

Aberdeen International Airport

FAO Christine McGhie
Marine Directorate

Via Email

ABZ Ref: ABZ3301

7th February 2025

Dear Christine

MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited– Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km from Wick and southern limit approx. 48km from Banff

MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

I refer to your consultation request received in this office on 4th December 2024.

The proposed development has been examined from an aerodrome safeguarding perspective and could conflict with safeguarding criteria. Accordingly, a more detailed assessment requires to be undertaken regarding the potential impact on Aberdeen Airport.

We, therefore, submit a holding objection until we are able to advise you of the results of our investigations.

You should note that where a Planning Authority proposes to grant permission against the advice of Aberdeen Airport, it shall notify Aberdeen Airport, the Civil Aviation Authority and the Scottish Ministers as per Circular 2/2003: Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003.

Yours Sincerely

<Redacted>

Kirsteen MacDonald

Safeguarding Manager

Aberdeen Airport

<Redacted>

abzsafeguard@aiairport.com



Aberdeenshire Council

Our Ref: ENQ/2024/1798

Your Ref:

Ask for: Stuart Newlands

Tel: 01467 539834

Email: <Redacted>

Marine Scotland
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

29 January 2025

Dear Sir/Madam,

Marine Licence Consultation for Consultation under Section 36 of the Electricity Act 1989, the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009 for the Erection of Offshore Wind Farm and Associated Infrastructure at Caledonia Offshore Wind Farm (North), ScotWind NE4 Site, Moray Firth

Thank you for your consultation request in relation to the above proposal. Having consulted with internal consultees with an interest in this development I can provide the following comments at this time:

Natural Heritage

The following comments are limited to the interests within the intertidal zone.

Intertidal Ecology / Ornithology

The onshore EIAR has also been submitted in support of this marine license application and Chapter 3 (Terrestrial Ecology and Biodiversity) includes the assessment of the effects of the proposal on intertidal ecology and ornithology. No significant adverse effect on any ecological sensitivities is predicted.

Horizontal Directional Drilling is to be used to bring the cabling ashore from the offshore windfarm therefore there will not be any direct impact upon the habitats within the intertidal zone.

A range of embedded mitigation measures have also been identified, including further ecological surveys, that will be used to inform detailed design, as well as the development and implementation of a Construction Environment Management Plan. The measures proposed at this stage are acceptable in principle, although it is acknowledged that they may change following further survey in relation to the finalised design.

Countryside access (non-motorised paths and tracks)

Action: Access Management Plan required (although probably more appropriate for this to be covered within the planning applications for the onshore elements of this development being assessed at this time)

Non-motorised access (walkers, cyclists and horse riders) is considered within Chapter 9 of the Onshore EIAR, which has also been submitted in support of the Marine License application. The presence of the coastal path between Banff and Portsoy has been acknowledged within the report as well as potential impacts of the development on non-motorised users.

It is proposed that Horizontal Directional Drilling will be used to bring the cabling ashore from the offshore windfarm therefore there will not be any direct impact upon the coastal path.

Notwithstanding this, a range of mitigation measures have been suggested that are acceptable in principle. A wider Access Management Plan is to be developed for the onshore works and submitted at the detailed design stage.

Archaeology

The consultee confirms they are content with the mitigation outlined in Table 10-12 “Embedded Mitigation”. However, the consultee has recommended that a Programme of Archaeological Works condition (as noted below) be applied to capture this mitigation requirement should the application be minded for approval:

No works in connection with the development hereby approved shall commence unless an archaeological written scheme of investigation (WSI) has been submitted to and approved in writing by the planning authority and a programme of archaeological works has been carried out in accordance with the approved WSI.

The WSI shall include details of how the recording and recovery of archaeological resources found within the application site shall be undertaken, and how any updates, if required, to the written scheme of investigation will be provided throughout the implementation of the programme of archaeological works. Should the archaeological works reveal the need for post excavation analysis the development hereby approved shall not be occupied or brought into use unless a post-excavation research design (PERD) for the analysis, publication and dissemination of results and archive deposition has been submitted to and approved in writing by the planning authority. The PERD shall be carried out in complete accordance with the approved details.

Reason: To safeguard and record the archaeological potential of the area.

Based on the distance between the proposed siting of the turbines and landfall relating to Aberdeenshire, it is unlikely that any significant adverse impact as a result of the offshore elements of the Caledonia Offshore Windfarm project will be experienced by Aberdeenshire either on an individual or cumulative basis.

Aberdeenshire Council therefore offer no objection to this proposal as contained within the

provided consultation.

Yours faithfully

<Redacted>

Paul Macari
Head of Planning and Economy

British Telecom

From: radionetworkprotection@bt.com
To: [MD Marine Renewables](#)
Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025 WID1
Date: 09 December 2024 11:17:27
Attachments: [image002.png](#)
[image003.png](#)

OUR REF:- WID13656

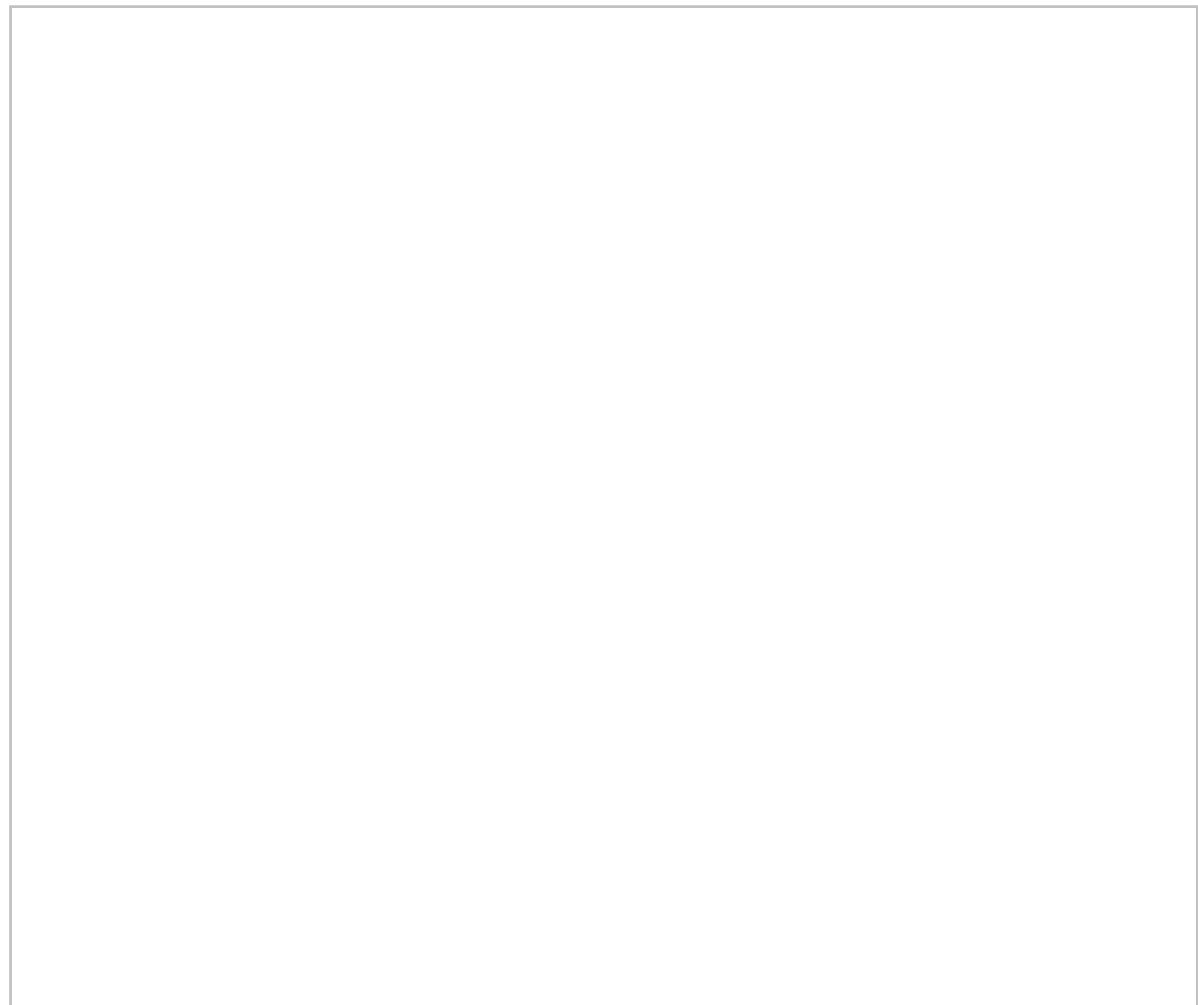
Good morning

Thank you for your email dated 04/12/2024

We have studied the proposed offshore windfarm developments with respect to EMC and related problems to BT point-to-point microwave radio links.

The conclusion is that the Project indicated should not cause interference to BT's current and presently planned radio network.

Kind Regards
Chris



From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Sent: 04 December 2024 17:04

Cc: <Redacted> ;

MD.MarineRenewables@gov.scot

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

Dear Sir/Madam,

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

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**MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited–
Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km**

from Wick and southern limit approx. 48km from Banff

MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

On 20 November 2024 Caledonia Offshore Wind Farm Limited submitted applications to the Scottish Ministers, in accordance with the above legislation, to construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm.

The application for section 36 consents, marine licence applications, Environmental Impact Assessment Report and supporting documentation can be accessed via the following links for each of the applications:

[Caledonia Offshore Wind Farm | marine.gov.scot](https://marine.gov.scot)

Caledonia North:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie
Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate
Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB
T:<Redacted>

E: <Redacted>
Group Email: MD.marinerenewables@gov.scot

The Scottish Government



To see how we use your personal data, please view our
[Marine licensing and consenting: privacy notice - gov.scot \(www.gov.scot\)](http://www.gov.scot)

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Caithness District Salmon Fishery Board

From: [Caithness DSFB](#)
To: [MD Marine Licensing](#)
Subject: Re: Caledonia Offshore Wind Farm: consultation
Date: 05 February 2025 12:40:22

Dear Sir/Madam

The Caithness District Salmon Fishery Board sends the following email to MD-LOT asking to become involved in planning for the proposed Caledonia Wind Farm, 20km south-east of Wick.

We were not consulted at the outset but fortunately MSS and NatureScot have so far handled the interests of salmon competently.

Caithness District Salmon Fishery Board

cdsfb@outlook.com

24th Jan., 2025

Marine Directorate - Licensing Operations Team
Marine Scotland
375 Victoria Road
Aberdeen
AB11 9DB

Hi,

Caithness District Salmon Fishery Board has not so far been consulted re. the proposed Caledonia Offshore Wind Farm currently being considered by MD-LOT for the northern Moray Firth. The Board has clear geographical interests in the development, re. free passage of adult salmon and smolts salmon to and from the ocean, due to the proximity to the development of the Rivers Wick, Dunbeath and Berriedale/ Langwell.

Furthermore, the preliminary results of the Wick River smolt tracking project (2023-2024) overseen by MD-LOT show that the Board's interest in relation to the outward passage of smolts is explicit.

Therefore, can you please arrange that the Board is kept abreast of the planning process in future and, in particular, consulted for an opinion at the next stages of the application.

Regards

Meghan Blackwood

Caledonia Offshore Wind Farm

Defence Infrastructure Organisation –
Ministry of Defence



Defence Infrastructure Organisation

Wendy Talbot
Assistant Safeguarding Manager
Ministry of Defence
Safeguarding
Defence Infrastructure Organisation
St George's House
DMS Whittington
Lichfield, Staffordshire
WS14 9PY
United Kingdom

Application Ref: S36

Our Reference: DIO10056470

Telephone: <Redacted>

E-mail: DIO-Safeguarding-Wind@mod.gov.uk

Christine McGhie
Licensing Operations Team, Marine Directorate
Scottish Government
Marine Laboratory
ABERDEEN
AB11 9DB

24 February 2025

Dear Christine

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

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MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff.

Thank you for consulting the Ministry of Defence (MOD) in relation to the Section 36 application and Marine Licences for the Caledonia Offshore Wind Farm through your communication dated 4 December 2024.

The Defence Infrastructure Organisation (DIO) Safeguarding Team represents the MOD as a consultee in UK planning and energy consenting systems to ensure that development does not compromise or degrade the operation of defence sites such as aerodromes, explosives storage sites, air weapon ranges, and technical sites or training resources such as the Military Low Flying System.

I write to advise the safeguarding position of the MOD in relation to the above applications to construct and operate the Caledonia Offshore Wind Farm (Caledonia North and Caledonia South).

This development will comprise of up to 140 wind turbines (up to 77 in Caledonia North and up to 78 in Caledonia South), with a maximum height to blade tip of up to 355 metres above Mean Sea Level (MSL). The development will be located in the Moray Firth in the North Sea. In addition to the turbine structures the development will also include up to four Offshore Substation Platforms (OSP) (up to two each for Caledonia North and Caledonia South). These OSPs will be connected via interconnector cables. Up to four offshore export cables (up to two each for Caledonia North and Caledonia South) will then connect the OSPs to the landfall location on the Aberdeenshire coast at Stake Ness 1km to the west of Whitehills.

The principal concerns of the MOD with respect to this proposed wind farm relate to the impact of the development on the operation and capability of air defence radar systems, air traffic radar systems, and the potential to create a physical obstruction to air traffic movements.

At this time the MOD must **object** to the proposed development on the basis that the scheme would have a significant and detrimental impact on the effective operation and capability of the air defence radar deployed at Remote Radar Head (RRH) Buchan and air traffic control radar at RAF Lossiemouth.

Air Defence (AD) radar

Caledonia North

The proposed turbines would be located approximately 70.5km from, detectable by, and will cause unacceptable interference to the AD radar at RRH Buchan.

Wind turbines have been shown to have detrimental effects on the operation of radar. These include the desensitisation of radar in the vicinity of the turbines, and the creation of “false” aircraft returns. The probability of the radar detecting aircraft flying over or in the vicinity of the turbines would be reduced, hence turbine proliferation within a specific locality can result in unacceptable degradation of the radar’s operational integrity. This would reduce the RAF’s ability to detect and deter aircraft in United Kingdom sovereign airspace, thereby preventing it from effectively performing its primary function of Air Defence of the United Kingdom.

Our assessments have determined that, when operational, the proposed wind farm will cause unacceptable and unmanageable interference to the effective operation of air defence radar deployed at RRH Buchan.

The need to mitigate the impacts of the proposed development upon the effective operation of RRH Buchan has been recognised by the applicant and are set out in Volume 3, Chapter 11 of the Caledonia North Environmental Impact Assessment Report (EIAR) dated 18 October 2024. Whilst the applicant has indicated the need to mitigate these impacts, to date no mitigation scheme has been submitted for assessment, however, the applicant’s aviation consultant has approached the MOD to discuss potential mitigation solutions.

Therefore, on the basis of the information provided, and until a suitable mitigation scheme has been submitted, assessed, and accepted, the MOD must **object** to this proposal due to the impact it will have on the AD radar at RRH Buchan.

Caledonia South

The proposed turbines would be located approximately 70.5km from, detectable by, and will cause unacceptable interference to the AD radar at RRH Buchan.

Wind turbines have been shown to have detrimental effects on the operation of radar. These include the desensitisation of radar in the vicinity of the turbines, and the creation of “false” aircraft returns. The probability of the radar detecting aircraft flying over or in the vicinity of the turbines would be reduced, hence turbine proliferation within a specific locality can result in unacceptable degradation of the radar’s operational integrity. This would reduce the RAF’s ability to detect and deter aircraft in United Kingdom sovereign airspace, thereby preventing it from effectively performing its primary function of Air Defence of the United Kingdom.

Our assessments have determined that, when operational, the proposed wind farm will cause unacceptable and unmanageable interference to the effective operation of air defence radar deployed at RRH Buchan.

The need to mitigate the impacts of the proposed development upon the effective operation of RRH Buchan has been recognised by the applicant and are set out in Volume 4, Chapter 11 of the Caledonia South EIAR dated 18 October 2024. Whilst the applicant has indicated the need to mitigate these impacts, to date no mitigation scheme has been submitted for assessment, however, the applicant’s aviation consultant has approached the MOD to discuss potential mitigation solutions.

Therefore, on the basis of the information provided, and until a suitable mitigation scheme has been submitted, assessed, and accepted, the MOD must **object** to this proposal due to the impact it will have on the AD radar at RRH Buchan.

Air Traffic Control (ATC) Radar

Caledonia North

The turbines will be approximately 62.5km from, detectable by, and will cause unacceptable interference to the ATC radar serving RAF Lossiemouth.

Wind turbines have been shown to have detrimental effects on the performance of Primary Surveillance Radars. These effects include the desensitisation of radar in the vicinity of the turbines, shadowing and the creation of “unwanted” aircraft returns which air traffic controllers must treat as aircraft returns. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to air traffic controllers. Controllers use the radar to separate and sequence both military and civilian aircraft, and in busy uncontrolled airspace radar is the only sure way to do this safely. Maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient air traffic service, and the integrity of radar data is central to this process. The creation of “unwanted” returns displayed on the radar leads to increased workload for both controllers and aircrews. Furthermore, real aircraft returns can be obscured by a turbine’s radar return, making the tracking of both conflicting unknown aircraft and the controllers’ own traffic much more difficult.

Our assessments have determined that, when operational, the proposed wind farm will cause unacceptable and unmanageable interference to the effective operation of the ATC radar deployed at RAF Lossiemouth.

The need to mitigate the impacts of the proposed development upon the effective operation of RAF Lossiemouth has been recognised by the applicant and are set out in Volume 3, Chapter 11 of the Caledonia North EIAR dated 18 October 2024. Whilst the applicant has indicated the need to mitigate these impacts, to date no mitigation scheme has been submitted for assessment, however, the applicant’s aviation consultant has approached the MOD to discuss potential mitigation solutions.

Therefore, on the basis of the information provided, and until a suitable mitigation scheme has been submitted, assessed, and accepted, the MOD must **object** to this proposal due to the impact it will have on the ATC radar at RAF Lossiemouth.

Caledonia South

The turbines will be approximately 62.5km from, detectable by, and will cause unacceptable interference to the ATC radar serving RAF Lossiemouth.

Wind turbines have been shown to have detrimental effects on the performance of Primary Surveillance Radars. These effects include the desensitisation of radar in the vicinity of the turbines, shadowing and the creation of “unwanted” aircraft returns which air traffic controllers must treat as aircraft returns. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to air traffic controllers. Controllers use the radar to separate and sequence both military and civilian aircraft, and in busy uncontrolled airspace radar is the only sure way to do this safely. Maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient air traffic service, and the integrity of radar data is central to this process. The creation of “unwanted” returns displayed on the radar leads to increased workload for both controllers and aircrews. Furthermore, real aircraft returns can be obscured by a turbine’s radar return, making the tracking of both conflicting unknown aircraft and the controllers’ own traffic much more difficult.

Our assessments have determined that, when operational, the proposed wind farm will cause unacceptable and unmanageable interference to the effective operation of the ATC radar deployed at RAF Lossiemouth.

The need to mitigate the impacts of the proposed development upon the effective operation of RAF Lossiemouth has been recognised by the applicant and are set out in Volume 4, Chapter 11 of the Caledonia South EIAR dated 18 October 2024. Whilst the applicant has indicated the need to mitigate these impacts, to date no mitigation scheme has been submitted for assessment, however, the applicant’s aviation consultant has approached the MOD to discuss potential mitigation solutions.

Therefore, on the basis of the information provided, and until a suitable mitigation scheme has been submitted, assessed, and accepted, the MOD must **object** to this proposal due to the impact it will have on the ATC radar at RAF Lossiemouth.

Physical Obstruction

In this case the development (Caledonia North and South) falls within Low Flying Area 14 (LFA 14). Within this area fixed wing aircraft may operate as low as 250 feet or 76.2 metres above ground level to conduct low level flight training. The addition of turbines in this location would introduce a physical obstruction to low flying aircraft operating in the area.

In the event that the applicant is able to overcome the objections listed above regarding air defence radar and air traffic control radar, MOD would require that conditions are added to any consent issued requiring the submission, approval and implementation of an aviation lighting scheme, and that sufficient data is submitted to ensure that structures can be accurately charted to allow deconfliction. The applicant has acknowledged the MOD requirement for MOD accredited aviation safety lighting and the need to submit sufficient data to enable charting of the structures in Volume 7, Appendix 8, Tables 9.1 and 11.1 of the EIAR Caledonia North Schedule of Mitigation dated 18 October 2024 and Volume 7, Appendix 9, Tables 9.1 and 11.1 of the EIAR Caledonia South Schedule of Mitigation dated 18 October 2024.

As this development includes structures that exceed a height of 60m above Highest Astronomical Tide (HAT) it would be subject to the lighting requirements set out in the Air Navigation Order 2016. In addition to any CAA requirements, the MOD will require the submission, approval, and implementation of an aviation safety lighting specification that details the installation of MOD accredited aviation safety lighting.

Military Aviation, Danger and Practice Areas

Paragraphs 11.5.3.13, and 11.5.3.15 along with Figure 11.2 of Volume 2, Chapter 11 Military and Civil Aviation for Caledonia Offshore Wind Farm EIAR dated 18 October 2024 acknowledge that the offshore array falls wholly within the Danger Area EGD809S and falls partially within the Danger Area EGD712D. The lower vertical limits of blocks of danger area airspace are also noted. The applicant should be advised to take account of the current published MOD Practice and Exercise Areas (PEXA) in preparation of their development proposal.

The development zone for the offshore windfarm outlined in the submission will be located within MOD Danger Area EGD809S. The extent of MOD Practise and Exercise Areas in the locality have been accurately identified in Volume 2, Chapter 11 Military and Civil Aviation for Caledonia Offshore Wind Farm EIAR dated 18 October 2024. When active Danger Area EGD809S has vertical limits from the sea surface up to 55,000ft above MSL and are associated with MOD activities including ordnance, munitions and explosives, unmanned aircraft system, and high energy manoeuvre activities.

Due to the MOD activities undertaken within EGD809S, it will be necessary for the MOD to be given prior notification of any works to be undertaken within the danger area. Should the AD and ATC radars objections be overcome, then there will be a conditional requirement for any construction, maintenance and decommissioning works associated with this development to be subject to a works management plan. Such a plan is required to coordinate works associated with the development with ongoing defence training activities undertaken within the D809 danger area complex which this development falls within. The management plan will need to establish a communication protocol between the developer and danger area range operator. The management plan will need to cover the presence of vessels and aircraft within D809 whilst construction work is carried out including surveys, the deployment of platforms, maintenance activities and decommissioning works.

The MOD has assessed that the development will have no impact on Northern Managed Danger Area EGD712D.

Highly Surveyed Routes

In the MOD's response to the Scoping Opinion for this development dated 18 November 2022, the presence of Highly Surveyed Routes in the locality of the proposed wind farm was identified. It was communicated to the developer that the boundary of the array area would need to be modified to prevent the affected route from being obstructed. I can confirm that the MOD no longer objects on the grounds of Highly Surveyed Routes. There is therefore no longer a requirement for the array boundary to be modified. Within Volume 2, Chapter 11 Military and Civil Aviation, the applicant has stated that impacts on Highly Surveyed Routes has been scoped out. The MOD can confirm that this is correct.

Export cables and grid connection

With regard to the remainder of the proposed development including the interarray cables, the export cables will make landfall at Stake Ness on the Aberdeenshire coast. The onshore cable route for Caledonia North will join the grid connection at the existing New Deer substation; these elements would not pass through or occupy any MOD statutory safeguarding zones.

The MOD acknowledges that the submitted EIA Report does not consider the Onshore Grid Connection Cable Corridor for the Proposed Development's second phase Caledonia South, which will be required to connect the Onshore Substation to Greens. MOD should be consulted once details are available.

For the avoidance of any doubt, MOD must **object** to the proposal on the grounds of the unacceptable impact that the development would have on:

- air defence radar systems sited at RRH Buchan; and

- air traffic control radar systems sited at RAF Lossiemouth.

I trust this adequately explains our position on this matter.

<Redacted>

Wendy Talbot
Assistant Safeguarding Manager

Department of Agriculture and Rural Development
of Northern Ireland

From: [DAERA Marine Information Requests](#)
To: [MD Marine Renewables](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Date: 04 February 2025 12:46:24
Attachments: [image001.png](#)
[image002.png](#)

Hi

Apologies for the delay. This is a nil response from MFD. Thanks
Eamonn

Eamonn Brady | Marine Plan Team | Department for Agriculture, Environment and Rural Affairs
Ground Floor | Clare House | 303 Airport Road West | Belfast | BT3 9ED
Contact: ⁴¹ | **Tel:** (028) 90 569262 | <Redacted>



From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Sent: 04 February 2025 12:08

Cc: MD.MarineRenewables@gov.scot; <Redacted>
<Redacted>

Subject: FW: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

Importance: High

Dear Sir/Madam,

I am writing regarding the below consultation which ended yesterday, Monday 03 February 2025.

The Marine Directorate – Licensing Operations Team (“MD-LOT”) has not received a response from your organisation.

MD-LOT would be grateful if you could provide a response by **Friday 07 February**. If this date is unachievable, please let us know as soon as possible.

If we do not receive a response by Friday, we will assume nil response.

Kind regards,

Christine McGhie
Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate
Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB
T: <Redacted>
E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



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From: MD Marine Renewables <MD.MarineRenewables@gov.scot>

Sent: 04 December 2024 17:04

Cc: <Redacted>

<Redacted>

MD Marine

Renewables <MD.MarineRenewables@gov.scot>

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

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- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

**Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate**

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



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**

From: <Redacted>
To: [MD Marine Renewables](#)
Cc: <Redacted> [DAERA Marine Information Requests](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Date: 04 February 2025 14:47:07
Attachments: [image002.jpg](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)

Afternoon,

Many thanks for your email. DAERA Marine and Fisheries Division are returning a Nil response as the location of the wind farm is in excess of 500km. We typically use 100km as a screening distance for SACs with marine mammals as a feature.

Kind regards,
Liz

Dr. Liz Pothanikat | Senior Scientific Officer | Marine Conservation Advice and Emerging Technologies lead | Marine Conservation Branch | DAERA - Marine and Fisheries Division
Clare House | 303 Airport Road West | Belfast | BT3 9ED
Contact: email: <Redacted> | tel: 028 90569421 | <Redacted>



DAERA



From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>
Sent: 04 February 2025 12:08
Cc: MD.MarineRenewables@gov.scot; <Redacted>; <Redacted>
Subject: FW: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Importance: High

Dear Sir/Madam,

I am writing regarding the below consultation which ended yesterday, Monday 03 February 2025.

The Marine Directorate – Licensing Operations Team (“MD-LOT”) has not received a response from your organisation.

MD-LOT would be grateful if you could provide a response by **Friday 07 February**. If this date is unachievable, please let us know as soon as possible.

If we do not receive a response by Friday, we will assume nil response.

Kind regards,

Christine McGhie

**Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate**

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

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From: MD Marine Renewables <MD.MarineRenewables@gov.scot>

Sent: 04 December 2024 17:04

Cc: <Redacted>

<Redacted>

MD Marine

Renewables <MD.MarineRenewables@gov.scot>

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

Dear Sir/Madam,

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007

MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited– Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km from Wick and southern limit approx. 48km from Banff

MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

On 20 November 2024 Caledonia Offshore Wind Farm Limited submitted applications to the Scottish Ministers, in accordance with the above legislation, to construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm.

The application for section 36 consents, marine licence applications, Environmental Impact Assessment Report and supporting documentation can be accessed via the following links for each of the applications:

[Caledonia Offshore Wind Farm | marine.gov.scot](https://marine.gov.scot)

Caledonia North:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie
Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

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**

Highlands and Islands Airports Ltd

From: [Safeguarding](#)
To: [MD Marine Renewables](#)
Cc: [Safeguarding](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Date: 31 January 2025 16:30:35
Attachments: [image001.png](#)
[75pixelsipg_0bfe8974-c939-4778-af4c-04f5fad0bd29.jpg](#)
[hialvalues_2000af45-cd5c-4f6d-8075-723d6a465516.png](#)

OFFICIAL

OFFICIAL

Your Ref: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013
Our Ref: 2025/009/WIC

Dear Sir/Madam,

Proposal: MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited– Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km from Wick and southern limit approx. 48km from Banff
MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

With reference to the above, our preliminary assessment shows that, at the given position and height, we are currently unable to mitigate this proposal, therefore we must submit a holding objection to this application.

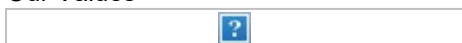
HIAL will continue to collaborate with the developer to explore any potential solutions or mitigations available for this development.

Kind regards,

Nyree Millar-Bell
Aerodrome Safeguarding
Highlands and Islands Airports limited

 **Safeguarding**
Highlands and Islands Airports Ltd
Inverness Inverness Airport IV2 7JB
www.hial.co.uk

Our Values



From:
Sent: 04 December 2024 17:03
Cc: <Redacted>

<Redacted>

MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

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ELECTRICITY ACT 1989

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The Electricity (Applications for Consent) Regulations 1990

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**MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited–
Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx.
28km from Wick and southern limit approx. 48km from Banff**

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[Caledonia Offshore Wind Farm | marine.gov.scot](#)

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There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)

- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

**Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate**

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



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Historic Environment Scotland



HISTORIC
ENVIRONMENT
SCOTLAND

ÀRAINNEACHD
EACHDRAIDHEIL
ALBA

By email:

MD.MarineRenewables@gov.scot

Marine Directorate
5 Atlantic Quay
150 Broomielaw
Glasgow,
G2 8LU

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

Enquiry Line: 0131 668 8716
HMConsultations@hes.scot

Our case ID: 300077099
Your ref: MS-00011012/ MS-00011013
13 January 2025

Dear Marine Directorate

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 Caledonia South Offshore Wind Farm

Thank you for consulting us on this Environmental Impact Assessment (EIA) Report, which we received on 05 December 2024. We have reviewed the report and considered the proposed development in terms of our historic environment interests. This covers World Heritage Sites, scheduled monuments and their settings, category A-listed buildings and their settings, inventory gardens and designed landscapes, inventory battlefields and Historic Marine Protected Areas.

From 1 January 2025 we no longer provide advice on undesignated underwater cultural heritage. This includes the preparation of documents for post-consent activities including Written Schemes of Investigation or Protocols for Archaeological Discoveries. For EIA projects, the relevant competent authority must ensure that they have access to sufficient expertise to examine the EIA Report in accordance with the relevant regulations.

Our advice

We have considered the information received and we are content with the EIA Report and its conclusions for our interests. We do not have any comments to make on the proposals. Our decision not to provide comments should not be taken as our support for the proposals. This application should be determined in accordance with national and local policy on development affecting the historic environment, together with related policy guidance.

Further information

Decisions that affect the historic environment should take the [Historic Environment Policy for Scotland](#) (HEPS) into account as a material consideration. HEPS is supported by our [Managing Change guidance series](#).

