeding
Sandwich tern (*Thalasseus sandvicensis*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding

Foula SPA

Arctic skua (*Stercorarius parasiticus*), breeding
Arctic tern (*Sterna paradisaea*), breeding
Fulmar (*Fulmarus glacialis*), breeding

Great skua (*Stercorarius skua*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Leach's petrel (*Oceanodroma leucorhoa*), breeding
Puffin (*Fratercula arctica*), breeding
Razorbill (*Alca torda*), breeding
Red-throated diver (*Gavia stellata*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding

Fowlsheugh SPA

Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Herring gull (*Larus argentatus*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding

Handa SPA

Fulmar (*Fulmarus glacialis*), breeding
Great skua (*Stercorarius skua*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding

Hermaness, Saxa Vord and Valla Field SPA

Fulmar (*Fulmarus glacialis*), breeding
Gannet (*Morus bassanus*), breeding
Great skua (*Stercorarius skua*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Puffin (*Fratercula arctica*), breeding
Red-throated diver (*Gavia stellata*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding

Hoy SPA

Arctic skua (*Stercorarius parasiticus*), breeding

Fulmar (*Fulmarus glacialis*), breeding
Great black-backed gull (*Larus marinus*), breeding
Great skua (*Stercorarius skua*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Peregrine (*Falco peregrinus*), breeding
Puffin (*Fratercula arctica*), breeding
Red-throated diver (*Gavia stellata*), breeding
Seabird assemblage, breeding

Marwick Head SPA

Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Seabird assemblage, breeding

North Caithness Cliffs SPA

Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Peregrine (*Falco peregrinus*), breeding
Puffin (*Fratercula arctica*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding

North Rona and Sula Sgeir SPA

Fulmar (*Fulmarus glacialis*), breeding
Gannet (*Morus bassanus*), breeding
Great black-backed gull (*Larus marinus*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Leach's petrel (*Oceanodroma leucorhoa*), breeding
Puffin (*Fratercula arctica*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding
Storm petrel (*Hydrobates pelagicus*), breeding

Noss SPA

Fulmar (*Fulmarus glacialis*), breeding
Gannet (*Morus bassanus*), breeding

Great skua (*Stercorarius skua*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Puffin (*Fratercula arctica*), breeding
Seabird assemblage, breeding

Rousay SPA

Arctic skua (*Stercorarius parasiticus*), breeding
Arctic tern (*Sterna paradisaea*), breeding
Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Seabird assemblage, breeding

St Abb's Head to Fast Castle SPA

Guillemot (*Uria aalge*), breeding
Herring gull (*Larus argentatus*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding

St Kilda SPA

Fulmar (*Fulmarus glacialis*), breeding
Gannet (*Morus bassanus*), breeding
Great skua (*Stercorarius skua*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Leach's petrel (*Oceanodroma leucorhoa*), breeding
Manx shearwater (*Puffinus puffinus*), breeding
Puffin (*Fratercula arctica*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding
Storm petrel (*Hydrobates pelagicus*), breeding

Sule Skerry and Sule Stack SPA

Gannet (*Morus bassanus*), breeding
Guillemot (*Uria aalge*), breeding
Leach's petrel (*Oceanodroma leucorhoa*), breeding

Puffin (*Fratercula arctica*), breeding
Seabird assemblage, breeding
Shag (*Phalacrocorax aristotelis*), breeding
Storm petrel (*Hydrobates pelagicus*), breeding

Sumburgh Head SPA

Arctic tern (*Sterna paradisaea*), breeding
Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Seabird assemblage, breeding

Troup, Pennan and Lion's Heads SPA

Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Herring gull (*Larus argentatus*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding

West Westray SPA

Arctic skua (*Stercorarius parasiticus*), breeding
Arctic tern (*Sterna paradisaea*), breeding
Fulmar (*Fulmarus glacialis*), breeding
Guillemot (*Uria aalge*), breeding
Kittiwake (*Rissa tridactyla*), breeding
Razorbill (*Alca torda*), breeding
Seabird assemblage, breeding

Table 5 Conservation objectives

Moray Firth SAC

1. To ensure that the qualifying features of Moray Firth SAC are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.

2. To ensure that the integrity of Moray Firth SAC is maintained or restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

For bottlenose dolphin:

2a. The population of bottlenose dolphin is a viable component of the site.

2b. The distribution of bottlenose dolphin throughout the site is maintained by avoiding significant disturbance.

2c. The supporting habitats and processes relevant to bottlenose dolphin and the availability of prey for bottlenose dolphin are maintained.

For subtidal sandbanks:

2a. Extent and distribution of the habitat within the site.

2b. Structure and function of the habitat and the supporting environment on which it relies.

2c. Distribution and viability of typical species of the habitat.

Calf of Eday SPA; Cape Wrath SPA; Copinsay SPA; Fetlar SPA; Handa SPA; Hoy SPA; Marwick Head SPA; North Rona and Sula Sgeir SPA; Noss SPA; Rousay SPA; Sule Skerry and Sule Stack SPA; Sumburgh Head SPA; Buchan Ness to Collieston Coast SPA; East Caithness Cliffs; Fair Isle SPA; Forth Islands SPA; Fowlsheugh SPA; Hermaness, Saxa Vord and Valla Field SPA; North Caithness Cliffs SPA; St Abb's Head to Fast Castle SPA; Troup, Pennan and Lion's Heads SPA; West Westray SPA

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species

- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

Coquet Islands SPA, Farne Islands SPA, Flamborough and Filey Coast SPA

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

Foula SPA

1. To ensure that the qualifying features of Foula SPA and the Seas off Foula SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.

2. To ensure that the integrity of Foula SPA and the Seas off Foula SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

2a. The populations of the qualifying features are viable components of Foula SPA and Seas off Foula SPA.

2b. The distributions of the qualifying features throughout Foula SPA and Seas off Foula SPA are maintained by avoiding significant disturbance of the species.

2c. The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate restored, at Foula SPA and Seas off Foula SPA.

St Kilda SPA

1. To ensure that the qualifying features of St Kilda SPA and the Seas off St Kilda SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.

2. To ensure that the integrity of St Kilda SPA and the Seas off St Kilda SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

2a. The populations of qualifying features are viable components of St Kilda SPA and Seas off St Kilda SPA.

2b. The distributions of the qualifying features throughout St Kilda SPA and Seas off St Kilda SPA are maintained by avoiding significant disturbance of the species.

2c. The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate restored, at St Kilda SPA and/or Seas off St Kilda SPA.

SECTION 3: APPROPRIATE ASSESSMENT IN RELATION TO THE HABITATS REGULATIONS

7 Requirement for AA

7.1 *Is the project directly connected with or necessary to the conservation management of the sites?*

7.1.1 The project is not directly connected with or necessary to the conservation management of the sites.

7.2 *Is the project likely to have a significant effect on the qualifying interests?*

7.2.1 In its consultation response of 30 March 2023, NatureScot advised that the Green Volt OWF has potential to have LSE on the bottlenose dolphin qualifying feature of the Moray Firth SAC due to disturbance as the species' transit along the East Coast to and from the Moray Firth SAC.

7.2.2 NatureScot agreed with the RIAA that Green Volt OWF is likely to have a significant effect on the following sites and features:

- Buchan Ness to Collieston Coast SPA: kittiwake, herring gull, guillemot, shag, fulmar, seabird assemblage;
- Calf of Eday SPA: kittiwake, seabird assemblage;
- Cape Wrath SPA: kittiwake, puffin, seabird assemblage;
- Copinsay SPA: kittiwake, guillemot, seabird assemblage;
- East Caithness Cliffs SPA: kittiwake, guillemot, razorbill, seabird assemblage;
- Fair Isle SPA: kittiwake, puffin, gannet, seabird assemblage;
- Fetlar SPA: seabird assemblage; Forth Islands SPA: gannet, lesser black-backed gull, puffin, kittiwake, guillemot, razorbill, shag, seabird assemblage;
- Foula SPA: puffin, kittiwake, seabird assemblage;
- Fowlsheugh SPA: kittiwake, guillemot, razorbill, seabird assemblage;
- Handa SPA: kittiwake, seabird assemblage;
- Hermaness, Saxa Vord and Valla Field SPA: gannet, seabird assemblage;
- Hoy SPA: kittiwake, puffin, seabird assemblage;
- Marwick Head SPA: kittiwake, seabird assemblage;
- North Caithness Cliffs SPA: guillemot, kittiwake, razorbill, puffin, seabird assemblage;
- North Rona and Sula Sgeir SPA: gannet, seabird assemblage;
- Noss SPA: gannet, kittiwake, puffin, seabird assemblage;
- Rousay SPA: kittiwake, seabird assemblage;
- St Abb's Head to Fast Castle SPA: kittiwake, seabird assemblage;
- St Kilda SPA: gannet, seabird assemblage;
- Sule Skerry and Sule Stack SPA: gannet, puffin, seabird assemblage;
- Sumburgh Head SPA: kittiwake, seabird assemblage;
- Troup, Pennan and Lion's Heads SPA: kittiwake, guillemot, razorbill, gannet, seabird assemblage; and
- West Westray SPA: kittiwake, seabird assemblage.

7.2.3 The pathways of effect are identified as habitat loss, disturbance/displacement, collision risk and barrier to movement.

7.2.4 In its consultation response of 3 April 2023, Natural England agreed that Green Volt OWF could have LSE on the qualifying features of the English SPAs assessed in the RIAA, as follows:

- Coquet Island SPA: kittiwake, puffin, seabird assemblage;
- Farne Islands SPA: kittiwake, puffin, guillemot, seabird assemblage; and

- Flamborough and Filey Coast SPA: gannet, kittiwake, razorbill, guillemot, seabird assemblage.

7.2.5 The Scottish Ministers agree with NatureScot and Natural England's advice and have therefore carried out this AA.

8 Background

8.1 The AA has considered the application documentation, the contextual supporting documents and consultee representations, in particular those of NatureScot, Natural England and RSPB Scotland. The Scottish Ministers consider that the primary focus of the AA should be the implications of the project for the relevant sites in view of those sites' conservation objectives relating to the maintenance of the relevant qualifying species as a viable component of the sites. The AA relies upon the upper range of the SNCB Approach presented by the Company (see section 9).

8.2 The AA considers deviations from the recommended NatureScot guidance. It also considers the CPS which is the ratio of the predicted impacted population size to that of the predicted population size in the absence of the Green Volt OWF, at the end of the 35 year operating period e.g. if the CPS returned a value of 0.5, that would indicate a 50% reduction in the population size predicted as a result of the Green Volt OWF. The CGR, the ratio of the growth rate of an impacted versus unimpacted population where a value of 0.5 indicates a 50% reduction in growth rate, is also presented and provides additional context.

8.3 The Company provides the CPS and CGR population metrics as a median with a standard deviation rather than with confidence intervals. The AA uses the median values to inform its conclusions as the accompanying values for variance (i.e., the standard deviation) do not provide CPS and CGR values that are readily interpreted, unlike upper and lower 95% confidence intervals. Confidence intervals are useful in considering uncertainty as they provide limits within which there is a 95% likelihood that the true value will fall within. In contrast, standard deviation is an indicative measure of the spread, or variance, in outputs.

8.4 The Company provides an SNCB Approach and an Applicant Approach for assessment. The AA has evaluated these approaches based on the evidence and methods used for the in-isolation and in-combination assessment as outlined in the application documents and associated consultee representations. The AA considers the evidence and methods in the context of uncertainty, confidence and precaution in the approaches used, and any

additional evidence highlighted by consultees. The AA summarises key parameters used in methodologies and highlights key areas where there is variation in approaches. This is evaluated in terms of levels of likely precaution, the implications of which have been considered in reaching the AA conclusions.

8.5 HPAI

8.5.1 In 2021 there was an outbreak of HPAI in wild birds. In 2022 and to a lesser extent in 2023 further outbreaks of HPAI impacted many species and colonies of UK seabirds. The Company's ornithology assessment was largely undertaken prior to the HPAI outbreak that occurred during the 2022 seabird breeding season. It is unclear what impact mass mortality events such as HPAI have had on seabird populations. The AA's conclusions consider the implications of HPAI on those species and sites considered most vulnerable, in particular:

- Gannet at Forth Islands SPA and Hermaness, Saxa Vord and Valla Field SPA;
- Guillemot, razorbill, and puffin at St Abb's Head to Fast Castle SPA and Forth Islands SPA;
- Guillemot at Copinsay SPA; and
- Kittiwake at East Caithness Cliffs SPA, Forth Islands SPA and West Westray SPA.

8.5.2 The potential impacts of mortality due to outbreaks of HPAI in Scottish seabirds since 2021 are acknowledged by the Company but no specific adjustments to account for these impacts have been made in the application. The Company states this is because in its view the baseline data collected between May 2020 and April 2022 inclusive is prior to any substantial outbreaks in the region or species considered in its application.

8.5.3 In the absence of an appropriate quantitative mechanism, the AA takes a qualitative approach and considers HPAI in terms of precaution built into the assessment, the size and scale of the project and the reported ranges of predicted impact.

9 Information on approaches and methods used to inform the AA

9.1 This section summarises key components of the assessment methodologies and any variation in approach taken by the Company from that advised by NatureScot and the Scottish Ministers. The implications of this variation, general areas of uncertainty and precaution in the approaches, and evidence

provided by the Company in support of the variations to the SNCB advised approaches are presented.

9.2 The Company presents two different methodologies in its assessment, referred to as the “SNCB Approach” and the “Applicant Approach”. The SNCB Approach follows guidance provided by NatureScot. The Applicant Approach uses different input parameters in collision risk modelling and mortality and displacement rates used in the matrix method for estimating displacement impacts. The differences between the two approaches are outlined in Table 6 and 7 which are replicated from Table. 2 and Table. 27 of the [SOAR](#).

9.3 Summary of deviations by the Company from standard approaches

9.3.1 In both the SNCB Approach and the Applicant Approach, the Company deviates from standard calculations of variance in the baseline density estimates, using instead a simplified calculation known as the Range Rule Standard Deviation. It offers explanation for this based around identification of species and apportioning (see section 9.5). NatureScot in its responses of both 19 April 2023 and 29 January 2024 highlights that this approach is unexpected, deviates from standard approaches and adds uncertainty by reducing confidence in the estimates. The AA determines that this approach does reduce precaution by the addition of uncertainty and is not a standard approach to apply to baseline data in this context.

9.3.2 In addition, the Company deviates from the recommended values of NAF used in collision modelling, from the NatureScot guidance in both the SNCB Approach and the Applicant Approach. A range of two values is provided in the SNCB Approach, presented by the Company for gull species, such as kittiwake. Whilst this varies from the NatureScot recommendations, the range subsequently captures the upper value that is recommended by NatureScot. The Applicant Approach only uses the lower end of the range (e.g., 25% for kittiwake), to describe NAFs. The AA relies upon the upper value of 50% for kittiwake as advised by NatureScot. The NAF for gannet also deviates from the recommended 8% rate. Instead, the Applicant Approach uses a rate of 2%, based on selected evidence. The AA considers that the evidence provided is not necessarily representative of the activity of gannets in Scottish waters during the breeding and non-breeding seasons. Given the lack of understanding of how transferable results on nocturnal activity, for example from Skov *et al.* 2018¹ from the southern North Sea are to assessing gannet

¹ Skov, H., Heinänen, S., Norman, T., Ward, R. and Méndez, S., 2018. ORJIP Bird avoidance behaviour and collision impact monitoring at offshore wind farms. *The Carbon Trust: London, UK*.² Pavat, D., Harker, A.J., Humphries, G., Keogan, K., Webb, A. and Macleod, K., 2023.

in the northern North Sea, the AA relies upon the 8% value advised by NatureScot.

9.3.3 The Company raises a concern that macro-avoidance for gannet might be overlooked in the assessment presented for gannet and advocate the application of 70% macro avoidance, citing a publication from Natural England² as its justification. The Company refers to Cook (2021)³ as acknowledging the potential for double counting of collision and displacement effects, with the same individuals experiencing both collision and displacement mortality. The AA determines that this publication is based on several studies in which breeding season behavioural responses could not easily be identified in a consistent way, meaning that it could not be concluded that it was appropriate to apply macro-avoidance for breeding gannet. Further, the data from this publication were predominantly gathered beyond the northern North Sea. Searle et al. (2022)⁴ also acknowledge the potential for effects to be over-inflated due to double counting but also suggest that unless the effects from OWFs are very large, the likelihood of double counting occurring is extremely low. The most recent evidence for considering macro-avoidance for gannet in the UK by Natural England (Pavat et al. 2023)² does recommend correcting for macro-avoidance in assessments but it is unclear how applicable that evidence is for breeding birds in the northern North Sea. Further evidence is also available from tagged gannets from the Forth Islands SPA showing that behaviour changes with breeding stage and status (Lane et al, 2020⁵). The AA therefore considers that the limitations of the evidence are such that it is not appropriate to apply a macro-avoidance correction, and that the [current joint SNCB guidance \(2022\)](#) should be followed and effects be presented as additive unless sufficient additional evidence suggests an alternative approach should be followed.

9.3.4 The Company also considers that the combined impacts for collision and displacement to kittiwake in the assessment is an over-precautionary approach. In its response of 29 January 2024, NatureScot highlighted that its

Consideration of avoidance behaviour of northern gannet (*Morus bassanus*) in collision risk modelling for offshore wind farm impact assessments.

² Pavat, D., Harker, A.J., Humphries, G., Keogan, K., Webb, A. and Macleod, K., 2023.

Consideration of avoidance behaviour of northern gannet (*Morus bassanus*) in collision risk modelling for offshore wind farm impact assessments.

³ Cook, A.S.C.P., 2021. Additional analysis to inform SNCB recommendations regarding collision risk modelling (No. BTO Research Report 739). Thetford.

⁴ Searle, K.R., Butler, A., Mobbs, D., Trinder, M., McGregor, R., Cook, A., McCluskie, A., Caneco, B. and Daunt, F., 2022. Study to examine how seabird collision risk, displacement and barrier effects could be integrated for assessment of offshore wind developments. *Report for Marine Science Scotland*.

⁵ Lane, J.V., Jeavons, R., Deakin, Z., Sherley, R.B., Pollock, C.J., Wanless, R.J. and Hamer, K.C., 2020. Vulnerability of northern gannets to offshore wind farms; seasonal and sex-specific collision risk and demographic consequences. *Marine Environmental Research*, 162, p.105196.

guidance on combining collision and displacement effects is based on available evidence and will be updated once any subsequent research is published and has been reviewed. The AA considers that there is a mixed body of evidence on responses of kittiwake to offshore wind farms, such that some are displaced, and some are not, resulting in both risks of displacement and collision. The AA therefore considers both collision and displacement effects.

9.3.5 The Company presented its Applicant Approach for assessment, indicating it considered aspects of the SNCB Approach to be overly precautionous. The Company's key deviations from the SNCB Approach are presented in Table 6 below. The Company outlines an argument for using more recent data on flight speeds than that advised by NatureScot. The Company argues that more recent studies on flight speeds, taken from tracks through an offshore windfarm are more appropriate. NatureScot in its response of 29 January 2024 states that it continues to recommend flight speeds from Pennycuik⁶ (1997) and Alerstam *et al.*⁷ (2007). The AA determines that there are limitations to both the SNCB recommended data and that preferred by the Company (Skov *et al.*¹ 2018) detailed in section 9.5, however the recommended references from NatureScot continue to be the preferred and consistent approach until such times as research on flight speeds informs updated guidance. The AA reaches conclusions based on flight speeds recommended by NatureScot in the SNCB Approach, but does where possible, consider for context the information provided in the Applicant Approach.

9.4 Company's Conclusions

9.4.1 The Company concludes across all species and sites no AEOSI. This conclusion is reached on the basis of some of the Company's approaches set out above but also, for example, the Company's view that variable natural mortality makes additional mortality associated with the project acceptable. The AA agrees with the response of RSPB Scotland on 16 January 2024 that the long-lived and slow reproducing life history and ecology of seabirds means that additional adult mortality can have potentially severe population consequences. The AA considers the baseline demographic rates and the variability around these rates captures intrinsic mortality within an existing population in the absence of additional mortality from e.g., an OWF, and do not accept the Company's view that variable natural mortality makes additional mortality associated with a project acceptable.

⁶ Pennycuick, C.J., 1997. Actual and 'optimum' flight speeds: field data reassessed. *Journal of Experimental Biology*, 200(17), pp.2355-2361.

⁷ Alerstam, T., Rosén, M., Bäckman, J., Ericson, P.G.P. and Hellgren, O., 2007. Flight speeds among bird species: allometric and phylogenetic effects. *PLoS biology*, 5(8), p.e197.

9.4.2 Further, the Company considers its conclusion of no AEOSI appropriate on the basis that its impacts are so small that there is no tangible contribution from the Green Volt OWF to the in-combination impact. The AA takes the position that if Green Volt OWF's in-isolation effects are estimated to be at a level that is considered negligible, the AA may conclude no AEOSI based on a qualitative assessment of the information available on population size, trend, and estimated mortality and productivity effects.

9.5 Collision Risk Modelling

9.5.1 The Company provides outputs of both deterministic and stochastic Option 2 collision risk models in the [SOAR](#), run using the Shiny App interface (McGregor et al. 2018)⁸. The collision risk input parameters amended in the Applicant Approach include flight speed for both the deterministic and stochastic methods, and the NAF for the deterministic method. The Company argues (SOAR, p. 29) that the flight speeds in the SNCB Approach (Pennycuik 1997)⁶ is not the most up to date evidence and is based on cliff-based observations using an ornithodolite instrument. The Company refers to Skov et al. (2018)¹ as more representative flight speed data being collected using laser rangefinder technology from hundreds of tracks through Thanet OWF.

9.5.2 The AA acknowledges that the current recommended literature for flight speeds (Pennycuik 1997⁶ and Alerstam et al. 2007)⁷ is dated and that guidance would benefit from being updated. The Skov et al. (2018)¹ report referenced by the Company provided a valuable recent dataset for bird behaviour in and around an active OWF. The lower flight speeds reported in Skov et al (2018)¹ may be representative of behaviours such as increased sinuosity in flight indicative of birds in and around OWF. However, Skov et al. (2018)¹ data collection was restricted to good day time conditions and any updates to recommended flight speeds would benefit from inclusion of other datasets which reflect bird behaviour in different environmental conditions, such as those collected from bio-logging studies. Given the high sensitivity of flight speed in collision risk models (Cook et al. 2016)⁹ the AA determines it is suitable to consider the SNCB Approach parameter values in its conclusions until more robust evidence from Scottish waters is considered and presented within SNCB guidance.

⁸ McGregor, R.; King, S.; Donovan, C.; Caneco, B.; Webb, A. (2018). A Stochastic Collision Risk Model for Seabirds in Flight (Report No. HC0010-400-001). Report by Marine Scotland Science.

⁹ Cook, A.S.C.P. & Robinson, R.A. (2016) Testing sensitivity of metrics of seabird population response to offshore wind farm effects, JNCC Report No. 553, JNCC, Peterborough, ISSN 0963- 8091

- 9.5.3 Additionally, for the NAF parameter used in accounting for nocturnal activity in collision modelling, the Company argues that more recent evidence (MacArthur Green et al. 2015¹⁰, Masden et al. 2015¹¹, Skov et al. 2018)¹ indicate lower levels of nocturnal activity compared with the studies which inform the SNCB Approach (Garthe & Huppopp 2004¹², Furness et al. 2018)¹³. Data presented in MacArthur Green et al. (2015)¹⁰ and Masden et al. (2015)¹¹ reviews the evidence of nocturnal behaviour derived from GPS bio-logging studies and reports lower levels of activity than indicated by the categorical levels used by Garthe & Huppopp (2004)¹². The review by MacArthur Green et al. (2015)¹⁰ also highlights lower nocturnal activity for kittiwake during the breeding season compared with the non-breeding season. The AA acknowledges the valuable data presented in Skov et al. (2018)¹ which suggests lower rates of nocturnal activity. However, this report highlights that due to small sample sizes the evidence that it presents on nocturnal activity is currently considered anecdotal. The AA therefore determines that values recommended by NatureScot are currently the most appropriate and the SNCB Approach is considered for collision risk model outputs.
- 9.5.4 The flying bird densities used in the collision risk models are based on mean monthly values derived from 24 months of digital aerial survey undertaken between May 2020 and April 2022 (inclusive and without data gaps). The Company in both the original RIAA and SOAR has provided the Standard Deviation (“SD”) for the mean monthly density as calculated using the ‘Range rule’ (a method to approximate SD using the difference between maximum and minimum confidence limits divided by four). NatureScot in its response dated 29 January 2024, states that this method is not what it expected to be used but has determined it is acceptable in this instance. However, it means that NatureScot has decreased confidence in the accuracy of the density estimates and resultant estimated effects. The Company argued that it was used “*because of the complications of robustly propagating uncertainty through the process of apportioning unidentified birds to species level, given that the approach to apportionment relies on the abundances of birds identified to species level*”. The AA determines that the use of the Range rule does not follow standard approaches to presenting density estimates. This approach

¹⁰ MacArthur Green, APEM & Royal Haskoning DHV. (2015) East Anglia THREE: Appendix 13.1 Offshore Ornithology Evidence Plan Volume 3 – Document Reference: 6.3.13(1).

¹¹ Masden, E. (2015) Developing an avian collision risk model to incorporate variability and uncertainty. Scottish Marine and Freshwater Science Vol 6 No 14. Edinburgh: Scottish Government, 43pp.

¹² Garthe, S., & Huppopp, O. (2004). Scaling possible adverse effects of marine wind farms on seabirds: Developing and applying a vulnerability index. *Journal of Applied Ecology*, 41(4), 724–734.

¹³ Furness, R.W., Garthe, S., Trinder, M., Matthiopolous, J., Wanless, S., Jeglinski, J. 2018. Nocturnal flight activity of northern gannets *Morus bassanus* and implications for modelling collision risk at offshore wind farms. *Environmental Impact Assessment Review*. 73: 1-6.

may increase uncertainty in variation around the mean which may lead to the introduction of either under or over precaution. The AA does however agree with NatureScot that it is acceptable in this instance.

9.6 Displacement

9.6.1 Displacement impacts are estimated in the assessment by the Company using the matrix approach. Using the matrix approach, NatureScot guidance recommends a range of mortality rates are presented, reflected in a lower and upper set of values. The differences between the Applicant Approach and the SNCB Approach are shown in Table 27 of the [SOAR](#) and include lower displacement and mortality rates applied for auks and gannet in the Applicant Approach. The displacement and mortality rates for kittiwake are the same for both approaches. The Company predominantly cites Dierschke et al. (2016)¹⁴ and APEM (2022)¹⁵ as evidence to reduce the mortality and displacement rates used in their assessment. Dierschke et al. (2016)¹⁴ carried out a review of avoidance and attraction of seabirds to 20 OWFs (none in the northern North Sea) and concluded strong avoidance for gannet and less consistent or weak avoidance for razorbill and guillemot. The Applicant Approach displacement rate of 50% and mortality rate of 1% were based on recommendations from APEM (2022)¹⁵⁴ who undertook a review of reported displacement and mortality rates for auks. The AA acknowledges the APEM (2022)¹⁵⁴ report provided a valuable review of auk displacement and especially highlighting that confidence in published studies may be lower than previously indicated due to inappropriate analytical methods. The AA agrees that the auk mortality rate of 10% is likely over precautionary as concluded by the APEM (2022)¹⁵⁴ report. However, given the high level of uncertainty in the reviewed studies, variability in response and weighting to southern North Sea projects, the AA determines that until more evidence is available from Scottish waters, the recommended displacement and mortality rates from NatureScot are proportionate and the AA relies on the SNCB Approach to displacement for its conclusions.

9.6.2 The Company also refers to (MacArthur Green, 2021¹⁶ and 2023)¹⁷ which report on operational monitoring studies at the Beatrice OWF and conclude no displacement was detected for kittiwake or auks. The Company argues that

¹⁴ Dierschke, V., Furness, R.W. and Garthe, S., 2016. Seabirds and offshore wind farms in European waters: Avoidance and attraction. *Biological Conservation*, 202, pp.59-68.

¹⁵ APEM (2022). Review of evidence to support auk displacement and mortality rates in relation to offshore wind farms. APEM Scientific Report P00007416. Ørsted, February 2022, Final, 49 pp.

¹⁶ MacArthur Green (2021) Beatrice Offshore Wind Farm. Year 1 Post-construction Ornithological Monitoring Report 2019.

¹⁷ MacArthur Green (2023) Beatrice Offshore Wind Farm Year 2 Post-construction Ornithological Monitoring Report 2021.

since some of the same SPA populations are included in the MacArther Green (2021¹⁶ and 2023)¹⁷ reports as the Green Volt OWF they provide support for its Applicant Approach and conclusions of no AEOSI. This work was recently written as a manuscript for submission for peer review and is due to be published imminently. Until this report is available, the reviewed evidence and conclusions of this report, the scope and scale of which may have been refined, mean that the AA determines the SNCB recommended displacement and mortality rates are currently the most suitable until the Beatrice OWF monitoring study is published for evaluation.

9.7 Population Viability Analysis

- 9.7.1 The Company undertook a revised PVA assessment in the [SOAR](#) using the Natural England PVA tool Shiny interface (Searle et al. 2019)¹⁸. Additional modelling of features and SPAs was included in response to NatureScot advice dated 19 April 2023 to use a threshold of 0.02% percentage point change in survival to trigger subsequent PVA modelling, instead of the 1% threshold suggested by the Company. Outputs from the PVA were presented for both the Applicant Approach and SNCB Approach and for upper and lower scenarios where applicable, for example when a range of displacement mortality rates are included, and collision mortality was based on deterministic method outputs. The PVA used a density independent approach and presented the median counterfactual population size and growth rates projection for 35 years of operation.
- 9.7.2 The Company where possible derived SPA specific productivity rates based on available Seabird Monitoring Programme data and published national productivity rates (Horswill & Robinson 2015)¹⁹ were used to fill gaps. Horswill & Robinson (2015)¹⁹⁹ was also used to supply adult survival rates in absence of colony-specific data.
- 9.7.3 For the project alone, the Company applied a correction to the species abundance before apportioning to breeding colonies to account for immature individuals and non-breeding adults (sabbaticals) in the population. The Company used a stable age structure (Furness 2015)²⁰ to determine proportion of immatures and applied a sabbatical rate of 7% for guillemot, razorbill and puffin and 10% for kittiwake and gannet to account for non-

¹⁸ Searle, K., Mobbs, D., Daunt, F. and Butler, A. (2019). A Population Viability Analysis Modelling Tool for Seabird Species. Natural England Commissioned Reports, Number 274.