Historic Environment Scotland – Longmore House, Salisbury Place, Edinburgh, EH9 1SH

Scottish Charity No. **SC045925**

VAT No. **GB 221 8680 15**



HISTORIC
ENVIRONMENT
SCOTLAND

ÀRAINNEACHD
EACHDRAIDHEIL
ALBA

We hope this is helpful. If you would like to submit more information about this or any other proposed development to us for comment, please send it to our consultations mailbox, hmconsultations@hes.scot. If you have questions about this response, please contact Mary MacLeod Rivett at <Redacted>

Yours sincerely

Historic Environment Scotland

Joint Nature Conservation Committee

From: [JNCC Offshore Industries Advice](#)
To: [MD Marine Renewables](#)
Cc: <Redacted> [JNCC Offshore Industries Advice](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Date: 09 December 2024 09:20:07
Attachments: [image002.png](#)
[image003.png](#)

Good Morning Christine,

Thank you for consulting JNCC regarding the Caledonia Offshore Wind Farm, which we received on 04/012/2024. JNCC's role in relation to offshore renewables in Scottish waters has been delegated to NatureScot. NatureScot is now authorised to exercise the JNCC's functions as a statutory consultee in respect of certain applications for offshore renewable energy installations in inshore and offshore waters (0-200nm) adjacent to Scotland. Therefore, NatureScot should provide a full response. NatureScot will contact JNCC directly if input is required.

As such JNCC have not reviewed this document and will not be providing further comment at this time.

Kind regards,

Jon Cannon

Offshore Industries Advice Officer

Marine Management Team

JNCC, Inverdee House, Baxter Street, Aberdeen, AB11 9QA

Tel: <Redacted>

Working pattern: Monday to Friday

[Website](#) [Twitter](#) [Facebook](#) [LinkedIn](#)



-

From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Sent: 04 December 2024 17:04

Cc: <Redacted>

;

MD.MarineRenewables@gov.scot

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

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Dear Sir/Madam,

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**MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited–
Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx.
28km from Wick and southern limit approx. 48km from Banff**

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Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is
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[Caledonia Offshore Wind Farm | *marine.gov.scot*](#)

Caledonia North:

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- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

**Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate**

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



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<https://jncc.gov.uk/>

Joint Radio Company

From: [JRC Windfarm Coordinations New](#)
To: [MD Marine Renewables](#)
Cc: [SSE Area](#)
Subject: Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025 - [WF197693]
Date: 18 December 2024 09:39:41

Dear scottish,

A Windfarms Team member has replied to your co-ordination request, reference **WF197693** with the following response:

***Please do not reply to this email - the responses are not monitored.
If you need us to investigate further, then please use the link at the end of this response
or login to your account for access to your co-ordination requests and responses.***

Dear Sir / Madam,

*Planning Ref: **MS-00011014/ MS-00011015 & MS-00011012/ MS-00011013***

Location: Caledonian Offshore Windfarm

Proposal:

Link:

Site at NGR / IGR : NOT SUPPLIED

Hub Height: NOT SUPPLIED

Blade Radius: NOT SUPPLIED

JRC analyses proposals for wind (and other) developments on behalf of the UK Energy Industry. We assess the potential of such developments to interfere with radio systems operated by UK and Irish Energy Industry companies in support of their regulatory operational requirements.

In order to fully assess this proposal we require the name of the development, turbine locations (NGR values: easting and northing), hub height and rotor diameter for each turbine.

Therefore JRC OBJECTS to the proposed development *** due to insufficient information ***.

However, JRC are still willing to work with developers in order to clear as many developments as possible, including those that may initially fall within the coordination zone. For more information about what to do next, please contact us using the link at the bottom of this email.

NOTE:

The protection criteria determined for Energy Industry radio systems can be found at [Wind Farm Coordination | Joint Radio Company | JRC](#)

The JRC objection shall be withdrawn after simple analysis shows no issues; when a satisfactory coordination has been achieved and the zone of protection is implemented; or when an appropriate mitigation agreement is in place.

Please provide the required information in order for us to undertake the necessary analysis.

Regards

Wind Farm Team

*Friars House
Manor House Drive
Coventry CV1 2TE
United Kingdom*

Office: 02476 932 185

JRC Ltd. is a Joint Venture between the Energy Networks Association (on behalf of the UK Energy Industries) and National Grid.

Registered in England & Wales: 2990041

[About The JRC | Joint Radio Company | JRC](#)

We maintain your personal contact details and are compliant with the Data Protection Act 2018 (DPA 2018) for the purpose of 'Legitimate Interest' for communication with you. If you would like to be removed, please contact <Redacted>

We hope this response has sufficiently answered your query.

If not, please **do not send another email** as you will go back to the end of the mail queue, which is not what you or we need. Instead, **reply to this email by clicking on the link below or login to your account** for access to your co-ordination requests and responses.

<https://breeze.jrc.co.uk/tickets/view.php?id=34619>

Marine Directorate - Marine Analytical Unit

Caledonia Offshore Wind Farm

Marine Analytical Unit Response **Marine Directorate**

The Caledonia Offshore Wind Farm Environmental Impact Assessment (“EIA”) report includes descriptions of a range of potential impacts. This response focuses only on the assessment of social and economic impacts and aims to inform the consenting responsibilities of the Marine Directorate Licensing and Operations (MD-LOT) team.

The license applications are split into Caledonia North and Caledonia South but both projects are included in the assessment. This response is applicable to both developments.

Assessment of impacts

The socio-economic impacts were assessed for the following areas:

- Aberdeenshire (for the Onshore Transmission Infrastructure (OnTI) elements only);
- North Scotland, defined as the local authorities of Aberdeen City, Aberdeenshire, Highland, and Moray;
- Scotland; and
- the UK

All socio-economic impacts identified during the scoping stage were assessed. The assessment was carried out for all stages of the project for economic impacts, but decommissioning was not assessed for social impacts. Although all socio-economic impacts were scoped in, the report states that since construction and operation and maintenance port(s) are not yet known, it is not possible to assess the impact at the port(s) until their location is known. This limits the breadth and depth of assessment possible when determining potential socio-economic impacts. To mitigate this risk, the scoping advice for this project from MAU suggested conducting scenario analysis or looking at a short list of potential ports to explore potential impacts. This kind of information would have substantially helped assessing potential socio-economic impacts.

The contractor uses a magnitude and sensitivity methodology that is dependent on a predicted change of around 0.25-1.00% of the population of the study area. It also considers the ability of the study area to accommodate changes in order for the impact to be determined to be significant. They assessed the sensitivity of community and social assets by looking at the magnitude of the most beneficial and most adverse scenarios for the local study areas with the lowest and the highest populations (as defined by local study area). Using the proposed methodology, the contractor deems socio-economic impacts as “not significant” (only OnTI social impacts were assessed). However, this is likely driven by the large study area selected. Therefore, while impacts across the larger study area may well be “not significant” the likely concentrated nature of these impacts mean that MAU are

unable to verify whether local impacts would also be “not significant” given the information provided.

Summary of anticipated impacts

The assessment considered the following potential effects:

- Change in GVA levels;
- Change in employment levels;
- Change in tourism
- Change in demand for housing and availability;
- Change in other local services
- Change in demographics;
- Change in socio-cultural conditions;

These effects were considered for the following areas:

- A variety of ports, noting that port locations won't be known until a later stage.
- Scotland;
- UK.

Impacts

In terms of significance of effects, the assessment anticipates “minor” beneficial effects could be seen during the construction, operation and decommissioning phases of the proposed development across the north of Scotland. In addition, minor beneficial effects are anticipated during the construction and the operation of the proposed development in Scotland. Given the level of redactions, MAU are unable to fully assess the economic impacts.

Social impacts were only assessed for OnTI. All were determined to be non-significant based on their proposed methodology for construction and maintenance and operations (decommissioning was not assessed).

Consultation and engagement

A more targeted consultation and engagement with local communities most likely to be affected by these developments would be beneficial once the port locations are known.

Summary

Overall the methodologies used to examine social and economic effects are broadly acceptable. However, the size of the study area and the lack of information on the port locations, substantially limits the ability to assess the potential positive and negative impacts of the project, particularly for the social impacts. Currently social impacts for Caledonia north/south are not included within the report, only the predicted social impacts of the OnTI aspect of the project, thereby limiting our ability to assess the overall benefits/risks of the project. In addition, the limited information provided on economic impacts (due to redactions) also make this area difficult for MAU to assess as well.

Marine Directorate – Science, Evidence, Data and
Digital



Scottish Government
Riaghaltas na h-Alba
gov.scot

E: MD-SEDD-RE_Advice@gov.scot

Christina McGhee
Marine Directorate Licensing Operations Team
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

10/02/2025

241120 – Caledonia Offshore Wind Farm – EIA Report 2024

Marine Directorate – Science, Evidence, Data and Digital (MD-SEDD) advisers have reviewed the request from MD-LOT and provide the following advice.

Commercial fisheries

All sections referred to are from the main commercial fisheries assessment Volume 2 Chapter 8 of the Environmental Impact Assessment (EIA) Report unless specified otherwise.

Environmental Impact Assessment

Caledonia North contains only bottom-fixed turbines, and Caledonia South is split into two areas, one with bottom-fixed turbines and one with floating turbines.

To summarise the impact assessment, the EIA found potential significant impacts during the construction and decommissioning phase for both North Caledonia and South Caledonia for the following fleets: *Nephrops* demersal otter trawl, squid demersal otter trawl, finfish demersal otter trawl and demersal seine, scallop dredge, and potting crab and lobster.



The EIA also found potential significant impacts during the operational phase in the floating portion of the Caledonia South array for the following fleets: squid demersal otter trawl, finfish demersal otter trawl and demersal seine, and scallop dredge.

In Section 8.7.2.2 the EIA report states that the assessment assumes that fishing will be possible within the array area containing bottom-fixed turbines. However, the report also states that “pelagic trawl, multi-rig otter trawl and demersal seine/fly shooting gear require a greater distance for safe operation and these gears are unlikely to target grounds in the vicinity of infrastructure.” In a later section (8.7.2.32) of the report it is stated that fishing is assumed to be able to resume for all gear types except pelagic otter trawl within the bottom-fixed turbine areas of the array. MD-SEDD advise that justification is required as to why it is assumed that fishing will resume within the bottom-fixed turbine areas of the array for demersal otter trawl and demersal seine, given that it was previously stated this would be unlikely for these gear types. The assumption that these gear types will resume fishing leads to some impacts on these fleets being assessed as not significant within the bottom-fixed turbine array areas.

In section 8.7.3 the EIA report states that the potential effects of decommissioning activities are expected to be the same or similar to the effects associated with the construction phase. For Impact 16 and Impact 17 in the decommissioning section the EIA report states that the significance of effect is moderate and significant in EIA terms for the line/jigging fleet, however for the construction phase the significance of effect for this fleet was considered to be minor and not significant. MD-SEDD advise that the applicant clarifies if this is an error, and if not that justification should be provided as to why the potential impacts differ during construction and decommissioning.

MD-SEDD advise that there are also multiple inconsistencies in section 8.7 ‘Potential Effects’, which make it unclear whether there is a significant effect or not for some impacts. MD-SEDD advise the following inconsistencies are clarified to confirm the correct significance of effects in the assessment:

- For Impact 6 in Volume 2 Chapter 8 – Section 8.7.1.91 lists line/jigging as low sensitivity, but in the Significance of Effect section it is included as medium sensitivity.

Table 8-14 also lists it as medium sensitivity for Impact 6.

- For Impact 13 in Volume 2 Chapter 8 – The sensitivity section 8.7.2.55 lists pelagic trawl as medium sensitivity, but this was listed as low sensitivity for construction. This section also lists line/jigging as low sensitivity, but Table 8-14 lists it as medium sensitivity. The text also appears to be incorrect for the entire Significance of Effect section. The text lists the magnitude of impact as medium for some fleets, leading to an overall significant effect, when above in section 8.7.2.56 it says it is low for all fleets. Table 8-14 shows magnitude as low for all fleets.
- For Impact 8 in Caledonia North EIA Volume 3 Chapter 8 - No significance of effect is described in section 8.7.2.7 for the pelagic trawl fleet, although the sensitivity and magnitude of impact is given.

Mitigation

In summary, the EIA for the Caledonia offshore wind farm found potential significant impacts during the construction, operation and decommissioning phases for the fishing fleets mentioned above. The applicant has proposed a variety of mitigation measures to reduce these impacts from significant to not significant in EIA terms. For the impacts during the construction phase, the mitigation measures proposed include disturbance payments, funding research relevant to the fisheries affected, cable protection surveys, and monitoring. Mitigation measures proposed for the impacts during the operational phase include funding research into fisheries and floating turbines, investigation into possible coexistence and defined fishing areas, and monitoring. Mitigation measures proposed for the decommissioning phase are the same as for construction. MD-SEDD provide the following detailed comments.

Construction phase:

The applicant has proposed disturbance payments as a form of mitigation during the construction phase. MD-SEDD advise that disturbance payments are a form of compensation. The Scottish Government have no remit on compensation for fisheries, and therefore have no control over the use of this method as a way to reduce the potential significant impacts to not significant in EIA terms.

In section 8.11.1.7 the applicant proposes a “Commitment to funding research and/or initiatives relevant to the fisheries affected” as a form of further mitigation for the potential significant impacts associated with the construction phase. However, no mention of this commitment is made within the outline Fisheries Management and Mitigation Strategy (FMMS) for Caledonia North or Caledonia South. MD-SEDD advise that the commitment to fund research relating to fisheries affected by construction should be included with further details in the outline FMMS for both Caledonia North and Caledonia South. MD-SEDD also advise that whilst we support funded research, it does not constitute as a form of mitigation to reduce the level of significance of the potential impacts during the construction phase.

MD-SEDD note that monitoring pre, during and post-construction is proposed as a form of further mitigation for both the potential significant construction and operational impacts. This includes a commitment from the applicant to update the FMMS based on the findings from the monitoring to ensure the FMMS remains valid and appropriate for the operational phase. The outline FMMSs state that “Mitigation and/or any updates to the FMMS may be informed by an understanding of any changes in fishing activity as picked up by the monitoring proposed.” MD-SEDD advise monitoring should be included as part of the consent condition for the FMMS due to the potential significant impacts identified in the assessment. However, MD-SEDD also advise that whilst monitoring is required, monitoring alone is not a form of mitigation as it does not change the significance of the potential impacts associated with the construction, operation and decommissioning of the development. Whilst MD-SEDD acknowledge that updates to the FMMS may provide further mitigation post-monitoring, MD-SEDD advise that it is not possible at this stage to determine if this will help reduce the significance level of the potential impacts from the development as it is unknown what, if any, mitigation might be added or updated.

In section 8.11.1.9 cable protection surveys are proposed as a mitigation measure for the potential significant impacts during the construction phase. The applicant states a commitment to “surveys across areas of cable protection deployed across inter-array cables and offshore export cables to establish that fishing can resume safely post construction”. MD-SEDD advise that this is not a form of mitigation for the potential impacts associated with the construction phase as it does not reduce the potential significant impacts during construction, and is instead validating the assessment assumptions by testing the assumption that fishing can resume post construction.

MD-SEDD advise that, given the points raised above, the only form of proposed mitigation remaining for the construction phase is disturbance payments. MD-SEDD advise careful consideration of this option as the only method to reduce the significance of the potential impacts from moderate (significant) to minor (not significant) bearing in mind that the Scottish Government have no remit on compensation for fisheries.

Please note, all comments regarding the construction phase impacts and mitigation also apply to the decommissioning phase impacts and mitigation, which are presented in the impact assessment as the same.

Operational phase:

With regards to the potential significant impacts during the operational phase in the floating portion of the Caledonia South array, the mitigation proposed includes funding research into fisheries and floating turbines. Similar to the construction phase, MD-SEDD advise that whilst we support funded research, it does not constitute as a form of mitigation to reduce the level of significance of the potential impacts during the operational phase. MD-SEDD advise that further details on the proposed research should be incorporated in the outline FMMS for Caledonia South.

As further mitigation for the potential significant impacts during the operational phase, the applicant also proposes a commitment to explore coexistence between fisheries and floating technology through investigation into possible defined fishing areas post-construction. Currently the outline FMMS for Caledonia South states that this will involve defining the final as-built floating infrastructure, and then exploring possible coexistence. MD-SEDD advise that the exploration of fishing types and gear adaptations possible within floating wind farms is undertaken prior to and during the decision process for defining the final floating infrastructure rather than post-construction. MD-SEDD advise early engagement with the fishing industry so that their input can contribute to the defining of the floating infrastructure. This will improve the likelihood that defined fishing areas can be created that aid coexistence. However, MD-SEDD advise there is the risk that coexistence opportunities cannot be found and therefore the significance of the potential impacts will not be reduced by this form of mitigation.

Similar to the construction phase, monitoring and subsequent updates to the FMMSs is also proposed as a form of mitigation for the potential significant impacts during the operational

phase. As explained above, MD-SEDD advise that it is not possible at this stage to determine if this will help reduce the potential impacts from the development to not significant in EIA terms as it is unknown what, if any, mitigation might be added or updated.

Due to the points above, MD-SEDD advise that the potential significant impacts identified during the operational period should remain significant in EIA terms, due to the inability of research to reduce the significance of potential impacts, and the uncertainty relating to the coexistence opportunities and updates to the FMMSs post-monitoring. No other forms of mitigation are provided in the EIA for the operational phase.

Cumulative impact assessment:

The cumulative impact assessment found potential significant impacts during the construction, operational and decommissioning phases for demersal otter trawl, demersal seine and dredge fleets. Regional monitoring is proposed as further mitigation, and the assessment states this mitigation will reduce the cumulative impacts from significant to not significant in EIA terms. The intention of the monitoring is to validate the impact assessment and to use the findings to “support any necessary updates to the FMMS so that mitigation remains valid throughout all phases of the development”. However, as stated previously, monitoring alone is not a form of mitigation, and MD-SEDD advise that it is not possible to determine if potential future updates to the FMMS will reduce the impacts from the development to not significant in EIA terms as it is unknown what mitigation might be added or updated. Given this is the only mitigation proposed for the potential significant cumulative impacts, MD-SEDD advise that these impacts remain significant in EIA terms.

Guidance

A new good practice guidance on the monitoring of commercial fisheries in relation to offshore wind farms will be published by the Scottish Government in the coming months and MD-SEDD advise that the applicant should consult this document.

General comments

MD-SEDD note that cable protection may be required in both the export cable corridor and the offshore array area. The fishing industry have raised concerns over the use of concrete

mattresses in open areas of seabed and therefore MD-SEDD advise that other methods such as rock placement are utilised first where possible, before the use of concrete mattresses. MD-SEDD also advise that the rock protection follows the industry best practice guidance of using graded rocks and berms designed with 1:3 gradients to minimise gear snagging.

MD-SEDD note that boulder removal may be required during site preparations. MD-SEDD advise that the location of large boulders, that are relocated during construction and may pose a snagging risk for fishing gear, must be disclosed to the fishing industry within a timely manner and in an accessible format. MD-SEDD also advise that the final installed location of cables and project infrastructure is provided to the Kingfisher Information Service, Offshore Renewable and Cable Awareness project (KIS-ORCA) in a timely manner.

Physical environment / coastal processes

MD-SEDD highlight that oceanography advisers were not requested to and did not provide comment at scoping for the Caledonia development. MD-SEDD's more recent advice for developments in seasonally stratified waters, such as Caledonia, has recommended substantial baseline characterisation and quantitative assessment to determine the potential impacts of proposed developments on the physical attributes of the water column in these areas. MD-SEDD note that modifications to stratification and frontal features have been scoped out of the EIA, MD-SEDD's current and recent advice is that these are scoped into the EIA for assessment. MD-SEDD advise that the Caledonia development is in a region that seasonally stratifies and the potential impact on that stratification, formation of fronts, and potential consequences for primary productivity should be assessed appropriately.

Regarding the other aspects of Chapter 2 (Marine and Coastal Processes) that were scoped into the EIA, mainly sediment transport impacts on current and wave fields, MD-SEDD agree with the applied methodology and the overall conclusions of low magnitude impact and minor significance.

MD-SEDD highlight there is considerable uncertainty of potential impact on stratification and water column processes and that the EIA does not do any impact assessment or make a formal impact classification. MD-SEDD recommend therefore that the applicant monitors the

water column structure, nutrients and chlorophyll-a concentrations through at least a seasonal cycle pre and post construction, and use existing evidence to characterise the baseline. This would help characterise the baseline and ongoing monitoring would help reduce the considerable uncertainty of impact on stratification and primary productivity.

Yours sincerely,

Renewables and Ecology Team

Marine Directorate – Science, Evidence, Data and Digital



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27 February 2025

RE: Caledonia EIA

Advisors from the SEDD Marine Renewables & Ecology Team have reviewed the above request and provide the following advice.

Modifications to stratification and frontal features have been scoped out of the EIA (Volume 2, Chapter 2 Marine and Coastal Processes, Section 2.5.3). The Scoping report (<https://marine.gov.scot/node/22950>) scoped this out in Table 6.2 with the follow justification "Available evidence suggests that modifications to turbulent mixing from WTG foundations would not be sufficient to cause significant changes to stratification." However, no evidence was given to support this statement and MD-SEDD did not review this document.

MD-SEDD's current advice is to scope in the potential impact on shelf sea mixing, stratification and frontal features, unless evidence is supplied showing that the region is sufficiently well mixed through the year for any change in vertical mixing to have no impact at all.

The EIA report states that "the majority of the Caledonia OWF is stratified except for a number of isolated locations in which it is well mixed", although the [physical baseline appendix](#) elaborates that "Temperature and salinity data from the Moray East OWF (MORL, 201229), immediately adjacent to the west of northern part of the Proposed Development



(Offshore) (Figure 1-1), shows that in the summer the water becomes seasonally stratified" and that "The stratification breaks down towards the end of summer such that the water column can be considered well mixed during the winter months". These statements appear to be based on data from the adjacent MORL OWF.

MD-SEDD are concerned that this statement suggests that the region seasonally stratifies and advise that the applicant provides clarity or more evidence to characterise the baseline water column structure to confirm the above statements. If the region is indeed shown to seasonally stratify (as the MORL data appears to report) MD-SEDD advise that an impact assessment should be carried out.

MD-SEDD advise that the baseline characterisation should include a description of the water column structure in the region through a typical year showing whether the region stratifies in the summer months, or remains mixed. This could be done in a variety of ways, but MD-SEDD advice that the use of 3D ocean model data would enable a spatial and temporal analysis to be conducted over a number of years. The Scottish Shelf Waters Reanalysis Service (SSW-RS, <https://sites.google.com/view/ssw-rs/home>) offers reasonably high spatial (especially depth) resolution. Performing the analysis over 10+ years would enable to inter-annual variability to be investigated, as the region may have significant inter-annual variability with respect to stratification. A typical year could then be chosen for more detailed analysis. MD-SEDD advice the use of stratification metrics, such as potential energy anomaly or surface to bottom temperature differences, and that the stratification on at least a month by month basis should be investigated. Commentary on the timing of the onset and breakdown of stratification should be included.

Please see the MD-SEDD provide the following advice which has been used in response to potential developments where stratification is known to occur.

If the proposed windfarm is in a region of shelf sea that is likely to experience intermittent seasonal stratification, and the potential changes to water column structure including magnitude, timing and extent of seasonal stratification should be considered in the EIA. MD-SEDD advise that this potential impact is relevant only to the operational phase of the windfarm and that outputs from numerical models should be used, at least for the baseline

characterisation. MD-SEDD advise that the hydrodynamic model used needs to resolve the vertical water column, e.g. using a 3D or 1D-vertical model.

Water column structure is controlled by competing processes including atmospheric heating, freshwater input and mixing. An offshore windfarm could affect water column mixing by the structures generating turbulent wakes (e.g. Dorrell et al. 2022) and/or by altering the near sea surface wind speeds (e.g. Christiansen et al. 2022). MD-SEDD consider the structure induced mixing is more likely to have near-field effects, whereas the wind speed deficit is likely to have more subtle far-field effects.

MD-SEDD advise the baseline description should include a description of prevailing baseline water column conditions, including the timing of stratification and frontal positions. This should include the evolution of water column structure through the year (e.g. weekly to monthly temperature, salinity, density profiles) and when typically the region stratifies, and how key parameters change through the year (e.g. surface mixed layer depth and potential energy anomaly).

For baseline characterisation MD-SEDD advise the use of existing 3D ocean model output, e.g. data available from the Copernicus Marine Service or the Scottish Shelf Waters Reanalysis Service (SSW-RS, <https://tinyurl.com/SSW-Reanalysis>), and observational data, to characterise the water column structure within the region throughout the year, paying particular attention to the onset/decay of seasonal stratification and fronts. The timing, extent and magnitude of stratification is naturally variable, and this variability should be described to enable the potential changes due to the wind farm to be assessed against this backdrop.

MD-SEDD advise the EIA investigates whether the potential change in mixing could delay the onset of stratification and what pathways to impact this could have on biological receptors, including primary production and the wider ecosystem. The potential impact of the structures (e.g. Dorrell et al. 2022) and the potential wind-wake impact (e.g. Christiansen et al. 2023) should be assessed.

MD-SEDD recognise there is no pragmatic and proportionate methodology or guidance available on how to assess the impact of wind farm structures on stratification. A pragmatic approach would be to investigate how turbine structures could change Turbulent Kinetic

Energy (TKE) (e.g. Carpenter et al. 2016) and compare this with background/baseline TKE values. The potential impact of these changes in TKE on the timing of stratification should be included, and whether fronts are likely to be effected.

MD-SEDD recognise there is no pragmatic method, or modelling guidance, available for modelling the potential impact of the wind wake, and therefore suggest that a qualitative assessment be performed using published research findings, e.g. Christiansen et al. (2022).

MD-SEDD advise that changes to mixing have the potential to impact other receptors, such as productivity as well as higher trophic levels, and following the assessment of modelling outlined above, this should also be qualitatively assessed in the EIA. MD-SEDD advise the potential impact on ncMPAs where fronts are a designated feature should be included.

References

Carpenter, J. R., Merckelbach, L., Callies, U., Clark, S., Gaslikova, L., and Baschek, B. 2016. Potential Impacts of Offshore Wind Farms on North Sea Stratification. PLOS ONE, 11: 1–28. Public Library of Science. <https://doi.org/10.1371/journal.pone.0160830>

Christiansen, N., Daewel, U., Djath, B., & Schrum, C. (2022). Emergence of Large-Scale Hydrodynamic Structures Due to Atmospheric Offshore Wind Farm Wakes. Frontiers in Marine Science, 9. <https://doi.org/10.3389/fmars.2022.818501>

Dorrell, R. M., Lloyd, C. J., Lincoln, B. J., Rippeth, T. P., Taylor, J. R., Caulfield, C. P., Sharples, J., Polton, J. A., Scannell, B. D., Greaves, D. M., Hall, R. A., & Simpson, J. H. (2022). Anthropogenic Mixing in Seasonally Stratified Shelf Seas by Offshore Wind Farm Infrastructure. Frontiers in Marine Science, 9. <https://doi.org/10.3389/fmars.2022.830927>

Yours sincerely,

Renewables and Ecology Team

Marine Directorate – Science, Evidence, Data and Digital

Maritime and Coastguard Agency



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3rd February 2025

Licensing Operations Team,
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By email to MD.MarineRenewables@gov.scot

Dear Marine Directorate,

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND PART 4 OF THE MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE CALEDONIA OFFSHORE WINDFARM.

Thank you for the opportunity to comment on the applications for consent under Section 36 of the Electricity Act 1989 and marine licences under the Marine (Scotland) Act 2010 for the Caledonia Offshore Wind Farm.

The Maritime and Coastguard Agency (MCA) is an Executive Agency of the Department for Transport and is responsible throughout the UK for implementing and developing the UK Government's maritime safety and environmental protection policy. This includes co-ordinating maritime Search and Rescue (SAR) through His Majesty's Coastguard 24 hours a day, and checking that ships meet UK and international safety rules. The MCA works to prevent the loss of lives at the coast and at sea, to ensure that vessels are safe, and to prevent coastal pollution. The UK Technical Services Navigation Branch is responsible for UK radiocommunication and navigation policy. This primarily covers SOLAS Convention (Safety of Life at Sea Convention 1974, as amended) Chapters IV and V; the COLREG Convention (International Regulations for Preventing Collisions at Sea 1972, as amended); and the ITU Convention (International Telecommunications Convention 1932, as amended).

The Navigation Risk Assessment (NRA) and the shipping and navigation elements of the Environmental Impact Assessment Report have been reviewed and we would like to comment as follows:

Navigation Risk Assessment

Anatec Limited has undertaken a detailed Navigation Risk Assessment (NRA) in accordance with MCA guidance (MGN 654) and NRA risk assessment methodology. This NRA informs the shipping and Navigation chapters of the EIA consisting of:

Volume 2 - Proposed Development (Offshore), Chapter 9: Shipping and Navigation;
Volume 3 – Caledonia North, Chapter 9: Shipping and Navigation and;
Volume 4 – Caledonia South, Chapter 9: Shipping and Navigation.

We are satisfied that appropriate traffic data has been collected in accordance with MGN 654, which includes two 14-day marine vessel traffic surveys in winter 2023 (January - February) and summer 2023 (July – August). For the Offshore Export Cable Corridor (OECC) study area 28 days of Automatic Identification System (AIS) only data was collected, 14 days in winter 2023 (January - February) and 14 days in summer 2023 (July-August). In addition, 12 months of Automatic Identification System (AIS) data for 2022 and 2023 has been collected for validation of the survey data. Finally, Long term AIS data for Serco NorthLink ferries within the study area (2019 to 2023) has been analysed to capture adverse weather routing. The findings are presented in Section 12: Adverse Weather Vessel Traffic Movements.

The MCA is content that the hazard log presented in Appendix B, Table B.1 of the NRA is a reasonable and proportional assessment of the risks. A completed MGN 654 Checklist has also been provided in Appendix A, Table A.1 as part of the NRA, and the MCA is satisfied that all recommendations have been addressed.

It is noted that some of the older studies carried out regarding Navigation, Communication, and Position Fixing Equipment are referred to in Section 13 of the NRA. There may be additional benefit in referring to more recent helicopter trials and documents written by the MCA in 2019, titled: “MCA report following aviation trials and exercises in relation to offshore windfarms” and “MCA report following aviation trials at Hornsea Project 1 windfarm”. Some issues identified in the 2005 paper are relevant today, but there are now some different systems and aircraft in operation and windfarms have become larger and further offshore.

Emergency Response and Search and Rescue

A SAR checklist based on the requirements in MGN 654 Annex 5 will need to be completed in agreement with MCA before construction starts. This will include the requirement for an approved Emergency Response Co-operation Plan (ERCoP) and will be incorporated as a condition of the Marine Licence.

During SAR discussions, particular consideration will need to be given to the implications of the site size and location. As there are various possible scenarios regarding the build out of Caledonia OWF as detailed in Volume 1 chapter 3 of the EIA, it would be beneficial for the applicant to confirm the final build out scenario as early in these SAR discussions as possible.