¹⁹ Horswill, C. & Robinson, R.A. (2015). Review of seabird demographic rates and density dependence, JNCC Report No: 552, JNCC, Peterborough, ISSN 0963-8901

²⁰ Furness, R.W. (2015) Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS), Natural England Commissioned Report Number 164

breeding adults, removing that proportion of individuals from apportioned impacts. This correction for sabbaticals is supported by NatureScot but differs from the approach for English applications, and Natural England in their response dated 03 April 2023 disagree with use of both stable-age structure and sabbatical rates in assessments.

9.8 In-combination

9.8.1 Wind farms in the English North Sea undertake assessments often under a more precautionary approach than that advised by NatureScot. For example, Natural England do not advise that a stable age structure is used in modelling or the use of sabbatical rates. It is not stated explicitly in either the Green Volt or Berwick Bank applications whether sabbatical rates were applied to in-combination values. This is particularly relevant for English projects which are not expected to have had them applied previously as it may result in additional precaution being incorporated in the effects estimated for those wind farms and utilised in the Green Volt OWF application. The Berwick Bank RIAA uses in-combination values partly derived from the Moray West RIAA which does state corrections to impacts based on sabbatical rates were only applied to Moray Firth projects and English projects were not modified.

9.8.2 In-combination impacts are assessed by the Company using a single UK North Sea scale scenario. However, the data presented in the SOAR does present modelled in-combination impacts with and without the Berwick Bank OWF. In-combination values used in the Green Volt application were primarily taken directly from the Berwick Bank RIAA and therefore follow the same methodology. In the Berwick Bank documentation (SSE²¹ 2022), it is confirmed that some projects have been updated to reflect as-built designs instead of as consented. However, it is not stated explicitly in either the Green Volt or Berwick Bank applications whether sabbatical rates were applied to in-combination values, especially of relevance for English projects which are not expected to have had them applied previously. The Berwick Bank RIAA uses in-combination values partly derived from the Moray West RIAA which states that sabbatical rate adjustments to impacts were only applied to Moray Firth projects, and that impacts from English projects were not adjusted to account for sabbatical birds.

9.8.3 The AA is unable to establish the level of potential precaution in the in-combination assessment based on the information provided by the Company in relation to the potential differences between design and consented windfarms and associated estimated mortalities. The AA does consider that

²¹ <https://marine.gov.scot/sites/default/files/beac561.pdf>

the level of impacts estimated are likely to be precautionary because it relies upon approaches that are more precautionary than those advised by NatureScot and applied in Scotland and there is potential variation in the consented versus updated design values of impact.

9.8.4 The AA does not consider the relative contribution that Green Volt OWF makes to the in-combination impacts but in reaching its conclusions considers the estimated effects from the project in isolation and the cumulative impact of Green Volt OWF in combination with the other windfarms.

Table 6: Differences in CRM input parameters between the Applicant Approach and the SNCB Approach. Cells with no highlight indicate both parties agree on the input parameter, light grey indicates partial agreement and dark grey indicates disagreement on the input parameter. Comparisons are separate for the deterministic and stochastic models.

Parameter	Species	Deterministic		Stochastic	
		Applicant Approach	SNCB Approach	Applicant Approach (SD)	SNCB Approach
Species biometrics (Body length/wingspan(m))	Gannet	0.94/1.72	0.94/1.72	0.94 (0.033)/1.72 (0.038)	0.94 (0.033)/1.72 (0.038)
	Kittiwake	0.39/1.08	0.39/1.08	0.39 (0.005)/1.08 (0.063)	0.39 (0.005)/1.08 (0.063)
	Herring gull	0.60/1.44	0.60/1.44	0.60 (0.023)/1.44 (0.030)	0.60 (0.023)/1.44 (0.030)
	Great black-backed gull	0.71/1.58	0.71/1.58	0.71 (0.035)/1.58 (0.038)	0.71 (0.035)/1.58 (0.038)
Avoidance rate (BO2)	Gannet	0.992	0.992	0.993 (0.0003)	0.993 (0.0003)
	Kittiwake	0.992	0.992	0.993 (0.0003)	0.993 (0.0003)
	Herring gull	0.994	0.994	0.994 (0.0004)	0.994 (0.0004)
	Great black-backed gull	0.994	0.994	0.994 (0.0004)	0.994 (0.0004)
Flight speed (m/s)	Gannet	13.33	14.9	13.33 (4.24)	14.9 (0)
	Kittiwake	8.71	13.1	8.71 (3.16)	13.1 (0.4)
	Herring gull	9.68	12.8	9.68 (3.47)	12.8 (1.8)
	Great black-backed gull	9.78	13.7	9.78 (3.65)	13.7 (1.2)
Nocturnal Activity Factor (%)	Gannet	2	8	8 (0)	8 (0)
	Kittiwake	12	25-50	38 (6)	38 (6)
	Herring gull	25	25-50	38 (6)	38 (6)
	Great black-backed gull	25	25-50	38 (6)	38 (6)
Flight heights	Gannet	Johnston <i>et al.</i> (2014)			
	Kittiwake	Maximum Likelihood	Maximum Likelihood	Maximum Likelihood	Maximum Likelihood
	Herring gull	Maximum Likelihood	Maximum Likelihood	Maximum Likelihood	Maximum Likelihood
	Great black-backed gull	Maximum Likelihood	Maximum Likelihood	Maximum Likelihood	Maximum Likelihood

Table 7: Displacement and mortality rates used in the assessments.

Species	Applicant Approach		SNCB Approach	
	Breeding	Non-Breeding	Breeding	Non-Breeding
Guillemot	50% / 1%	50% / 1%	60% / 3-5%	60% / 1-3%
Razorbill	50% / 1%	50% / 1%	60% / 3-5%	60% / 1-3%
Puffin	50% / 1%	50% / 1%	60% / 3-5%	60% / 1-3%
Gannet	40-60% / 1%	60-80% / 1%	70% / 1-3%	70% / 1-3%
Kittiwake	30% / 1-3%	30% / 1-3%	30% / 1-3%	30% / 1-3%

10 Sites/Species not taken through for further assessment

10.1 The AA considers those species and sites considered for LSE in the HRA but which were not taken through for further impact assessment. NatureScot in its response of 11 April 2024 confirmed for the sites and qualifying species in Table 7.1 of the RIAA, and not discussed in its previous advice of 19 April 2023 and 29 January 2024, there will be LSE, but no AEOSI. NatureScot also confirmed that for these sites and qualifying species, no additional mitigation measures are required. The Scottish Ministers agree with the determination of no AEOSI for the following features when assessing project impacts both alone and in combination at each of the stated SPAs assessed:

Buchan Ness to Collieston Coast SPA

- Breeding and non-breeding guillemot
- Non-breeding herring gull
- Non-breeding shag
- Breeding and non-breeding fulmar
- Seabird assemblage

Calf of Eday SPA

- Breeding and non-breeding kittiwake
- Seabird assemblage

Cape Wrath SPA

- Breeding and non-breeding puffin
- Breeding and non-breeding kittiwake
- Seabird assemblage

Copinsay SPA

- Breeding and non-breeding guillemot
- Breeding and non-breeding kittiwake
- Seabird assemblage

Coquet Island SPA

- Non-breeding puffin
- Breeding and non-breeding kittiwake
- Seabird assemblage

East Caithness Cliffs SPA

- Seabird assemblage

Fair Isle SPA

- Breeding and non-breeding puffin
- Breeding and non-breeding kittiwake
- Breeding and non-breeding gannet
- Seabird assemblage

Farne Islands SPA

- Non-breeding guillemot
- Breeding and non-breeding puffin
- Breeding and non-breeding kittiwake
- Seabird assemblage

Fetlar SPA

- Seabird assemblage

Flamborough and Filey Coast SPA

- Non-breeding guillemot
- Non-breeding razorbill
- Non-breeding kittiwake
- Breeding and non-breeding gannet
- Seabird assemblage

Forth Islands SPA

- Non-breeding guillemot
- Non-breeding razorbill
- Non-breeding lesser-black backed gull
- Breeding and non-breeding shag
- Seabird assemblage

Foula SPA

- Breeding and non-breeding puffin
- Breeding and non-breeding kittiwake
- Seabird assemblage

Fowlsheugh SPA

- Seabird assemblage

Handa SPA

- Breeding and non-breeding kittiwake
- Seabird assemblage

Hermaness, Saxa Vord and Valla Field SPA

- Breeding and non-breeding gannet
- Seabird assemblage

Hoy SPA

- Breeding and non-breeding puffin
- Breeding and non-breeding kittiwake
- Seabird assemblage

Marwick Head SPA

- Breeding and non-breeding kittiwake
- Seabird assemblage

North Caithness Cliffs SPA

- Breeding and non-breeding guillemot
- Breeding and non-breeding razorbill
- Breeding and non-breeding puffin
- Seabird assemblage

North Rona and Sula Sgeir SPA

- Breeding and non-breeding gannet
- Seabird assemblage

Noss SPA

- Breeding and non-breeding puffin
- Breeding and non-breeding kittiwake
- Breeding and non-breeding gannet
- Seabird assemblage

Rousay SPA

- Breeding and non-breeding kittiwake
- Seabird assemblage

St Abb's Head to Fast Castle SPA

- Seabird assemblage

St Kilda SPA

- Breeding and non-breeding gannet
- Seabird assemblage

Sule Skerry and Sule Stack SPA

- Breeding and non-breeding puffin
- Breeding and non-breeding gannet
- Seabird assemblage

Sumburgh Head SPA

- Breeding and non-breeding kittiwake
- Seabird assemblage

Troup, Pennan and Lion's Heads SPA

- Breeding and non-breeding guillemot
- Breeding and non-breeding razorbill
- Breeding and non-breeding gannet
- Seabird assemblage

West Westray SPA

- Seabird assemblage

10.2 The Scottish Ministers agree with the determination of no AEOSI for the following features for project impacts alone only at each of the stated SPAs assessed:

East Caithness Cliffs SPA

- Breeding and non-breeding guillemot
- Breeding and non-breeding razorbill
- Breeding and non-breeding kittiwake

Forth Islands SPA

- Breeding and non-breeding puffin
- Breeding and non-breeding kittiwake
- Breeding and non-breeding gannet

Fowlsheugh SPA

- Non-breeding guillemot
- Non-breeding razorbill
- Breeding and non-breeding kittiwake

North Caithness Cliffs SPA

- Breeding and non-breeding kittiwake
St Abb’s Head to Fast Castle SPA
- Breeding and non-breeding kittiwake
Troup, Pennan and Lion’s Heads SPA
- Breeding and non-breeding kittiwake
West Westray SPA
- Breeding and non-breeding kittiwake

10.3 Full justification for these conclusions is provided in Appendix A.

11 Guillemot – in-isolation assessment

11.1 Buchan Ness to Collieston Coast SPA

11.1.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in isolation would result in no AEOSI for guillemot as a qualifying feature of Buchan Ness to Collieston Coast SPA.

11.1.2 The Buchan Ness to Collieston Coast SPA guillemot population size of 45,067 breeding adults used in the application was taken from the 2017 count (JNCC 2022).

Table 8: Estimated annual guillemot mortality at Buchan Ness to Collieston Coast SPA from Green Volt OWF in isolation (see Tables 28, 31, 50: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	
	Lower	Upper	Lower	Upper
	15.9	28.2	5.1	5.1
Collision	-	-	-	-
Total impact	15.9	28.2	5.1	5.1
PVA (35 years)	CPS	0.986 (0.009)	0.975 (0.009)	NA
	CGR	1.000 (<0.001)	0.999 (<0.001)	NA

11.1.3 The CPS of the lower range of the SNCB Approach is reported as 0.986, this translates to a 1% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.975, this translates to a 3% reduction in population size after 35 years relative to an unimpacted population.

11.1.4 The CGR of the lower range of the SNCB Approach is reported as 1.0, this translates to a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.999, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

11.1.5 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of Buchan Ness to Collieston Coast SPA from the Green Volt OWF in isolation based on the SNCB Approach.**

11.2 Troup, Pennan and Lion’s Heads SPA

11.2.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in isolation would result in no AEOSI for guillemot as a qualifying feature of Troup, Pennan and Lion’s Heads SPA.

11.2.2 The Troup, Pennan and Lion’s Heads SPA guillemot population size of 31,893 breeding adults used in the application was taken from the 2017 count (JNCC 2022).

Table 9: Estimated annual guillemot mortality Troup, Pennan and Lion’s Heads SPA from Green Volt OWF in isolation (see Tables 28, 31, 55: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
	Lower	Upper	Lower	Upper	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	6.3	11.8	2.3	2.3	
Collision	-	-	-	-	
Total impact	6.3	11.8	2.3	2.3	
PVA (35 years)	CPS	0.992 (0.011)	0.985 (0.011)	NA	NA
	CGR	1.000 (<0.001)	1.000 (<0.001)	NA	NA

11.2.3 The CPS of the lower range of the SNCB Approach is reported as 0.992, this translates as a <1% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.985, this translates as a 2% reduction in population size after 35 years relative to an unimpacted population.

11.2.4 The CGR of the lower range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population.

11.2.5 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of Troup, Pennan and Lion’s Heads SPA from the Green Volt OWF in isolation based on the SNCB Approach.**

11.3 East Caithness Cliffs SPA

11.3.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in isolation would result in no AEOSI for guillemot as a qualifying feature of East Caithness Cliffs SPA.

11.3.2 The East Caithness Cliffs SPA guillemot population size of 199,992 breeding adults used in the application was taken from the 2015 count (JNCC 2022).

Table 10: Estimated annual guillemot mortality at East Caithness Cliffs SPA from Green Volt OWF in isolation (see Tables 28, 31, 64: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
	Lower	Upper	Lower	Upper	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	29	60	13	13	
Collision	-	-	-	-	
Total impact	29	60	13	13	
PVA (35 years)	CPS	0.994 (0.004)	0.988 (0.004)	NA	NA

CGR	1.000 (<0.001)	1.000 (<0.001)	NA	NA
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11.3.3 The CPS of the lower range of the SNCB Approach is reported as 0.994, this translates as a <1% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.988, this translates as a 1% reduction in population size after 35 years relative to an unimpacted population.

11.3.4 The CGR of the lower range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population.

11.3.5 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of East Caithness Cliffs SPA from the Green Volt OWF in isolation based on the SNCB Approach.**

11.4 North Caithness Cliffs SPA

11.4.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in isolation would result in no AEOSI for guillemot as a qualifying feature of North Caithness Cliffs SPA.