Attention should be paid to the level of radar surveillance, AIS and shore-based VHF radio coverage and give due consideration for appropriate mitigation such as radar, AIS receivers and in-field, Marine Band VHF radio communications aerial(s) (VHF voice with Digital Selective Calling (DSC)) that can cover the entire wind farm sites and their surrounding areas.

Cumulative Impacts

A Cumulative Impact Assessment (CIA) has been made based on existing and proposed developments in the study area as explained in Volume 7A, Appendix 7-1 Cumulative Impact Assessment Methodology. These developments are summarised in Section 14, table 14.1 and figure 14.1 of the NRA. As there are multiple scenarios, assessments have been carried out considering Caledonia North (Volume 3, Chapter 9) and Caledonia South (Volume 4, Chapter 9) in isolation and

a complete build out of north and south together referred to as the Proposed Development Offshore (Volume 2, Chapter 9).

The main commercial routes and those with potential for deviations have also been identified. 10 routes are identified and presented in table 11.1 of the NRA. Expected cumulative deviations are presented in figure 15.2. Additionally, potential total deviations have been modelled for each scenario and are presented in figures 16.4, 16.9 and 16.14. It is also noted that a tiered approach to assessment has been adopted. We are content with this approach to the CIA at this stage.

In the scoping report the MCA was asked by the applicant if cumulative and transboundary impacts for shipping and navigation may be scoped out of the EIA. Our reply stated that impacts specific to shipping and navigation should be part of the EIA process and be addressed in the NRA. We welcome the inclusion of these considerations by the applicant.

Structure Exclusion Zone

As stated in 9.7.1.22 *'The Applicant engaged with Serco NorthLink ferries throughout the NRA process, and this engagement culminated in the Applicant proposing a Structure Exclusion Zone (SEZ) on the eastern boundary of the Caledonia South Site within which no surface piercing infrastructure will be placed for the purposes of increasing searoom and optionality for Serco NorthLink ferries in adverse weather conditions.'* The SEZ is presented in figure 17.1 of the NRA. The MCA agree with the findings of section 17.4 of the NRA and welcome its inclusion. It should also be noted that the Risk Assessment in section 18 of the NRA assumes that the SEZ will be in place.

Layout Design

The turbine layout design will require MCA and Northern Lighthouse Board (NLB) approval prior to construction to minimise the risks to surface vessels, including rescue boats, and search and rescue aircraft operating within the site. The MCA will seek to ensure all structures are aligned in straight rows and columns with a minimum of two lines of orientation. Further advice will be provided to the project once the layout discussions have started.

Marking, Lighting and Construction Programme

The MCA will seek to ensure the turbine numbering system follows a 'spreadsheet' principle and is consistent with other windfarms in the UK. All lighting and marking arrangements will need to be agreed with the MCA and the NLB. The MCA requires all aviation lighting to be visible 360° and compatible with night vision imaging systems, as detailed in CAP 764 and MGN 654 Annex 5. We would also expect to see some form of linear progression of the construction programme avoiding disparate construction sites across the development area, and the consent needs to include the requirement for an agreed construction plan to be in place ahead of any works commencing.

Wet Storage

In section 4.1 of the non-technical summary, it is stated: *'Caledonia South is likely to include floating Wind Turbine Generators (WTGs) in deeper areas. These would be wet-towed to the installation location either from the assembly port or a wet storage location'* It is further stated in 18.1.6.1 and 20.1.6.1 of the NRA that wet storage plans will be included in the Construction Method Statement which will be required to be approved by MD-LOT in consultation with the MCA. The MCA agree that wet storage options, especially around fully constructed floating WTGs, are yet to be fully explored and we would encourage the applicant when discussing any potential options to consult other relevant maritime stakeholders including the MCA and NLB.

Regarding the storing of components on the seabed within the array area, as the charted depths in range from approximately 40m-70m, it is not expected that any storage would increase the risk to

surface navigation. However, the MCA will need to be informed of materials to be stored within the array (and along the export cable corridor) and made aware of any that will exceed a 5% reduction in surrounding depth referenced to Chart Datum.

Mooring Arrangements

As it is likely that Caledonia South will include floating structures, Third Party Verification of the mooring arrangements for all floating devices will be required prior to construction to provide assurance against loss of station. Ideally this will be a condition of the marine licence. Guidance on regulatory expectations on mooring arrangements can be found on our website: <https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping>. Compliance with regulatory expectations on moorings for floating wind and marine devices (Health and Safety Executive (HSE) and MCA, 2017), has been listed as embedded mitigation measure M-31.

The applicant has stated in volume 2 Chapter 9, table 9-6 that loss of station has formed part of the scope of assessment. As such, there is an expectation from the MCA that a system of continuous monitoring for each individual floating WTG be incorporated. There is acknowledgment in Volume 2 and 4 chapter 9 and the NRA that a system will be required but no overview of what the applicant's system may include. The use of GPS in this system would be expected but inclusion of AIS on all floating structures, the overall particulars of this system and recovery arrangements in case of a loss of station will need further discussion with the MCA and NLB prior to construction.

Hydrographic Surveys

MGN 654 requires that hydrographic surveys should fulfil the requirements of the International Hydrographic Organisation (IHO) Order 1a standard, with the final data supplied as a digital full density data set, and survey report to the MCA Hydrography Manager. Further information can be found in MGN 654 Annex 4 supporting document titled 'Hydrographic Guidelines for Offshore Developers', available on our website: <https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping>. This includes surveys during the pre-construction, post-construction and post-decommissioning stages. We would like to highlight the need to provide the data in either GSF or CARIS format and that Total Vertical and Horizontal Uncertainty (TVU & THU) calculations must be provided.

Cable Routes

The exact export cable route to the landfall at Stake Ness is yet to be fully developed as detailed in Paragraph 3.1.3.5 Volume 1 Chapter 3: Proposed Development Description (Offshore).

it is noted in table 17.1 of the NRA and table 9-12 as mitigation M-5 (Volume 2, Chapter 9 of the EIA) that a Cable Burial Risk Assessment (CBRA) is to be carried out and a cable plan (CaP) produced. Any consented cable protection works must ensure existing and future safe navigation is not compromised. The MCA would accept a maximum of 5% reduction in surrounding depth referenced to Chart Datum.

As stated in Table 3–1: Volume 1 Chapter 3, High Voltage Alternating Current (HVAC) transmission infrastructure is to be used. Therefore, a pre-construction compass deviation study will not be required.

Safety Zones

The requirement and use of safety zones as detailed in the application, specifically as mitigation measure M-23 in table 9-12, volume 2 Chapter 9, is noted. MCA supports the use of safety zones and will comment on the safety zone application once submitted, as a statutory consultee.

Liaison with local MCA Marine Office

The applicant should be reminded that their contractors and subcontractors must have the required certification for all vessel operations, and early engagement with the local MCA Marine Office should be undertaken where necessary to ensure there are no issues with regards to survey and inspections, towage, and safety requirements. Various additional certificates including a load line exemption for the turbine platforms will be required prior to any towage to site and the applicant must ensure any ballast water requirements are addressed.

Embedded Mitigation

We have the following comments on the proposed risk controls in section 17, Table 17.1 of the NRA:

1. Cable Burial Risk Assessment;

- In case of damage to, or destruction or decay of, the authorised project seaward of MHWS or any part thereof, excluding the exposure of cables, notification must be issued to MCA, NLB, the Kingfisher Information Service of Seafish and the UKHO within 24 hours of becoming aware.
- In case of exposure of cables on or above the seabed, the undertaker must within three days following identification of a potential cable exposure, notify mariners and inform Kingfisher Information Service of the location and extent of exposure. Copies of all notices must be provided to the MCA, NLB, and the UKHO within 5 days.
- The plan must include proposals for monitoring offshore cables including cable protection during the operational lifetime of the authorised scheme which includes a risk-based approach to the management of unburied or shallow buried cables.
- Attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and subject to the traffic volumes, an anchor penetration study may be necessary.

2. Navigational Safety Plan (NSP);

- Local notification to mariners must be issued at least 14 days prior to the commencement of the authorised project or any part thereof advising of the start date of each work and the expected vessel routes from the construction ports to the relevant location. They must be updated and reissued at weekly intervals during construction activities and at least 5 days before any planned operations (or otherwise agreed) and maintenance works and supplemented with VHF radio broadcasts agreed with the MCA.
- The Kingfisher Information Service of Seafish, must be informed of details of the vessel routes, timings and locations relating to the construction of the authorised project or any part thereof by email to kingfisher@seafish.co.uk :-
 - i. at least 14 days prior to the commencement of offshore activities, for inclusion in the Kingfisher Fortnightly Bulletin and offshore hazard awareness data, and;
 - ii. as soon as reasonably practicable and no later than 24 hours of completion of all offshore activities.
- Post construction monitoring is required and must include vessel traffic monitoring by automatic identification system for a duration of three consecutive years following the completion of construction of the authorised project. An appropriate report must be submitted to the MCA and NLB at the end of each year of the three-year period.

Conclusion

The comments detailed above are not considered to be blocks to development, but they are provided to highlight any areas which may require further discussion. Subject to the applicant meeting

requirements addressed in this letter and meeting the licence conditions, it provides a cautious acceptance of the application for consent.

Yours faithfully,

<Redacted>

<Redacted>

Vaughan Jackson
Offshore Renewables Project Lead
UK Technical Services – Navigation

Peter Lowson
Offshore Energy Liaison Officer
HM Coastguard Governance, Policy,
Standards and International

NATS UK

From: <Redacted>
To: [MD Marine Renewables](#)
Cc: [NATS Safeguarding](#); <Redacted>
Subject: RE: [SG33685] MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation
Date: 10 December 2024 13:15:01
Attachments: [image001.png](#)

Christine,

NATS position, as originally stated in October 2022, remains that, unmitigated, this development would lead to unacceptable impacts on our ability to provide a safe and expeditious air traffic service in the area.

We note the applicant has taken this on board within the EIA and I can confirm that NATS will continue to support our side of these discussions with an aim of agreeing a suitable mitigation solution.

Regards,

Alasdair

NATS Safeguarding

NATS Internal

From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Sent: Wednesday, December 4, 2024 5:04 PM

Cc: <Redacted> ;
MD.MarineRenewables@gov.scot

Subject: [SG33685] MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 Febr...

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear Sir/Madam,

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007

**MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited–
Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx.
28km from Wick and southern limit approx. 48km from Banff**

**MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited –
Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is
approx. 45 km from Wick and southern limit approx. 35km from Banff**

On 20 November 2024 Caledonia Offshore Wind Farm Limited submitted applications to the Scottish Ministers, in accordance with the above legislation, to construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm.

The application for section 36 consents, marine licence applications, Environmental Impact Assessment Report and supporting documentation can be accessed via the following links for each of the applications:

[Caledonia Offshore Wind Farm | marine.gov.scot](https://marine.gov.scot)

Caledonia North:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are

unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

**Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate**

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



To see how we use your personal data, please view our
[Marine licensing and consenting: privacy notice - gov.scot \(www.gov.scot\)](http://www.gov.scot)

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Natural England

Date: 12 February 2025
Our ref: 495787
Your ref: MS-00011014/ MS-00011015 & MS-00011012/ MS-00011013



Marine Directorate - Licensing Operations Team
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

Lancaster House
Hampshire Court
Newcastle-upon-Tyne
NE4 7YH

BY EMAIL ONLY

Dear Christine

MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited– Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km from Wick and southern limit approx. 48km from Banff.

MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff.

- Electricity Act 1989
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
- The Electricity (Applications for Consent) Regulations 1990
- Marine and Coastal Access Act 2009
- The Marine Works (Environmental Impact Assessment) Regulations 2007

Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation

Thank you for seeking our advice on Caledonia North and South Offshore Windfarm in your consultation which we received on 04th December 2024. We also thank you sincerely for the extensions you granted us for this response. The following constitutes Natural England's formal statutory response.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

The advice contained within this letter is provided by Natural England, which is the statutory nature conservation body within English territorial waters (0-12 nautical miles).

Due to our remit, our advice on this consultation is restricted to species within England and to protected species from English designated sites which may be impacted by the proposed wind farm. We defer to NatureScot to advise on Scottish matters.

We have considered the documents provided with the consultation request in our review, and the measures proposed to mitigate for all identified adverse effects that could potentially occur as a result of the proposal. We advise that, providing there are no substantial changes to the project design envelope, this project alone will not have an Adverse Effect on Site Integrity (AEoSI) on any English SPA or SAC. We also agree that any addition to in combination impacts with other projects will be *de-minimis* and as such are unlikely to significantly contribute to AEoSI for any English SPA or SAC in combination with the other Plans or Projects assessed.

Additional Information

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

For any queries relating to the specific advice in this letter only please contact me using the details below. For any new consultations, or to provide further information on this consultation please send your correspondence to consultations@naturalengland.org.uk.

Yours sincerely

Pete Welby
Operations Delivery Higher Officer Marine
E-mail: <Redacted>

NatureScot

Christine McGhie
Marine Directorate
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

27 March 2025

Our ref: CNS REN OSWF – NE4 –
Ocean Winds - Caledonia

Sent by email only

Dear Christine,

CALEDONIA NORTH OFFSHORE WIND FARM AND CALEDONIA SOUTH OFFSHORE WIND FARM

**APPLICATIONS FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED)
AND MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE
AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE THE CALEDONIA NORTH
OFFSHORE WIND FARM AND CALEDONIA SOUTH OFFSHORE WIND FARM**

Thank you for consulting NatureScot on the two Section 36 and Marine Licence applications submitted by Ocean Winds (the Applicant) for the proposed Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm. These are accompanied by an Environmental Impact Assessment Report (EIA Report), Report to Inform Appropriate Assessment (RIAA), as well as a Derogation Case – submitted on a without prejudice basis.

Our advice in this letter is in relation to the offshore array areas within the Project Option Agreement Area (OAA), the Export Cable Corridor (ECC) and landfall (up to MHWS only). Onshore components will be subject to separate planning applications.

We raise concerns on our ability to process the scale of the supporting information for these applications. This is due to the broad design envelopes at this application stage, as well as the consideration of two applications and the potential scenarios of how each may be developed sequentially or concurrently during a phased construction programme. We indicate in our advice how and what we have based our advice on.

Policy context

Working within the context of a climate emergency and a biodiversity crisis, we seek to provide advice that is enabling and secures the right development in the right place with most benefit for climate change reduction and that which avoids damage, and where possible, achieves restoration and enhancement of biodiversity.

As a statutory consultee, NatureScot works in support of the Scottish Government's vision for a Blue Economy¹ with its six outcomes acting as focal points to ensure the marine environment supports ecosystem health, improved livelihoods, economic prosperity, social inclusion and wellbeing. We provide advice in the spirit of Scottish Government's ambition for offshore wind as outlined in the Sectoral Marine Plan for Offshore Wind published in 2020 and now undergoing an Iterative Plan Review (publication anticipated in 2025). The SMP aims to balance the promotion of the sustainable development of offshore wind, whilst protecting and restoring our biodiversity.

We support the current work of the Scottish Government in considering a new policy direction on nature positive requirements for marine industries. We seek further consideration and engagement on what might be possible in terms of biodiversity enhancement that would also align with the renewable energy production aims and objectives of the proposal - in the context of the climate emergency and biodiversity loss crisis, if consented.

Background

The ScotWind Leasing Round was launched in June 2020 and has resulted in 20 projects being awarded leases with the potential energy generation of 27.6 GW. As detailed in Volume 1, Chapter 3 of the EIA Report, the Applicant was awarded the opportunity to develop the NE4 Plan Option Area from the ScotWind Leasing Round.

The Caledonia proposal is split into two development sites - Caledonia North and Caledonia South. The Applicant proposes to develop a fixed offshore wind farm in Caledonia North and either a fixed or a fixed and floating offshore wind farm in Caledonia South, as part of the ScotWind leasing round.

¹ Scottish Government (2022) *A Blue Economy Vision for Scotland*. Available at: <https://www.gov.scot/publications/blue-economy-vision-scotland/> (Accessed 18 November 2024)

Proposal

The proposal is following a project design envelope (PDE) approach and is outlined in Table 1 below. The “Proposed Development (Offshore)” is the Caledonia North and Caledonia South proposals as a whole.

Table 1. Outline description of the proposed development

Design Parameters	Caledonia North	Caledonia South	Proposed Development (Offshore)
Location	Moray Firth, northern limit ~28 km from Wick and southern limit ~48 km from Banff	Moray Firth, northern limit ~45 km from Wick and southern limit ~35 km from Banff	Moray Firth, northern limit ~28 km from Wick and southern limit ~35 km from Banff
Array area	218.5 km ²	204.5 km ²	423 km ²
Generating capacity			2 GW
Wind Turbine Generators (WTGs)	Up to 77	Up to 78 (up to 39 of which might be floating)	Up to 140 (total WTGs in North & South will not exceed this figure)
WTG foundation type	<p>Bottom-fixed</p> <p>Bottom-fixed foundation options: jackets with pin piles, jackets with suction caissons or monopiles</p>	<p>Bottom-fixed; Bottom-fixed and floating</p> <p>Bottom-fixed foundation options: jackets with pin piles, jackets with suction caissons, monopiles, or fully-restrained platforms</p> <p>Floating foundation options: semi-submersible platforms (anchors: drag embedment anchors or piled) or tension leg platforms (anchors: driven piles, drive-drill-</p>	<p>Bottom-fixed; Bottom-fixed and floating</p> <p>Bottom-fixed foundation options: jackets with pin piles, jackets with suction caissons, monopiles, or fully-restrained platforms</p> <p>Floating foundation options: semi-submersible platforms (anchors: drag embedment anchors or piled) or tension leg platforms (anchors: driven piles, drive-drill-</p>

		drive, suction and drilled / grouted piles).	drive, suction and drilled / grouted piles).
Maximum blade tip height above Mean Sea Level (MSL)	355 m	355 m (bottom-fixed) and 325 m (floating)	355 m (bottom-fixed) and 325 m (floating)
Minimum blade tip clearance above MSL	35 m	35 m	35 m
Maximum rotor diameter	Up to 310 m	Up to 310 m (bottom-fixed) and 290 m (floating)	Up to 310 m (bottom-fixed) and 290 m (floating)
Offshore Substation Platforms (OSPs)	2	2	4
OSP foundation type	Bottom-fixed Bottom-fixed foundation options: jackets with pin piles, jackets with suction caissons or monopiles	Bottom-fixed Bottom-fixed foundation options: jackets with pin piles, jackets with suction caissons or monopiles	Bottom-fixed Bottom-fixed foundation options: jackets with pin piles, jackets with suction caissons or monopiles
Interconnector cables	1 cable up to 30 km in length	1 cable up to 30 km in length	2 cables up to 60 km in total length
Inter-array cables	Up to 77 cables up to 360 km in length	Up to 78 cables up to 365 km in length (bottom-fixed) and up to 182.5 km in length (floating)	Up to 140 cables up to 655 km in length (bottom-fixed) and up to 182.5 in length (floating)
Export Cable Corridor (ECC) area	390.8 km ²	221.3 km ²	390.8 km ²
Export cables	2 cables up to 180 km in length	2 cables up to 150 km in length	4 cables up to 330 km in length
Target cable burial depth	1 m	1 m	1 m
Cable protection	✓	✓	✓
Landfall	Stake Ness, Aberdeenshire	Stake Ness, Aberdeenshire	Stake Ness, Aberdeenshire
Offshore export cable installation method at landfall	Horizontal Directional Drilling (HDD)	HDD	HDD
Grid connection	New Deer Substation or Green Substation	New Deer Substation or Green Substation	New Deer Substation and Green Substation

Operational life	35 years	35 years	35 years
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Pre-construction site preparation activities, such as debris and boulder removal, dredging and seabed levelling and unexploded ordnance (UXO) clearance, will take place and will be informed by detailed site investigation.

Capacity of the individual WTGs is unknown at this stage, accounting for any anticipated advancements in wind turbine technology. As such, the Applicant seeks consent based on the physical parameters of the wind turbines (i.e. maximum blade tip height or rotor diameter), rather than actual individual installed capacity of the wind turbines.

The Applicant has proposed a potential phased approach to offshore construction to manage uncertainties around investment decisions, supply chain and grid connection constraints. Given the potential for phased delivery, a range of construction scenarios have been considered by the EIA Report. These include delivering both phases sequentially or concurrently:

- Sequential - Phases 1 and 2 to be built one after another either immediately after each other or with a gap of up to five years between the two phases. Each phase is proposed to take 3.5 years to be constructed.
- Concurrent - Phase 1 being built at the same time as phase 2, spanning a total period of 3.5 years.

The operational phase is expected to be 35 years, which will include a programme of upkeep and maintenance of array assets.

Decommissioning and Repowering are both briefly addressed in Volume 1 Chapter 3, and draft Decommissioning Programmes (DPs) have been provided for Caledonia North and Caledonia South. We advise that the DPs should be predicated on full removal of all infrastructure in line with current policy.

Storage and assembly of turbines (wet storage)

It is noted in Paragraphs 3.2.1.8 of the Proposed Development Description (Offshore) (Chapter 3) that the assessment of wet storage has not been included within the scope of the EIA Report. Therefore, the Applicant is not applying for consent of wet storage of the WTGs as part of this application. The Applicant has stated that such consent is likely to be necessary should wet storage be required and that they will continue to liaise with MD-LOT over the matter.

Assessment approach

EIA & RIAA structure & length

One EIA Report has been submitted which covers the two Applications for consent for Caledonia North (Volume 3) and Caledonia South (Volume 4). The EIA Report also contains an impact assessment for Caledonia North and Caledonia South consent applications in combination with one another, which collectively make up the Proposed Development (Offshore) (Volume 2). Therefore, the Application essentially consists of three EIA Reports. All three volumes contain Cumulative Impact Assessments (CIAs) for the relevant receptors. We highlight that the CIAs for Caledonia North do not include Caledonia South and vice versa.

Our EIA advice below is in relation to the Proposed Development (Offshore) (Volume 2) for all receptors but is also relevant to Caledonia North (Volume 3) and Caledonia South (Volume 4), unless otherwise specified.

One RIAA was submitted, covering Caledonia North (alone), Caledonia South (alone) and the Proposed Development (Offshore) (alone and in-combination with other plans and projects). We highlight that no in-combination assessment has been presented for Caledonia North or Caledonia South. As such we have been unable to draw conclusions on the in-combination assessment impacts for Caledonia North and Caledonia South as standalone proposals.

The EIA Report and RIAA has generally followed the scoping opinion, our pre-application advice and published guidance, with some exceptions.

Although the Application documents are relatively easy to navigate, they are not as streamlined as we would have expected. Whilst we understand the legal need for the Application approach taken, the sheer volume and length of the documentation, as well as the significant duplication throughout, has made the Applications cumbersome and unmanageable for us to review within the consultation period. We have not been able to review the Applications as thoroughly as we usually do, and we have not been able to review all scenarios presented across the receptors.

Further, due to the size of the combined Applications, there may be missing information that we have raised in our advice that we have simply failed to find within the documentation.

Phased approach

The Caledonia North and Caledonia South proposals may be constructed in a sequential phased approach, with phases 1 and 2 built with a gap of up to five years between the two phases. Each phase is proposed to take 3.5 years to be constructed. This phased approach will likely mean that the data and assessments used for the second phase will be old by the time it begins construction. We also highlight that in some cases, information is currently lacking to enable an adequate assessment of the in-combination impact of the sequential phased approach with a gap of five

years. This is due to the limited information available on proposed plans / projects that may coincide with phase 2. Therefore, we advise that updates to the assessment could be required if this phased approach is used.

Significance matrices

We are increasingly noting the tendency for significance matrix tables presented in EIA Reports to be heavily weighted towards negligible outcomes. This results in the conclusions reached in the impact assessment likely underplaying impacts. This is in addition to discrepancies with the individual sensitivity and magnitude scorings, which again have the tendency to likely underplay impacts. Further detail is provided within our advice in the relevant appendices. However, we raise this as a broader issue going forward. We would welcome further discussion with MD-LOT as to whether there is a need for further guidance on this aspect to help developers in the preparation of their EIAs.

NatureScot advice - summary

Offshore ornithology

There are some issues with the approaches taken in the ornithology assessments which have impacted our advice:

- The Applicant's approach to HRA screening is incorrect, with consequences for apportioning of impacts to SPAs. The Applicant has incorrectly used the geometric centre element of the apportioning methodology to rescreen the original list of designated sites and qualifying species that have been taken through into the RIAA. This rescreening has resulted in some sites and qualifying species (as detailed in the RIAA Part 1, Section 2) being screened out and consequently the apportioning of these species will be incorrect.
- The Applicant's approach to the assessment of disturbance from vessel movements within the Moray Firth SPA is incomplete and does not provide sufficient detail to enable us to assess the impacts.
- We disagree with the Applicant's RIAA conclusions of the assessment of collision risk for great black-backed gulls at Copinsay SPA and Hoy SPA.
- We disagree with the conclusions of the EIA and RIAA on the basis of the cumulative and in-combination assessments.
- There is no cumulative or in-combination assessment for Caledonia North or Caledonia South individually within the EIA and RIAA.

As a result of these issues, we have provided provisional advice on the RIAA conclusions below. We also provide our final advice on the EIA conclusions below.

RIAA provisional conclusions

Despite the issues with the RIAA, we have used the current assessment to reach an **interim view**, where possible, for certain species and sites. This advice is subject to results of the re-screening, re-apportionment and population analysis, as requested below.

For Caledonia North, the Applicant concluded no adverse effect on site integrity for the project alone. **We provisionally agree with this assessment and confirm that there will be no adverse effect on site integrity from Caledonia North alone.**

For Caledonia South, the Applicant concluded no adverse effect on site integrity for the project alone. **We provisionally agree with this assessment for most sites / species with one exception.**

The **exception to this is great black-backed gull at Copinsay SPA and Hoy SPA, for which we disagree with the conclusions of the collision risk assessment.** The predicted collision risk impact, although small in terms of number of birds, is significant in terms of change to average survival rate. For both Copinsay SPA and Hoy SPA, the predicted impacts exceed 0.02 percentage point change. As a result, **PVA should have been undertaken for great black-backed gull at these two SPAs.**

See our advice on this in Appendix A.

For the in-combination assessment for the Proposed Development (Offshore), the Applicant concluded adverse effect on site integrity for the following sites and species:

- Guillemot and kittiwake at East Caithness Cliffs SPA
- Gannet at Forth Islands SPA
- Puffin at Sule Skerry and Sule Stack SPA
- Kittiwake at Buchan Ness to Collieston Coast SPA
- Kittiwake at Troup, Pennan and Lion's Head SPA

We provisionally agree that there are in-combination effects for the above sites and species.

In addition to the developers conclusions, we also provisionally conclude that there is adverse effect on site integrity in-combination for the following sites and species:

- Razorbill at East Caithness Cliffs SPA
- Puffin at North Caithness Cliffs SPA

Further, we provisionally advise that we cannot conclude no adverse effect on site integrity in-combination for the following sites and species:

- Guillemot at North Caithness Cliffs SPA
- Guillemot and razorbill at Troup, Pennan and Lion's Head SPA

- Puffin at Foula SPA
- Puffin at Fair Isle SPA (with Berwick Bank)
- Gannet at Hermaness, Saxa and Valla Field SPA

We will require additional information to inform our final advice for each application and in combination as follows:

- Updated HRA screening and apportioning, with subsequent consideration of any requirement for further Population Viability Analysis (PVA). In order to streamline the process for additional information, we request that the HRA screening is re-done in line with our advice. Please see our RIAA advice in Appendix A for further details.
- An updated assessment of disturbance and displacement from vessels within the Moray Firth SPA. We require more information on the methodology and worst-case scenario used for the assessment of vessel disturbance to the qualifying species of the Moray Firth SPA. Further, the assessment must be completed for each of the SPA qualifying species. Information is also required on the potential impacts of disturbance on the ability of the qualifying species to access prey-supporting habitat. Please see the EIA section on 'Assessment of distributional responses to vessel movements within the Moray Firth SPA' and the RIAA section on 'Vessel disturbance within the Moray Firth SPA' in Appendix A for further details.
- With regards to collision risk, we require further PVA assessment for great black-backed gull at Copinsay SPA and Hoy SPA, for both project alone and in-combination.

EIA conclusions

The Applicant has not identified any significant cumulative EIA impacts for offshore ornithology for the Proposed Development (Offshore). We disagree with several of the conclusions reached by the Applicant for the Cumulative Impact Assessment (CIA), as outlined in Appendix A.

The Applicant has also not identified any significant project alone EIA impacts for offshore ornithology for the Proposed Development (Offshore), Caledonia North or Caledonia South. For the project alone, we are largely in agreement that impacts are small and unlikely to be significant in EIA terms.

We also request various clarifications with regards to the ornithology assessment, as outlined in Appendix A.

Further advice is provided in Appendix A.

Marine mammals – EIA & RIAA

We advise **we are unable to conclude no adverse effect on site integrity for the Moray Firth SAC with respect to behavioural disturbance from pile driving during construction of Caledonia North, Caledonia South or the Proposed Development (Offshore) alone (and therefore also in combination with other plans and projects)**, despite the RIAA concluding no adverse effect on site integrity.

The EIA assessment for marine mammals concludes no significant impacts, both alone and cumulatively. However, we raise an issue regarding the sensitivity scoring, and in some cases the magnitude scoring, in our advice below, and as such we disagree with the outcome of the assessment. Instead, **we conclude significant impacts for disturbance from piling, both for the proposal alone and cumulatively for bottlenose dolphin (Coastal East Scotland (CES) Management Unit (MU)), white-beaked dolphin and grey seal; and significant impacts cumulatively for harbour porpoise, bottlenose dolphin, white-beaked dolphin, minke whale, grey seal and harbour seal.**

As such, should Scottish Ministers grant consent, we advise:

- The Applicant will need to consider the implications further, through the development of a Piling Strategy and Marine Mammal Mitigation Protocol (MMMP) post-consent, for all species considered, but particularly for bottlenose dolphin, harbour porpoise, white beaked dolphin, minke whale, grey seal and harbour seal.
- Within the Piling Strategy and Marine Mammal Mitigation protocol, further detailed consideration should be given to type of foundations, duration and timing of noisy activities including piling and vessel noise, potential for noise abatement systems (if practical) and UXO removal methods – with our preference for low order deflagration.
- A monitoring proposal to validate the EIA Report and RIAA predictions and better understand the likelihood of impacts for disturbance from piling and operational noise, particularly as a potential floating wind technology development.
- The Applicant calculates a bespoke Moray Firth/CES MU bottlenose dolphin density estimate post-consent in collaboration with the University of Aberdeen or St Andrews University, based on the most up-to-date data.

During the agreement of the Marine Mammal Mitigation Plan and Piling Strategy the applicant may be asked to contribute to monitoring and research to address resolving uncertainty or knowledge gaps for any species for which there is still significant impact identified. This could be monitoring of species population numbers, monitoring to inform species specific dose response

curves and/or monitoring piling timings and patterns to increase knowledge on disturbance ranges responses.

We also advise that the Dornoch Firth and Morrich More SAC should have been screened into the RIAA for a potential likely significant effect on the site. Therefore, **we request further information from the Applicant providing consideration of underwater noise from piling resulting in a likely significant effect on the harbour seal qualifying species of the Dornoch Firth and Morrich More SAC, and an assessment of adverse effect on site integrity if required.** This applies to Caledonia North, Caledonia South and the Proposed Development (Offshore), both alone and in-combination.

We consider that potential cumulative impacts should be re-assessed and we have outlined our recommendations in Appendix B. **Any re-assessment should be discussed and agreed in advance and we raise whether this would be better completed post-consent.**

We also request various clarifications with regards to the marine mammal EIA, as outlined in Appendix B.

Further advice is provided in Appendix B.

Fish and shellfish ecology – EIA

The EIA report for fish and shellfish ecology concludes no significant impacts, either alone or cumulatively from the proposal. **We largely support this conclusion, except for sandeel and herring.** We consider that the potential impacts on these species may be more significant than has been concluded, particularly in the context of potential cumulative impacts from other marine industries and offshore wind farm developments in the area.

Should Scottish Ministers grant consent, we advise that the following aspects are included in post-consent plans:

- Additional sediment analysis within the offshore array area to identify the suitability of habitat for spawning species (e.g. herring and sandeel). The results of which should inform the foundation choice.
- A Fish Mitigation Plan, including measures such as:
 - Noise mitigation techniques during peak spawning periods for herring and/or sandeel.
 - Consideration of seasonal restrictions on piling during peak spawning periods for sandeel and/or herring across both array areas and / or partial areas within array areas.
 - Potential fish monitoring pre-, during, and post- construction.

- Use of best available evidence to inform siting and design.
- Supporting strategic studies to consider potential impact pathways during windfarm construction and operation for key species such as Priority Marine Features, including Atlantic salmon.
- Supporting strategic monitoring which investigates at the effects of Electromagnetic fields (EMF), particularly on elasmobranchs (e.g. basking shark) as well as shellfish.
- An action plan for reducing the risk of secondary entanglement and detail on the secondary entanglement monitoring approach.

We also request clarifications with regards to the fish and shellfish EIA, as outlined in Appendix C.

Further advice is provided in Appendix C.

Benthic, subtidal and intertidal ecology – EIA

The EIA report for benthic subtidal ecology concludes no significant impacts, either alone or cumulatively from the proposal. **We support this conclusion.** However, we request clarification regarding the justification used to select the study area. Further advice is provided in Appendix D.

Marine and coastal processes – EIA

The EIA report for marine and coastal processes concludes no significant impacts, either alone or cumulatively from the proposal. **We support this conclusion.** However, we are unclear why the existing Moray Firth offshore wind farms have been excluded from the Cumulative Impact Assessment (CIA). Further advice is provided in Appendix E.

Southern Trench NCMPA Assessment - EIA

The Southern Trench Nature Conservation Marine Protected Area (NCMPA) Assessment concludes that **the risk of hindering the conservation objectives is uncertain for minke whale disturbance from underwater noise, both for the proposal alone and in-combination** with other projects. **We agree with this conclusion.** We have made various research and monitoring recommendations in Appendix G to help validate the assessments in the MPA Assessment and to address knowledge gaps regarding minke whale behavioural responses to disturbance.

The assessment also concludes that there is no risk of hinderance to the achievement of the conservation objectives in relation to geodiversity features and burrowed mud. As detailed in Appendix G, **we request that further assessment is carried out regarding the predicted cumulative impact of storm wave height on geodiversity features**, which includes Moray West

and considers coastal receptors including SSSIs designated for coastal geomorphology and/or habitats. Unless a justification can be provided as to why it has not been included, **we also request that the potential impacts of permanent habitat loss on the burrowed mud feature should be assessed, both for project alone and cumulatively.**

Seascape, landscape and visual impacts (SLVIA) – EIA

Due to the location of this proposal and the distance from the shore, NatureScot is not providing any advice in relation to landscape and visual impacts. This does not necessarily mean that we have concluded the development raises no issues in relation to landscape and visual impacts. However, any impacts are unlikely to significantly affect areas which we define as nationally important protected landscapes and distinctive coastal landscape character areas.

Blue carbon – EIA

The EIA Report concludes no significant adverse effects with respect to disturbance to blue carbon stocks from the proposal, which we support. Further advice is provided in Appendix F.

Next steps

As indicated above, we are unable to provide full ornithological advice until the requested further information is provided. Nevertheless, we anticipate reaching conclusions of an adverse effect on site integrity for seabird species from several European sites in-combination with this proposal and other offshore wind farms.

We also advise that we are unable to conclude no adverse effect on site integrity for bottlenose dolphin as a qualifying species of the Moray Firth SAC and have also requested additional information in respect of the Dornoch and Morrich More SAC and harbour seal. However, we raise concerns about undertaking further assessment at this stage and prior to any project refinement. It may be helpful to discuss this further with MD-LOT.

Marine Directorate will be required to undertake an Appropriate Assessment.

Compensatory measures

We welcome that the Applicant has initiated consideration of compensation measures, and we request ongoing involvement to advise on the ecological effectiveness of any required compensation measure(s).

Our understanding of the compensation measures put forward by the Applicant, including our initial view on the principle of each measure, is provided in Appendix H. Our advice is focussed on ecological feasibility of compensation measures, and at present we advise there is insufficient information to have confidence that the proposed measures are likely to compensate for the predicted impacts of the proposal to seabirds.

The Applicant has proposed the following compensation measures for the following species, which we support:

- Reduction of disturbance at colonies (kittiwake, gannet, guillemot, puffin)
- Mammalian predator management and eradication (all species)
- Bycatch reduction (gannet, guillemot)
- Restoration or maintenance of breeding sites (puffin)
- Conservation management funding (all species)

The Applicant has also proposed a compensation measure for avian predator management (kittiwake, guillemot, puffin). We do not support this measure.

Further information and advice

We hope this advice is helpful. Please contact Jenna Lane <Redacted> or Fiona Cruickshank <Redacted> in the first instance for any further advice, copying in our marine energy mailbox – marineenergy@nature.scot.

Yours sincerely,

Erica Knott

Head of Marine Energy - Sustainable Coasts and Seas

Contents

Policy context	2
Background	2
Proposal	3
Storage and assembly of turbines (wet storage)	5
Assessment approach	6
<i>EIA & RIAA structure & length</i>	6
<i>Significance matrices</i>	7
NatureScot advice - summary	7
<i>Offshore ornithology</i>	7
<i>RIAA provisional conclusions</i>	8
<i>EIA conclusions</i>	9
<i>Marine mammals – EIA & RIAA</i>	10
<i>Fish and shellfish ecology – EIA</i>	11
<i>Benthic, subtidal and intertidal ecology – EIA</i>	12
<i>Marine and coastal processes – EIA</i>	12
<i>Southern Trench NCMPA Assessment - EIA</i>	12
<i>Seascape, landscape and visual impacts (SLVIA) – EIA</i>	13
<i>Blue carbon – EIA</i>	13
Next steps	13
<i>Compensatory measures</i>	13
Further information and advice	14
APPENDIX A – OFFSHORE ORNITHOLOGY	19
Summary	19
EIA Report	21
<i>Summary</i>	21
<i>Baseline characterisation</i>	21
<i>EIA Approach and Methodology</i>	24
<i>Impact Assessment</i>	29
Cumulative Impact Assessment	35
<i>Cumulative effects pathways</i>	35

<i>Guillemot</i>	40
<i>Mitigation</i>	41
<i>Monitoring</i>	42
RIAA	42
<i>Summary</i>	42
<i>Consideration of Likely Significant Effect</i>	43
<i>Screening of SPAs</i>	44
<i>Reference populations used</i>	45
<i>Assessment conclusions</i>	46
<i>Great black-backed gulls</i>	56
<i>Vessel disturbance within the Moray Firth SPA</i>	56
<i>Request for additional information</i>	58
<i>Annex 1 (Appendix A)</i>	59
APPENDIX B – MARINE MAMMALS.....	65
EIA Report.....	67
<i>Study area</i>	67
<i>Baseline characterisation</i>	67
<i>Assessment approach</i>	69
<i>Impact assessment</i>	71
<i>Cumulative impact assessment (CIA)</i>	80
<i>Caledonia North</i>	88
<i>Caledonia South</i>	88
<i>Mitigation</i>	89
<i>Monitoring</i>	89
<i>European Protected Species (EPS) considerations</i>	90
RIAA	91
<i>Dornoch Firth and Morrich More SAC - Harbour seal</i>	91
<i>Moray Firth SAC - Bottlenose dolphin</i>	91
APPENDIX C – FISH AND SHELLFISH ECOLOGY	96
Summary.....	96

Study area	97
Baseline characterisation	97
Assessment approach	98
<i>Fish and shellfish</i>	98
<i>Basking shark</i>	98
Impact assessment	98
Impacts affecting the key receptors.....	100
<i>Sandeel</i>	100
<i>Herring</i>	101
<i>Diadromous fish</i>	101
<i>Elasmobranchs and basking sharks</i>	101
In-combination effects	101
Mitigation	101
Monitoring.....	102
Report to Inform Appropriate Assessment (RIAA).....	102
APPENDIX D – BENTHIC, SUBTIDAL AND INTERTIDAL ECOLOGY	103
Study area	103
Baseline characterisation	103
Impact Assessment.....	104
Cumulative impacts.....	104
Mitigation	104
Monitoring.....	105
Report to Inform Appropriate Assessment (RIAA).....	105
APPENDIX E – MARINE AND COASTAL PROCESSES.....	106
Study area	106
Baseline characterisation	106
Impact Assessment.....	106
Cumulative impacts.....	107
Mitigation and Monitoring.....	107
APPENDIX F – BLUE CARBON	108

Assessment approach	108
Impact assessment	109
Other comments	109
Cumulative impact assessment	109
APPENDIX G – SOUTHERN TRENCH NCMPA ASSESSMENT	111
Minke whale	111
Geodiversity features	113
Benthic habitats – Burrowed mud	115
APPENDIX H – DEROGATION	116
Delivery of compensation	116
Summary of NatureScot advice	117
Appraisal of proposed compensation measures	118
Roadmap	120
Advice on proposed compensation measures	121

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX A – OFFSHORE ORNITHOLOGY

Offshore ornithology interests are considered in Volume 2, Chapter 6 for the Proposed Development (Offshore), Volume 3, Chapter 6 for Caledonia North, and Volume 4, Chapter 6 for Caledonia South, as well as Appendices 8, 9 and 19 of Volume 7 and Appendices 6-1 to 6-6 of Volume 7B (with supporting Annexes), of the EIA Report. Offshore ornithology interests are also considered in the Habitat Regulations Appraisal (HRA) Stage 1 Screening Report and the Report to Inform the Appropriate Assessment (RIAA).

Summary

Overall, the EIA Report and RIAA have provided an appropriate level of information, including baseline data and contextual information. The assessment covers the key impact pathways for ornithology receptors and covers all relevant stages of the development. The reports are well written and well presented. However, there is a lot of duplicated information, and the volume of information provided makes the Applications unwieldy and challenging to consider.

In addition, there are some issues with the approaches taken in the assessments which have impacted our advice:

- **The Applicant's approach to HRA screening is incorrect, with consequences for apportioning of impacts to SPAs.**
- **The Applicant's approach to the assessment of disturbance from vessel movements within the Moray Firth SPA is incomplete and does not provide sufficient detail to enable us to assess the impacts.**
- **We disagree with the Applicant's RIAA conclusions of the assessment of collision risk for great black-backed gulls at Copinsay SPA and Hoy SPA.**
- **We disagree with the conclusions of the EIA and RIAA on the basis of the in-combination assessment.**
- **There is no cumulative or in-combination assessment for Caledonia North or Caledonia South individually within the EIA and RIAA.**

As a result of these issues, we have provided provisional advice on the RIAA conclusions below. We also provide our **final advice on the EIA** conclusions below.

We will require **additional information** to inform our final advice as follows:

- **Updated HRA screening and apportioning, with subsequent consideration of any requirement for further Population Viability Analysis (PVA). In order to streamline the**

process for additional information, we request that the HRA screening is re-done in line with our advice. Please see our RIAA advice below for further details.

- **An updated assessment of disturbance and displacement from vessels within the Moray Firth SPA. We require more information on the methodology and worst-case scenario used for the assessment of vessel disturbance to the qualifying species of the Moray Firth SPA. Further, the assessment must be completed for each of the SPA qualifying species. Information is also required on the potential impacts of disturbance on the ability of the qualifying species to access prey-supporting habitat.** Please see the EIA section on 'Assessment of distributional responses to vessel movements within the Moray Firth SPA' and the RIAA section on 'Vessel disturbance within the Moray Firth SPA' below for further details.
- **With regards to collision risk, we require further PVA assessment for great black-backed gull at Copinsay SPA and Hoy SPA, for both project alone and in-combination.**
- There has been no cumulative assessment of distributional responses during construction or decommissioning within the EIA Report. Specifically, we advised additional years within the PVA could be used as a stand-in for assessment for distributional responses during construction and decommissioning. We request clarity regarding why our advice regarding the cumulative assessment of distributional responses during construction was not followed and advise this assessment should be undertaken.

We also request various **clarifications**, which we have highlighted in bold throughout our advice, as follows:

- With regards to stochastic Collision Risk Modelling (CRM), the Applicant has used 0 for the stochastic Nocturnal Activity Factor (NAF) for great skua without justification. We advised that the stochastic NAF for great skua should be 0.125. We request clarification of this approach and if necessary, a reassessment.
- With regards to the potential impact of 'distributional responses – construction and associated vessel traffic within the offshore Export Cable Corridor', we request clarification regarding how frequent the vessel movements will be within a given timeframe, if this would be compressed into a short construction window or take place over the entire construction period of the project, and how might this differ to existing vessel traffic volumes?

Despite these issues with the RIAA, we have used the current assessment to provide an interim view and provisional conclusions. Our final advice is subject to the additional information and points of clarification, as requested above.

EIA Report

Summary

The Applicant has not identified any significant project alone EIA impacts for offshore ornithology for the Proposed Development (Offshore), Caledonia North or Caledonia South. For the project alone, we are largely in agreement that impacts are small and unlikely to be significant in EIA terms.

The Applicant has also not identified any significant cumulative EIA impacts for offshore ornithology for the Proposed Development (Offshore). We disagree with several of the conclusions for the Cumulative Impact Assessment (CIA). This is also further influenced by the categories of sensitivity and conservation value that have been assigned (see further detail below).

In reviewing the EIA assessments, we have come to the following conclusions regarding the cumulative EIA impacts.

Proposed Development (Offshore):

- **Major adverse** effects to **great black-backed gull** due to collision cumulatively.
- **Moderate adverse** effects to **razorbill, guillemot** and **puffin** due to displacement and to **kittiwake** due to collision cumulatively.
- **Moderate adverse** effects to **gannet** and **kittiwake** (combined impacts of collision and displacement) cumulatively.

These impacts are significant in EIA terms. Further details are provided below and in Tables A1, A2 and A3 below.

We highlight that as there are no Caledonia North or Caledonia South cumulative PVAs undertaken, we are unable to determine whether Caledonia North or Caledonia South could have significant adverse effects cumulatively based on quantitative analyses.

Baseline characterisation

Baseline Characterisation Report

The Offshore Ornithology Baseline Characterisation Report is provided in Volume 7B, Appendix 6-1 of the EIA Report. The Applicant undertook two years of Digital Aerial Surveys (DAS) between

May 2021 and April 2023, with a total of 24 surveys covering the Proposed Development (Offshore) array area plus a 4 km buffer. The surveys covered the adequate duration and cover complete seasons, using appropriate methods as per our guidance and agreement during pre-application consultation. Overall, the baseline ornithology DAS are of good quality and are appropriate to base the assessment on. Further details of the DAS are found in Caledonia OWF Digital Aerial Surveys, Volume 7, Appendix 19.

For all estimates, unidentified birds recorded in a category (e.g. large auk) have been apportioned to species based on the relative abundance ratios of identified species within the category. At pre-application, various options were considered by the Applicant regarding apportioning of auks given the low identification rates. We support the final approach chosen, although it is not entirely clear from the audit trail this approach was agreed with NatureScot

Correction factors and adjustments for survey coverage and availability bias have been documented. A correction factor for availability bias has been applied to guillemot, razorbill and puffin and details of how this has been calculated are provided. We are content with the correction factors and adjustments used.

Densities were calculated using both design-based and model-based methods for kittiwake, guillemot, razorbill, puffin and gannet, and outputs were compared.

MRSea was used to produce density estimates for some species. It was not possible to run for all species in all seasons. The use of model-based versus design-based approaches were undertaken as follows:

- Guillemot: Model-based full year
- Razorbill: Model-based breeding season; design-based non-breeding season
- Puffin: Model-based breeding season; design-based non-breeding season
- Kittiwake: Model-based breeding season; design-based non-breeding season
- Gannet: Design-based full year

We are content with the DAS methodology used to underpin the baseline characterisation of the site and the approach to producing density estimates.

Over the two years of surveys, 22 species were observed. Guillemot were the most abundant species, with kittiwake, fulmar, razorbill, puffin, gannet and great black-backed gull also abundant. This was true of all proposed development areas. Within the Proposed Development (Offshore) (plus 4 km buffer) 91 deceased birds were recorded, with a notably high number of deceased gannets recorded in June 2022 and July 2022 (9 and 38 respectively), which coincides with the key period of the Highly Pathogenic Avian Influenza (HPAI) outbreak for gannet.

It is noted that due to the spatial overlap between the Caledonia North Survey Area and Caledonia South Survey Area, the total observations in each of these areas are greater than the total number of records made within the Survey Area.

Highly Pathogenic Avian Influenza (HPAI)

The DAS surveys occurred between April 2021 and April 2023, and therefore the mean seasonal peaks in abundance occur for some species and seasons during the HPAI outbreak.

HPAI has been considered qualitatively within the assessment. A literature review of the impacts to Scottish seabirds from HPAI is presented in Volume 2, Chapter 6, section 6.4.5. The Applicant has also detailed the species-specific impacts of HPAI within the Offshore Ornithology Baseline Characterisation Report (Volume 7B, Appendix 6-1).

It is important to note that population counts for SPAs undertaken in 2023 were undertaken prior to the further 2023 HPAI outbreak, so any changes due to HPAI events since 2023 may not be captured in the most recently available data.

The Applicant takes a pragmatic approach to dealing with the unusual counts of gannets from their surveys. The approach uses pre-HPAI counts for the breeding season (as per Harris *et al.*, 2023²) rather than the peak count from their surveys. The Applicant also proposes to use just one year of their baseline peak counts for the non-breeding season (which was prior to HPAI outbreak). We are content with this approach.

Zone of Influence definition

In section 6.4.1.9 of Volume 2, Chapter 6, the Applicant states "*The Zoi of the Proposed Development (Offshore) is defined as gannet MMFR $\pm 1SD$ (509.4km). Whilst other species have larger foraging ranges (e.g. Fulmar, Manx Shearwater), a larger zone of influence is not deemed necessary, as any impacts at such great distances from the project are considered to be immaterial*".

Birds of Conservation Concern

The report details the nature conservation status of all species in Table 6-6 (Volume 2, Chapter 6, section 6.4.3.4). The Birds of Conservation Concern (BoCC) status used is incorrect for 8 species. There is no reference provided in the EIA report but it has not taken into account recently

² Harris, M.P., Burton, E., Lewis, S., Tyndall, A., Nichol, C.J., Wade, T. and Wanless, S. (2023) Count of Northern Gannets on the Bass Rock in June 2023. Available at: https://www.seabird.org/uploads/store/mediaupload/2181/file/Bass%20Rock%20Count%20Report_Final.pdf (Accessed 3rd February 2025)

published updates to conservation status (Stanbury *et al.*, 2024³) and in some cases, pre-dates the previous BoCC assessment (Stanbury *et al.*, 2021⁴). However, these inconsistencies do not appear to have been pulled through the EIA Report (e.g. Volume 7E appendices), where it appears the correct (as of 2021) statuses have been recorded. It is therefore assumed Table 6-6 includes clerical errors and does not make a material difference to the conclusions of the report.

EIA Approach and Methodology

Sensitivity assessment and conservation value

Receptor sensitivity is discussed in section 6.5.4.3-4, Chapter 6, Volume 2 of the EIA Report. The sensitivity scoring used is based on Bradbury *et al.* (2014)⁵. This paper largely focusses on English territorial waters. Bradbury *et al.* (2014) incorporates the conservation value for each species into the assessment of sensitivity. This is derived from the percentage of population in England and so is not appropriate in a Scottish context. It is not clear why other sources more applicable to the Scottish context, e.g. Wade *et al.* (2016)⁶ were not used for the purpose of defining sensitivity.

In addition, the conservation value used to underpin the assessment is not based on peer reviewed literature or recent BoCC assessments. Instead, the assessment of conservation value is defined by the Applicant and pertains to whether sites are designated for the species and whether numbers of international or national importance are found within the Proposed Development (Offshore), Caledonia North or Caledonia South (section 6.5.4.5 of the EIA Report). The value assigned here sets a very high bar that would be almost impossible to achieve – i.e. High conservation value is where a particular feature is found in internationally important numbers within the proposed development. Other developments have based the conservation

³ Stanbury, A. J., Burns, F., Aebischer, N. J., Baker, H., Balmer, D. E., Brown, A., Dunn, T., Lindley, P., Murphy, M., Noble, D. G., Owens, R., & Quinn, L. (2024). The status of the UK's breeding seabirds: an addendum to the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. © *British Birds*, 117, 471–487. <https://doi.org/10.5061/dryad.cc2fqz672>

⁴ Stanbury, A., *et al.* (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *Brit. Birds* 114: 723–747.

⁵ Bradbury, G., Trinder, M., Furness, B., Banks, A. N., Caldow, R. W. G., & Hume, D. (2014). Mapping Seabird Sensitivity to offshore wind farms. *PLoS ONE*, 9(9). <https://doi.org/10.1371/JOURNAL.PONE.0106366>

⁶ Wade, H. M., Masden, E. A., Jackson, A. C., & Furness, R. W. (2016). Incorporating data uncertainty when estimating potential vulnerability of Scottish seabirds to marine renewable energy developments. *Marine Policy*, 70, 108–113. <https://doi.org/10.1016/J.MARPOL.2016.04.045>

value on peer reviewed literature and recent BoCC assessments. We therefore consider that the conservation values used are not appropriate. We recommend the use of Wade *et al.* (2016) for combined conservation value and vulnerability to offshore wind development scoring relevant to Scottish waters. For our assessment of the EIA conclusions, we have used Wade *et al.* (2016) to inform our advice, we note that for species summarised in table A3 these values are the same as those used in the EIA.

Magnitude

Table A1: PVA results considered in NatureScot EIA conclusions for the seabird species where our conclusions differ from the application

CRM – Collision Risk Modelling; DR = Distributional Responses (i.e. displacement and barrier effects)

Species	Impact pathway		PVA Results											
			Percentage point change mortality				Counterfactual of Population Scale (CPS)				Counterfactual of Growth Rate (CGR)			
			Cumulative with Berwick Bank (BB)		Cumulative without BB		Cumulative with BB		Cumulative without BB		Cumulative with BB		Cumulative without BB	
	CRM	DR	Low scenario	High scenario	Low scenario	High scenario	Low scenario	High scenario	Low scenario	High scenario	Low scenario	High scenario	Low scenario	High scenario
Kittiwake	Y	Y	0.342	0.410	0.249	0.283	0.8640	0.8390	0.8990	0.8860	0.9960	0.9950	0.9970	0.9970
Great black-backed gull	Y	N	0.296		-		0.5770	-	-	-	0.9850	-	-	-
Guillemot	N	Y	0.151	0.303	-	-	0.9410	0.8840	-	-	0.998	0.9970	-	-
Razorbill	N	Y	0.198	0.543	0.180	0.489	0.9180	0.7910	0.9250	0.8090	0.9980	0.9930	0.9980	0.9940

Puffin	N	Y	0.129	0.291	0.111	0.216	0.9470	0.8970	0.9550	0.9130	0.9980	0.9970	0.9990	0.9970
Gannet	Y	Y	0.143	0.237	0.126	0.209	0.9410	0.9040	0.9480	0.9150	0.9980	0.9970	0.9990	0.9980

Table A2: The species statuses considered in NatureScot EIA conclusions for the seabird species where our conclusions differ from the application

Species	Seabirds Count vs Seabirds 2000	Tremlett <i>et al.</i> (2024) ⁷		HPAI impact assessment for 2022 ⁸	
	Scotland (all colonies)	Scotland % change	Scotland % change (SPAs only)	Impact for 2022	Recovery
Kittiwake	-57%	21%	21%	Highest	Moderate
Great black-backed gull	-63%	-19%	-29%	Highest	Moderate
Guillemot	-31%	2%	2%	Highest	Slower
Razorbill	-2%	-	-	Lowest	Slower
Puffin	Comparable - 32%, complete -21%	-	-	Moderate	Slower
Gannet	40%	-22%	-28%	Highest	Slower

⁷ Tremlett, C.J., Morley, N., and Wilson, L.J. (2024). UK seabird colony counts in 2023 following the 2021- 22 outbreak of Highly Pathogenic Avian Influenza. RSPB Research Report 76. RSPB Centre for Conservation Science, RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL.

⁸ NatureScot (2023) NatureScot Scientific Advisory Committee Sub-Group on Avian Influenza Report on the H5N1 outbreak in wild birds 2020-2023. Available at: <https://www.nature.scot/doc/naturescot-scientific-advisory-committee-sub-group-avian-influenza-report-h5n1-outbreak-wild-birds>

We have re-evaluated the magnitude in our assessment, resulting in different EIA conclusions for six seabird species. We took into consideration both the PVA results (Table A1 above) and the current status and trend of the species within Scotland (Table A2 above). Our magnitude conclusions and how these differ to the Applicant's are shown in Table A3 below.

Matrix of significance

Impact significance is described in section 6.5.4.8, Chapter 6, Volume 2 of the EIA Report. It is stated that the criteria for determining the significance of effects is a two-stage process which involves defining sensitivity of the receptors and the magnitude of potential impacts. The matrix table of significance (Table 6-17) is heavily weighted towards negligible outcomes. We consider that the significance scorings underplay the sensitivity of receptors to impacts. Given this, we have reassessed the matrix table of significance and given our conclusions in Table A3 and further explanatory text below to support our EIA significance decisions.

Impact Assessment

The following advice on the EIA impact assessment sets out some points of clarifications on elements of the EIA alone assessment, which largely do not alter our conclusions of those impacts. However, we do request further information on vessels movement impacts (alone) and the elements of the cumulative assessment in order to reach other conclusions.

Distributional responses

The Offshore Ornithology Distributional Responses Technical Report is presented in Volume 7B, Appendix 6-2. The approach taken for displacement assessment is generally in agreement with our advice provided in response to the Scoping consultation. Displacement impacts are considered for kittiwake, guillemot, razorbill, puffin and gannet, which we are content with.

In the assessment of distributional responses, we advised the Applicant at Scoping to use the SeabORD tool for breeding season assessments of puffin, guillemot, razorbill and kittiwake. The Applicant attempted to use SeabORD but the tool would not run. It was then agreed during pre-application consultation with MD-LOT that SeabORD outputs would not be required. As such, the approach to the displacement assessment used the matrix approach only.

In the application of the matrix-based approach, the assessment uses two sets of displacement and mortality rates to estimate overall displacement mortality for the above species, as shown in Table 2-4. The 'guidance approach' uses displacement and mortality rates as advised in NatureScot Guidance Note 8⁹. The 'Applicant approach' uses displacement and mortality rates

⁹ NatureScot (2023) Guidance Note 8: Guidance to support Offshore Wind Applications: Marine Ornithology Advice for assessing the distributional responses, displacement and barrier effects of Marine birds. Available at:

derived from other sources (these sources are detailed in Volume 7B, Appendix 6-2 Offshore Ornithology Distributional Responses Technical Report, Annex 4 Review of Relevant Evidence). Please note that we have not had sufficient time to review this annex to provide detailed advice on the suitability of these displacement and mortality rates.

For the Applicant approach the Year 1 August count for puffin has been included in the non-breeding season rather than during the breeding season, as explained in section 3.5.1.2. This is because the abundance is considered to reflect migration rather than individuals present in the breeding season. The guidance approach includes the August Year 1 counts of puffin in the breeding season. All other seasonal peak population estimates have been used in the impact assessment of displacement as recommended.

The displacement impact assessment provides mortality estimates for the Proposed Development (Offshore) + 2 km buffer as well as estimates for Caledonia North + 2km buffer and Caledonia South + 2km buffer.

We acknowledge the narrative provided to support the use of the Applicant's approach to displacement in the assessments. In our view the emerging evidence regarding distributional responses is mixed, and insufficiently conclusive for us to change our guidance in this respect. Although our assessment is based on the Statutory Nature Conservation Bodies' (SNCB) / NatureScot approach, it is useful to have the Applicant's approach for context. However, due to time constraints and the high volume of information provided in support of the Applications, only our guidance approach has been considered in developing our conclusions.

Distributional responses within the ECC during construction phase

With regards to the potential impact of 'distributional responses – construction and associated vessel traffic within the offshore Export Cable Corridor', we request **clarification** regarding the statement *"based upon the limited potential for impacts on intertidal ornithological receptors, with works undertaken being temporally and spatially limited, the magnitude of potential impact is expected to be Negligible for the Proposed Development (Offshore)"* (Volume 2, Chapter 6, paragraph 6.7.1.13).

- **How frequent will the vessel movements be within a given timeframe?**
- **Would this be compressed into a short construction window or take place over the entire construction period of the project?**

<https://www.nature.scot/doc/guidance-note-8-guidance-support-offshore-wind-applications-marine-ornithology-advice-assessing>

- **How might this differ to existing vessel traffic volumes?**

Collision Risk Modelling

The Offshore Ornithology Collision Risk Modelling Technical Report is presented in Volume 7B, Appendix 6-3. At a high level, the approach to collision risk modelling (CRM) is appropriate and consistent with the advice we provided in response to the Scoping consultation and agreed through the pre-application process, which is presented alongside the Applicant's own approach.

The CRM was undertaken using the MSS Stochastic Collision Risk Model Shiny Application (sCRM), as we advised at Scoping. The sCRM app was run stochastically and deterministically using the Basic Band model Option 2 and using Johnston *et al.* (2014)¹⁰ generic flight height distribution. This is all appropriate for CRM assessment. The stochastic values were pulled through to inform the full assessment.

The following species were included in the CRM assessment: kittiwake, great black-backed gull, herring gull, great skua and gannet. Lesser black-backed gull, Arctic skua, common tern and Arctic tern were scoped out of the assessment for collision risk due to the low numbers recorded within the baseline DAS. Instead, raw counts and density estimates are presented.

We advised in our response to the Scoping consultation that the avoidance rates from the Joint SNCB guidance note (2014) were to be used in the collision assessment. However, these were superseded by avoidance rates published by Ozsanlav-Harris *et al.* (2023)¹¹ which have subsequently been adopted in our interim advice. These more up-to-date avoidance rates have been used in the collision assessment. We are content with the use of these parameters.