11.4.2 The North Caithness Cliffs SPA guillemot population size of 52,076 breeding adults used in the application was taken from the 2018 count (JNCC 2022).

Table 11: Estimated annual guillemot mortality at North Caithness Cliffs SPA from Green Volt OWF in isolation (see Tables 28, 31, 85: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum	
	Lower	Upper	Lower	Upper
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	
	6.7	16.4	4	4
Collision	-	-	-	-

Total impact		6.7	16.4	4	4
PVA (35 years)	CPS	0.995 (0.007)	0.988 (0.007)	NA	NA
	CGR	1.000 (<0.001)	1.000 (<0.001)	NA	NA

11.4.3 The CPS of the lower range of the SNCB Approach is reported as 0.995, this translates as a <1% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.988, this translates as a 1% reduction in population size after 35 years relative to an unimpacted population.

11.4.4 The CGR of the lower range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population.

11.4.5 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of North Caithness Cliffs SPA from the Green Volt OWF in isolation based on the SNCB Approach.**

12 Razorbill – in-isolation assessment

12.1 Troup, Pennan and Lion’s Heads SPA

12.1.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in isolation would result in no AEOSI for guillemot as a qualifying feature of Troup, Pennan and Lion’s Heads SPA.

12.1.2 The Troup, Pennan and Lion’s Heads SPA guillemot population size of 6,054 breeding adults used in the application was taken from the 2017 count (JNCC 2022).

Table 12: Estimated annual razorbill mortality at Troup, Pennan and Lion’s Heads SPA from Green Volt OWF in isolation (see Tables 28, 31, 57: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	Lower	Upper	Lower	Upper	
	0.7	1.2	0.2	0.2	
Collision	-	-	-	-	
Total impact	0.7	1.2	0.2	0.2	
PVA (35 years)	CPS	0.996 (0.048)	0.992 (0.048)	NA	NA
	CGR	1.000 (<0.001)	1.000 (<0.001)	NA	NA

12.1.3 The CPS of the lower range of the SNCB Approach is reported as 0.996, this translates as a <1% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.992, this translates as a <1% reduction in population size after 35 years relative to an unimpacted population.

12.1.4 The CGR of the lower range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population.

12.1.5 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the razorbill feature of Troup, Pennan and Lion’s Heads SPA from the Green Volt OWF in isolation based on the SNCB Approach.**

13 Bottlenose dolphin – in-isolation assessment

13.1 Moray Firth SAC

13.1.1 NatureScot stated that the key sources for potential disturbance to bottlenose dolphin will be associated with nearshore aspects of the export cable, including vessel noise, geophysical surveys, cable laying, trenching and horizontal

directional drilling and potential for rock mattress placement. NatureScot stated that mitigation to reduce these potential disturbance effects can be addressed within a cable plan and that, due to the temporary nature of the activity and the relatively localised nature of the disturbance and low risk of injury, it agreed with the conclusion reached in the RIAA of no AEOSI.

13.1.2 The Scottish Ministers agree with NatureScot and conclude that there will be no AEOSI of the Moray Firth SAC from the Green Volt OWF alone.

13.1.3 A condition to reflect the required cable plan mitigation has been added to Section 4 below to ensure this is secured through the Section 36 consent and marine licences. **The Scottish Ministers conclude no AEOSI for the bottlenose dolphin feature of Moray Firth SAC from the Green Volt OWF in isolation.**

14 In-combination assessment methodology

14.1 A review has been carried out of all the projects which currently have an active or open application for a marine licence, section 36 consent or European Protected Species licence and associated AA which identified LSE on the qualifying interests of the same designated sites as are affected by the Green Volt OWF. Projects in English waters identified by the Company in the RIAA have also been included.

14.2 Section 2.4 of the [Non-Technical Summary](#) of the EIA Report for the Green Volt OWF indicates that construction is not likely to commence until Q1 2025, therefore any licences which expire before this date have been discounted.

14.3 A number of licences to carry out periodic maintenance dredging and sea deposit of dredged material have been issued and will have LSE on the qualifying interests of the same designated sites as the Green Volt OWF, however any impact from these projects will be minor and short term and therefore not have a significant contribution to in-combination effects with the Green Volt OWF. There are also a number of active marine licences to deposit fish farms which will have LSE on the same designated sites as the Green Volt OWF, however effects from these projects are also minor and not likely to lead to significant in-combination effects with the Green Volt OWF. These dredging, sea deposit and fish farm licences have also all been discounted from the in-combination assessment.

14.4 The identified projects have been separated into offshore wind farm projects (Table 13) and non-wind farm projects (Table 14).

Table 13 Wind farm projects which are considered in the in-combination assessment for Green Volt OWF

Project Name	Description
Aberdeen Bay OWF	Operational wind farm consisting of 11 turbines. https://marine.gov.scot/ml/european-offshore-wind-deployment-centre
Beatrice OWF	Operational wind farm in the outer Moray Firth, 13.5 km offshore. The wind farm consists of 84 WTGs over an area of 131.5 km ² . An EPS licence for post consent benthic and geophysical surveys has also been issued. https://marine.gov.scot/ml/beatrice-offshore-windfarm
Blyth Demonstration	Operational wind farm consisting of 15 turbines – Phase 1 Consented wind farm consisting of up to 5 floating turbines – Phase 2.
Caledonia	Scoped wind farm consisting of up to 150 turbines. Not yet at application stage. https://marine.gov.scot/ml/caledonia-offshore-wind-farm
Dogger Bank Creyke Beck A	Under construction wind farm consisting of up to 200 turbines.
Dogger Bank Creyke Beck B	Under construction wind farm consisting of up to 200 turbines.
Dogger Bank C	Under construction wind farm with a generating capacity of up to 1,400MW.
Dudgeon	Operational wind farm consisting of up to 67 turbines.
Dudgeon Extension Project	Application for up to 30 turbines.
East Anglia One	Operational wind farm consisting of up to 325 turbines.
East Anglia One North	Consented wind farm consisting of up to 67 turbines.
East Anglia Two	Consented wind farm consisting of up to 75 turbines.
East Anglia Three	Consented wind farm consisting of up to 172 turbines.
Five Estuaries	Application for up to 79 turbines.
Forthwind Demonstration Project	Single 20 MW test and demonstration WTG and met mast located approximately 1.5 km from the shore at Methil in the Firth of Forth. https://marine.gov.scot/ml/forthwind-demonstration-project
Galloper	Operational wind farm consisting of up to 56 turbines.
Greater Gabbard	Operational wind farm consisting of 140 turbines.
Gunfleet Sands (1 and 2)	Operational wind farm consisting of up to 30 turbines.
Hornsea Project One	Operational wind farm consisting of up to 120 turbines.

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Hornsea Project Two	Under construction wind farm consisting of up to 360 turbines.
Hornsea Three	Consented wind farm consisting of up to 231 turbines.
Hornsea Four	Consented wind farm consisting of up to 180 turbines.
Humber Gateway	Operational wind farm consisting of up to 83 turbines.
Hywind Scotland Pilot Park	Five 6 MW floating WTGs, installed approximately 25 km off the coast of Peterhead. Each turbine is attached to the seabed by a three point mooring spread extending to a radius of 600-1,200 m from each turbine. The project is now operational. https://marine.gov.scot/ml/hywind-scotland-pilot-park
Inch Cape OWF	A maximum of 72 wind turbines will be installed 15-22km from the Angus coastline. The project is due to begin construction mid-2025. https://marine.gov.scot/ml/inch-cape-offshore-windfarm-revised-design
Kentish Flats	Operational wind farm consisting of up to 30 turbines.
Kincardine OWF	A demonstrator floating wind farm consisting of five 9.5 MW turbines located about 8 miles from the coast to the south-east of Aberdeen. The project is now operational. https://marine.gov.scot/ml/kincardine-offshore-windfarm-0
Levenmouth Demonstration Turbine (Methil)	Site for the testing of new designs of offshore WTGs with a capacity of up to 7MW at the Fife Energy Park, Methil. One turbine operational. https://marine.gov.scot/ml/levenmouth-demonstration-turbine
Lincs, Lynn and Inner Dowsing	Operational wind farm consisting of up to 75 turbines – Lincs Operational wind farm consisting of up to 54 turbines – Lynn and Inner Dowsing
London Array	Operational wind farm consisting of up to 175 turbines.
Moray East OWF	An operation offshore wind farm 22 km from Caithness. The wind farm consists of 100 WTGs. https://marine.gov.scot/ml/moray-east-offshore-windfarm
Moray West OWF	A maximum of 60 WTGs will be installed off the Caithness coast. The project is currently under construction and due to be operational by June 2025. https://marine.gov.scot/ml/moray-west-offshore-windfarm
Near na Gaoithe OWF	A maximum of 54 WTGs will be installed 15-22km from the Angus coastline. The project is currently under construction and is due to complete construction July 2024. https://marine.gov.scot/ml/near-na-gaoithe-offshore-wind-farm-revised-design
Norfolk Boreas	Consented wind farm consisting of up to 158 turbines.
Norfolk Vanguard	Consented wind farm consisting of up to 200 turbines.

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North Falls	Proposed wind farm of up to 57 turbines. Not yet at application stage.
Outer Dowsing	Application for up to 100 turbines.
Pentland Floating OWF	Consented wind farm of up to 6 turbines. https://marine.gov.scot/ml/pentland-floating-offshore-wind-farm
Race Bank	Operational wind farm consisting of 91 turbines.
Rampion	Under construction wind farm consisting of up to 175 turbines.
Rampion 2	Application for up to 90 turbines.
Scroby Sands	Operational wind farm consisting of 30 turbines.
Seagreen Alpha and Bravo Offshore Wind Farms	A maximum of 150 WTGs 27 km from the Angus coastline. The project is currently under construction and due to complete construction by the end of 2024. https://marine.gov.scot/ml/seagreen-alpha-and-bravo-offshore-wind-farms
Sheringham Shoal	Operational wind farm consisting of 88 turbines.
Sheringham Shoal Extension Project	Application for up to 23 turbines.
Sofia	Under construction wind farm with a generating capacity of up to 1,400MW.
Teeside	Operational wind farm consisting of 27 turbines.
Thanet	Constructed wind farm consisting of 100 turbines.
Triton Knoll	Operational wind farm consisting of 90 turbines.
Westermost Rough	Operational wind farm consisting of 35 turbines.
West of Orkney	Application for up to 125 turbines. https://marine.gov.scot/ml/west-orkney-wind-farm

Table 14 Non-wind farm projects which are considered in the in-combination assessment for Green Volt OWF

Project Name	Description
Ardersier Port Development	Dredging of 4,600,000 wet tonnes of sand to re-open the harbour. 400,000 tonnes to be used for beneficial use and the remainder stockpiled on land. Construction of a new 464 m sheet piled quay wall along the line of the existing quayside. https://marine.gov.scot/ml/ardersier-port-development
Eastern Green Link Cable 2	Installation of a 436 km HVDC cable between Peterhead in Aberdeenshire and Drax in North Yorkshire. https://marine.gov.scot/ml/marine-licence-eastern-green-link-2-egl2-hvdc-cables-and-cable-protection-peterhead-drax-00009943

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Fair Isle Harbour Improvement Works	Construction of new quay and linkspan. The linkspan to be installed is 14 m length and 5.5 m wide at the nose. The existing steel slipway will be replaced and repairs carried out on the existing pier structure. 2,720 m ³ of capital dredging to be deposited at the Scalloway sea deposit site. https://marine.gov.scot/ml/fair-isle-harbour-improvement-works
Granton Harbour Redevelopment	Construction of a new 110 m sheet piled quay wall. 50 m extension of the western breakwater. Creation of a 340 berth marina. Capital dredging of which 154,385 m ³ will be taken for land based disposal, 19,322 m ³ will be used in land reclamation and the remaining 86,980 m ³ will be deposited at a sea deposit site. https://marine.gov.scot/node/23005
Grutness Harbour Improvements	Piled extension to the existing pier, protected by rock armour. Additional rock armour being added to increase the height of the existing defences. https://marine.gov.scot/ml/screening-harbour-improvement-works-grutness-shetland
Magallanes Tidal Turbine	A 1.5 MW tidal turbine installed in Berth 1 at the EMEC Fall of Warness site in Orkney. It uses a further four temporary deployment sites around Scapa Bay, Shapinsay Sound and Deerness for maintenance activities. The device is fixed to the seabed using four gravity-based anchors. https://marine.gov.scot/node/24248
Meygen Tidal Turbines	Tidal array in the Inner Sound of the Pentland Firth. Four turbines have been installed. Consent for phase 1b consisting of an additional four turbines has been granted but plans for the remaining 53 turbines have not yet been confirmed. https://marine.gov.scot/ml/meygen-tidal-energy-project
North Coast and Orkney cable geophysical surveys	Surveys of 24 cable routes with a maximum survey area of 240 km ² . Surveys are expected to take 360 days over a four year period. https://marine.gov.scot/node/24821
Orkney to Caithness Cable Installation	Installation of a 53 km HVAC cable from Warebeath, Orkney to Dounreay, Caithness within a 200 m corridor. Horizontal directional drilling will be used at the landfalls. The cable will be trenched and buried where possible. Where burial can't be achieved, additional protection will be used. https://marine.gov.scot/ml/marine-licence-hvac-cable-orkney-mainland-scotland-06889

Port of Leith Redevelopment	Construction of a 125 m long berth, provision of a hardstanding area, capital dredging of 215,000 wet tonnes of material to be deposited at Narrow Deep B deposit site. Project will take 15 months to complete. https://marine.gov.scot/ml/marine-licence-outer-berth-construction-port-leith-00009818
Shetland to Caithness Cable Installation	Installation of a 254 km HVDC cable between Weisdale Voe, Shetland and Noss Head, Caithness within a 200 m wide corridor. The cable will be trenched and buried where possible. Where burial can't be achieved, additional protection will be used. https://marine.gov.scot/ml/marine-licence-hdvc-link-installation-outside-12-nautical-miles-shetland-caithness-07357

14.5 Marine licences have also been issued for maintenance of the Kessock bridge, construction of a sea outfall at Spey Bay and slipway repairs at Brough Bay, however these works are all small scale and any residual impacts will be very localised so will not contribute significantly to in-combination effects with the Green Volt OWF and are not considered further.

14.6 Applications have been received for the Berwick Bank OWF consisting of 307 WTGs, 47.6 km from the coast of East Lothian. A determination has not yet been made on the applications for Berwick Bank OWF however, the AA has concluded that it will have an AEOSI for a number of qualifying interests of SPAs or the AA is unable to conclude that Berwick Bank OWF will not have an AEOSI. Berwick Bank OWF can therefore only be consented if a derogation case is agreed, including compensatory measures to offset its impacts on those species/sites where the AA cannot conclude that there will be no AEOSI. This means that if Berwick Bank OWF is consented, the effects from Berwick Bank OWF on these species/sites will be compensated for and on this basis they will not be considered in the in-combination assessment for Green Volt OWF. Berwick Bank OWF will be considered in the in-combination assessment for those species/sites where it has LSE but no AEOSI.