The parameters used for both deterministic and stochastic CRM are detailed in Table 2-7 and Table 2-8. We note the parameters used are in line with our advice, except for the stochastic NAF for great skua. In our pre-application advice (July 2024), we advised that the stochastic NAF for great skua should be 0.125. We cannot find any justification for the use of 0 for stochastic CRM. This is unlikely to change our conclusions regarding CRM for great skua, but **we would welcome clarity on this point.**

As explained in section 2.8.2, a macro-avoidance rate has been applied for gannet in order to reduce over-estimation from additive collision and displacement assessments. This is because it

¹⁰ Johnston, A., Cook, A.S.C.P., Wright, L.J., Humphreys, E.M., Burton N.H.K. (2014). Modelling flight heights of marine birds to more accurately assess collision risk with offshore wind turbines – Corrigendum. *Journal of Applied Ecology*. 51L 1126-1130.

¹¹ Ozsanlav-Harris, L., Inger, R. & Sherley, R. (2023). Review of data used to calculate avoidance rates for collision risk modelling of seabirds. JNCC Report 732, JNCC, Peterborough, ISSN 0963-8091.

is not possible for a bird to be both displaced and then collide with a turbine. For the guidance approach, a macro-avoidance rate of 70% is applied during the non-breeding season. This was agreed during pre-application consultation. For the Applicant approach, a macro-avoidance rate of 70% is applied to all months (both breeding and non-breeding season).

We note the Applicant's comments on flight speeds in sections 6.7.2.131-132 of Volume 2, Chapter 6. At present we continue to rely on published data for flight speeds (i.e. Pennycuick, 1997¹²; Alerstam *et al.* 2007¹³). However, we recognise more recent studies are contributing to new evidence. Any changes to flight speed would require changes to any avoidance rates used. Until more recent studies are published and agreed the default values for each species should be used.

Wind turbine parameters have also been specified in section 2.6, and are provided for Caledonia North, Caledonia South and the Proposed Development (Offshore). There are various options presented for each of these, two options for Caledonia North, three options for Caledonia South and three options for the Proposed Development (Offshore).

- For Caledonia North, WTG 2 design appears to produce the highest estimates for collision for all species.
- For Caledonia South, WTG 3 design appears to produce the highest estimates for collision for all species.
- For Caledonia Proposed Development (Offshore), WTG 1 design appears to produce the highest estimates for collision for all species.

These are the figures that have been taken forward for PVA and represent the worst-case scenario. We are content with this approach. It is noted that the worst-case scenario for Caledonia Proposed Development (Offshore) is not equal to the addition of Caledonia North and Caledonia South. As we understand it, the Applicant's approach of taking forward the worst-case scenario for Caledonia Proposed Development (Offshore) as opposed to the sum of Caledonia North and Caledonia South may be more precautionary, and as such we are not concerned about this approach. However, it should be noted that we cannot assess these independently.

¹² Pennycuick, C.J., (1997). Actual and 'optimum' flight speeds: field data reassessed. *Journal of Experimental Biology*, 200(17), pp.2355-2361.

¹³ 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.

Population Viability Analysis

The Population Viability Analysis is presented Volume 7B, Appendix 6-4. The assessment uses the Natural England PVA tools (Searle *et al.* 2019¹⁴) accessed via the 'Shiny app'. PVAs were modelled for all species where the EIA predicted that there would be more than a 0.02 percentage point change in adult survival rate. The assessment extracted the modelled impacts over 25, 35 and 50 years for project alone impacts, cumulative impacts for all projects, cumulative impacts for all projects excluding Berwick Bank and cumulative impacts for all consented projects including the Proposed Development (Offshore). All PVA modelling was undertaken incorporating both environmental and demographic stochasticity. A burn-in time of 10 years was included in the model and the PVAs were undertaken using density independent models. The model parameters used also follow our guidance. Demographic rates were derived from Horswill and Robinson (2015)¹⁵. All of this is appropriate for undertaking PVA and is in line with our Guidance Note 11¹⁶.

The relevant PVA metrics of counterfactual of population size and counterfactual of population growth rate have been presented for all species, as per our guidance. No species met the threshold for a PVA for project alone impacts based on collision estimates. This resulted in PVAs run for the following species for:

- Guillemot for Caledonia South and Proposed Development (Offshore) - Distributional response
- Razorbill for Proposed Development (Offshore) - Distributional response
- Puffin for Proposed Development (Offshore) - Distributional response

For cumulative assessments in the EIA the following species were assessed using PVA (for the Proposed Development (Offshore) only):

- Guillemot - Distributional response
- Razorbill - Distributional response

¹⁴ Searle, K., Mobbs, D., Daunt, F., & Butler, A. (2019). A Population Viability Analysis Modelling Tool for Seabird Species. Centre for Ecology & Hydrology report for Natural England. Natural England Commissioned Report NECR274.

¹⁵ Horswill, C. and Robinson, R.A. (2015). Review of Seabird Demographic Rates and Density Dependence. JNCC Report no. 552.

¹⁶ NatureScot (2023) Guidance Note 11: Guidance to support Offshore Wind Applications: Marine Ornithology - Recommendations for Seabird Population Viability Analysis (PVA). Available at: <https://www.nature.scot/doc/guidance-note-11-guidance-support-offshore-wind-applications-marine-ornithology-recommendations>

- Puffin - Distributional response
- Herring gull - Collision
- Great black-backed gull - Collision
- Kittiwake - Collision and distributional response
- Gannet - Collision and distributional response

EIA level PVA was not carried out for Caledonia North as no species reached the threshold. EIA level PVA was carried out for Caledonia South for guillemot only.

Regarding the cumulative assessments, PVAs were not carried out for the Caledonia North or Caledonia South project alone scenarios cumulatively with other plans or projects. In sections 6.8.3.66 of Volumes 3 & 4, Chapter 6, the Applicant states that "*Population Viability Analysis was completed for the Caledonia OWF only as this approach was considered sufficient to determine the level of impact on population growth rate and population size throughout the lifespan of Caledonia [North/South]. It is important to note that the magnitude of impact for Caledonia [North/South] would be lower comparative to the full Caledonia OWF.*" We agree with this logic. However, this approach means **we cannot assess the cumulative impacts of Caledonia North or Caledonia South as standalone developments.**

Migratory Collision Risk Modelling

The Migratory Collision Risk Modelling Technical Report is presented in Volume 7B, Appendix 6-5. Migratory bird species have been scoped in for the potential collision risk impact from the operational phase (Volume 2, Chapter 6, section 6.7.2.227-236). The potential impacts were modelled using the Marine Directorate Avian Migration Collision Risk Model Shiny Application (mCRM) on a seasonal basis. We note that this tool has been used, however, to our knowledge it has not been finalised or published. It is likely that we can agree with the outputs, although we advise that if the assessment was run on the finalised model, it may have different outputs. This is unlikely to change our conclusions but should be noted.

As described in section 2 of the Technical Report, species were scoped in or out depending on whether their migratory pathway (Woodward *et al.*, 2023¹⁷) overlapped with the development footprints. A total of 57 species were identified as having migratory routes that may overlap with the Proposed Development (Offshore). Where greater than 1% of the UK population is expected

¹⁷ Woodward, I.D., Franks, S.E., Bowgen, K., Davies, J.G., Green, R.M.W., Griffin, L.R., Mitchell, C., O'Hanlon, N., Pollock, C., Rees, E.C., Tremlett, C., Wright, L., and Cook, A.S.C.P. (2023). Strategic study of collision risk for birds on migration and further development of the stochastic collision risk modelling tool.

to have overlap, or where there was species-specific evidence of elevated risk of collision, a full mCRM was carried out.

A total of 45, 38 and 49 species were taken through for collision modelling using the mCRM application for the worst-case scenario for Caledonia North, Caledonia South and the Proposed Development (Offshore) respectively.

The Applicant concludes a Negligible significance of effect for all migratory species, which is Not Significant in EIA terms. We agree with this conclusion.

Assessment of distributional responses to vessel movements within the Moray Firth SPA

The Applicant presents an assessment of distributional responses to vessel movements during construction within the Moray Firth SPA in Volume 2, Chapter 6, sections 6.7.1.18-23. This assessment does not appear to consider the qualifying species of the Moray Firth SPA, except for red-throated diver. Instead, it assesses the impact of vessel movements on the seabird species recorded within the Proposed Development (Offshore) array area (Table 6-21). The Applicant notes that construction phase impacts are temporally and spatially limited which is true but could still be considered significant over the period in discussion.

For the assessment of distributional responses to vessel movements during the operational phase within the Moray Firth in section 6.7.2.102, the Applicant refers the reader to the detailed assessment within the RIAA. We provide in-depth advice on the RIAA assessment below.

For the EIA, the Applicant concludes that the impact of distributional responses to vessel movements within the Moray Firth SPA is of Negligible significance which is Not Significant in EIA terms.

We advise that this is an insufficient assessment of the potential impacts of disturbance and displacement from vessel transit within the Moray Firth SPA. We therefore cannot agree with the Not Significant conclusion for disturbance and/or displacement with respect to vessel movements within the Moray Firth SPA. In order to provide our final advice on the impact of disturbance and/or displacement from vessel movements within the Moray Firth SPA, we request an update of the assessment, providing clarity on the methods used and a full and comprehensive assessment of the potential impacts to each of the qualifying species of the SPA. We provide further detail in the RIAA section below.

Cumulative Impact Assessment

Cumulative effects pathways

As stated in section 6.8.1.6 of Volume 2, Chapter 6, the following impact pathways are excluded from the cumulative assessment:

- Distributional responses during construction and decommissioning of the Proposed Development (Offshore) *“due to potential impacts from project alone being Negligible and spatially and temporally limited.”*
- Indirect impacts for all phases of the Proposed Development (Offshore) *“as they will be spatially limited and expected to be Negligible at project alone level.”*

This was raised in our advice dated 21st August 2024 in which we stated we would expect to see some consideration of displacement during construction: *“There is no requirement for a quantitative assessment in the consideration of this issue however, we are content to consider additional years on the PVA as a stand-in for assessment for distributional responses during construction and decommissioning”.*

However, there has been no cumulative assessment of distributional responses during construction or decommissioning within the EIA Report. The justification provided for this exclusion is at odds with the potential construction scenarios presented in the EIA Report, particularly the sequential scenario which we would not necessarily consider to be temporally limited. **We request clarity regarding why our advice regarding the cumulative assessment of distributional responses during construction was not followed and advise this assessment should be undertaken.**

Species assessments

Table A3: Overview of NatureScot and Caledonia cumulative EIA conclusions, where the conclusions differ.

Note that for the purposes of this table the sensitivity has been summarised for collision and/or displacement.

Species	NatureScot Conclusions (Based on CPS magnitude of decrease)				Caledonia conclusions (EIA Report)			
	Sensitivity (Wade <i>et al.</i> , 2016)	Magnitude (Magnitude = PVA + trend and status)	Significance (Based on Caledonia matrix)	EIA significance	Sensitivity (Bradbury <i>et al.</i> , 2014)	Magnitude of impact	Significance	EIA significance
Kittiwake	Medium	Medium	Moderate	Significant	Medium	Low	Minor	Not significant
Great black-backed gull	High	High	Major	Significant	High	Low	Minor	Not significant
Guillemot	Medium	Medium	Moderate	Significant	Medium	Negligible	Negligible	Not significant
Razorbill	Medium	Medium	Moderate	Significant	Medium	Low-Medium	Minor	Not significant

Puffin	Medium	Medium	Moderate	Significant	Medium	Low	Minor	Not significant
Gannet	Medium	Medium	Moderate	Significant	Medium	Low	Minor	Not significant

Great black-backed gull

We conclude that the overall cumulative effect on great black-backed gull to be of **Major significance, which is Significant in EIA terms**. This is considering:

- The high sensitivity of great black-backed gulls to collision.
- The very low CPS and CGR, which suggest a significant (41.77 – 42.29%) decline in population size and growth rate (1.49 – 1.52%) after 35 years which is expected to irreversibly alter the population in the short-to-long term and alter the long-term viability of the population.
- The large declines in the population size of great black-backed gulls between Seabird 2000 and Seabirds Count, including a 63% population decline in Scotland.
- The effects of the recent HPAI outbreak on great black-backed gull. NatureScot's Avian Influenza report¹⁸ on the impacts of HPAI estimated the 2022 HPAI outbreak to have been of high impact and with a moderate recovery rate predicted for great black-backed gull. Furthermore, great black-backed gull colonies surveyed after the HPAI outbreak by Tremlett *et al.* (2024)¹⁹ had declined by 19%.
- The minor contribution from the project.

Razorbill

We conclude that the overall cumulative effect on razorbill to is of **Moderate significance, which is Significant in EIA terms**. This is considering:

- The medium sensitivity of razorbill to displacement.
- The low CPS and CGR, which suggest a significant decline (8.20 – 20.93%) in population size and growth rate (0.24 – 0.65%) after 35 years.
- The 2% decline in the population size of razorbill in Scotland between Seabird 2000 and Seabirds count.
- The moderate contribution of the project.

¹⁸ NatureScot (2023) NatureScot Scientific Advisory Committee Sub-Group on Avian Influenza Report on the H5N1 outbreak in wild birds 2020-2023. Available at: <https://www.nature.scot/doc/naturescot-scientific-advisory-committee-sub-group-avian-influenza-report-h5n1-outbreak-wild-birds>

¹⁹ Tremlett, C. J., Cleasby, I. R., Bolton, M., & Wilson, L. J. (2025). Declines in UK breeding populations of seabird species of conservation concern following the outbreak of high pathogenicity avian influenza (HPAI) in 2021–2022. *Bird Study*, 1–18. <https://doi.org/10.1080/00063657.2024.2438641>

Kittiwake

We conclude that the overall cumulative effect on kittiwake to be of **Moderate significance, which is Significant in EIA terms**. This is considering:

- The medium sensitivity of kittiwakes to offshore wind developments,
- The low CPS and CGR, which suggest a moderate decline in population size (10.08 – 11.38%) and growth rate (0.29 – 0.33%) after 35 years.
- The 57% decline in the population size of kittiwake in Scotland between Seabird 2000 and Seabirds Count, suggesting that recovery following the cessation of the development activity would likely be slow.
- The effects of the recent HPAI outbreak on kittiwake. NatureScot's Avian Influenza report on the impacts of HPAI estimated the 2022 HPAI outbreak to have been of high impact and with a moderate recovery rate predicted for kittiwake.
- The moderate contribution of the project.

Guillemot

We conclude that the overall cumulative effect on guillemot to be of **Moderate significance, which is Significant in EIA terms**. This is considering:

- The high sensitivity of guillemot to displacement.
- The low CPS and CGR, which suggest a moderate decline (5.95 – 11.58%) in population size and growth rate (0.17 – 0.34%) after 35 years.
- The 31% decline in the population size of guillemot in Scotland between Seabird 2000 and Seabirds count.
- The effects of the recent HPAI outbreak on guillemot. NatureScot's Avian Influenza report on the impacts of HPAI estimated the 2022 HPAI outbreak to have been of high impact and with a slow recovery rate predicted.
- The moderate contribution of the project.

Puffin

We conclude that the overall cumulative effect on puffin to be of **Moderate significance, which is Significant in EIA terms**. This is considering:

- The medium sensitivity of puffin to displacement.
- The low CPS and CGR, which suggest a moderate decline (5.27 – 10.32%) in population size and growth rate (0.15 – 0.30%) after 35 years.

- The 32% comparable decline in the population size of puffin in Scotland between Seabird 2000 and Seabirds count.
- The effects of the recent HPAI outbreak on puffin. NatureScot's Avian Influenza report on the impacts of HPAI estimated the 2022 HPAI outbreak to have been of moderate impact and with a slow recovery rate predicted.
- The moderate contribution of the project.

Gannet

We conclude that the overall cumulative effect on gannet to be of **Moderate significance, which is Significant in EIA terms**. This is considering:

- The medium sensitivity of gannet to offshore wind developments.
- The marginal CPS and CGR, which suggest a moderate decline (5.88 – 8.52%) in population size and growth rate (0.17 – 0.28%) after 35 years.
- The 40% increase in the population size of gannet in Scotland between Seabird 2000 and Seabirds count.
- The effects of the recent HPAI outbreak on gannet. NatureScot's Avian Influenza report on the impacts of HPAI estimated the 2022 HPAI outbreak to have been of high impact, and with a slow recovery rate predicted. Furthermore, Gannet colonies surveyed after the HPAI outbreak by Tremlett *et al.* (2024)²⁰ had declined by 22% in Scotland, and 33% across the UK.
- The moderate contribution of the project.

Mitigation

The Applicant does not propose any additional mitigation measures for all phases beyond the embedded mitigation outlined in Table 6-19 on Volume 2, Chapter 6. This is because the Applicant has concluded that no potential impacts assessed are significant in EIA terms, either project alone or cumulatively. **Should Scottish Ministers grant consent, we advise that all embedded commitments are secured on any consent/licence granted by Scottish Ministers.**

We will provide any additional advice regarding mitigation on receipt of the requested additional assessment.

²⁰ Tremlett, C. J., Cleasby, I. R., Bolton, M., & Wilson, L. J. (2025). Declines in UK breeding populations of seabird species of conservation concern following the outbreak of high pathogenicity avian influenza (HPAI) in 2021–2022. *Bird Study*, 1–18. <https://doi.org/10.1080/00063657.2024.2438641>

We provide further advice on the derogation package proposed within Appendix H.

Monitoring

We are disappointed with the limited consideration given to monitoring requirements at this stage. We would expect to see an outline monitoring proposal, indicating how and when monitoring would be incorporated.

RIAA

As Marine Directorate is the competent authority, our advice is provided to assist with the Appropriate Assessment in considering the impacts on protected interests of European Sites within Scotland.

Summary

For some elements of the RIAA, we are only able to provide **interim advice**. This is because the Applicant has incorrectly used the geometric centre element of the apportioning methodology to rescreen the original list of designated sites and qualifying species that have been taken through into the RIAA. This rescreening has resulted in some sites and qualifying species (as detailed in the RIAA Part 1, Section 2) being screened out and consequently the apportioning of these species will be incorrect. **To rectify, we require updated screening and apportioning, with subsequent consideration of any requirement for further Population Viability Analysis (PVA).** Further detail is given below.

Despite these issues, we have used the current assessment to reach an **interim view**, where possible, for certain species and sites. This advice is subject to results of the re-screening, re-apportionment and population analysis, as requested above.

For Caledonia North, the Applicant concluded no adverse effect on site integrity for the project alone. We **provisionally agree** with this assessment and confirm that there will be no adverse effect on site integrity from Caledonia North alone.

For Caledonia South, the Applicant concluded no adverse effect on site integrity for the project alone. We **provisionally agree** with this assessment and confirm that there will be no adverse effect on site integrity from Caledonia South alone. **The exception to this is great black-backed gull at Copinsay SPA and Hoy SPA, for which we disagree with the conclusions of the collision risk assessment.** See our advice on this below.

For the in-combination assessment for the Proposed Development (Offshore), the Applicant concluded adverse effect on site integrity for the following sites and species:

- East Caithness Cliffs SPA for guillemot

- East Caithness Cliffs SPA for kittiwake
- Forth Islands SPA for gannet
- Sule Skerry and Sule Stack SPA for puffin
- Buchan Ness to Collieston Coast SPA for kittiwake
- Troup, Pennan and Lion's Head SPA for kittiwake

We **provisionally agree** that there are in-combination effects for the above species but also **provisionally advise** additional sites and species below for which there is adverse effect on site integrity or where we cannot conclude no adverse effect on site integrity.

Lastly, we are unable to assess the conclusions of the Moray Firth SPA vessel disturbance assessment due to a lack of information. Again, we have provided further details below along with a request for clarification/additional information.

Consideration of Likely Significant Effect

As requested, the Applicant considered a number of species and scenarios for likely significant effect which were subsequently screened out of the HRA.

Storm petrel species for the effects of artificial lights

We accept the scoping out of this species and effect pathway based on tracking data showing no overlap with the Proposed Development (Offshore) (Bolton, 2021²¹; Fink *et al.*, 2022²²; Waggitt *et al.*, 2019²³) and no storm petrels being recorded via DAS, noting a GSD of 1.5 cm.

Shearwater species for the effects of artificial lights

We accept the scoping out of this species and effect pathway based on tracking data showing minimal overlap with the Proposed Development (Offshore) (Fink *et al.*, 2022; Waggitt *et al.*, 2019) and the limited numbers recorded in DAS (28 Manx shearwaters over 24 months).

²¹ Bolton, M. (2021). GPS tracking reveals highly consistent use of restricted foraging areas by European Storm-petrels *Hydrobates pelagicus* breeding at the largest UK colony: implications for conservation management. *Bird Conservation International*, 31(1), 35–52. <https://doi.org/10.1017/S0959270920000374>

²² Fink, D., T. Auer, A. Johnston, M. Strimas-Mackey, S. Ligocki, O. Robinson, W. Hochachka, L. Jaromczyk, C. Crowley, K. Dunham, A. Stillman, I. Davies, A. Rodewald, V. Ruiz-Gutierrez, C. Wood. (2023). eBird Status and Trends, Data Version: 2022; Released: 2023. Cornell Lab of Ornithology. Ithaca. New York

²³ Waggitt, J. J., Evans, P. G. H., Andrade, J., Banks, A. N., Boisseau, O., Bolton, M., Bradbury, G., Brereton, T., Camphuysen, C. J., Durinck, J., Felce, T., Fijn, R. C., Garcia-Baron, I., Garthe, S., Geelhoed, S. C. V., Gilles, A., Goodall, M., Haelters, J., Hamilton, S., ... Hiddink, J. G. (2019). Distribution maps of cetacean and seabird populations in the North-East Atlantic. *Journal of Applied Ecology*, 57(2), 253–269. <https://doi.org/10.1111/1365-2664.13525>

Fulmar for barrier effects

We accept the conclusion of no adverse effect on site integrity on the basis that the Proposed Development (Offshore) is unlikely to be a key foraging zone for fulmar and that the individuals from the sites screened for a likely significant effect of barrier effects are unlikely to be significantly affected by the additional energetic costs posed by the development.

Entanglement with mooring lines

We accept the conclusion of no adverse effect on site integrity from entanglement with mooring lines due to mitigation and maintenance of the lines, namely via maintenance inspections to collect and remove debris from the mooring lines.

Sandwich terns for distributional responses

We accept the conclusion of no potential for likely significant effect for Sandwich tern at the Ythan Estuary, Sands of Forvie and Meikle Loch SPA due to lack of connectivity with the OECC and landfall study area.

Screening of SPAs

As detailed in the RIAA Part 3, section 9.1.1.4, the Applicant has used the geometric centre as a screening distance. This is incorrect and should only be used at the apportioning stage as it ensures there is even apportionment across sites, as explained in our Interim Guidance on Apportioning²⁴. It should not be applied as a form of screening.

In the Caledonia Offshore Wind Farm Offshore HRA Screening Report (dated 30th September 2022), the correct approach appears to have been used. However, section 9.1.1.1 in the RIAA Part 3 states that “*an updated screening exercise has been undertaken to consider the design changes of Caledonia South (now aligning with Section 6) since the initial screening process*”. It is unclear why the Applicant has changed the agreed approach to screening following consultation where NatureScot provided advice on the screening approach (4th November 2022). This advice was reiterated by NatureScot in an email dated 3rd October 2023.

There are a number of implications in using this approach:

1. The following sites/species have been excluded incorrectly (RIAA Part 1, section 2.1.1.10):
 - Buchan Ness to Collieston Coast SPA – guillemot, herring gull
 - Copinsay SPA – great black-backed gull

²⁴ NatureScot. Interim Guidance on apportioning impacts from marine renewable developments to breeding seabird populations in SPAs. Available at: <https://www.nature.scot/doc/interim-guidance-apportioning-impacts-marine-renewable-developments-breeding-seabird-populations> (Accessed 5th February 2025)

- Hoy SPA - great black-backed gull
 - Fowlsheugh SPA – guillemot, herring gull
 - Sule Skerry and Sule Stack SPA – guillemot
 - Fair Isle SPA – guillemot
 - Forth Islands SPA – lesser black-backed gull, puffin
 - Hermaness, Saxa Vord and Valla Field SPA - kittiwake
2. For all the sites and qualifying species screened out, it is unclear what this ‘missing’ impact means for conclusions on existing or new adverse effect on site integrity. We need to understand the level of impact predicted with updated apportioning to provide final advice.
 3. This may also affect the in-combination assessments, particularly for guillemot.
 4. The mortality values (under EIA) for herring gull are relatively small, therefore it is likely that the rescreening will not alter conclusions for this species. However, the apportioning should be updated to confirm that assessment through the RIAA is not required.

The incorrect distances used for screening invalidates the conclusions in the RIAA Part 1, section 2.1.1.11 of no connectivity in the non-breeding season for herring gull at Fowlsheugh SPA and Buchan Ness SPA, and guillemot at Buchan Ness SPA, Fowlsheugh SPA, Sule Skerry and Sule Stack SPA and Fair Isle SPA. It is noted that razorbill was screened in for Fowlsheugh and Forth Islands SPAs and not taken further due to low weightings (RIAA Part 4, Table 10-9; although displacement rates were incorrectly recorded as 70% displacement; 1-3% mortality), despite being marked as screened out in RIAA Part 1, 2.1.1.10. Overall, we have concerns about how screening has been undertaken particularly as the RIAA Part 1, section 2.1.1.11 indicates advice provided for Salamander offshore wind farm has been considered in the screening conclusions reached for this proposal.

In the RIAA Part 3, section 9.1.1.4, it states *“It is important to note that in order to calculate accurate at sea distance, Caledonia South is unable to be treated separately, as such distances are provided to the centre of the Caledonia OWF”*. Our understanding of this statement is that the same geometric centre distance has been applied to all three scenarios (North, South, Proposed Development (Offshore)), which would have implications for the apportioning and screening for all scenarios. **We disagree with the approach taken and advise that Caledonia South and Caledonia North should be calculated individually.**

Reference populations used

In addition, for some of the PVA undertaken the assessment has been made against the citation population rather than against the most recent available count. This is contrary to our advice and

could have implications on the conclusions for several species. Justification for this approach is not provided and in many cases is not consistent. For example, the assessment for razorbill is made against the citation population at North Caithness Cliffs SPA for Caledonia North but is made against recent SMP counts for Caledonia South and for the Proposed Development (Offshore). The following species and site combinations have been assessed incorrectly against the citation population:

- Guillemot at:
 - North Caithness Cliffs SPA for Caledonia South
 - Hoy SPA for Caledonia South and the Proposed Development (Offshore)
 - Marwick Head SPA for Caledonia South
 - Calf of Eday SPA for Caledonia South
 - West Westray SPA for Caledonia South
 - Rousay SPA for Caledonia South
- Razorbill at:
 - North Caithness Cliffs SPA for Caledonia South
 - Troup, Pennan and Lion's Head SPA for Caledonia North
- Gannet at Fair Isle SPA for Caledonia South and the Proposed Development (Offshore)
- Puffin at Forth Islands SPA for the Proposed Development (Offshore)

For some of these species and site combinations the effect of using the citation population rather than the most recent count is that the associated predicted impacts will be smaller, as several of the qualifying species at these SPAs are now in unfavourable condition and their population is least 25% lower than it was at citation. **We advise that these species and site combinations are run with the most recent available count when the Applicant submits additional information.**

Assessment conclusions

Due to the volume of information produced for these Applications and the numerous scenarios presented by the Applicant, we have not been able to review all the PVA scenarios within the consultation timeframe. As a result, we have focused our assessment of the Applications on the scenarios that we advised on at scoping and our standard guidance. As a result, our conclusions below are based on two scenarios (see Annex 1, Table A1.1 for an overview of the scenarios that we considered).

It is noted that the Applicant has used the Counterfactual of Growth rate (CGR) outputs as the basis of their assessments and that they consider this to be the more robust and reliable metric

to use in determining adverse effect on site integrity. In our view, it is important to consider both counterfactuals (Counterfactual of Population Size [CPS] and CGR) as each provides robust measures of population level impacts, looking at different aspects of population change. In our assessment of the RIAA, we have considered both the CPS and CGR in coming to **provisional conclusions** regarding adverse effect on site integrity.

We have used the current assessment to reach an **interim view**, where possible, for certain sites and species. **This advice is subject to the results of the re-screening and re-apportionment, as requested above through additional information.**

Project alone conclusions

For sites designated for offshore and intertidal ornithology, the Applicant concluded no adverse effect on site integrity alone for all sites for Caledonia North (Table A4) and Caledonia South (Table A5). **We are provisionally in agreement that there is no adverse effect on site integrity for any sites and species for the project alone impacts.** The exception to this is great black-backed gull at Copinsay SPA and Hoy SPA. See our advice on this below.

Table A4. Caledonia North – project alone conclusions

AEoSI = Adverse Effect on Site Integrity.

Site	Species	CPS	CGR	Additional Mortality/ annum	Developer conclusion	NatureScot provisional conclusion
East Caithness Cliffs SPA	Guillemot	0.981	1	91.64	No AEoSI	No AEoSI
	Razorbill	0.988	1	10.68	No AEoSI	No AEoSI
Hoy	Puffin	0.988	1	0.1	No AEoSI	No AEoSI
North Caithness Cliffs	Guillemot	0.986	1	11.68	No AEoSI	No AEoSI
	Razorbill	0.983	1	1.62	No AEoSI	No AEoSI
	Puffin	0.987	1	1.05	No AEoSI	No AEoSI
Troup, Pennan and Lion's Head	Guillemot	0.988	1	13.5	No AEoSI	No AEoSI
	Razorbill	0.99	1	1.72	No AEoSI	No AEoSI

Table A5. Caledonia South – project alone conclusions

Site	Species	CPS	CGR	Additional Mortality/ annum	Developer conclusion	NatureScot provisional conclusion
Calf of Eday	Guillemot	0.991	1	1.59	No AEoSI	No AEoSI
Copinsay	Guillemot	0.988	1	3.35	No AEoSI	No AEoSI
East Caithness Cliffs SPA	Kittiwake	0.987	1	12.16 -14.55	No AEoSI	No AEoSI
	Guillemot	0.968	1	89.19 - 161.75	No AEoSI	No AEoSI
	Razorbill	0.986	1	12.47	No AEoSI	No AEoSI
Fair Isle	Gannet	0.991	1	0.32	No AEoSI	No AEoSI
Hoy	Guillemot	0.988	1	4.69	No AEoSI	No AEoSI
	Puffin	0.98	0.999	0.19	No AEoSI	No AEoSI
Marwick Head	Guillemot	0.991	1	2.85	No AEoSI	No AEoSI
North Caithness Cliffs SPA	Guillemot	0.985	1	23.96	No AEoSI	No AEoSI
	Razorbill	0.981	1	1.91	No AEoSI	No AEoSI
	Puffin	0.984	1	0.97	No AEoSI	No AEoSI
Rousay	Guillemot	0.991	1	1.68	No AEoSI	No AEoSI
Troup, Pennan and Lion's Heads SPA	Guillemot	0.978	0.999	25.48	No AEoSI	No AEoSI
	Razorbill	0.99	1	2.02	No AEoSI	No AEoSI
	Kittiwake	0.991	1	6.02	No AEoSI	No AEoSI
West Westray	Guillemot	0.992	1	8.26	No AEoSI	No AEoSI

In-combination assessment conclusions

As previously noted, the in-combination assessment has been undertaken for the Caledonia Proposed Offshore Development (Offshore) as a whole and has not been undertaken separately for Caledonia North or Caledonia South. As such we cannot draw conclusions on the in-combination assessment impacts for Caledonia North and Caledonia South. Table A6 below provides a summary of the **provisional** in-combination assessment conclusions and where the Applicant's conclusions differ from our own.

In addition to considering the proposal alone mortality contribution as part of our assessment of in-combination effects, we also consider other factors such as:

- short / long term colony trend
- qualifying species condition
- species life history
- proportional importance of species in Scotland and the UK
- recent HPAI impacts
- climate change sensitivity

Table A6. Caledonia and NatureScot in-combination conclusions for the Proposed Development (Offshore)

Cells shaded in red indicate where our conclusions differ.

SPA Site	Species	CPS with BB	CPS without BB	CPGR with BB	CPGR without BB	Mortality (without BB)	Developer conclusion with BB	Developer conclusion without BB	NatureScot Conclusion with BB	NatureScot Conclusion without BB
Buchan Ness to Collieston Coast	Kittiwake	0.859	0.883	0.996	0.997	96.20 (79.32)	AEoSI	AEoSI	AEoSI	AEoSI
Copinsay	Guillemot	N/A	0.98	N/A	0.999	12.61	-	No AEoSI	-	No AEoSI
East Caithness Cliffs	Guillemot	N/A	0.703	N/A	0.990	1730.32	-	AEoSI	-	AEoSI
	Kittiwake	0.742	0.763	0.992	0.993	342.30 (310.24)	AEoSI	AEoSI	AEoSI	AEoSI
	Razorbill	0.737	0.749	0.992	0.992	283.12 (268.34)	No AEoSI	No AEoSI	AEoSI	AEoSI
Fair Isle	Puffin	0.93	0.952	0.998	0.999	11.17 (7.80)	No AEoSI	No AEoSI	Cannot conclude No AEoSI	No AEoSI
Forth Islands	Gannet	0.783	0.825	0.993	0.995	924.29 (730.88)	AEoSI	AEoSI	AEoSI	AEoSI
Foula	Puffin	0.873	0.91	0.996	0.997	20.34 (13.81)	No AEoSI	No AEoSI	Cannot conclude No AEoSI	Cannot conclude No AEoSI

Hermaness, Saxa Vord and Valla Field	Gannet	0.895	0.9	0.997	0.997	97.96 (93)	No AEoSI	No AEoSI	Cannot conclude No AEoSI	Cannot conclude No AEoSI
Hoy	Guillemot	N/A	0.98	N/A	0.999	8.23	-	No AEoSI	-	No AEoSI
Marwick Head	Guillemot	N/A	0.982	N/A	0.999	5.6	No AEoSI	No AEoSI	No AEoSI	No AEoSI
North Caithness Cliffs	Guillemot	N/A	0.917	N/A	0.998	133.72	-	No AEoSI	-	Cannot conclude No AEoSI
	Razorbill	0.915	0.921	0.998	0.998	27.38 (25.66)	No AEoSI	No AEoSI	No AEoSI	No AEoSI
	Puffin	0.205	0.206	0.957	0.957	109.85 (109.45)	No AEoSI	No AEoSI	AEoSI	AEoSI
Sule Skerry and Sule Stack	Puffin	0.856	0.856	0.996	0.996	348.10 (348.02)	AEoSI	AEoSI	AEoSI	AEoSI
Troup, Pennan and Lion's Heads	Guillemot	N/A	0.863	N/A	0.998	173.29	-	No AEoSI	-	Cannot conclude No AEoSI
	Kittiwake	0.742	0.874	0.992	0.996	342.30 (310.24)	AEoSI	AEoSI	AEoSI	AEoSI

	Razorbill	0.885	0.899	0.997	0.997	24.50 (21.45)	No AEoSI	No AEoSI	Cannot conclude No AEoSI	Cannot conclude No AEoSI
West Westray	Guillemot	N/A	0.988	N/A	1	12.3	-	No AEoSI	-	No AEoSI

We **provisionally agree** with the Applicant in concluding **adverse effect on site integrity in-combination** with other plans and projects for the following sites:

- East Caithness Cliffs SPA for guillemot
- East Caithness Cliffs SPA for kittiwake
- Forth Islands SPA for gannet
- Sule Skerry and Sule Stack SPA for puffin
- Buchan Ness to Collieston Coast SPA for kittiwake
- Troup, Pennan and Lion's Head SPA for kittiwake

However, we also **provisionally conclude** the following to have **adverse effect on site integrity in-combination** with other plans and projects for the following sites and qualifying species (note the below includes consideration of the points raised in the cumulative assessment in EIA):

East Caithness Cliffs SPA - Razorbill

We **provisionally conclude adverse effect on site integrity for razorbill at East Caithness Cliffs SPA**, taking into account:

- The very low CPS values with and without Berwick Bank.
- The moderate contribution from project alone.
- The 0.843% decrease in CGR per annum in combination.
- We note the increase in the population size since Seabirds 2000 and the favourable site condition.

North Caithness Cliffs SPA - Puffin

We **provisionally conclude adverse effect on site integrity for puffin at North Caithness Cliffs SPA**, taking into account:

- The incredibly low CPS values with and without Berwick Bank.
- The greater than 4% decrease in CGR per annum in combination.
- A 56% decline in the colony since Seabirds 2000.
- The declining population in Scotland.
- Uncertainties around the conclusions of post-consent monitoring from other Moray Firth Zone OWFs (Trinder *et al.*, 2024²⁵).

²⁵ Trinder, M., O'Brien, S. H., & Deimel, J. (2024). A new method for quantifying redistribution of seabirds within operational offshore wind farms finds no evidence of within-wind farm displacement. *Frontiers in Marine Science*, 11. <https://doi.org/10.3389/fmars.2024.1235061>

We cannot accept the implied conclusions in the RIAA Part 4, section 10.3.3.77, that North Caithness Cliffs SPA has been in long-term decline and the decline is not linked to the wind farm developments in the region – and therefore should not be attributed to the development of offshore wind farms in the area. Post-consent monitoring work for the Moray Firth Regional Advisory Group is ongoing and is under continual review, and at this point in time it is not possible to disentangle the observed population changes from any emerging impacts from the recently built wind farms. On this basis, we continue to use our advised approach in developing our conclusions.

We also raise that this section of the RIAA contains many typographical errors. We have assessed the results on what we assume was intended rather than what is written.

In addition to the above, we are **provisionally unable to conclude no adverse effect on site integrity in-combination** with other plans and projects for the following sites and qualifying species:

North Caithness Cliffs SPA - Guillemot

We **provisionally cannot conclude no adverse effect on site integrity for guillemot at North Caithness Cliffs**, taking into account:

- Decrease in CGR of 0.24% per annum.
- Almost 70 additional mortalities per annum from project alone.
- A moderate decrease in CPS after 35 years.
- The colony population has declined by 45% since Seabirds 2000 and the Scottish population by 31%.
- The site condition is favourable, maintained.
- Uncertainties around the conclusions of post-consent monitoring from other Moray Firth Zone OWFs (Trinder *et al.*, 2024).

Troup, Pennan and Lion's Head SPA - Guillemot

We **provisionally cannot conclude no adverse effect on site integrity for guillemot at Troup, Pennan and Lion's Head SPA**, taking into account:

- Decrease in CGR of 0.189-0.409% per annum.
- A moderate decrease in CPS after 35 years.
- Between 80.51-173.29 additional mortalities in combination and 34.37 alone.
- The colony population has declined by 50% since Seabirds 2000 and the Scottish population by 31%.

- The site condition is unfavourable, recovering.
- Uncertainties around the conclusions of post-consent monitoring from other Moray Firth Zone OWFs (Trinder *et al.*, 2024).

Troup, Pennan and Lion's Head SPA - Razorbill

We **provisionally cannot conclude no adverse effect on site integrity for razorbill at Troup, Pennan and Lion's Head SPA**, taking into account:

- Decrease in CGR of 0.146-0.340% per annum.
- A moderate decrease in CPS after 35 years.
- Between 10.54 – 24.50 additional mortalities in combination.
- The colony population has declined by 9% since Seabirds 2000.
- The site condition is favourable, recovering.
- Uncertainties around the conclusions of post-consent monitoring from other Moray Firth Zone OWFs (Trinder *et al.*, 2024).

Foula SPA - Puffin

We **provisionally cannot conclude no adverse effect on site integrity for puffin at Foula SPA**, taking into account:

- Decrease in CGR of 0.128-0.377% per annum.
- A moderate decrease in CPS after 35 years.
- Between 6.96 – 20.34 additional mortalities in combination.
- The colony population has declined by 81% since Seabirds 2000.
- The site condition is unfavourable, no change.
- Uncertainties around the conclusions of post-consent monitoring from other Moray Firth Zone OWFs (Trinder *et al.*, 2024).

Fair Isle SPA - Puffin

We **provisionally cannot conclude no adverse effect on site integrity for puffin at Fair Isle SPA with Berwick Bank**, taking into account:

- Decrease in CGR of 0.200% per annum.
- A moderate decrease in CPS after 35 years.
- Between 4.21-11.17 additional mortalities in combination.
- The colony population has declined by 56% since Seabirds 2000.
- The site condition is unfavourable and declining.

- Uncertainties around the conclusions of post-consent monitoring from other Moray Firth Zone OWFs (Trinder *et al.*, 2024).

Hermaness, Saxa and Valla Field SPA - Gannet

We **provisionally cannot conclude no adverse effect on site integrity for gannet at Hermaness, Saxa and Valla Field SPA**, taking into account:

- Decrease in CGR of 0.153-0.309% per annum.
- A moderate decrease in CPS after 35 years.
- Between 48.50-97.96 additional mortalities in combination.
- Although the colony population has increased by 89% since Seabirds 2000, it was affected by the HPAI outbreak, declining by 37%.
- The site condition is favourable, maintained.

Great black-backed gulls

The assessment of collision for great black-backed gull is insufficient. The predicted collision risk impact, although small in terms of number of birds, is significant in terms of change to average survival rate. For both Copinsay SPA and Hoy SPA, the predicted impacts exceed 0.02 percentage point change. As a result, PVA should have been undertaken for great black-backed gull at these two SPAs. The argument presented for why this was not undertaken is that the number of birds predicted to collide is less than 1 per annum, however given the very small population sizes at these sites (98 at Copinsay SPA and 10 at Hoy SPA) any increase in mortality is likely to have adverse effects on the recovery of the population. As such we **provisionally advise that there is an adverse effect on site integrity for great black-backed gull at Copinsay SPA and Hoy SPA and request further assessment to be done on PVA for great black-backed gull at these two sites.**

Additionally, **no in-combination assessment has been undertaken for great black-backed gull due to the conclusion of no adverse effect on site integrity on the basis of impact to low numbers of breeding adults. However, we advise that PVA is likely to be required for this species.**

Vessel disturbance within the Moray Firth SPA

The Applicant concluded that there would be no adverse effect on site integrity for the qualifying species of the Moray Firth SPA as a result of vessel transit through the site. We cannot assess the conclusions of the vessel disturbance assessment as we have various queries about the assessment which are detailed below. Some of these queries are likely to require **additional information** to be provided or are points of **clarification** which would be required to enable us to assess the potential impacts of the vessel disturbance on the qualifying species of the SPA.

Worst-case scenario

The Applicant states in the RIAA Part 1, section 7.3.9.11 that Buckie harbour or Fraserburgh would be the potential ports used, and they note that Buckie would be the worst-case scenario, with 20 km of the vessel transit route within the Moray Firth SPA. However, in Table 9-5 of Part 3 of the RIAA, the following ports are listed as having potential for use in the construction of the wind farm: Aberdeen city, Aberdeenshire (Peterhead, Fraserburgh), Moray (Buckie) and Highland (Cromarty, Nigg, Wick, Ardersier). It is unclear how Buckie constitutes the worst-case scenario given that Ardersier or Cromarty could require further distances within the SPA (depending on the route used).

Methodology

We cannot comment on the methods used to assess disturbance to red-throated diver as there is insufficient detail of how this was undertaken. In section 7.3.9.17 of the RIAA Part 1, the assessment states that: *“An area of search ... was defined by drawing a polygon from potential O&M base locations that would require vessels to cross the Moray Firth SPA, to the extents of the Proposed Development (Offshore). The polygon was buffered by 1km to account for a potential disturbance distance from a given vessel. The red-throated diver densities inside this polygon (which were generated on a 1km x 1km grid) were extracted and compared with densities across the wider Moray Firth SPA, to estimate the relative importance of the area of search to red-throated diver”*. However, it is unclear where this polygon is located within the SPA, and whether it represents a true worst-case scenario (as per above). In addition, a buffer of 1 km is used. Further justification for this buffer is required as there is evidence that red-throated diver can be displaced by up to 5 km from vessels passing through (Mendel *et al.*, 2019) and a 2 km buffer is advised by other SNCBs around vessel traffic (Burt *et al.*, 2017).

In section 7.3.9.12 of the RIAA Part 1, the Applicant states that *“should displacement occur from this area, there is an abundance of alternative habitat within the SPA that can be utilised by displaced birds.”* However, there is no assessment of the suitability of the alternative habitat available, for example, regarding prey availability or bathymetry. We advise that prey availability will not be evenly distributed throughout the site, and there may be favoured areas for foraging that could be affected.

Species included in assessment

Only red-throated diver is assessed for impacts from disturbance via vessel transit. It appears that the Applicant has done so as red-throated diver are one of the species most sensitive to disturbance, with the assumption that all other species would be less adversely affected by disturbance. However, this assumption does not seem appropriate, as vessel transit could occur through areas of high ecological importance for different species. Assessment should have considered the potential for vessel transit to cause disturbance over specific prey supporting habitat and should have considered that prey supporting habitat will not be evenly distributed throughout the site. In addition, assessment should also have considered the potential for disturbance to roosting areas.

All these issues together mean that **we cannot adequately assess the impact of vessel movements within the Moray Firth. Further detail on the worst-case scenario, the methodology used and a complete and comprehensive assessment of the potential impacts to each of the qualifying species of the Moray Firth SPA are required to enable us to provide advice.**

Request for additional information

We have used the current assessment to reach an **interim view**, where possible, for certain sites and species. **This advice is subject to the results of the re-screening and re-apportionment.**

The following information is required to finalise our advice on the RIAA:

- **Clarification on the screening methodology for Caledonia North, Caledonia South and Caledonia Proposed Development (Offshore).**
- **Update of the apportioning for the sites/qualifying species that were screened out since the HRA Screening Report.**
- **PVAs where the project alone or in-combination impacts meet or exceed a 0.02 percentage point decrease in annual adult survival, for the following scenarios:**
 - Guidance approach high and low (e.g. for auks, 60% displacement; 3-5% mortality and 60% displacement; 1-3% mortality).
 - 35 years run-time.
 - Against most recent counts, i.e. SMP (Harris where relevant for gannet) rather than citation.
- **An update of the assessment for vessel disturbance to the Moray Firth SPA, providing clarity on the worst-case scenario, methods used and a full and comprehensive assessment of the potential impacts to each of the qualifying species of the SPA.**

Annex 1 (Appendix A)

Scenarios considered in our appraisal of the RIAA

Scenario 1:

- Guidance approach with the upper limits of displacement and mortality rates.
- PVA run against the most recent SPA (colony) count. This is mostly from Seabird Monitoring Programme (SMP), but in some instances, e.g. gannet at Forth Islands, an alternative count is used which we agree with. For a small number of sites, the PVA has only been run against the citation population. The reason for this is not clear.
- We have looked at annual rates. We have looked at project alone scenarios and we have looked at in-combination all projects and in-combination all projects excluding Berwick Bank.
- For all scenarios only the 35-year metric was considered.
- For gannet at each site, we considered the guidance approach to macro-avoidance – 70% in the non-breeding season only.
- For puffins at each site, we considered the guidance approach; Year 1 August abundance is incorporated into the breeding season.

Scenario 2 (we looked at this where we could not conclude no adverse effect on site integrity from scenario 1):

- Guidance approach with the lower limits of displacement and mortality rates.
- PVA run against the most recent SPA (colony) count. This is mostly from SMP, but in some instances, e.g. gannet at Forth Islands, an alternative count is used which we agree with. For a small number of sites, the PVA has only been run against citation. The reason for this is not clear.
- We have looked at annual rates. We have looked at project alone scenarios and we have looked at in-combination all projects and in-combination all projects excluding Berwick Bank.
- For all scenarios only the 35-year metric was considered.
- For gannet at each site, we considered the guidance approach to macro-avoidance – 70% in the non-breeding season only.
- For puffins at each site, we considered the guidance approach; Year 1 August abundance is incorporated into the breeding season

The specific scenarios for each species and site combination are detailed in Table A1.1 below.

Table A1.1: Scenarios considered for each site and species combination.

Species	Site	Project alone / in-combination	Scenario 1	Scenario 2
Guillemot	East Caithness Cliffs	Project Alone, North, South and Proposed Development (Offshore)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Razorbill	East Caithness Cliffs	Project Alone, North, South and Proposed Development (Offshore)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Kittiwake	East Caithness Cliffs	Project alone South, and Proposed Development (Offshore)	Guidance approach (30%, 3%), SMP, Annual total and Distribution and collision impacts summed)	Only one scenario considered as no AEoSI
Guillemot	East Caithness Cliffs	In combination (All projects)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as in agreement with Applicant about AEoSI
Razorbill	East Caithness Cliffs	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%), SMP, Annual total)
Kittiwake	East Caithness Cliffs	In combination (All projects and All projects excluding BB)	Guidance approach (30%, 3%, SMP, Annual total)	Only one scenario considered as in agreement with Applicant about AEoSI
Guillemot	North Caithness Cliffs	Project Alone (North, South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%), Citation, Annual total	Only one scenario considered as no AEoSI
Razorbill	North Caithness Cliffs	Project Alone (North, South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, Citation, Annual total)	Only one scenario considered as no AEoSI
Puffin	North Caithness Cliffs	Project Alone (North, South and Proposed	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario

		Development (Offshore))		considered as no AEoSI
Guillemot	North Caithness Cliffs	In combination (All projects)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%, SMP, Annual total)
Razorbill	North Caithness Cliffs	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%, SMP, Annual total)
Puffin	North Caithness Cliffs	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%), SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%, SMP, Annual total)
Guillemot	Troup, Pennan and Lion's Head	Project Alone (North, South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%), SMP, Annual total	Only one scenario considered as no AEoSI
Razorbill	Troup, Pennan and Lion's Head	Project Alone (North, South and Proposed Development (Offshore))	Guidance Approach (60%, 3%; 60%, 3%, Citation / SMP*, annual total) *Citation used for North, SMP used for South and Proposed Development (Offshore)	Only one scenario considered as no AEoSI
Kittiwake	Troup, Pennan and Lion's Head	Project Alone (South and Proposed Development (Offshore))	Guidance approach (30%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Guillemot	Troup, Pennan and Lion's Head	In combination (All projects)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%, SMP, Annual total)
Razorbill	Troup, Pennan and Lion's Head	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%, SMP, Annual total)

Kittiwake	Troup, Pennan and Lion's Head	In combination (All projects and All projects excluding BB)	Guidance approach (30%, 3%, SMP, Annual total)	Guidance approach (30%, 1%, SMP, Annual total)
Guillemot	Copinsay	Project Alone (South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Guillemot	Copinsay	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Guillemot	Hoy	Project Alone (South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, Citation, Annual total)	Only one scenario considered as no AEoSI
Puffin	Hoy	Project Alone (South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Guillemot	Hoy	In combination (All projects)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Guillemot	Marwick Head	Project Alone (South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, Citation/ SMP*, Annual total) *Citation used for South, SMP used for Proposed Development (Offshore)	Only one scenario considered as no AEoSI
Guillemot	Marwick Head	In combination (All projects)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Guillemot	Calf of Eday	Project Alone (South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, SMP/ Citation*, Annual total) *Citation used for South, SMP used for Proposed Development (Offshore)	Only one scenario considered as no AEoSI

Guillemot	West Westray	Project Alone (South and Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, SMP/ Citation*, Annual total) *Citation used for South, SMP for Proposed Development (Offshore)	Only one scenario considered as no AEoSI
Guillemot	West Westray	In combination (All projects)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Puffin	Sule Skerry and Sule Stack	Project Alone (Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Puffin	Sule Skerry and Sule Stack	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as in agreement with Applicant about AEoSI
Guillemot	Rousay	Project Alone (South, Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, SMP/ Citation*, Annual total) *Citation used for South, SMP for Proposed Development (Offshore)	Only one scenario considered as no AEoSI
Puffin	Fair Isle	Project Alone (Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Only one scenario considered as no AEoSI
Gannet	Fair Isle	Project Alone (South, Proposed Development (Offshore))	Guidance approach (70%, 3%, citation, Annual total)	Only one scenario considered as no AEoSI
Puffin	Fair Isle	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%, SMP, Annual total)

Puffin	Foula	In combination (All projects and All projects excluding BB)	Guidance approach (60%, 5%; 60%, 3%, SMP, Annual total)	Guidance approach (60%, 3%; 60%, 1%, SMP, Annual total)
Puffin	Forth Islands	Project Alone (Proposed Development (Offshore))	Guidance approach (60%, 5%; 60%, 3%, Citation, Annual total)	Only one scenario considered as no AEoSI
Gannet	Forth Islands	In combination (All projects and All projects excluding BB)	Guidance approach (70%, 3%, Harris, Annual total)	Guidance approach (70%, 1%, Harris, Annual total)
Gannet	Hermaness, Saxa Vord and Valla Field	In combination (All projects and All projects excluding BB)	Guidance approach (70%, 3%, SMP, Annual total)	Guidance approach (70%, 1%, SMP, Annual total)
Kittiwake	Buchan Ness	In combination (All projects and All projects excluding BB)	Guidance approach (30%, 3%, SMP, Annual total)	Guidance approach (30%, 1%, SMP, Annual total)

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX B – MARINE MAMMALS

Marine mammal interests are considered in the EIA Report in Volume 2, Chapter 7 for the Proposed Development (Offshore), Volume 3, Chapter 7 for Caledonia North, and Volume 4, Chapter 7 for Caledonia South. They are also considered in Appendices 6, 8, 9, 13, 14 and 19 of Volume 7, Appendices 7-1 to 7-4 of Volume 7B, Appendix 7-1 of Volume 7C and Appendix 7-1 of Volume 7D. Marine mammal interests are further considered throughout the Habitat Regulations Appraisal (HRA) Stage 1 Screening Report and the Report to Inform the Appropriate Assessment (RIAA).

Our advice on the bottlenose dolphin qualifying species of the Moray Firth Special Area of Conservation (SAC) and the harbour seal qualifying species of the Dornoch Firth and Morrich More SAC is included in this Appendix. Our advice on the minke whale qualifying species of the Southern Trench nature conservation Marine Protected Area (NCMPA) is included in Appendix G.

We advise we are unable to conclude no adverse effect on site integrity for the Moray Firth SAC with respect to behavioural disturbance from pile driving during construction of Caledonia North, Caledonia South or the Proposed Development (Offshore) alone (and therefore also in-combination with other plans and projects), despite the RIAA concluding no adverse effect on site integrity.

The EIA assessment for marine mammals concludes no significant impacts, both alone and cumulatively. However, we raise an issue regarding the sensitivity scoring, and in some cases the magnitude scoring, in our advice below, and as such we disagree with the outcome of the assessment. **Instead, we conclude significant impacts for disturbance from piling, both for the proposal alone and cumulatively for bottlenose dolphin (Coastal East Scotland (CES) Management Unit (MU)), white-beaked dolphin and grey seal; and significant impacts cumulatively for harbour porpoise, bottlenose dolphin, white-beaked dolphin, minke whale, grey seal and harbour seal.**

As such, should Scottish Ministers grant consent, we advise:

- **The Applicant will need to consider the implications further, through the development of a Piling Strategy and Marine Mammal Mitigation Protocol (MMMP) with updated assessments, post-consent, for all species considered, but particularly for bottlenose dolphin, harbour porpoise, white beaked dolphin, minke whale, grey seal and harbour seal.**
- **Within the Piling Strategy and Marine Mammal Mitigation protocol, further detailed consideration should be given to type of foundations, duration and timing of noisy activities including piling and vessel noise, potential for noise abatement systems (if practical) and UXO removal methods – with our preference for low order deflagration.**

- **A monitoring proposal to validate the EIA Report and RIAA predictions and better understand the likelihood of impacts for disturbance from piling and operational noise, particularly as a potential floating wind technology development.**
- **The Applicant calculates a bespoke Moray Firth/CES MU bottlenose dolphin density estimate post-consent in collaboration with the University of Aberdeen or St Andrews University, based on the most up-to-date data.**

During the agreement of the Marine Mammal Mitigation Plan and Piling Strategy the applicant may be asked to contribute to monitoring and research to address resolving uncertainty or knowledge gaps for any species for which there is still significant impact identified. This could be monitoring of species population numbers, monitoring to inform species specific dose response curves and/or monitoring piling timings and patterns to increase knowledge on disturbance ranges responses.

We also advise that the Dornoch Firth and Morrich More SAC should have been screened into the RIAA for a potential likely significant effect on the site. Therefore, **we request further information from the Applicant providing consideration of underwater noise from piling resulting in a likely significant effect on the harbour seal qualifying species of the Dornoch Firth and Morrich More SAC, and an assessment of adverse effect on site integrity if required. This applies to Caledonia North, Caledonia South and the Proposed Development (Offshore), both alone and in-combination.**

We highlight concerns in assessing impacts at this stage of a development for an offshore wind application. In previous wind farm proposals, we have been able to consider the worst-case scenario and indicate whether an impact is significant. However, due to the two applications, the differing technologies proposed in each and the wide project envelopes, there is the likelihood of causing an adverse effect on site integrity to two SACs in the worst-case scenario. However, from our previous experience of offshore wind farms especially in the Moray Firth, the process undertaken post-consent (with refinement of project parameters and inclusion of detailed mitigation) provides a more realistic assessment process.

We consider that potential cumulative impacts should be re-assessed, and we have outlined our recommendations below. Noting our comments above, we raise whether this would be better completed post-consent. Any re-assessment should be discussed and agreed in advance.

Furthermore, we require clarification for the following points:

- **We request the Applicant provides a table with densities for each species from SCANS III, SCANS IV and DAS, as well as confirmation of which density estimate was used for each species, rather than the range of densities presented in the EIA for the SCANS III modelled surfaces.**

- We request that the Applicant clarifies what bottlenose dolphin (CES MU) reference population they used. If a reference population of 245 instead of 226 was used, we request justification for this.
- The impact ranges from monopiles are presented as being similar to that of jacket foundations, despite the difference in pile size and hammer energies. We request clarification of this point.
- The presentation of the CIA results using the tiered approach (i.e. splitting into tier 1, tier 2 and tier 3 projects) means we are unclear what the predicted overall cumulative impact is and how to provide our advice. We request clarification from the Applicant regarding what the predicted overall cumulative impact is. For example, is the overall cumulative result the three tiers combined?

EIA Report

The following EIA Report advice is in relation to Volume 2 Proposed Development (Offshore) Chapter 7 Marine Mammals but is also relevant to Volume 3 Caledonia North Chapter 7 Marine Mammals and Volume 4 Caledonia South Chapter 7 Marine Mammals, unless otherwise specified.

Study area

We agree with the species scoped in and the study areas outlined in section 7.4.1 of Volume 2, Chapter 7.

Baseline characterisation

Densities and reference population

All marine mammals were scoped into the EIA and CIA that were identified in the Digital Aerial Survey (DAS). Section 7.4.3.4 of Volume 2, Chapter 7 states that the most robust density estimates for each species was selected - these are presented in Table 7-4 and explained further in section 7.4.3.5. The densities presented are a range from SCANS III modelled surfaces. This makes it hard to tell whether the Applicant has used the most precautionary densities. Our advice to all offshore wind developments is to use the highest number available for each species between SCANS IV, SCANS III (average densities or modelled surfaces) or DAS. It is important to factor in that while SCANS III modelled surfaces are more statistically robust and available for more species, they are still based on snapshot data which is now nearly 9 years old. **We request that the Applicant provides a table with densities for each species from SCANS III, SCANS IV and DAS, as well as confirmation of which density estimate was used for each species, rather than the range of densities presented for the SCANS III modelled surfaces.**

We welcome the calculation of a new density estimate (0.142 dolphins/km²) to better represent coastal bottlenose dolphins in east coast Scotland, as set out in section 7.4.3.5. However, it seems a calculation based on dividing the Moray Firth SAC population *outwith*

the Moray Firth was used. For clarity, we advise developers create a bespoke density estimate for coastal bottlenose dolphins within the Moray Firth/CES MU. We recommend using a similar approach as has been accepted in offshore wind farm projects off the East coast in the Firth and Tay region, where the Moray Firth SAC population was divided by the area of coast that falls within the 2 km buffer from the coast. Whilst this is still a crude approach it recognises the fact that highest densities are found close to the coast. We are not requesting the Applicant to recalculate the density estimate at this stage. However, **when the project parameters and/or any reassessment is refined post-consent, we advise the Applicant to calculate a bespoke Moray Firth/CES MU bottlenose dolphin density estimate in collaboration with the University of Aberdeen or St Andrews University, based on the most up-to-date data.**

Further, in Table 7-4 the Applicant appears to have used a figure of 245 for the reference population of bottlenose dolphin (CES MU). We advise that this figure should be 226. **We request that the Applicant clarifies what bottlenose dolphin (CES MU) reference population they used. If a reference population of 245 instead of 226 was used, we request justification for this.**

We agree with the reference populations and density estimates for common dolphin, Risso's dolphin and minke whale. Also, whilst we normally request SCANS IV or DAS density estimates, we are content with the Applicant using SCANS III modelled density surfaces for minke whale as they are more precautionary.

The Special Committee on Seals (SCOS) 2024 report should be published soon. In the meantime, we currently advise that the latest SCOS 2022 Report²⁶ is used for the PBR (Nmin) values for grey seal and the population estimate for harbour seal, rather than the interim report listed in the Applicant's Table 7-4. However, the numbers are not significantly different and so we are content with the assessment, as they have used Carter *et al.* (2022)²⁷ density estimates.

We welcome the inclusion of humpback whale, albeit as a qualitative assessment, given the increase in sightings off the east coast of Scotland in recent years.