15 Guillemot – in-combination assessment

15.1 Buchan Ness to Collieston Coast SPA

15.1.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for guillemot as a qualifying feature of Buchan Ness to Collieston Coast SPA.

15.1.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for guillemot from Buchan Ness to Collieston Coast SPA ranges from 15.9 to 28.2 birds per annum following the SNCB Approach. The Buchan Ness to Collieston Coast SPA guillemot population size of 45,067 breeding adults used in the application was taken from the 2017 Inch Cape Scoping Opinion.

15.1.3 The AA for Berwick Bank OWF concluded no AEOSI for guillemot at the Buchan Ness to Collieston Coast SPA and therefore it is included in the in-combination assessment for Green Volt OWF.

Table 15: Estimated annual guillemot mortality at Buchan Ness to Collieston Coast SPA from Green Volt OWF in combination with other projects, including Berwick Bank OWF (see Tables 35, 41, 52: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	Lower	Upper	Lower	Upper	
	35.40	68.80	13.9	13.9	
Collision	-	-	-	-	
Total impact	35.40	68.80	13.9	13.9	
PVA (35 years)	CPS	0.969 (0.009)	0.941 (0.009)	0.987 (0.009)	0.987 (0.009)
	CGR	0.999 (<0.001)	0.998 (<0.001)	1.000 (<0.001)	1.000 (<0.001)

15.1.4 The CPS of the lower range of the SNCB Approach is reported as 0.969, this translates as a 3% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.941, this translates as a 6% reduction in population size after 35 years relative to an unimpacted population.

15.1.5 The CGR of the lower range of the SNCB Approach is reported as 0.999, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.998, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population.

15.1.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of

impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of Buchan Ness to Collieston Coast SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

15.2 Troup, Pennan and Lion’s Heads SPA

15.2.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for guillemot as a qualifying feature of Troup, Pennan and Lion’s Heads SPA.

15.2.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for guillemot from Troup, Pennan and Lion’s Heads SPA ranges from 6.3 to 11.8 birds per annum following the SNCB Approach. The Troup, Pennan and Lion’s Heads SPA guillemot population size of 31,893 breeding adults used in the application was taken from the 2017 count (JNCC 2022).

15.2.3 The AA for Berwick Bank OWF concluded no AEOSI for guillemot at the Troup, Pennan and Lion’s Heads SPA and therefore it is included in the in-combination assessment for Green Volt OWF.

Table 16: Estimated annual guillemot mortality at Troup, Pennan and Lion’s Heads SPA from Green Volt OWF in combination with other projects, including Berwick Bank OWF (see Tables 35, 41, 59: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
	Lower	Upper	Lower	Upper	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	28.60	59.30	12.8	12.8	
Collision	-	-	-	-	
Total impact	28.60	59.30	12.8	12.8	
PVA (35 years)	CPS	0.964 (0.011)	0.925 (0.010)	0.984 (0.011)	0.984 (0.011)
	CGR	0.999 (<0.001)	0.998 (<0.001)	1.000 (<0.001)	1.000 (<0.001)

- 15.2.4 The CPS of the lower range of the SNCB Approach is reported as 0.964, this translates as a 4% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.925, this translates as an 8% reduction in population size after 35 years relative to an unimpacted population.
- 15.2.5 The CGR of the lower range of the SNCB Approach is reported as 0.999, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.998, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.
- 15.2.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of Troup, Pennan and Lion's Heads SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**
- 15.3 Fowlsheugh SPA
- 15.3.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for guillemot as a qualifying feature of Fowlsheugh SPA.
- 15.3.2 NatureScot are unable to conclude no AEOSI for guillemot as a qualifying feature of Fowlsheugh SPA excluding Berwick Bank OWF.
- 15.3.3 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for guillemot from Fowlsheugh SPA ranges from 2.9 to 8.6 birds per annum following the SNCB Approach. The Fowlsheugh SPA guillemot population size of 93,570 breeding adults used in the application was taken from the 2018 count (JNCC 2022).
- 15.3.4 The AA for Berwick Bank OWF concluded an AEOSI for guillemot at the Fowlsheugh SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 17: Estimated annual guillemot mortality at Fowlsheugh SPA from Green Volt OWF in combination with other projects, excluding

Berwick Bank OWF (see Tables 36, 42, 77: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	Lower	Upper	Lower	Upper	
	173.20	335.20	67.5	67.5	
Collision	-	-	-	-	
Total impact	173.20	335.20	67.5	67.5	
PVA (35 years)	CPS	0.928 (0.005)	0.865 (0.005)	0.971 (0.005)	0.971 (0.005)
	CGR	0.998 (<0.001)	0.996 (<0.001)	0.999 (<0.001)	0.999 (<0.001)

15.3.5 The CPS of the lower range of the SNCB Approach is reported as 0.928, this translates as a 7% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.865, this translates as a 14% reduction in population size after 35 years relative to an unimpacted population.

15.3.6 The CGR of the lower range of the SNCB Approach is reported as 0.998, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.996, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

15.3.7 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers are unable to conclude no AEOSI for the guillemot feature of Fowlsheugh SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

15.4 East Caithness Cliffs SPA

15.4.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for guillemot as a qualifying feature of East Caithness Cliffs SPA.

15.4.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for guillemot from East Caithness Cliffs SPA ranges from 29 to 60 birds per annum following the SNCB Approach. The East Caithness Cliffs SPA guillemot population size of 199,992 breeding adults used in the application was taken from the 2015 count (JNCC 2022).

15.4.3 The guillemot feature of East Caithness Cliffs SPA was not assessed for Berwick Bank OWF because the connectivity between the SPA and the wind farm was negligible (only 0.0025 of guillemots at the Berwick Bank location were considered to be from East Caithness Cliffs SPA), and no LSE was therefore concluded. The results below are only reported as excluding Berwick Bank OWF, but the conclusions would remain unchanged with the inclusion of Berwick Bank OWF in the in-combination assessment because its effects on the East Caithness Cliffs SPA are negligible.

Table 18: Estimated annual guillemot mortality at East Caithness Cliffs SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 42, 66: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	Lower	Upper	Lower	Upper	
	647.5	1128.7	202.2	202.2	
Collision	-	-	-	-	
Total impact	647.5	1128.7	202.2	202.2	
PVA (35 years)	CPS	0.877 (0.005)	0.795 (0.007)	0.960 (0.004)	0.960 (0.004)
	CGR	0.996 (<0.001)	0.994 (<0.001)	0.999 (<0.001)	0.999 (<0.001)

15.4.4 The CPS of the lower range of the SNCB Approach is reported as 0.877, this translates as a 12% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.795, this translates as a 21% reduction in population size after 35 years relative to an unimpacted population.

15.4.5 The CGR of the lower range of the SNCB Approach is reported as 0.996, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.994, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

15.4.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude AEOSI for the guillemot feature of East Caithness Cliffs SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

15.5 North Caithness Cliffs SPA

15.5.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for guillemot as a qualifying feature of North Caithness Cliffs SPA.

15.5.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for guillemot from North Caithness Cliffs SPA ranges from 6.7 to 16.4 birds per annum following the SNCB Approach. The North Caithness Cliffs SPA guillemot population size of 52,076 breeding adults used in the application was taken from the 2018 count (JNCC 2022).

15.5.3 The guillemot feature of North Caithness Cliffs SPA was not assessed for Berwick Bank OWF because the connectivity between the SPA and the wind farm was negligible (only 0.0006 of guillemots at the Berwick Bank location were considered to be from North Caithness Cliffs SPA), and no LSE was therefore concluded. The results below are only reported as excluding Berwick Bank OWF, but the conclusions would remain unchanged with the inclusion of Berwick Bank OWF in the in-combination assessment because its effects on the North Caithness Cliffs SPA are negligible.

Table 19: Estimated annual guillemot mortality at North Caithness Cliffs SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 42, 87: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum	
	Lower	Upper	Lower	Upper
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	
	61.7	121.5	30.5	30.5

Collision		-	-	-	-
Total impact		61.7	121.5	30.5	30.5
PVA (35 years)	CPS	0.954 (0.007)	0.910 (0.007)	0.976 (0.007)	NA
	CGR	0.999 (<0.001)	0.997 (<0.001)	0.999 (<0.001)	NA

15.5.4 The CPS of the lower range of the SNCB Approach is reported as 0.954²², this translates as a 5% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.910, this translates as a 9% reduction in population size after 35 years relative to an unimpacted population.

15.5.5 The CGR of the lower range of the SNCB Approach is reported as 0.999, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.997, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

15.5.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of North Caithness Cliffs SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

15.6 Copinsay SPA

15.6.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for guillemot as a qualifying feature of Copinsay SPA.

15.6.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for guillemot from Copinsay SPA ranges from 1.8 to 3.6 birds per annum following the SNCB Approach. The Copinsay SPA guillemot population size of 24,728 breeding adults used in the application was taken from the 2015 count (JNCC 2022).

²² The Company reports this incorrectly as 0.985 in their SOAR (Pg 250)

15.6.3 The guillemot feature of Copinsay SPA was not assessed for Berwick Bank OWF. This is because the connectivity between the SPA and the wind farm was negligible (only 0.0001 of guillemots at the Berwick Bank location were considered to be from Copinsay SPA), and no LSE was therefore concluded. The results below are only reported as excluding Berwick Bank OWF, but the conclusions would remain unchanged with the inclusion of Berwick Bank OWF because its effects on the Copinsay SPA are negligible.

Table 20: Estimated annual guillemot mortality at Copinsay SPA from Green Volt OWF in combination with other projects excluding Berwick Bank OWF (see Tables 42, 83: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum	
	Lower	Upper	Lower	Upper
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	
	3.40	8.30	NA	NA
Collision	-	-	-	-
Total impact	3.40	8.30	NA	NA
PVA (35 years)	CPS	0.994 (0.012)	0.986 (0.012)	NA
	CGR	1.000 (<0.001)	1.000 (<0.001)	NA

15.6.4 The CPS of the lower range of the SNCB Approach is reported as 0.994, this translates as a <1% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.986, this translates as a 1% reduction in population size after 35 years relative to an unimpacted population.

15.6.5 The CGR of the lower range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 1.0, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population.

15.6.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the guillemot feature of Copinsay SPA from the Green Volt OWF in**

combination with other North Sea wind farms based on the SNCB Approach.

16 Razorbill – in-combination assessment

16.1 Troup, Pennan and Lion’s Heads SPA

16.1.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for razorbill as a qualifying feature of Troup, Pennan and Lion’s Heads SPA.

16.1.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for razorbill from Troup, Pennan and Lion’s Heads SPA ranges from 0.7-1.2 birds per annum following the SNCB Approach. The Troup, Pennan and Lion’s Heads SPA razorbill population size of 6,054 breeding adults used in the application was taken from the 2017 count (JNCC 2022).

16.1.3 The AA for Berwick Bank OWF concluded an AEOSI for razorbill at the Troup, Pennan and Lion’s Heads SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 21: Estimated annual razorbill mortality at Troup, Pennan and Lion’s Heads SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank (see Tables 36, 42, 60: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum			
	Lower	Upper	Lower	Upper		
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season	50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	5.30	13.60	3.5	3.5
Collision	-	-	-	-	-	-
Total impact	5.30	13.60	3.5	3.5		
PVA (35 years)	CPS	0.964 (0.047)	0.909 (0.045)	0.976 (0.048)	0.976 (0.048)	
	CGR	0.999 (0.001)	0.997 (0.001)	0.999 (0.001)	0.999 (0.001)	

16.1.4 The CPS of the lower range of the SNCB Approach is reported as 0.964, this translates as a 4% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach

is reported as 0.909, this translates as a 9% reduction in population size after 35 years relative to an unimpacted population.

16.1.5 The CGR of the lower range of the SNCB Approach is reported as 0.999, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.997, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

16.1.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the razorbill feature of Troup, Pennan and Lion's Heads SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

16.2 Fowlsheugh SPA

16.2.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for razorbill as a qualifying feature of Fowlsheugh SPA. Although unable to conclude no AEOSI, NatureScot did consider that the project contribution to the in-combination impacts is small and as such does not make a tangible contribution to the impacts.

16.2.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for razorbill from Fowlsheugh SPA ranges from 0.0001-0.0004 birds per annum following the SNCB Approach. The Fowlsheugh SPA razorbill population size of 18,844 breeding adults used in the application was taken from the 2018 count (JNCC 2022).

16.2.3 The AA considers that the extremely low magnitude of estimated effects from the Green Volt OWF (up to 0.0004 of a bird per year), in combination with precaution built into the assessment, mean that a conclusion can be reached in a qualitative manner, and that the use of PVA metrics would not be appropriate.

16.2.4 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of effect, the precaution in the assessment methods and the consultation

responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the razorbill feature of Fowlsheugh SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach and subsequent qualitative evaluation that the mortality effects from Green Volt OWF are negligible.**

16.3 East Caithness Cliffs SPA

16.3.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for razorbill as a qualifying feature of East Caithness Cliffs SPA.

16.3.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for razorbill from East Caithness Cliffs SPA ranges from 2.5 to 4.2 birds per annum following the SNCB Approach. The East Caithness Cliffs SPA razorbill population size of 40,256 breeding adults used in the application was taken from the 2015 count (JNCC 2022).

16.3.3 The AA for Berwick Bank OWF concluded an AEOSI for razorbill at the East Caithness Cliffs SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 22: Estimated annual razorbill mortality at East Caithness Cliffs SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 42, 67: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum	
	Lower	Upper	Lower	Upper
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season	50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season
	110.2	217.8	44.8	44.8
Collision	-	-	-	-
Total impact	110.2	217.8	44.8	44.8
PVA (35 years)	CPS 0.890 (0.017)	0.794 (0.016)	0.954 (0.018)	0.954 (0.018)
	CGR 0.997 (<0.001)	0.994 (<0.001)	0.999 (<0.001)	0.999 (<0.001)

16.3.4 The CPS of the lower range of the SNCB Approach is reported as 0.890, this translates as a 11% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach

is reported as 0.794, this translates as a 21% reduction in population size after 35 years relative to an unimpacted population.

- 16.3.5 The CGR of the lower range of the SNCB Approach is reported as 0.997, this translates as a 0% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.994, this translates as a 1% reduction in growth rate after 35 years relative to an unimpacted population.
- 16.3.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact and population consequences of the predicted effects, the precaution in the assessment methods and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude AEOSI for the razorbill feature of East Caithness Cliffs SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

17 Kittiwake – in-combination assessment

17.1 Buchan Ness to Collieston Coast SPA

- 17.1.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a qualifying feature of Buchan Ness to Collieston Coast SPA.
- 17.1.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from Buchan Ness to Collieston Coast SPA ranges from 1.1 to 1.4 birds per annum following the SNCB Approach. The Buchan Ness to Collieston Coast SPA kittiwake population size of 22,590 breeding adults used in the application was taken from the 2017 count (JNCC 2022).
- 17.1.3 The AA for Berwick Bank OWF concluded an AEOSI for kittiwake at the Buchan Ness to Collieston Coast SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 23: Estimated annual kittiwake mortality at Buchan Ness to Collieston Coast SPA from Green Volt OWF in combination with other

projects, excluding Berwick Bank OWF (see Tables 36, 38, 40, 42, 44, 46, 53: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
	Lower	Upper	Lower	Upper	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	6.7	20.1	6.7	20.1	
Collision	58.0	58.1	57.7	57.7	
Total impact	64.70	78.20	64.4	77.8	
PVA (35 years)	CPS	0.884 (0.015)	0.862 (0.014)	0.884 (0.015)	0.865 (0.015)
	CGR	0.997 (<0.001)	0.996 (<0.001)	0.997 (0.000)	0.996 (0.000)

17.1.4 The CPS of the lower range of the SNCB Approach is reported as 0.884, this translates as a 12% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.862, this translates as a 14% reduction in population size after 35 years relative to an unimpacted population.

17.1.5 The CGR of the lower range of the SNCB Approach is reported as 0.997, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.996, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

17.1.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude AEOSI for the kittiwake feature of Buchan Ness to Collieston Coast SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

17.2 Troup, Pennan and Lion's Heads SPA

17.2.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a qualifying feature of Troup, Pennan and Lion's Heads SPA.

- 17.2.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from Troup, Pennan and Lion’s Heads SPA ranges from 0.9 to 1.1 birds per annum following the SNCB Approach. The Troup, Pennan and Lion’s Heads SPA kittiwake population size of 21,232 breeding adults used in the application was taken from the 2017 count (JNCC 2022).
- 17.2.3 The AA for Berwick Bank OWF concluded an AEOSI for kittiwake at the Troup, Pennan and Lion’s Heads SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 24: Estimated annual kittiwake mortality at Troup, Pennan and Lion’s Heads SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 38, 40, 42, 44, 46, 62: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	Lower	Upper	Lower	Upper	
	11.4	34.3	11.4	34.3	
Collision	50.9	51.0	50.6	50.6	
Total impact	62.3	85.3	61.9	84.9	
PVA (35 years)	CPS	0.883 (0.010)	0.843 (0.009)	0.868 (0.010)	0.828 (0.009)
	CGR	0.997 (<0.001)	0.995 (<0.001)	0.996 (0.000)	0.995 (0.000)

- 17.2.4 The CPS of the lower range of the SNCB Approach is reported as 0.883, this translates as a 12% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.843, this translates as a 16% reduction in population size after 35 years relative to an unimpacted population.
- 17.2.5 The CGR of the lower range of the SNCB Approach is reported as 0.997, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.995, this translates as a 1% reduction in growth rate after 35 years relative to an unimpacted population.
- 17.2.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation

responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude AEOSI for the kittiwake feature of Troup, Pennan and Lion’s Heads SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

17.3 Fowlsheugh SPA

17.3.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a qualifying feature of Fowlsheugh SPA.

17.3.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from Fowlsheugh SPA ranges from 0.7 to 0.9 birds per annum following the SNCB Approach. The Fowlsheugh SPA kittiwake population size of 28,078 breeding adults used in the application was taken from the 2017 count (JNCC 2022).

17.3.3 The AA for Berwick Bank OWF concluded an AEOSI for kittiwake at the Fowlsheugh SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 25: Estimated annual kittiwake mortality at Fowlsheugh SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 38, 40, 42, 44, 46, 81: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
	Lower	Upper	Lower	Upper	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	15.4	46.3	15.4	46.3	
Collision	76.6	76.7	76.3	76.3	
Total impact	92.0	123.0	91.6	122.58	
PVA (35 years)	CPS	0.869 (0.010)	0.829 (0.009)	0.880 (0.10)	0.843 (0.009)
	CGR	0.996 (<0.001)	0.995 (<0.001)	0.996 (<0.001)	0.995 (<0.001)

17.3.4 The CPS of the lower range of the SNCB Approach is reported as 0.869, this translates as a 13% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach

is reported as 0.829, this translates as a 17% reduction in population size after 35 years relative to an unimpacted population.

17.3.5 The CGR of the lower range of the SNCB Approach is reported as 0.996, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.995, this translates as a 1% reduction in growth rate after 35 years relative to an unimpacted population.

17.3.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude AEOSI for the kittiwake feature of Fowlsheugh SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

17.4 East Caithness Cliffs SPA

17.4.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a qualifying feature of East Caithness Cliffs SPA.

17.4.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from East Caithness Cliffs SPA ranges from 1.2 to 1.6 birds per annum following the SNCB Approach. The East Caithness Cliffs SPA kittiwake population size of 48,920 breeding adults used in the application was taken from the 2016 count (JNCC 2022).

17.4.3 The AA for Berwick Bank OWF concluded an AEOSI for kittiwake at the East Caithness Cliffs SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 26: Estimated annual kittiwake mortality at East Caithness Cliffs SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 38, 40, 42, 44, 46, 69: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum	
	Lower	Upper	Lower	Upper
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	

		53.9	161.7	53.9	161.7
Collision		209.7	209.9	209.2	209.2
Total impact		263.6	371.6	263.1	370.9
PVA (35 years)	CPS	0.795 (0.043)	0.723 (0.040)	0.807 (0.004)	0.712 (0.040)
	CGR	0.993 (0.001)	0.991 (0.001)	0.994 (0.001)	0.991 (0.002)

17.4.4 The CPS of the lower range of the SNCB Approach is reported as 0.795, this translates as a 21% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.723, this translates as a 28% reduction²³ in population size after 35 years relative to an unimpacted population.

17.4.5 The CGR of the lower range of the SNCB Approach is reported as 0.993, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.991, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

17.4.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude AEOSI for the kittiwake feature of East Caithness Cliffs SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

17.5 North Caithness Cliffs SPA

17.5.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a qualifying feature of North Caithness Cliffs SPA. Although unable to conclude no AEOSI, NatureScot did consider that the project contribution to the in-combination impacts is small and as such does not make a tangible contribution to the impacts.

17.5.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from North Caithness Cliffs SPA ranges from 0.2 to 0.3 birds per annum following the SNCB Approach. The North

²³ In the SOAR, this is incorrectly presented as 17.7% (Pg. 222)

Caithness Cliffs SPA kittiwake population size of 11,136 breeding adults used in the application was taken from the 2016 count (JNCC 2022).

17.5.3 The AA considers that the extremely low magnitude of estimated effects from the Green Volt OWF (up to 0.3 of a bird per year), in combination with precaution built into the assessment, mean that a conclusion can be reached in a qualitative manner, and that the use of PVA metrics would not be appropriate.

17.5.4 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the kittiwake feature of North Caithness Cliffs SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach and subsequent qualitative evaluation that the mortality effects from Green Volt OWF are negligible.**

17.6 Forth Islands SPA

17.6.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a qualifying feature of Forth Islands SPA. Although unable to conclude no AEOSI, NatureScot did consider that the project contribution to the in-combination impacts is small and as such does not make a tangible contribution to the impacts.

17.6.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from Forth Islands SPA ranges from 0.14 to 0.18 birds per annum following the SNCB Approach. The Forth Islands SPA kittiwake population size of 7,702 breeding adults used in the application was taken from the 2014 count (JNCC 2022).

17.6.3 The AA considers that the extremely low magnitude of estimated effects from the Green Volt OWF (up to 0.18 of a bird per year), in combination with precaution built into the assessment, mean that a conclusion can be reached in a qualitative manner, and that the use of PVA metrics would not be appropriate.

17.6.4 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation

responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the kittiwake feature of Forth Islands SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach and subsequent qualitative evaluation that the mortality effects from Green Volt OWF are negligible.**

17.7 St Abb's Head to Fast Castle SPA

17.7.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a qualifying feature of St Abb's Head to Fast Castle SPA. Although unable to conclude no AEOSI, NatureScot did consider that the project contribution to the in-combination impacts is small and as such does not make a tangible contribution to the impacts.

17.7.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from St Abb's Head to Fast Castle SPA ranges from 0.1 to 0.2 birds per annum following the SNCB Approach. The St Abb's Head to Fast Castle SPA kittiwake population size of 9,200 breeding adults used in the application was taken from the 2017 count (JNCC 2022).

17.7.3 The AA considers that the extremely low magnitude of estimated effects from the Green Volt OWF (up to 0.2 of a bird per year), in combination with precaution built into the assessment, mean that a conclusion can be reached in a qualitative manner, and that the use of PVA metrics would not be appropriate.

17.7.4 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the kittiwake feature of St Abb's Head to Fast Castle SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach and subsequent qualitative evaluation that the mortality effects from Green Volt OWF are negligible.**

17.8 West Westray SPA

17.8.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for kittiwake as a

qualifying feature of St West Westray SPA. Although unable to conclude no AEOSI, NatureScot did consider that the project contribution to the in-combination impacts is small and as such does not make a tangible contribution to the impacts.

- 17.8.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for kittiwake from West Westray SPA ranges from 0.22 to 0.25 birds per annum following the SNCB Approach. The West Westray SPA kittiwake population size of 5,510 breeding adults used in the application was taken from the 2017 count (JNCC 2022).
- 17.8.3 The AA considers that the extremely low magnitude of estimated effects from the Green Volt OWF (up to 0.25 of a bird per year), in combination with precaution built into the assessment, mean that a conclusion can be reached in a qualitative manner, and that the use of PVA metrics would not be appropriate.
- 17.8.4 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the kittiwake feature of West Westray SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach and subsequent qualitative evaluation that the mortality effects from Green Volt OWF are negligible.**

18 Puffin – in-combination assessment

18.1 Forth Islands SPA

- 18.1.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for puffin as a qualifying feature of Forth Islands SPA.
- 18.1.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for puffin from Forth Islands SPA ranges from 0.4 to 0.8 birds per annum following the SNCB Approach. The Forth Islands SPA puffin population size of 10,229 breeding adults used in the application was taken from the 2018 count (JNCC 2022).

18.1.3 The AA for Berwick Bank OWF concluded an AEOSI for puffin at the Forth Islands SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 27: Estimated annual puffin mortality at Forth Islands SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 42, 71: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type		SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum	
Displacement		60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season	
		Lower	Upper	Lower	Upper
		141.61	236.1	39.4	39.4
Collision		-	-	-	-
Total impact		141.61	236.1	39.4	39.4
PVA (35 years)	CPS	0.550 (0.024)	0.372 (0.019)	0.847 (0.033)	0.847 (0.033)
	CGR	0.984 (0.001)	0.973 (0.001)	0.995 (0.001)	0.995 (0.001)

18.1.4 The CPS of the lower range of the SNCB Approach is reported as 0.550, this translates as a 45% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.372, this translates as an 63% reduction²⁴ in population size after 35 years relative to an unimpacted population.

18.1.5 The CGR of the lower range of the SNCB Approach is reported as 0.984, this translates as a 2% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.973, this translates as a 3% reduction in growth rate after 35 years relative to an unimpacted population.

18.1.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers are unable to conclude no AEOSI for the puffin feature of Forth Islands SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

²⁴ In the SOAR, this is wrongly presented as 72.7% (Pg 225)

19 Gannet – in-combination assessment

19.1 Forth Islands SPA

19.1.1 NatureScot in its response of 29 January 2024 disagreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for gannet as a qualifying feature of Forth Islands SPA.

19.1.2 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for gannet from Forth Islands SPA ranges from 6.7-7.6 birds per annum following the SNCB Approach. The Forth Islands SPA gannet population size of 150,518 breeding adults used in the application was taken from the 2014 count (JNCC 2022).

19.1.3 The AA for Berwick Bank OWF concluded an AEOSI for gannet at the Forth Islands SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 28: Estimated annual gannet mortality at Forth Islands SPA from Green Volt OWF in combination with other projects, excluding Berwick Bank OWF (see Tables 36, 38, 40, 42, 44, 46, 75: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
	Lower	Upper	Lower	Upper	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	112.07	336.5	75.2	107.3	
Collision	540.6	540.6	540	540	
Total impact	652.67	877.1	615.22	647.25	
PVA (35 years)	CPS	0.833 (0.006)	0.782 (0.006)	0.840 (0.006)	0.833 (0.822)
	CGR	0.995 (<0.001)	0.993 (<0.001)	0.995 (<0.001)	0.995 (<0.001)

19.1.4 The CPS of the lower range of the SNCB Approach is reported as 0.833, this translates as a 17% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.782, this translates as an 22% reduction in population size after 35 years relative to an unimpacted population.

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- 19.1.5 The CGR of the lower range of the SNCB Approach is reported as 0.995, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.993, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.
- 19.1.6 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude AEOSI for the gannet feature of Forth Islands SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**
- 19.2 Hermaness, Saxa Vord and Valla Field SPA
- 19.2.1 NatureScot in its response of 29 January 2024 agreed with the conclusions of the SOAR, that in adhering to the SNCB Approach, Green Volt OWF in combination with other projects would result in no AEOSI for gannet as a qualifying feature of Hermaness, Saxa Vord and Valla Field SPA.
- 19.2.2 In contrast, RSPB Scotland disagreed with the Company's decision of no AEOSI for gannet at Hermaness, Saxa Vord and Valla Field SPA in its response to the SOAR on 16 January 2024. RSPB Scotland consider that Green Volt OWF in-combination with other OWF projects, both with and without Berwick Bank, will impact site integrity for gannet, particularly when being mindful of the impact that HPAI has had on this colony.
- 19.2.3 The predicted mortality contribution of the Green Volt OWF to the in-combination assessment for gannet from Hermaness, Saxa Vord and Valla Field SPA ranges from 0.99 to 1.2 birds per annum following the SNCB Approach. The Hermaness, Saxa Vord and Valla Field SPA gannet population size of 51,160 breeding adults used in the application was taken from the 2014 count (JNCC 2022).
- 19.2.4 The AA for Berwick Bank OWF was unable to conclude no AEOSI for gannet at the Hermaness, Saxa Vord and Valla Field SPA and therefore for the reasons given in section 14.6, it is excluded from the in-combination assessment for Green Volt OWF.

Table 29: Estimated annual gannet mortality at Hermaness, Saxa Vord and Valla Field SPA from Green Volt OWF in combination with other

projects, excluding Berwick Bank (see Tables 36, 38, 40, 42, 44, 46, 94: [SOAR](#)) plus PVA outputs. Median (SD) is shown.

Impact type	SNCB Approach: mortalities per annum		Applicant Approach: mortalities per annum		
	Lower	Upper	Lower	Upper	
Displacement	60% displacement / 3-5% mortality for breeding season, 1-3% mortality for non-breeding season		50% displacement / 1% mortality for breeding season, 1% mortality for non-breeding season		
	13.6	40.8	11.7	15.7	
Collision	60.6	60.6	60.5	60.5	
Total impact	74.2	101.4	72.2	76.2	
PVA (35 years)	CPS	0.939 (0.016)	0.919 (0.016)	0.943 (0.016)	0.939 (0.016)
	CGR	0.998 (<0.001)	0.998 (<0.001)	0.998 (<0.001)	0.998 (<0.001)

19.2.5 The CPS of the lower range of the SNCB Approach is reported as 0.939, this translates as a 6% reduction in population size after 35 years relative to an unimpacted population. The CPS of the upper range of the SNCB Approach is reported as 0.919, this translates as an 8% reduction in population size after 35 years relative to an unimpacted population.