Protected areas

Regarding Table 7-5 of Volume 2, Chapter 7, we note that the OECC does not overlap with the Moray Firth SAC for bottlenose dolphin, but it does cross the CES MU which has connectivity

²⁶ Natural Environment Research Council Special Committee on Seals (2022) Scientific Advice on Matters Related to the Management of Seal Populations: 2022. Available at: <https://www.smru.st-andrews.ac.uk/files/2023/09/SCOS-2022.pdf>

²⁷ Carter, M. I. D., L. Boehme, M. A. Cronin, C. D. Duck, W. J. Grecian, G. D. Hastie, M. Jessopp, J. Matthiopoulos, B. J. McConnell, D. L. Miller, C. D. Morris, S. E. W. Moss, D. Thompson, P. M. Thompson, and D. J. F. Russell. (2022). Sympatric Seals, Satellite Tracking and Protected Areas: Habitat-Based Distribution Estimates for Conservation and Management. *Frontiers in Marine Science* 9.

to the SAC. We also note that while the proposal array boundaries may not be overlapping MPAs or SACs, the noise contours would extend beyond the proposal boundary and therefore the impact could occur within both the Moray Firth SAC and Southern Trench MPA designated sites.

Assessment approach

Impact magnitude

Magnitude criteria are presented in Table 7-10 and are based around spatial extent, duration, frequency and consequence of an impact on the population. Section 7.5.4.4 states that *“where population modelling is available to inform the magnitude score, the results of the iPCoD modelling will be the main criteria for the consequence and subsequent magnitude score determination”*. While we agree that iPCoD should be used to simulate the potential long-term trajectory of a population in response to a particular impact, we do not agree that it should be the main criteria for the consequence and subsequent magnitude score determination.

Sensitivity of receptor

The sensitivity of marine mammal receptors is defined by their potential adaptability to an impact from the Proposed Development (Offshore), their tolerance and recoverability of the receptor. Section 7.5.4.6 states that *“the value of the receptor is not included in the definition of sensitivity as all marine mammals are considered to have a high value”*. We disagree with this as a reason to not include value as an element of the criteria. Not including value / importance within the sensitivity criteria disregards the inherent reason why cetaceans and seals are given a high level of legislative protection through the Habitats Regulations and fails to fully acknowledge the potential risks to individuals and populations.

Moreover, the sensitivity criteria are based on vital rates (survival and reproduction rates), rather than the sensitivity of individual animals in terms of health or welfare consequences, e.g. hearing damage or loss of foraging. Much of the assessment is based on the outcome of a workshop (Booth and Heinis, 2018)²⁸ which relied on expert opinion, and which has not been peer-reviewed or published. Therefore, there is a lot of uncertainty around the sensitivity categories and the bar is set very high for anything other than negligible or minor outcome. Given this high level of uncertainty, we consider that the scores assigned are underplaying the sensitivity of some of the impacts and therefore the conclusions reached.

Table B1 and Table B2 in our advice below present the EIA Report conclusions and revised scores based on our assessment for proposal alone and cumulatively, respectively.

²⁸ Booth, C.G, Heinis, F & Harwood J. (2018) Updating the Interim PCoD Model: Workshop Report - New transfer functions for the effects of disturbance on vital rates in marine mammal species. Report Code SMRUC-BEI-2018-011, submitted to the Department for Business, Energy and Industrial Strategy (BEIS), February 2019 (unpublished).

Furthermore, monitoring will be required to validate the predictions in the EIA Report and to help reduce uncertainty for any future developments.

Underwater noise assessment

The approach to the underwater noise assessment is discussed in section 7.5.4 of Volume 2, Chapter 7 of the EIA Report. Underwater noise modelling is undertaken for piling, UXO clearance, geophysical surveys and vessel noise.

We welcome the use of the dual metric of both SPL_{peak} and SPL_{cum}, noting the requirement to mitigate injury ranges based on SPL_{peak} metric. We agree with the use of Southall *et al.* (2019)²⁹ hearing ranges in Table 7-9. However, we highlight the recent publication of Houser *et al.* (2024)³⁰ where minke whales were found to be sensitive to sounds within 45 to 90 kHz.

We are pleased the Applicant has used the dose response curves from Graham *et al.* (2017³¹ and 2019³²) for harbour porpoise for all cetaceans, recognising the significant contribution Ocean Winds has played in the development of these dose response curves. We are also pleased that they have used the dose response curves from Whyte *et al.* (2020)³³ for seals.

For disturbance from UXOs, the Applicant presents two quantitative assessment methods – a 5km Effective Deterrence Range (EDR) for low order clearance and Temporary Threshold Shift (TTS) as a proxy for disturbance. Although using TTS as a proxy is the preferred approach, it is useful to see both methods presented for comparison.

The Applicant adequately addresses operational disturbance from floating wind farms, e.g. due to impulsive snaps and transients from mooring-associated structures.

The Underwater Noise Assessment Methodology is presented in Volume 7B, Appendix 7-2, and the Underwater Noise Assessment is presented in Volume 7, Appendix 6. We are content with the Applicant's methods of modelling PTS/auditory injury, though they do not present disturbance. The correct numbers have been pulled across from the Underwater Noise

²⁹ Southall, B., J. J. Finneran, C. Reichmuth, P. E. Nachtigall, D. R. Ketten, A. E. Bowles, W. T. Ellison, D. Nowacek, and P. Tyack. (2019). Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals* 45:125-232.

³⁰ Dorian S. Houser *et al.* (2024) Direct hearing measurements in a baleen whale suggest ultrasonic sensitivity. *Science* 386, 902-906. DOI:[10.1126/science.ado7580](https://doi.org/10.1126/science.ado7580)

³¹ Graham, I. M., A. Farcas, N. D. Merchant, and P. Thompson. (2017). Beatrice Offshore Wind Farm: An interim estimate of the probability of porpoise displacement at different unweighted single-pulse sound exposure levels. Prepared by the University of Aberdeen for Beatrice Offshore Windfarm Ltd.

³² Graham, I. M., N. D. Merchant, A. Farcas, T. R. C. Barton, B. Cheney, S. Bono, and P. M. Thompson. (2019). Harbour porpoise responses to pile-driving diminish over time. *Royal Society Open Science* 6:190335.

³³ Whyte, K. F., D. J. F. Russell, C. E. Sparling, B. Binnerts, and G. D. Hastie. (2020). Estimating the effects of pile driving sounds on seals: Pitfalls and possibilities. *J Acoust Soc Am* 147:3948.

Assessment into the marine mammal EIA and the ranges modelled are comparable with previous proposals we have been content with. **We highlight that the impact ranges from monopiles are presented as being similar to that of jacket foundations. We have not found an explanation as to why this would be, despite the difference in pile size and hammer energies. We request clarification of this point.**

Impact assessment

Key parameters for assessment

According to Table 7-14, the worst-case spatial scenario is considered to be the installation of monopile foundations because it will require the highest hammer energy (maximum 6600 kJ). This could take up to 72 days to install across 9 years. The worst-case temporal scenario is considered to be a sequential construction of Caledonia North (bottom-fixed jacket foundations) and Caledonia South (a mix of bottom-fixed jacket and floating foundations). This could take up to 515 days in total to install across six years (with a potential gap of up to five years between North and South).

Although the assessment is based on impact ranges and number of animals for monopiles, it is our understanding that the worst-case scenario of pin piles for jackets and anchors was modelled in iPCoD and this is what magnitude is based on. We believe this is because the duration of construction activities is significantly longer for pin piling of jackets and anchors compared to monopiling, whilst the impact ranges are larger for monopiling. We agree with this approach.

Proposal alone impacts summary

Table B1. Caledonia EIA Report conclusions and NatureScot revised scores based on our assessment of the proposal alone.

This table is relevant to the Proposed Development (Offshore) as well as Caledonia North and Caledonia South, as they all had the same EIA conclusions.

Cells shaded in red indicate where our conclusions differ. Receptor codes are as follows: HP – harbour porpoise; BND – bottlenose dolphin; WBD – white-beaked dolphin; RD – Risso’s dolphin; CD – common dolphin; MW – minke whale; HW – humpback whale; HS – harbour seal; GS – grey seal. *Dependent on equipment. ^Significant under EIA.

		EIA assessment conclusions			NatureScot assessment conclusions		
Effect	Receptor	Magnitude	Sensitivity	Significance	Magnitude	Sensitivity	Significance (based on Caledonia’s matrix)
Auditory injury (PTS) from UXO clearance	HP, BND, WBD, RD, CD	Negligible	Low	Negligible	Negligible	High	Negligible
	MW, HW, HS, GS	Negligible	Medium	Negligible	Negligible	High	Negligible
Disturbance from UXO clearance	All	Low	Low	Negligible	Low	Low	Negligible
Auditory injury (PTS) from piling	HP, BND, WBD, RD, CD, HS, GS	Negligible	Low	Negligible	Low	High	Minor
	MW, HW	Negligible	Medium	Negligible	Low	High	Minor
Disturbance from piling	BD (GNS MU)	Low	Low	Negligible	Low	Medium	Minor

	BD (CES MU)	Medium	Low	Minor	Medium	Medium	Moderate^
	WBD	Medium	Low	Minor	Medium	Medium	Moderate^
	HP, CD, RD, HW	Low	Low	Negligible	Low	Medium	Minor
	MW	Low	Medium	Minor	Low	Medium	Minor
	HS (MF ES MUs)	Low	Low	Negligible	Low	Medium	Minor
	HS (NC&O MU)	Low	Medium	Minor	Low	Medium	Minor
	GS	Low	Negligible	Negligible	Medium	Medium	Moderate^
Auditory injury (PTS) from other construction activities	All other	Negligible	Low	Negligible	Negligible	High	Negligible
	HW, MW	Negligible	Medium	Negligible	Negligible	High	Negligible
Disturbance from other construction activities	All Other	Low	Low	Negligible	Low	Low	Negligible
	MW	Low	Medium	Minor	Low	Medium	Minor
	HS, GS	Low	Negligible	Negligible	Low	Negligible	Negligible
Auditory injury (PTS) from geophysical surveys	All	Negligible	Negligible to Low*	Negligible	Negligible	Negligible to High*	Negligible
Disturbance from geophysical surveys	All	Negligible to Low*	Negligible to Low*	Negligible	Negligible to Low*	Negligible to Medium*	Negligible to Minor*
	All other	Medium	Negligible	Negligible	Medium	Low	Minor

Disturbance from operational noise	MW, HW, HS, GS	Medium	Low	Minor	Medium	Low	Minor
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Auditory injury (PTS) from UXO clearance

The sensitivity of marine mammals to auditory injury (PTS) from UXO clearance is scored as Low to Medium in Table 7-18, depending on the species. We disagree with this. As we have identified in Table B1 above, we expect to see a sensitivity scoring of High for all marine mammals assessed for auditory injury impacts from underwater noise. This is due to the known importance of the hearing function to these species, the uncertainty around this impact in the long term, and the high vulnerability and low recoverability of individuals.

Regarding the magnitude, we are content for this to be scored as Negligible for all species assessed, provided deflagration is successful and embedded mitigation is fully implemented. As such, the significance of the effect would remain as Negligible and therefore Not Significant in EIA terms. **However, monitoring should be considered to validate the EIA Report predictions and better understand the likelihood of these impacts.**

Section 7.7.1.2 states that the potential impacts of high order detonation were not assessed. Whilst we would usually expect high order detonation to be included in the assessment, we recognise that with the previous 100% success rate demonstrated by Ocean Winds in low order deflagration techniques at the adjacent Moray West Offshore Wind Farm (Ocean Winds, 2024³⁴), high order detonation is highly unlikely in this case. We are therefore content that the potential impacts of high order detonation were excluded from the assessment.

Auditory injury (PTS) from piling

For auditory injury (PTS) from piling, magnitude is scored as Negligible for all species in Table 7-22. Magnitude is based on the SPL_{peak} , while SEL_{cum} ranges are still considered within the EIA, as detailed in section 7.7.1.34. Given the cumulative PTS ranges (SEL_{cum}) predicted, **we advise that magnitude should be scored as Low for all species for auditory injury from piling.** Whilst we acknowledge that these ranges are likely to be over-precautionary, we highlight that they cannot be fully mitigated, and the assessment should acknowledge this.

As presented in Table 7-22, all marine mammal species have been classified as having Low sensitivity to auditory injury from piling, except for minke whale and humpback whale, which have been classified as Medium. We disagree with these conclusions for the following reasons:

- Much of the reasoning presented relies on findings from Booth and Heinis (2018), which is a workshop report that has not been peer reviewed or published.
- As stated in Section 7.7.1.41, there is a lot of uncertainty around the ecological consequences of PTS and the approach must therefore be precautionary.

³⁴ Ocean Winds, 2024. Low Order deflagration of unexploded ordnance reduces underwater noise impacts from offshore wind farm construction. Available at: <https://oceanwinds.com/wp-content/uploads/2024/05/OW-UXO-BusinessCase.pdf> Accessed: 7th March 2025

- PTS will be a permanent effect on the individual animal and the long-term effects of this impact are unknown.
- Sections 7.7.1.41-43 state that PTS may be induced as a result of impulsive piling in a narrow frequency band, leading to an assumption that effects on survival and fertility are unlikely. This is not supported by any evidence and is highly uncertain.
- Section 7.7.1.44 states that *“the evidence does not suggest that PTS from piling will cause a material impact on either survival or reproductive rates”*. There is very little evidence to support this statement, other than the expert elicitation in Booth and Heinis (2018). Nor is there evidence that there won’t be impacts on these rates – rather there is high uncertainty. Although, as stated by the Applicant, PTS does not mean animals are deaf, we know that hearing can be damaged by underwater noise at levels produced by impact piling, and we know that marine mammals rely heavily on their hearing for a range of vital functions. This includes foraging, navigation, communication and predator avoidance. Therefore, we expect that their sensitivity to this impact will be high.
- As above, we disagree with the rationale that if the frequencies are outside the most sensitive range of hearing, then they are not important.
- The sensitivity classification for cetaceans is based on various studies from Kastelein *et al.*, as detailed in section 7.7.1.42, which focuses on TTS in harbour porpoise in controlled (captive) conditions. We do not consider this approach appropriate due to the significant interspecies variation in hearing of marine mammals, the controlled studies which fail to replicate real world conditions (where pile driving interacts with other stressors) and the reliance on TTS studies ignoring the more ecologically significant impacts of PTS.
- The RaDIN work (Matei *et al.*, 2024³⁵) is referenced in section 7.7.1.34, which we welcome. However, this is based on 10 m (maximum) diameter piles across many developments that are not directly comparable to Scottish waters. We are actively encouraging next steps in taking forward recommendations from the RaDIN project.
- The sensitivity scoring does not take into account the conservation value or importance of these species. All marine mammals have a high conservation value, which implies a high level of sensitivity or vulnerability, and this should be taken into account in the assessment.

As advised in Table B1 above, **we expect marine mammals to be assigned with a High sensitivity to auditory injury from impact piling.** This is due to the known importance of the

³⁵ Matei, M., M. Chudzinska, P. Remmers, M. A. Bellman, A. K. Darias-O'Hara, U. Verfuss, J. Wood, N. Hardy, F. Wilder, and C. Booth. (2024). Range-dependent nature of impulsive noise (RaDIN). Offshore Renewables Joint Industry Programme (ORJIP) for Offshore Wind, Carbon Trust.

hearing function to these species, the uncertainty around this impact in the long term, and the high vulnerability and low recoverability of individuals.

Our revised magnitude and sensitivity scoring changes the overall significance of effect from Negligible to Minor, which is still Not Significant in EIA terms.

We would welcome further bespoke research to distinguish the studies listed in section 7.7.1.42 and the frequencies at which most injury occurs for the piling scenarios we are now being presented (14 m monopiles). We also advise that the outputs of the RaDIN report could be tested through the Applicant's piling plan and post-consent monitoring, and we would welcome further discussion on this.

Disturbance from piling

In Table 7-24, all marine mammal species have been classified as having Low sensitivity to disturbance from piling, except for minke whale and harbour seal within the North Coast & Orkney (NC&O) Seal Management Unit (MU), which have been classified as Medium. We disagree with this conclusion. **We advise that all marine mammal species assessed should be allocated with Medium sensitivity to disturbance from piling** for similar reasons to our advice above for auditory injury from piling. This results in a Minor Significance of effect conclusion for all species assessed, **except for bottlenose dolphin (CES MU), white-beaked dolphin and grey seal, which we conclude have a significance of Moderate, which is Significant in EIA terms.** We discuss this further below.

For white-beaked dolphin, Table 7-29 shows that up to 9.02% of the UK MU (3070 animals) could be disturbed during concurrent piling. The Applicant has concluded a significance of Minor. **However, we conclude that disturbance to white-beaked dolphin from piling should have Medium sensitivity, which with Medium magnitude results in a Moderate and therefore a Significant impact in EIA terms.**

For bottlenose dolphin, Table 7-26 shows that up to 23.67% of the CES MU (58 animals) could be disturbed during concurrent piling. The Applicant has concluded a significance of Negligible for the GNS MU and Minor for the CES MU. **However, we conclude that the magnitude should be even higher for this species when compared to white-beaked dolphin due to the small population associated with the CES MU. Therefore, combined with Medium sensitivity, disturbance to bottlenose dolphin (CES MU) from piling results in a Moderate or even higher significance of effect, which is Significant in EIA terms.**

We do not agree with a Low magnitude allocation to grey seal for disturbance from piling. If we consider all three MUs combined, there is disturbance to potentially 11% of the population. If we consider the Moray Firth MU alone, there is disturbance to up to 30% of the population. We recognise that grey seals move between MUs and so the percentage of the population relevant to the Caledonia proposal could fall somewhere in between 11% and 30%. In this case, we are content to use the average across all 3 MUs, i.e. 11% of the population potentially disturbed by piling. The Applicant has concluded a significance of Negligible. **However, we conclude that disturbance to grey seal from piling should have**

Medium sensitivity and Medium magnitude, resulting in a Moderate significance of effect, which is Significant in EIA terms.

We note that the numbers of harbour porpoise disturbed in Table 7-25 appear to go beyond the UK MU (the number for the whole MU is higher than the UK only).

We highlight that the conservation value has not been considered in the sensitivity assessment for most marine mammal species. Further, sensitivity to disturbance should not solely focus on ability to successfully produce offspring. We recognise this is an important feature when understanding how population dynamics could be affected, but individual and welfare impacts should be considered too.

The Applicant will need to consider the implications of our revised conclusions further, through the development of the Piling Strategy and Marine Mammal Mitigation Protocol (MMMP) with updated assessments, post-consent, to reduce the predicted impact to white-beaked dolphin, bottlenose dolphin (CES MU) and grey seal in particular. Given these predicted impacts, we advise that monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts may be required.

Auditory injury from other construction activities

Table 7-35 shows that all marine mammals have been assigned Low sensitivity to auditory injury from other construction activities, except for minke whale and humpback whale which have been assigned Medium sensitivity. **We advise that the sensitivity for all marine mammals assessed should be considered High for auditory injury from other construction activities.** A magnitude of Low and a sensitivity of High results in a significance of Minor based on the Applicant's matrix of significance, which is Not Significant in EIA terms.

Auditory injury from geophysical surveys

As shown in Table 7-39, we agree that the sensitivity of marine mammals is scored as Negligible for MBES and SSS, as these devices are above the hearing range of marine mammals. However, we disagree with the Low sensitivity scoring for SBP, UHRS and USBL, and we disagree with the rationale that if frequencies are outside the most sensitive range of hearing, then they are not important.

Our understanding of hearing sensitivities in most species is limited, and the importance of frequencies outside the apparent sensitive areas is relatively unknown. New evidence from Houser *et al.*, (2024)³⁶ suggests that the hearing range of minke whales is greater (extending into higher frequency) than previously thought, and this may also be the case in other species. Moreover, we cannot assume that it is inconsequential if only a small region of an animal's hearing is damaged, as that region may have a particular function that is currently unknown.

³⁶ Dorian S. Houser *et al.* (2024) Direct hearing measurements in a baleen whale suggest ultrasonic sensitivity. *Science* 386, 902-906. DOI:[10.1126/science.ado7580](https://doi.org/10.1126/science.ado7580)

For these reasons (and those outlined for sensitivity in PTS for piling), **we advise the sensitivity for all marine mammals assessed for auditory injury from geophysical surveys should be scored as High for SBP, UHRS and USBL.** This changes the overall conclusion of Negligible significance of effect to Minor, which is not Significant in EIA terms. We anticipate full adherence to the JNCC mitigation for geophysical surveys.

Behavioural disturbance from geophysical surveys

Table 7-40 shows that all marine mammals have been assigned Negligible sensitivity to disturbance from the use of MBES and SSS during geophysical surveys, and all marine mammals have been assigned Low sensitivity to disturbance from the use of SBP, USBL and UHRS. For similar reasoning to above, **we advise that the sensitivity for all marine mammals assessed should be considered Medium for disturbance from the use of SBP, USBL and UHRS during geophysical surveys.** This changes the overall conclusion of Negligible significance of effect to Minor for the use of SBP, USBL and UHRS during geophysical surveys, which is Not Significant in EIA terms.

Vessel disturbance & designated seal haul outs

We agree with the conclusions presented in Table 7-42 regarding the significance of vessel disturbance to marine mammals during the construction phase, as well as the justifications provided. We highlight that the Scottish Marine Wildlife Watching Code (SMWWC) should be adhered to as a best practice measure.

We highlight that the port of Ardersier is undergoing substantial expansion, with predicted increases in vessel numbers. Ardersier has committed to research regarding dredging and vessel movements – we encourage the Applicant, if a potential user of the port, to take part in this research.

Indirect impacts on marine mammals via changes in prey availability

The Applicant explains that since no potential impacts were concluded to be Significant in EIA terms in the fish and shellfish chapters, the magnitude has been deemed to be Negligible for indirect impacts on marine mammals via changes in prey availability during construction (sections 7.7.1.280-282).

We are content that during the operational phase, any indirect impacts on marine mammals via changes of prey availability will not be Significant in EIA terms. We welcome the inclusion of EMF in section 7.7.2.93 and highlight this as an area for future strategic monitoring, should the Applicant gain consent for the floating aspect of the project.

Operational noise

A detailed review of current knowledge of operational noise impacts has been presented for this potential impact in Volume 7, Appendix 6, which is useful to see.

All the marine mammal species considered have been scored as either Negligible or Low for sensitivity to operational noise, as shown in Table 7-47.

In sections 7.7.2.20-21, it is stated that most WTG operational noise is concentrated below 200 Hz and therefore is likely to be below the region of greatest sensitivity for most marine mammal species considered. This is only true for the turbine noise, but not for the mooring/cable 'transient' noises, which produce a broad band noise range. These transient noises do not seem to have been included in the sensitivity assessment, although they are mentioned in the magnitude assessment. For this reason, and due to the uncertainty around this impact (as laid out in section 7.7.2.16), **we advise that the sensitivity score should be Low rather than Negligible for all marine mammals with regards to operational noise.**

As such, the significance of the effect would change to Minor, although this is still considered Not Significant in EIA terms. However, given the uncertainties associated with this potential impact, we advise that **monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts will be required.**

Entanglement

We welcome the assessment set out in sections 7.7.2.31-7.7.2.36 around the magnitude of entanglement. It is useful to understand the diameters of the proposed mooring system lines and cables, how taut they should be and the materials they will be made from. We agree with the justification provided and conclusions reached regarding entanglement.

With floating WTGs being a novel technology, we look forward to future consultation with the applicant in developing mitigation and monitoring, as well as preventing entanglement from occurring (should the floating aspect of this proposal gain consent).

Cumulative impact assessment (CIA)

Cumulative impacts are assessed in section 7.8 of Volume 2, Chapter 7.

We are content with the impacts screened in and out of the cumulative assessment.

We are also content with tier 4 projects being scoped out of the cumulative assessment, as was agreed during pre-application consultation.

Caledonia OWF construction timeline

In section 7.8.3.1 it states that two scenarios were taken forward to the cumulative assessment, the 'Concurrent Construction Scenario' (i.e. concurrent construction of Caledonia North and Caledonia South) and the 'Sequential Construction Scenario' (i.e. sequential construction of Caledonia North and Caledonia South with no gap). These were selected as they both have the maximum duration due to both including installation of pin piles for jackets and anchors. The text goes on to explain that only the sequential construction scenario with no gap is assessed quantitatively, with the concurrent construction scenario only provided for context and included in iPCoD.

We highlight that as no cumulative assessment has been done for the sequential construction scenario with up to a five-year gap, **if there were a significant gap between the construction of Caledonia North and Caledonia South, the Applicant will need to update the CIA post-**

consent. This is because the timings of construction would straddle different projects to those assessed in the current CIA. In this case, the Applicant will also need to consider the age of their baseline data and whether this needs updated too. This advice also applies to the in-combination assessment for the RIAA.

CIA considerations

We consider that potential cumulative impacts should be re-assessed. Any re-assessment should be discussed and agreed in advance. We identify the following recommendations for the re-assessment:

- Assessment of Caledonia North for the Caledonia South cumulative assessment and vice versa.
- When screening projects for inclusion in the CIA and where other projects do not have submission documents available in the public domain, we expect the Applicant to use the same hierarchy approach as is used for density estimates for all scoped in species. Whereby the highest density between DAS and SCANS IV is used, if this is not available then SCANS III is used, if this is not available then a density estimate from scientific literature is used, and if none of these are available then a qualitative assessment is carried out.
- Use of the UK portion of the MU when calculating the percentage of the reference populations, as well as for basing iPCoD (the reference populations presented in the current CIA and run through iPCoD were inconsistent between using whole MUs and UK portions).
- Run the concurrent, sequential and gap scenarios through iPCoD for each species (this was not consistent throughout the iPCoD modelling report).
- Base magnitude of impact on bottlenose dolphin MUs separately (overall results presented in Table 7-59 of Volume 2, Chapter 7 were merged as medium between the CES MU and GNS MU for the CIA).
- Present the results for the percentages of the UK MUs disturbed for each species for all projects scoped in combined, rather than only presenting separate results for Tier 1, Tier 2 and Tier 3 projects.
- Include export cable corridors (ECCs) in the assessment, particularly for bottlenose dolphin and minke whale.

It appears the Applicant has used a species-specific cumulative assessment approach, separating projects into tiers depending on how much information was available, based on the sequential construction scenario with no gap for pin piles/jackets only. They have provided a quantitative assessment for tier 1 based on information provided by those projects, and they have provided a quantitative assessment for tier 2 and tier 3 based on

Effective Deterrence Ranges (EDRs), which we have agreed to in pre-application consultation. Table 7.57 shows that the EDR is 26 km for monopiles and 15 km for pin piles.

In Table 7-57, we note that SCANS IV is used for densities to assess the number of animals potentially disturbed for projects without a qualitative assessment available, which will make the numbers different to the Applicant's own EIA. This does not change the outcome of our advice, but we would prefer the Applicant to be more consistent between their own proposal and others. This is one of the reasons we advise using the highest density between SCANS IV or DAS, as explained previously. If the Applicant's densities are lower than the SCANS IV densities, they could be downplaying their proposal.

We advise that projects with overlapping noise to the CES MU for bottlenose dolphin are screened into the CIA. The third bullet point in section 7.8.4.11 explains that if a project doesn't have submission documents available in the public domain, it has been assigned to the SCANS IV block that it overlaps with. It also explains that if the density of the relevant species is not provided for a SCANS IV block that the project is assigned to (i.e. there were no sightings of relevant species in this block), then that project is not considered further for this species. This approach is of concern because broad-scale systematic surveys such as SCANS IV have limited ability to detect coastal species such as the CES MU population of bottlenose dolphins, which is synonymous with the Moray Firth SAC. Therefore, SCANS IV is not representative of coastal bottlenose dolphin presence. As such, **we do not agree with this approach of scoping out all projects/species for which no density estimate from SCANS IV is available**. Where other projects do not have submission documents available in the public domain, we would have expected the Applicant to have used the same hierarchy approach as is used for density estimates for all scoped in species. Whereby the highest density between DAS and SCANS IV is used, if this is not available then SCANS III is used, if this is not available then a density estimate from scientific literature is used, and if none of these are available then a qualitative assessment is carried out.

As we agreed with the Applicant in pre-application consultation, they have included all projects with construction activities overlapping the Caledonia North and Caledonia South construction timeline (2028-2032), including a year on either side.

We assume there is an error in the definition of the asterisk at the bottom of Table 7-58 that reads "** These projects are considered in the CIA as they became operational following the collection of baseline data for the Proposed Development (Offshore)*". We assume the Applicant means: *These projects are not considered in the CIA as they become operational before Caledonia (North and/or South) proposes to begin construction*. This wording would fit better with the table as it states that no species of marine mammal will be scoped in for quantitative CIA for the projects with an asterisk.

Further, we note that export cable corridors have been excluded from the CIA. We would have expected to see at least a qualitative assessment of the vessel disturbance associated

with ECCs, particularly for bottlenose dolphin and minke whale with regards to the CES MU/Moray Firth SAC and the Southern Trench NCMPA.

With regards to section 7.8.5, we acknowledge the precaution built into the CIA around the number of developments that could be undergoing construction at the same time, the project parameter uncertainty and the enlarged construction timelines.

Harbour porpoise – Table 7-58

West of Orkney, which overlaps the harbour porpoise NS MU, has not been included in the CIA for harbour porpoise. We appreciate that it will be on the far side of Orkney and mostly lies within the adjacent MU, but it does overlap the harbour porpoise MU and noise contours could overlap further still. Therefore, **we would have expected West of Orkney to be included.**

Bottlenose dolphin – GNS MU – Table 7-58

As the GNS MU for bottlenose dolphin is largely the same as the NS MU for harbour porpoise, we would have expected the same projects to be scoped in that were scoped into the harbour porpoise CIA. We appreciate that some projects might not have been included due to the cut off date for inclusion in this CIA. However, the GNS and NS MUs should be more consistent with each other.

White-beaked dolphin, common dolphin, Risso's dolphin & minke whale – Table 7-58

White-beaked dolphin, common dolphin, Risso's dolphin and minke whale all share the same MU. Therefore, provided all other projects within that MU scoped the same species in, then **the projects scoped in for quantitative assessment should all be the same.** However, they are not. Perhaps this is because many of the projects on the east coast did not scope in common dolphin or Risso's dolphin.

This should mean that for white-beaked dolphin and minke whale, the list of projects should be the same, which they are **except for Havbredey which has been scoped in for white-beaked but not for minke whale.**

Seals – Table 7-58

The East Scotland (ES) Seal Management Unit (SMU) is included for grey seal, but not for harbour seal, which could explain why the sites scoped in for each species are different. **We would have expected the same MUs and therefore the same sites to be scoped in for each species of seal.**

Cumulative impacts summary

Table B2. Caledonia EIA Report conclusions and NatureScot revised scores based on our assessment of the proposal cumulatively.

This table is relevant to the Proposed Development (Offshore) as well as Caledonia North and Caledonia South, as they all had the same EIA conclusions.

Cells shaded in red indicate where our conclusions differ. Receptor codes are as follows: HP – harbour porpoise; BND – bottlenose dolphin; WBD – white-beaked dolphin; RD – Risso’s dolphin; CD – common dolphin; MW – minke whale; HW – humpback whale; HS – harbour seal; GS – grey seal. *Dependent on equipment. ^Significant under EIA.