19.2.6 The CGR of the lower range of the SNCB Approach is reported as 0.998, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population. The CGR of the upper range of the SNCB Approach is reported as 0.998, this translates as a <1% reduction in growth rate after 35 years relative to an unimpacted population.

19.2.7 In reaching their conclusion, the Scottish Ministers have considered the conservation objectives, the populations at the site, the predicted levels of impact, the precaution in the assessment methods, and the consultation responses from NatureScot and RSPB Scotland. **The Scottish Ministers conclude no AEOSI for the gannet feature of the Hermaness, Saxa Vord and Valla Field SPA from the Green Volt OWF in combination with other North Sea wind farms based on the SNCB Approach.**

20 In-combination assessment on SPAs with non-offshore wind farms

20.1 The Scottish Ministers have also considered the potential for in-combination effects with Green Volt OWF and the projects listed in Table 14, namely:

- Ardersier Port Development
- Eastern Green Link 2 Cable
- Fair Isle Harbour Improvement Works
- Granton Harbour Redevelopment

- Grutness Harbour Improvements
- Magallanes ATIR Tidal Turbine
- Meygen Tidal Turbines
- North Coast and Orkney Cable Geophysical Surveys
- Orkney to Caithness Cable Installation
- Port of Leith Redevelopment
- Shetland to Caithness Cable Installation

20.2 No additional in-combination effects have been identified which would lead to an AEOSI of any of the SPAs impacted by Green Volt OWF.

21 Bottlenose dolphin – in-combination assessment

21.1 LSE on the bottlenose dolphins of the Moray Firth SAC was identified for the following projects:

- Ardersier Port Development
- Beatrice OWF
- Berwick Bank OWF
- Forthwind Demonstration Project
- Hywind Scotland Pilot Park
- Inch Cape OWF
- Moray East OWF
- Moray West OWF
- Neart na Gaoithe OWF
- Port of Leith Redevelopment

21.2 Beatrice, Hywind and Moray East offshore wind farms are now in the operational phase and the main impacts on the Moray Firth SAC were during the construction. Considering this and the mitigation measures for marine mammals that are in place for all of the above projects, the Scottish Ministers conclude that there will be no AEOSI of the Moray Firth SAC from the Green Volt OWF in-combination with other projects.

The Scottish Ministers conclude no AEOSI for the bottlenose dolphin feature of Moray Firth SAC from the Green Volt OWF in combination with other projects.

22 Scottish Ministers conclusion

22.1 The Scottish Ministers have considered the sites' conservation objectives. In particular, the Scottish Ministers have considered the potential impact of

Green Volt OWF on the need to maintain the population of the species as a viable component of the site on the individual qualifying features of the SPAs.

22.2 AEOSI from Green Volt OWF in combination with other North Sea wind farms was concluded, based on the SNCB Approach for the following features and SPAs:

- Kittiwake at Buchan Ness to Collieston Coast SPA;
- Kittiwake, razorbill and guillemot at East Caithness Cliffs SPA;
- Gannet at Forth Islands SPA;
- Kittiwake at Fowlsheugh SPA; and
- Kittiwake at Troup, Pennan and Lion’s Heads SPA.

22.3 Further, the AA was unable to conclude no AEOSI to:

- Guillemot at Fowlsheugh SPA; and
- Puffin at Forth Islands SPA.

Table 30: Mortality summary for species and sites where AEOSI was concluded, or Scottish Ministers were unable to conclude no AEOSI.

Species	SPA	Conclusion	CPS (upper value)	Mortality 1 (birds per annum-upper value)	Mortality 2 (after 35 years)
Guillemot	Fowlsheugh	Unable to conclude no AEOSI	0.865	8.6	301
Guillemot	East Caithness Cliffs	AEOSI	0.795	60	2100
Razorbill	East Caithness Cliffs	AEOSI	0.794	4.2	147
Kittiwake	Buchan Ness to Collieston Coast	AEOSI	0.862	1.4	49
Kittiwake	Troup, Pennan and Lion’s Heads	AEOSI	0.843	1.1	38.5
Kittiwake	Fowlsheugh	AEOSI	0.826	0.9	31.5
Kittiwake	East Caithness Cliffs	AEOSI	0.723	1.6	56
Puffin	Forth Islands	Unable to conclude no AEOSI	0.327	0.8	28
Gannet	Forth Islands	AEOSI	0.782	7.6	266

SECTION 4: CONDITIONS

23 Conditions required to prevent AEOSI

23.1 The requirement for the below conditions is as a result of commitments in the EIA Report, RIAA and SOAR, along with NatureScot's advice regarding mitigation measures to ensure that there will be no AEOSI of the Moray Firth SAC, Calf of Eday SPA, Cape Wrath SPA, Copinsay SPA, Coquet Island SPA, Fair Isle SPA, Farne Islands SPA, Fetlar SPA, Flamborough and Filey Coast SPA, Foula SPA, Handa SPA, Hermaness, Saxa Vord and Valla Field SPA, Hoy SPA, Marwick Head SPA, North Caithness Cliffs SPA, North Rona and Sula Sgeir SPA, Noss SPA, Rousay SPA, St Abbs Head to Fast Castle SPA, St Kilda SPA, Sule Skerry and Sule Stack SPA, Sumburgh Head SPA and West Westray SPA.

23.2 The conditions below relate to HRA concerns as well as covering other interests. The conditions here are written in their complete form and so may also refer to non-HRA interests. Where reference is made to other conditions, these are numbered as per the condition numbers which will be used in the section 36 consent if granted. Defined terms used in the conditions below will have the meaning given to them in the section 36 consent, if granted.

23.2.1 Duration of the Consent

The consent is for a period of 35 years from the date of Final Commissioning of the Development.

Written confirmation of the date of First Commissioning of the Development must be provided by the Company to the Scottish Ministers and to Aberdeenshire Council, Aberdeen City Council and Angus Council no later than one calendar month after this date.

23.2.2 Cable Plan

The Company must, no later than six months prior to the Commencement of the Development, submit an updated Cable Plan ("CaP"), in writing, to the Scottish Ministers for their written approval. Commencement of the Development cannot take place until such approval is granted. Such approval may only be granted following consultation by the Licensing Authority with NatureScot, MCA, SFF, and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The CaP must be in accordance with the Application.

The Cable Plan must include, but not be limited to, the following:

- a) The vessel types, location, duration and cable laying techniques for cables;
- b) The finalised location of the export cable route;
- c) The results of monitoring or data collection work (including geophysical, geotechnical and benthic surveys) which will help inform cable routing;
- d) Technical specification of cables, including a desk based assessment of attenuation of electro-magnetic field strengths and shielding;
- e) A Cable Burial Risk Assessment, to ascertain burial depths and where necessary alternative protection measures,
- i) Methodologies and timetable for post-construction and operational surveys (including inspection, over trawl, post-lay) for the cables through their operational life ; and
- j) Measures to address and report to the Licensing Authority any exposure of cables or risk to users of the sea from cables.

Should High Voltage Direct Current (HVDC) transmission infrastructure be used, the CaP must include a pre-construction compass deviation study to ascertain the effect of EMF on ships compasses. The Licensing Authority will accept a three-degree deviation for 95% of the cable route and no more than 5% deviation for the remaining 5%. Any greater deviation must be agreed in writing by the Licensing Authority, in consultation with the MCA, and may be subject to additional mitigation measures and reporting requirements.

Any licensed cable protection works must ensure existing and future safe navigation is not compromised. The Licensing Authority will accept a maximum of 5% reduction in surrounding depth referenced to Chart Datum. Any greater reduction in depth must be agreed in writing by the Licensing Authority.

Appendix A: Justification for SPAs not taken through for full assessment

Table 31: Justifications for conclusion of no AEOSI as assessed in the RIAA and SOAR (codes below table)

SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref
Buchan Ness to Collieston Coast SPA	Guillemot	Br/non-br	HL	SS35	RIAA
		Br/non-br	DD1G alone		RIAA
		Br/non-br	DD2 alone – 0.48% increase in baseline mortality per annum INF .		RIAA
		Br/non-br	BM2 alone Displacement impacts lead to a PVA: 0.04-0.06 percentage point change in survival		RIAA SOAR
	Kittiwake	Br/non-br	HL	TNR	RIAA
		Br/non-br	DD1K alone		RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2 alone – 0.04% increase in baseline mortality per annum INF .		RIAA
		Br/non-br	BM2 alone		RIAA
		Br/non-br	CDDC2 CICD - 0.005-0.006 percentage point change in survival		RIAA SOAR
	Herring gull	Br/non-br	HL		RIAA
		Non-br	CR2 alone – predicted mortality to be less than a single breeding adult – immaterial effect on the population.		RIAA
	Shag	Br/non-br	HL		RIAA
		Non-br	DD1 alone		RIAA
Fulmar	Br/non-br	HL		RIAA	
	Br/non-br	DD1 alone – specified fulmars are able to find alternative foraging grounds.		RIAA	
Seabird assemblage		SA1 alone		RIAA	
		SA2 alone		RIAA	
Troup, Pennan and Lion's Heads SPA	Guillemot	Br/non-br	DD1G alone		RIAA
		Br/non-br	DD2 alone - 0.16% increase in baseline mortality per annum INF .		RIAA
			BM2 alone		RIAA

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref
		Br/non-br	Displacement impacts lead to a PVA: 0.02-0.04 percentage point change in survival	SS35	SOAR
	Razorbill	Br/non-br	DD1R alone	SS35	RIAA
		Br/non-br	DD2 alone - 0.04% increase in baseline mortality per annum INF .		RIAA
		Br/non-br	BM2 alone		RIAA
			Displacement impacts lead to a PVA: 0.01-0.02 percentage point change in survival		SOAR
	Kittiwake	Br/non-br	DD1K alone	TNR	RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2 alone – 0.04% increase in baseline mortality per annum INF .		RIAA
		Br/non-br	BM2 alone		RIAA
		Br/non-br	CDDC2		RIAA
			CICD - 0.004-0.005 percentage point change in survival		SOAR
	Gannet	Br/non-br	DD1Ga alone	TNR	RIAA
Br/non-br		DD2Ga alone	RIAA		
Br/non-br		CR2G alone	RIAA		
Br/non-br		BM2 alone	RIAA		
Br/non-br		CDDC2 alone	RIAA		
		CICD - 0.015-0.016 percentage point change in survival		SOAR	
Seabird assemblage		SA1 alone		RIAA	
		SA2 alone		RIAA	
Fowlsheugh SPA	Guillemot	Non-br	DD1G alone		RIAA
		Non-br	DD2G-NB alone		RIAA
		Br/non-br	BM2 alone		RIAA
	Razorbill	Non-br	DD1R alone		RIAA
		Non-br	DD2R-NB alone		RIAA
		Non-br	BM2 alone		RIAA
	Kittiwake	Br/non-br	DD1K alone		RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br			RIAA

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref
		Br/non-br	CR2 alone – 0.02% increase in baseline mortality per annum INF	TNR	RIAA
		Br/non-br	BM2 alone CDDC2 CICD - 0.002-0.003 percentage point change in survival.		RIAA SOAR
Seabird assemblage		SA1 alone SA2 alone			RIAA RIAA
East Caithness Cliffs SPA	Guillemot	Br/non-br	DD1G alone, not assessed in combination.	SS35	RIAA
		Br/non-br	DD2 alone - 0.20% increase in baseline mortality per annum INF .		RIAA
		Br	BM2 alone Displacement impacts lead to a PVA: 0.012-0.03 percentage point change in survival		RIAA SOAR
	Razorbill	Br/non-br	DD1R alone		RIAA
		Br/non-br	DD2 alone - 0.03% increase in baseline mortality per annum INF .		RIAA
		Br	BM2 alone		RIAA
Kittiwake	Br/non-br	DD1K alone	TNR	RIAA	
	Br/non-br	DD2K alone		RIAA	
	Br/non-br	CR2 alone – 0.02% increase in baseline mortality per annum INF .		RIAA	
	Br	BM2 alone		RIAA	
	Br/non-br	CDDC2 alone CICD - 0.002-0.003 percentage point change in survival.		RIAA SOAR	
Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA	
North Caithness Cliffs SPA	Guillemot	Br/non-br	DD1G alone, not assessed in combination.	SS35	RIAA
		Br/non-br	DD2 alone - 0.17% increase in baseline mortality per annum INF . Displacement impacts lead to a PVA: 0.01-0.03 percentage point change in survival		RIAA SOAR
	Razorbill	Br/non-br	DD1R alone, not assessed in combination.		
Br/non-br		DD2 alone - 0.01% increase in baseline mortality per annum INF .		RIAA	

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref	
		Br	BM2 alone		RIAA	
	Puffin	Br/non-br	DD1P alone		RIAA	
		Br/non-br	DD2P alone		RIAA	
		Br	BM2 alone		RIAA	
	Kittiwake	Br/non-br	DD1K alone		RIAA	
		Br/non-br	DD2K alone		RIAA	
		Br/non-br	CR2K alone		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
				CICD - 0.002-0.003 percentage point change in survival.	TNR	SOAR
	Seabird assemblage			SA1 alone		RIAA
				SA2 alone		RIAA
	Forth Islands SPA	Puffin	Br/non-br	DD1P alone		RIAA
Br/non-br			DD2P alone		RIAA	
Br			BM2 alone		RIAA	
Kittiwake		Br/non-br	DD1K alone		RIAA	
		Br/non-br	DD2K alone		RIAA	
		Br/non-br	CR2K alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
					CICD - 0.002-0.003 percentage point change in survival.	TNR
Gannet		Br/non-br	DD1Ga alone		RIAA	
		Br/non-br	DD2 alone - 0.03% increase in baseline mortality per annum INF .		RIAA	
		Br/non-br	CR2 alone – 0.04% increase in baseline mortality per annum INF .		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2		RIAA	
			CICD - 0.004-0.005 percentage point change in survival.	TNR	SOAR	
Guillemot	Non-br	DD1G alone		RIAA		
Razorbill	Non-br	DD1R alone		RIAA		

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref
	Lesser-black backed gull	Non-br (bio)	CR2 alone		RIAA
	Shag	Br/non-br	NS24		RIAA
	Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA
Copinsay SPA	Guillemot	Br/non-br	DD1G alone, not assessed in combination.		RIAA
		Br/non-br	DD2 alone - 0.07% increase in baseline mortality per annum INF , not assessed in combination.		RIAA
		Br/non-br	CDDC2		RIAA
	Kittiwake	Br/non-br	DD1K alone		RIAA
		Br/non-br	DD2K alone		RIAA
Br/non-br		CR2K alone		RIAA	
Br		CICD - 0.0016-0.0024 percentage point change in survival. BM2 alone	TNR	SOAR RIAA	
Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA	
Hoy SPA	Puffin	Br/non-br	DD1P alone		RIAA
		Br/non-br	DD2P alone		RIAA
		Br	BM2 alone		RIAA
	Kittiwake	Br/non-br	DD1K alone		RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2K alone		RIAA
		Br	BM2 alone		RIAA
Br/non-br		CDDC2 alone CICD - 0.0016-0.0021 percentage point change in survival.	TNR	RIAA SOAR	
Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA	
St Abb's Head to Fast Castle SPA	Kittiwake	Br/non-br	DD1K alone		RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2K alone		RIAA
		Br	BM2 alone		RIAA

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref
		Br/non-br	CDDC2 alone CICD - 0.001-0.003 percentage point change in survival.	TNR	RIAA SOAR
	Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA
Fair Isle SPA	Puffin	Br/non-br	DD1P alone		RIAA
		Br/non-br	DD2P alone		RIAA
		Br	BM2 alone		RIAA
	Kittiwake	Br/non-br	DD1K alone		RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2K alone		RIAA
		Br	BM2 alone		RIAA
		Br/non-br	CDDC2 alone CICD - 0.002-0.004 percentage point change in survival.	TNR	RIAA SOAR
	Gannet	Br/non-br	DD1Ga alone		RIAA
		Br/non-br	DD2Ga alone		RIAA
Br/non-br		CR2G alone		RIAA	
Br		BM2 alone		RIAA	
Br/non-br		CDDC2 alone CICD - 0.003-0.004 percentage point change in survival.	TNR	RIAA SOAR	
Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA	
Calf of Eday SPA	Kittiwake	Br/non-br	DD1K alone		RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2K alone		RIAA
		Br	BM2 alone		RIAA
		Br/non-br	CDDC2 alone CICD - 0.004-0.005 percentage point change in survival.	TNR	RIAA SOAR
	Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref
Rousay SPA	Kittiwake	Br/non-br	DD1K alone	TNR	RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2K alone		RIAA
		Br	BM2 alone		RIAA
		Br/non-br	CDDC2 alone		RIAA
		CICD - 0.003-0.006 percentage point change in survival.	SOAR		
	Seabird assemblage		SA1 alone		RIAA
			SA2 alone		RIAA
Marwick Head SPA	Kittiwake	Br/non-br	DD1K alone	TNR	RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2K alone		RIAA
		Br	BM2 alone		RIAA
		Br/non-br	CDDC2 alone		RIAA
		CICD - 0.001-0.0013 percentage point change in survival.	SOAR		
	Seabird assemblage		SA1 alone		RIAA
			SA2 alone		RIAA
West Westray SPA	Kittiwake	Br/non-br	DD1K alone	TNR	RIAA
		Br/non-br	DD2K alone		RIAA
		Br/non-br	CR2K alone		RIAA
		Br	BM2 alone		RIAA
		Br/non-br	CDDC2 alone		RIAA
		CICD - 0.004-0.005 percentage point change in survival.	SOAR		
	Seabird assemblage		SA1 alone		RIAA
			SA2 alone		RIAA
Farne Islands SPA	Guillemot	Non-br	DD1G alone		RIAA
		Non-br	DD2G-NB alone		RIAA
	Puffin	Br/non-br	DD1P alone		RIAA
Br/non-br		DD2P alone		RIAA	
	Br	BM2 alone		RIAA	

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref	
	Kittiwake	Br/non-br	DD1K alone	TNR	RIAA	
		Br/non-br	DD2K alone		RIAA	
Br/non-br		CR2K alone	RIAA			
Br		BM2 alone	RIAA			
Br/non-br		CDDC2 alone	RIAA			
		CICD - 0.001-0.001 percentage point change in survival.	SOAR			
	Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA	
Cape Wrath SPA	Puffin	Br/non-br	DD1P alone	TNR	RIAA	
		Br/non-br	DD2P alone		RIAA	
Br		BM2 alone	RIAA			
	Kittiwake	Br/non-br	DD1K alone		TNR	RIAA
Br/non-br		DD2K alone	RIAA			
Br/non-br		CR2K alone	RIAA			
Br		BM2 alone	RIAA			
Br/non-br		CDDC2 alone	RIAA			
		CICD - 0.0006-0.0007 percentage point change in survival.	SOAR			
	Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA	
Sumburgh Head SPA	Kittiwake	Br/non-br	DD1K alone	TNR	RIAA	
		Br/non-br	DD2K alone		RIAA	
Br/non-br		CR2K alone	RIAA			
Br		BM2 alone	RIAA			
Br/non-br		CDDC2 alone	RIAA			
		CICD - 0.0009-0.0012 percentage point change in survival.	SOAR			
	Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA	
Handa SPA	Kittiwake	Br/non-br	DD1K alone		RIAA	
		Br/non-br	DD2K alone		RIAA	
		Br/non-br	CR2K alone		RIAA	

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref	
		Br	BM2 alone	TNR	RIAA	
		Br/non-br	CDDC2 alone		RIAA	
			CICD - 0.0004-0.0007 percentage point change in survival.		SOAR	
	Seabird assemblage		SA1 alone		RIAA	
			SA2 alone		RIAA	
Sule Skerry and Sule Stack SPA	Puffin	Br/non-br	DD1P alone		RIAA	
		Br/non-br	DD2P alone		RIAA	
		Br	BM2 alone		RIAA	
	Gannet	Br/non-br	DD1Ga alone		RIAA	
		Br/non-br	DD2Ga alone		RIAA	
		Br/non-br	CR2G alone		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
				CICD - 0.002-0.002 percentage point change in survival.	TNR	SOAR
	Seabird assemblage		SA1 alone		RIAA	
		SA2 alone		RIAA		
Coquet Island SPA	Puffin	Non-br	DD1P alone		RIAA	
		Non-br	DD2P alone		RIAA	
	Kittiwake	Br/non-br	DD1K alone		RIAA	
		Br/non-br	DD2K alone		RIAA	
		Br/non-br	CR2K alone		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
				CICD - 0.001-0.002 percentage point change in survival.	TNR	SOAR
	Seabird assemblage		SA1 alone		RIAA	
			SA2 alone		RIAA	
Noss SPA	Puffin	Non-br	DD1P alone		RIAA	
		Br/non-br	DD2P alone		RIAA	
		Br	BM2 alone		RIAA	

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref	
	Kittiwake	Br/non-br	DD1K alone	TNR	RIAA	
		Br/non-br	DD2K alone		RIAA	
		Br/non-br	CR2K alone		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
			CICD - 0.005-0.006 percentage point change in survival.		SOAR	
	Gannet	Br/non-br	DD1Ga alone	TNR	RIAA	
		Br/non-br	DD2Ga alone		RIAA	
		Br/non-br	CR2G alone		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
			CICD - 0.002-0.003 percentage point change in survival.		SOAR	
	Seabird assemblage		SA1 alone		RIAA	
			SA2 alone		RIAA	
	Foula SPA	Puffin	Br/non-br	DD1P alone		RIAA
Br/non-br			DD2P alone		RIAA	
Br			BM2 alone		RIAA	
Kittiwake		Br/non-br	DD1K alone		RIAA	
		Br/non-br	DD2K alone		RIAA	
		Br/non-br	CR2K alone		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
Seabird assemblage			SA1 alone		RIAA	
			SA2 alone		RIAA	
North Rona and Sula Sgeir SPA		Gannet	Br/non-br	DD1Ga alone		RIAA
			Br/non-br	DD2Ga alone		RIAA
	Br/non-br		CR2G alone		RIAA	
	Br		BM2 alone		RIAA	
	Br/non-br		CDDC2 alone		RIAA	
	Seabird assemblage		SA1 alone		RIAA	
		SA2 alone		RIAA		

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref	
Fetlar SPA	Seabird assemblage		SA1 alone		RIAA	
			SA2 alone		RIAA	
Hermaness, Saxa Vord and Valla Field SPA	Gannet	Br/non-br	DD1Ga alone		RIAA	
		Br/non-br	DD2Ga alone		RIAA	
		Br/non-br	CR2G alone		RIAA	
		Br	BM2 alone		RIAA	
		Br/non-br	CDDC2 alone		RIAA	
	Seabird assemblage		SA1 alone		RIAA	
			SA2 alone		RIAA	
Flamborough and Filey Coast SPA	Guillemot	Non-br	DD1G alone		RIAA	
		Non-br	DD2G-NB alone		RIAA	
	Razorbill	Non-br	DD1R alone		RIAA	
		Non-br	DD2R-NB alone		RIAA	
	Kittiwake	Non-br	DD1K alone		RIAA	
		Non-br	DD2K alone		RIAA	
		Non-br	CR2K alone		RIAA	
		Non-br	CDDC2 alone		RIAA	
				CICD - 0.0005-0.0007 percentage point change in survival.	TNR	SOAR
	Gannet	Br/non-br	DD1Ga alone		RIAA	
		Br/non-br	DD2Ga alone		RIAA	
		Br/non-br	CR2G alone		RIAA	
Br		BM2 alone		RIAA		
Br/non-br		CDDC2 alone		RIAA		
			CICD - 0.002-0.002 percentage point change in survival.	TNR	SOAR	
Seabird assemblage		SA1 alone		RIAA		
			SA2 alone		RIAA	
St Kilda SPA	Gannet	Br/non-br	DD1Ga alone		RIAA	
		Br/non-br	DD2Ga alone		RIAA	
		Br/non-br	CR2G alone		RIAA	
		Br	BM2 alone		RIAA	

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SPA	Feature	Breeding/non-breeding	Reason for no AEOSI	PVA	Ref
		Br/non-br	CDDC2 alone CICD - 0.001-0.001 percentage point change in survival.	TNR	RIAA SOAR
	Seabird assemblage		SA1 alone SA2 alone		RIAA RIAA

Code **SS35** → PVA metrics indicate high chance of population being a similar size to which would occur in the absence of the proposed project after 35 years.

Code **R35** → A reduction in the population size was found compared to an unimpacted population after 35 years.

Code **HL** → The potential for direct habitat loss during the construction and decommissioning phases, but no AEOSI concluded as a result.

Code **NS24** → No shags were recorded during the 24 months of site-specific aerial digital surveys and therefore there is no potential for connectivity during the breeding and non-breeding season and therefore no LSE can be concluded. This is in reference to disturbance and displacement during the construction and decommissioning phase.

Code **DD1** → Disturbance and displacement during the construction and decommissioning phases may impact the population, but these impacts will be short-term temporary and reversible.

Code **DD1G** → Disturbance and displacement during the construction and decommissioning phases may impact the population, but these impacts will be short-term temporary and reversible. The RIAA stated that an increase in baseline mortality of 0.24% per annum for guillemot for each SPA would result in no AEOSI.

Code **DD1K** → Disturbance and displacement during the construction and decommissioning phases may impact the population, but these impacts will be short-term temporary and reversible. The RIAA stated that the increase in baseline mortality per annum is immaterial for kittiwake and concluded no AEOSI.

Code **DD1R** → Disturbance and displacement during the construction and decommissioning phases may impact the population, but these impacts will be short-term temporary and reversible. The RIAA stated that an increase in baseline mortality of 0.03% per annum for razorbill for each SPA would result in no AEOSI.

Code **DD1P** → Disturbance and displacement during the construction and decommissioning phases may impact the population, but these impacts will be short-term temporary and reversible. The RIAA stated that an increase in baseline mortality of 0.01% per annum for puffin for each SPA would result in no AEOSI.

Code **DD1Ga** → Disturbance and displacement during the construction and decommissioning phases may impact the population, but these impacts will be short-term temporary and reversible. The RIAA stated that an increase in baseline mortality of 0.01% per annum for gannet for each SPA would result in no AEOSI.

Code **DD2** → Disturbance and displacement during the operation and maintenance phases may impact the population.

Code **DD2G-NB** → Disturbance and displacement during the operation and maintenance phases may impact the populations of non-breeding guillemot for these SPAs, however the increase in baseline mortality is at most 0.06% during the non-breeding season and so no AEOSI expected as a result of this disturbance.

Code **DD2K** → Disturbance and displacement during the operation and maintenance phases may impact the population, however kittiwake is considered to be at a very low risk of being affected by displacement. The RIAA stated that an increase in baseline mortality of 0.01% per annum for puffin for each SPA would result in no AEOSI.

Code **DD2R-NB** → Disturbance and displacement during the operation and maintenance phases may impact the populations of non-breeding razorbill for these SPAs, however the increase in baseline mortality is at most 0.00% during the non-breeding season and so no AEOSI expected as a result of this disturbance.

Code **DD2P** → Disturbance and displacement during the operation and maintenance phases may impact the populations of puffins for these SPAs, however the increase in baseline mortality is at most 0.01% per annum season and so no AEOSI expected as a result of this disturbance.

Code **DD2Ga** → Disturbance and displacement during the operation and maintenance phases may impact the populations of gannets for these SPAs, however the increase in baseline mortality is at most 0.01% per annum and so no AEOSI expected as a result of this disturbance.

Code **INF** → The percentage change in mortality is stated to be indistinguishable from natural fluctuations, therefore the RIAA concluded no AEOSI.

Code **CR2** → There is a potential for collision risk to impact the population during the operational and maintenance phase. However, due to the stated increases in baseline mortality being small no AEOSI was concluded.

Code **CR2K** → There is a potential for collision risk to impact the population during the operational and maintenance phase for kittiwake from the stated SPAs. However, it is stated that since the increase in baseline mortality will not exceed 0.04% per annum no AEOSI can be concluded.

Code **CR2G** → There is a potential for collision risk to impact the population during the operational and maintenance phase for gannet from the stated SPAs. However, it is stated that since the increase in baseline mortality will not exceed 0.36% per annum no AEOSI can be concluded.

Code **BM2** → There is a potential for a barrier to impact the population during the operational and maintenance phase. However, the RIAA states that it is usually not possible to distinguish between displacement and barrier effects. Therefore, it should be noted that the effects of displacement from the wind farm site during the operational phase of the project encapsulate potential barrier effects for the receptors considered, due to the inclusion of flying and sitting birds (all behaviours) within the assessment of displacement, as recommended in joint SNCB's guidance. For all assessments of disturbance and displacement for the project alone, it was concluded that there was no potential for an AEOSI for any qualifying feature of any SPA assessed.

Code **CDDC2** → There is a potential for combined disturbance and displacement and collision risks to impact the kittiwake and gannet populations during the operational and maintenance phase. No AEOSI was assessed for each of the two potential impacts (disturbance/displacement and collision), however the Company notes combined scores may be higher. For kittiwake a top rate of 0.27% increase in baseline mortality is predicted, with gannet displayed at 0.13%. The Company assumed no AEOSI for both.

Code **CICD** → In reference to the combined impacts from collision and displacement considering the SNCB's Approach.

Code **SA1** → The RIAA states that species specific assessments were carried out for all named components of the seabird assemblages where LSE was concluded. Assessments ruled out AEOSI for components and therefore AEOSI could be ruled out for the seabird assemblage during the construction and decommissioning period.

Code **SA2** → The RIAA states that species specific assessments were carried out for all named components of the seabird assemblages where LSE was concluded. Assessments ruled out AEOSI for components and therefore AEOSI could be ruled out for the seabird assemblage during the operational and maintenance period.

Code **TNR** → Threshold not reached.