		EIA assessment conclusions			NatureScot assessment conclusions		
Effect	Receptor	Magnitude	Sensitivity	Significance	Magnitude	Sensitivity	Significance
Disturbance from piling	HP, BND (GNS)	Medium	Low	Minor	Medium	Medium	Moderate^
	BND (CES)	Medium	Low	Minor	High	Medium	Moderate^
	WBD	High	Low	Minor	High	Medium	Moderate^
	MW	Low	Medium	Minor	Medium	Medium	Moderate^
	CD, RD	Low	Low	Negligible	Low	Medium	Minor
	HS, GS	Low	Low to Medium (NC&O SMU)	Minor	Medium	Medium	Moderate^
Disturbance from vessels	All other	Low	Low	Neg	Low	Low	Negligible
	MW	Low	Medium	Minor	Low	Medium	Minor
Disturbance from geophysical surveys	All	Negligible to Low*	Negligible to Low*	Negligible	Negligible to Low*	Medium	Minor
	All other	Medium	Negligible	Negligible	Medium	Low	Minor

Operational noise	MW, HW, HS, GS	Medium	Low	Minor	Medium	Low	Minor
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Disturbance from underwater noise during piling

We recognise that the cumulative assessment for disturbance from piling carries a high degree of precaution and uncertainty, including the unknown project parameters and timelines, the species densities and impact ranges used to calculate the number of animals affected, and the reliance on snapshot SCANS estimates of populations. Not to mention, how each species population will react to disturbance in the short and long term.

We agree that splitting projects into tiers is a logical way of including them all in the assessment while differentiating the confidence in information between each project. However, it appears that the results tables show results only for each tier (1, 2 and 3), and not as a total of the three tiers. **The presentation of the results using the tiered approach means we are unclear what the predicted overall cumulative impact is and what we therefore need to base our advice on. We query if the overall cumulative result would be the three tiers combined?** For example, the three tiers for harbour porpoise in Table 7-61 would equal 19.77% of the NS MU for 2028. Perhaps many of the same individuals would be exposed to the disturbance from all three tiers at once, so it would not be a simple case of totalling each tier, but it is difficult to gauge from what is presented.

It also was unclear in the CIA if all three tiers had been included in the iPCoD models for each species. However, we note from the iPCoD appendices that all three tiers had been included.

Taking the results of the CIA at face value, we disagree with some of the magnitude scorings. **We advise that the magnitude for disturbance from piling should be increased to High for bottlenose dolphin (CES), Medium for minke whale and Medium for grey seal and harbour seal.**

Further, as above for the proposal alone assessment, we disagree with the sensitivity scoring of Low assigned to most species for disturbance from piling. Instead, **we advise that sensitivity to disturbance from piling should be Medium for all species** (noting that minke whale is already assigned as Medium).

Therefore, our revised magnitude and sensitivity scorings mean the significance for common dolphin and Risso's dolphin would change to Minor, which is still considered Not Significant in EIA terms. **However, the significance for harbour porpoise, bottlenose dolphin, white-beaked dolphin, minke whale, grey seal and harbour seal would change to Moderate for cumulative disturbance from piling, which is Significant in EIA terms.**

As such, the Applicant will need to consider the implications further, through the development of the piling strategy and Marine Mammal Mitigation Protocol (MMMP) with updated assessments, post-consent, for all species considered in the EIA Report, but for white-beaked dolphin, bottlenose dolphin, harbour porpoise, minke whale, grey seal and harbour seal in particular. Given these predicted impacts, we advise that monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts will be required.

We provide further species-specific advice below.

Harbour porpoise

As shown in Table 7-61, the highest proportion of harbour porpoise to be disturbed in a day was 6.98% of the NS MU. This is approximately 15% for the UK portion of the NS MU. If we consider the tier 1 projects, the variability between numbers is large and not proportional to the type of

technology or the scale of the project. This is likely due to different methods of underwater noise modelling.

The magnitude of Medium combined with the Medium sensitivity, results in a Moderate significance of effect for cumulative disturbance during piling for harbour porpoise, which is Significant in EIA terms.

Bottlenose dolphin

Although some tier 2 projects are missing, where they will have applied an EDR, Salamander, Berwick Bank and Ossian have all used dose response curves from harbour porpoise which we believe to be over precautionary. However, as with the project alone assessment, the percentage of the CES MU potentially disturbed by underwater noise outlined in Table 7-63 is of concern (up to 32.24%). As such, we advise the magnitude should be scored as High instead of Medium for the CES MU bottlenose dolphin population.

The magnitude of Medium combined with the Medium (GNS MU) to High (CES MU) sensitivity, results in a Moderate significance of effect for cumulative disturbance during piling for bottlenose dolphin, which is Significant in EIA terms.

As detailed in section 7.8.6.23, it is concerning that even after 25 years, there is a significant 'reduction' in the bottlenose dolphin CES MU population. However, it is important to bear in mind the baseline trajectory, as this percentage reduction is not from where the population is now (226 animals). The CES MU population in iPCoD seems to be projected to almost triple in 25 years which we do not think is realistic. We recognise the precaution (non species-specific dose response, densities and swim speed), limitations and uncertainties built in each step of producing iPCoD results. While it is useful to understand how the models predict the future trajectory of a population, the results need to be interpreted with caution.

White-beaked dolphin

The numbers of white-beaked dolphin potentially disturbed by underwater noise from tier 1 to 3 projects are also concerning (up to 26.66% of the MU population), as shown in Table 7-65. However, we recognise the level of precaution built into the assessment and appreciate that this species may be skewed to be of higher disturbance due to higher numbers coming from other projects. For example, if we remove Salamander, which has disproportionately large numbers, the highest result is 14.09% of the MU population. This is still significant though more comparable with other species.

The magnitude of High combined with the Medium sensitivity, results in a Moderate significance of effect for cumulative disturbance during piling for white-beaked dolphin, which is Significant in EIA terms.

Minke whale

For minke whale, Table 7-71 shows that up to 11.45% of the MU population could be disturbed by underwater noise per day for tier 2, but this is assuming nine offshore wind farms are constructed at the same time in Scotland, which seems unlikely given the constraints on supply chains. However, taking the results at face value, we advise the magnitude should be increased from Low to Medium for minke whale.

The magnitude of Medium combined with the Medium sensitivity, results in a Moderate significance of effect for cumulative disturbance during piling for minke whale, which is Significant in EIA terms.

Seals

For harbour seal, Table 7-73 shows that up to 14.15% of the NC&O SMU population and up to 6.26% of the MF SMU population could be disturbed by underwater noise in a day. For grey seal, Table 7-75 shows that up to 18.22% of the combined MF, NC&O and ES SMU population could be disturbed in a day. Given these results, we advise the magnitude should be increased from Low to Medium for both grey seal and harbour seal.

The magnitude of Medium combined with the Medium sensitivity, results in a Moderate significance of effect for cumulative disturbance during piling for grey seal and harbour seal, which is Significant in EIA terms.

We highlight the connectivity to the Dornoch Firth and Morrich More SAC for harbour seal, and the currently unfavourable declining status of the Moray Firth SMU for harbour seals.

Operational noise

Our advice above for the proposal alone assessment applies to the cumulative assessment also.

Caledonia North

Caledonia North is considered alone and in-combination with other plans and projects in Volume 3, Chapter 7 of the EIA Report. The advice provided above for the Proposed Development (Offshore) is also relevant to Caledonia North. However, we provide comments specific to Caledonia North as follows:

The EIA matrices were the same for Caledonia North as for the Proposed Development (Offshore). The overall advice is therefore largely the same for Caledonia North. However, we note small differences in the numbers fed into the assessment, which is expected as the modelling locations are not the same and Caledonia North proposes only fixed WTGs. The impact ranges are similar between monopiles and jacket foundations, so it is curious that with monopiles taking much less time, that the overall impact was not smaller for Caledonia North.

We note that Caledonia South is not considered in the CIA for Caledonia North.

Caledonia South

Caledonia South is considered alone and in-combination with other plans and projects in Volume 4, Chapter 7 of the EIA Report. The advice provided above for the Proposed Development (Offshore) is also relevant to Caledonia South. However, we provide comments specific to Caledonia South as follows:

The EIA matrices were the same for Caledonia South as for the Proposed Development (Offshore). The overall advice is therefore largely the same for Caledonia South. We note the numbers of animals impacted are identical to the Proposed Development (Offshore). While we understand the impact ranges are likely to be the same (jackets and anchors) we would expect the length of time it

would take to build Caledonia South only would be less than the time it would take to build Caledonia North and Caledonia South sequentially.

We note that Caledonia North is not considered in the CIA for Caledonia South.

Mitigation

Proposed embedded mitigation for marine mammals is outlined in Table 7-13 of Volume 2, Chapter 7 and Table 6-1 of the RIAA Part 1. The Applicant has not proposed any secondary mitigation because they did not conclude any Significant effects in EIA terms. Measure M-8 in the RIAA covers the development of an Environmental Management Plan but is missing the inclusion of an Entanglement Management Plan, as is detailed in measure M-108 of the EIA (Table 7-13 of Volume 2, Chapter 7). We also highlight that the proposed mitigation for collision risk (sections 8.2.1.6-8 of the RIAA Part 2, 9.2.1.6-8 of the RIAA Part 3 and 10.2.2.106-108 of the RIAA Part 4) should include reference to the Scottish Marine Wildlife Watching Code (SMWWC).

The Draft Marine Mammal Mitigation Protocols (MMMPs) for Caledonia North and Caledonia South are presented in Volume 7, Appendix 13 and Appendix 14, respectively. The mitigation set out in these documents is standard and follows JNCC guidelines for reducing injury from UXO, piling and geophysical surveys. We highlight that the MMMPs refer to mitigation measures for marine mammals. **We advise that the MMMPs should also apply to basking sharks**, if they are observed, as the mitigation measure will be the same.

Noise Abatement Systems (NAS) have not been discussed in relation to piling mitigation. **We recommend that NAS should be considered as a possible measure to reduce the risk of both PTS and disturbance from piling (as well as UXO clearance)**, especially considering the high level of uncertainty identified in the assessments. Technical development of NAS is ongoing, and the available methods at the time should be considered when finalising the MMMP.

Section 3.3 of the draft MMMPs details the proposed mitigation for low order UXO clearance, which seems appropriate. We note that it will be finalised once the requirements for UXO clearance are known, post-consent. Additional mitigation should be considered within the MMMP to account for an accidental high order detonation, including visual searches, PAM and ADDs.

For piling in section 4.5, the draft MMMPs propose the use of Acoustic Deterrent Devices (ADDs). This approach has been used previously, so we are content to accept it at this stage, subject to further discussion post-consent.

During geophysical surveys in nearshore waters, we recommend the inclusion of directional survey transects. Survey transects (perpendicular to the coast and parallel to the coast) should start at the coast and move seaward to reduce the likelihood that marine mammals are trapped near the shore, which may be of particular importance to coastal bottlenose dolphins.

Monitoring

As above, **we advise that monitoring to validate the EIA Report predictions and better understand the likelihood of these impacts of disturbance from piling and UXO clearance may be required.**

Site-specific noise monitoring during could be undertaken to validate the assessments in the EIA Report and we recommend that the NPL Good Practice Guide (2014)³⁷ is followed.

During the agreement of the Marine Mammal Mitigation Plan and Piling Strategy **the applicant may be asked to contribute to monitoring and research to address resolving uncertainty or knowledge gaps for any species for which there is still significant impact identified**. This could be monitoring of species population numbers, monitoring to inform species specific dose response curves and/or monitoring piling timings and patterns to increase knowledge on disturbance ranges responses.

Furthermore, **we advise that monitoring of transient noises from mooring lines and cables will be required** due to the lack of understanding of this potential impact.

Lastly, **we highlight indirect EMF effects on marine mammals via changes in prey availability as an area for future strategic monitoring**.

Our monitoring advice specific to the Southern Trench NCMPA is presented in Appendix G.

European Protected Species (EPS) considerations

At the end of the UXO clearance, piling and geophysical survey assessments, there is a section covering EPS considerations, as requested at pre-application. Although brief, it is helpful that this has been considered at this stage.

For most impacts, we are content with the conclusions regarding the likely need for EPS licensing for certain activities and the initial without prejudice predictions of effects on Favourable Conservation Status. However, for auditory injury from piling, we disagree that mitigation will reduce the risk to negligible. Whilst this may be true for instantaneous PTS (SPL_{pk}), which can be fully mitigated, there is still a potential risk from cumulative PTS (SEL_{cum}), which cannot be fully mitigated. Thus, further consideration will be required at the time of submitting the EPS licence application.

Consideration as to what the implications might be for cetaceans under the Inshore³⁸ and Offshore³⁹ Regulations in terms of how the risk of injury and / or disturbance at an individual animal and /or population level can be mitigated will be required. At the EPS licensing stage, it may be that piling parameters can be refined to be more realistic, methods for modelling and predicting impacts may have improved, and additional / improved mitigation measures may be available to ensure the risk of auditory injury is negligible.

³⁷ Good Practice Guide for Underwater Noise Measurement, National Measurement Office, Marine Scotland, The Crown Estate, Robinson, S.P., Lepper, P. A. and Hazelwood, R.A., NPL Good Practice Guide No. 133.

³⁸ Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)

³⁹ Conservation of Offshore Marine Habitats and Species Regulation 2017

RIAA

The RIAA should provide sufficient information and evidence for the case being presented and should essentially be a standalone document. In this instance, the information and justification for various modelling decisions is lacking and makes it difficult for the reader to follow without delving into the EIA Report and associated appendices. In addition, due to these issues some key information was misrepresented in the RIAA.

Dornoch Firth and Morrich More SAC - Harbour seal

In our advice in response to the Caledonia HRA Screening Report (4th November 2022), for harbour seal we advised “*screening sites in for assessment if the project site/impact radius is within 50 km of the SAC*”. We note that the Dornoch Firth and Morrich More SAC, designated for harbour seals, is within 50 km of the impact ranges from underwater piling noise (see Figure 7-10 in Volume 2, Chapter 7 of the EIA Report, which shows the SELss (dB re 1 uPa²s)). **Therefore, the Dornoch Firth and Morrich More SAC should have been screened in for a potential likely significant effect on the site.**

We request further information from the Applicant providing consideration of underwater noise from piling resulting in a likely significant effect on the harbour seal qualifying species of the Dornoch Firth and Morrich More SAC, and an assessment of Adverse Effect on Site Integrity if required. This applies to Caledonia North, Caledonia South and the Proposed Development (Offshore), both alone and in-combination.

Moray Firth SAC - Bottlenose dolphin

We are unable to conclude no adverse effect on site integrity for the Moray Firth SAC with respect to behavioural disturbance from pile driving during construction of Caledonia North, Caledonia South or the Proposed Development (Offshore) alone (and therefore also in-combination with other plans and projects). Further detail is provided below.

We highlight that the Republic of Ireland is not part of the UK, and therefore the bottlenose dolphin resident population in the Shannon estuary is not a UK population.

Impacts screened in/out

We agree with the impacts screened in and out of the RIAA for the bottlenose dolphin qualifying species of the Moray Firth SAC. In particular, we agree that secondary entanglement can be screened out based on bottlenose dolphin staying relatively close to the coast. However, we do not agree with the justification that only areas of high fishing presence have the potential to cause secondary entanglement, as discussed in section 2 of the RIAA Part 1.

Behavioural disturbance from pile driving

The RIAA concludes that there will be no adverse effect on site integrity on the bottlenose dolphin qualifying species of the Moray Firth SAC with respect to behavioural disturbance from pile driving. This conclusion relates to both alone for Caledonia North, Caledonia South or the Proposed Development (Offshore) and in-combination with other plans or projects.

However, we are unable to conclude no adverse effect on site integrity for the Moray Firth SAC with respect to behavioural disturbance from pile driving during construction of Caledonia North, Caledonia South or the Proposed Development (Offshore) alone (and therefore also in combination with other plans and projects).

In order to reduce the risk of an adverse effect on site integrity, we advise that the following:

- **The Applicant will need to consider the implications further, through the development of the Piling Strategy and Marine Mammal Mitigation Protocol (MMMP) with updated assessments, post-consent, for bottlenose dolphin (as well as all other species considered in the EIA).**
- Noise Abatement Systems (NAS) have not been discussed in relation to piling mitigation. **We recommend that NAS should be considered as a possible measure to reduce the risk of both PTS and disturbance from piling (as well as UXO clearance),** especially considering the high level of uncertainty identified in the assessments. Technical development of NAS is ongoing, and the available methods at the time should be considered when finalising the MMMP.

If consented, the impact of behavioural disturbance from piling on the bottlenose dolphin qualifying species of the Moray Firth SAC will need to be re-assessed once the project envelopes are narrowed with turbine and foundation selection, etc. If an adverse effect on site integrity still cannot be ruled out, imperative reasons of overriding public interest (IROPI) will need to be considered.

Monopiles (worst-case spatial scenario)

Monopiles are considered the worst-case spatial scenario, as stated in Tables 8-2, 9-2 and 10-6 of the RIAA Part 2, Part 3 and Part 4, respectively. Section 9.2.1.32 of the RIAA Part 3 (Caledonia South) states that up to 57 individuals and 23.27% of the SAC population have the potential to be disturbed on any one day that concurrent piling takes place, with 56 individuals and 22.86% of the SAC population disturbed from a single piling event. Similar is presented for Caledonia North. It is unclear why the numbers of animals disturbed is less for a single piling event than concurrent piling.

Pin piles (worst-case temporal scenario)

Pin piles are considered the worst-case temporal scenario, as stated in Tables 8-2, 9-2 and 10-6 of the RIAA Part 2, Part 3 and Part 4, respectively. The iPCoD modelling was run based on 515 days of piling for the Proposed Development (Offshore), 79 days of piling for Caledonia North and 451 days of piling for Caledonia South.

After comparing text between the RIAA and the EIA Report, we have found specific RIAA text to be misleading as the timeframe has not been included in the RIAA. Text underlined below is key information missing from the RIAA that is included within the EIA Report.

- For Caledonia North, following the cessation of piling, the impacted bottlenose dolphin population size increased back up to a deviation of 1.93% compared to an unimpacted population by 2048.
- For Caledonia South, there is a 5.36% bottlenose dolphin population deviation 18 years after the pile driving finishes compared to an unimpacted population.

Section 9.2.1.36 states that piling will occur over a maximum of 41 days which is incorrect, the worst-case scenario for disturbance is pin pile driving over 451 days. However, as the iPCoD was run on 451 days of piling, we can accept that the worst-case scenario was covered.

Proposed Development (Offshore) sequential piling

In the RIAA Part 4, section 10.2.2.33, it states that the worst-case scenario is the sequential construction with a 5-year gap between construction of Caledonia North and Caledonia South (which is backed up by the Marine Mammals Population Modelling (iPCoD) Appendix - Volume 7B, Appendix 7-4). However, paragraph 10.2.2.36 states that a deviation of 7.7% is observed for the worst-case scenario. This is incorrect as it is from the concurrent piling scenario, not sequential piling with a maximum of a 5-year gap. It is exceptionally important to include the timeframe of the deviation being referred to for each scenario to fully understand the long-term impacts on the population without having to cross-reference numerous documents. Considering this deviation from 7.72% during concurrent piling reduces to 6.11% after 18 years is an important factor to consider. As this has not been identified as the worst-case scenario, we are uncertain why this has been included in the assessment.

Missing from the assessment is the scenario deemed to be worst-case which is the 5-year gap scenario. The results of the iPCoD show that in 2052, the deviation is 7.39% with the highest deviation shown in 2037 of 9.46%.

Additionally, in section 10.2.2.35, the worst-case scenario is stated to be 451 days. However, as outlined within the EIA (Table 7-14 of Volume 2, Chapter 7) and modelled in iPCoD (section 1.2.2.2 of Volume 7B, Appendix 7-4), the worst-case maximum piling duration is 515 days. Regardless, as we believe the worst-case scenario of 515 days was used in the iPCoD modelling we can agree that this is just a typographical error.

One of the conservation objectives of the Moray Firth SAC is to ensure that *“the distribution of bottlenose dolphin throughout the site is maintained by avoiding significant disturbance”*. The worst-case spatial scenario predicts that over 20% of the Moray Firth SAC bottlenose population has the potential to be disturbed from a single monopile installation event, which we consider to be significant disturbance. Further, a large portion of the CES MU overlaps with the impact ranges from pile driving activities, potentially limiting the distribution of the bottlenose dolphin population in the Moray Firth for the duration of the construction activities. As such, **we conclude an adverse effect on site integrity for the Moray Firth SAC with respect to behavioural disturbance from pile driving during construction of Caledonia North, Caledonia South or the Proposed Development (Offshore) alone (and therefore also in-combination with other plans and projects), based on the worst case scenario presented and assessed.**

Auditory injury (PTS) from pile driving

Overall, we agree with the conclusion that auditory injury from pile driving will not result in an adverse effect on site integrity on the bottlenose dolphin qualifying species of the Moray Firth SAC during construction and decommissioning of Caledonia North, Caledonia South or the Proposed Development (Offshore) alone.

It is noted that modelling location 8 is the worst-case piling scenario for Caledonia North, as mentioned in section 8.2.1.18 of the RIAA Part 2. However, this piling location is from the most western southern point of Caledonia South and is not relevant here. Fortunately, the impact ranges for all eight modelling locations have the same PTS impact ranges for high frequency cetaceans such as bottlenose dolphins.

Due to the < 50 m (SPL_{peak}) impact range, the addition of Marine Mammal Observers (MMO) monitoring a 500 m mitigation zone will further reduce the potential for instantaneous PTS.

UXO clearance

We agree with the conclusions that auditory injury and behavioural impacts from UXO clearance (low order deflagration) will not result in an adverse effect on site integrity on the bottlenose dolphin qualifying species of the Moray Firth SAC during construction and decommissioning of Caledonia North, Caledonia South or the Proposed Development (Offshore) alone. However, once further investigative surveys have taken place post-consent, we advise that a UXO removal strategy is presented. This should include the potential for high order detonation occurring, subsequent assessment of this and an assurance that predicted impacts are accounted for as a worst-case scenario.

We do not agree with the statement (section 8.2.1.40 of the RIAA Part 2, section 9.2.1.48 of the RIAA Part 3 and section 10.2.2.47 of the RIAA Part 4): *“The primary acoustic energy from the low order clearance is below the region of greatest sensitivity for bottlenose dolphin (8.8 to 110kHz). If PTS were to occur within this low frequency range, it would be unlikely to result in any significant impact to vital rates of bottlenose dolphins, and therefore individuals are not considered particularly sensitive to this nature of auditory impact”*. As we highlighted in our EIA advice above for piling, if PTS were to occur this is considered an injury. We do not yet fully understand how important hearing at a particular frequency is for any species - it may not be essential for communication or prey location but it may reduce the ability of the an individual to fully assess a risk from other species or from an anthropogenic source which has a broad frequency spectrum.

Geophysical surveys

The assessment of behavioural disturbance from underwater noise during geophysical surveys is undertaken in sections 8.2.1.63-66 of the RIAA Part 2, 9.2.1.71-74 of the RIAA Part 3 and 10.2.2.70-73 of the RIAA Part 4. Referring to the MMMP (M-16) does not provide any real value here. Instead, a quantitative assessment of the number of individuals likely to be disturbed could have been carried out.

We do not agree that there is a lack of sensitivity of bottlenose dolphins to the geophysical survey equipment proposed to be used. The equipment has the potential to cause disturbance to bottlenose dolphins and it cannot be dismissed by stating that the species are not sensitive to the proposed equipment. However, based on the coastal distribution of the bottlenose dolphin CES population and the limited spatial extent of disturbance impacts, we agree that there is no adverse effect on site integrity from behavioural disturbance during geophysical surveys on the bottlenose dolphin qualifying species of the Moray Firth SAC. This applies to Caledonia North, Caledonia South and the Proposed Development (Offshore).

We understand that the assessment of geophysical surveys was undertaken using typical survey equipment values for offshore wind farms. However, once survey contractors have been established, we advise that equipment operating frequencies and sound pressure levels are checked to ensure they are within the ranges of what has been assessed in the RIAA and that this is considered further within EPS Risk Assessments for any Marine License applications.

Underwater noise from other construction activities

The assessment of underwater noise from other construction activities is discussed in sections 8.2.1.67-75 of the RIAA Part 2, 9.2.1.75-83 of the RIAA Part 3 and 10.2.2.74-82 of the RIAA Part 4. These sections heavily focus on vital rates, which we agree is an important factor when assessing the long-term impact on marine mammal species. However, it is not the only factor to consider within an HRA. Overall, this assessment is less detailed, but based on previous experience and the distribution of the Moray Firth SAC bottlenose dolphin population we can agree with the conclusion of no adverse effect on site integrity.

In-combination assessment

Given that we have concluded an adverse effect on site integrity for the Moray Firth SAC with respect to behavioural disturbance from pile driving during construction of Caledonia North, Caledonia South or the Proposed Development (Offshore) for the project alone assessment, we have not provided in-depth advice on the in-combination assessment. However, please note our advice on the EIA CIA also applies to the RIAA in-combination assessment.

Projects scoped in/out

We note that the EIA has screened in Ossian for the cumulative assessment but not Moray West, but the opposite is true for the RIAA. We are unclear why this approach has been taken, especially as the EIA has split the cumulative screening process into management units which is mirrored in the RIAA. Additionally, this criterion does not seem to account for the offshore ECCs that landfall within the CES MU or the potential for large impact ranges from construction activities which have the potential to overlap with the CES MU.

Vessel disturbance

The Proposed Development (Offshore) will have up to four offshore export cables transversing the CES MU, and there are numerous other projects with cable routes through the CES MU area along the east coast of Scotland. We understand that the information on the exact landfall sites or construction methods of the export cables for other proposals are probably not all in the public domain. However, construction methodology is usually relatively standard. Therefore, the potential for in-combination vessel disturbance impacts cannot be overlooked. **We will require a full in-combination assessment of the impact of vessel disturbance on the bottlenose dolphin qualifying species of the Moray Firth SAC, if this is not addressed satisfactorily as part of the National Energy System Operator (NESO) Strategic Environmental Assessment (SEA) and HRA for the Holistic Network Design (HND).**

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX C – FISH AND SHELLFISH ECOLOGY

Fish and shellfish interests are considered in the EIA Report in Volume 2, Chapter 5 for the Proposed Development (Offshore), Volume 3, Chapter 5 for Caledonia North, and Volume 4, Chapter 5 for Caledonia South. This receptor is also considered in Appendices 6, 8 and 9 of Volume 7, Appendix 7-1 of Volume 7A and Appendix 5-1 of Volume 7B. Atlantic salmon are further considered throughout the Habitat Regulations Appraisal (HRA) Stage 1 Screening Report and the Report to Inform the Appropriate Assessment (RIAA).

The following EIA Report advice is in relation to Volume 2, Chapter 5 for the Proposed Development (Offshore) but is also relevant to Volume 3, Chapter 5 for Caledonia North and Volume 4, Chapter 5 for Caledonia South, unless otherwise specified.

Our advice on fish and shellfish is limited to consideration of potential impacts to protected species and/or the inter-relationship between prey, predators and healthy and diverse marine ecosystems.

Summary

The assessment in the EIA report for fish and shellfish concludes that the proposed development is likely to have impacts of Negligible to Minor significance for fish and shellfish receptors, which is considered Not Significant in EIA terms. **We largely agree with the overall conclusions reached, with the exception of the conclusions reached for sandeel and herring.** The potential impacts to sandeel and herring may be more significant than has been concluded, particularly in the context of potential cumulative impacts from other marine industries and offshore wind farm developments in the area.

There are also issues relating to Caledonia South, due to the project envelope inclusion of floating technology and our collective limited understanding of potential impacts because of the more novel nature of this technology. For example, for basking shark, in Caledonia North fixed bottom WTGs have been included as a worst-case scenario for displacement and habitat loss. However, **we consider the infrastructure of floating WTGs (mooring lines and dynamic cables) in Caledonia South have a potentially larger impact (e.g. barrier/displacement) but this has not been assessed as the worst-case scenario.**

Further, in the EIA Report for the Proposed Development (Offshore), **UXO clearance has not been included in the worst-case scenario table or the numerical modelling and has not been assessed for resulting impacts such as suspended solids and temporary habitat disturbance. If the proposals are consented, we request the need for these aspects to be addressed in post consent plans.**

We welcome the commitment of developing an Offshore Environmental Management Plan and a Project Environmental Monitoring Programme. **We recommend that the following aspects are included in these post-consent plans:**

- **Additional sediment analysis within the offshore array area to identify the suitability of habitat for spawning species (e.g. herring and sandeel). The results of which should inform the foundation choice.**

- **A Fish Mitigation Plan**, including measures such as:
 - Noise mitigation techniques during peak spawning periods for herring and/or sandeel.
 - Consideration of seasonal restrictions on piling during peak spawning periods for sandeel and/or herring across both array areas and/or partial areas within array areas.
 - Potential fish monitoring pre-, during, and post- construction.
 - Use of best available evidence to inform siting and design.
 - Supporting strategic studies to consider potential impact pathways during wind farm construction and operation for key species such as Priority Marine Features, including Atlantic salmon.
 - Supporting strategic monitoring which investigates the effects of Electromagnetic fields (EMF), particularly on elasmobranchs (e.g. basking shark) as well as shellfish.
 - An action plan for reducing the risk of secondary entanglement and detail on the secondary entanglement monitoring approach.

Study area

The primary study area includes the array area(s) and the Offshore Export Cable Corridor (OECC). A wider buffer zone of 10 km has been selected based on the maximum distance that suspended solids will travel. A 70 km buffer zone has been selected for underwater noise, and 100 km for cumulative impacts. A 4 km buffer has been selected for the OECC. We are broadly satisfied with the study area used.

Baseline characterisation

The Moray Firth region is used seasonally by various fish and shellfish species for overwintering, feeding, breeding, and nursery purposes, as well as for migratory purposes.

Underwater Noise Assessment (Volume 7, Appendix 6)

We are satisfied with the data sources, study area and overall methodology used for the Underwater Noise Assessment in relation to fish and shellfish species. We note that no mitigation measures are recommended to reduce any effects of underwater noise.

We identify concerns about the impacts of noise on sandeel and herring due to overlaps with preferred spawning habitat, which we discuss further in the relevant sections below.

Technical Baseline Report (Volume 7B, Appendix 5-1)

The data collection is in line with guidance provided in our scoping response and the Fish and Shellfish Ecology Technical Baseline Report (Volume 7B Appendix 5-1) and is a thorough review of the available datasets. An exception is 'Essential Fish Habitat Maps for Fish and Shellfish Species in Scotland', developed by ScotMER, which is not referred to.

The species assemblages found are typical of the Moray Firth. The EIA Report identifies the spatial distribution and probability of the development interacting with the Buchan and Orkney/Shetland herring spawning grounds and migratory routes for sea trout and Atlantic salmon.

Assessment approach

Fish and shellfish

In section 5.5.1.5 of Volume 2, Chapter 5, magnitude is defined as including factors such as spatial extent, likelihood, frequency, and duration of potential impacts. However, in Table 5-9, which contains descriptions of each category of magnitude, most of these factors are not mentioned. Only spatial extent is included in a qualitative way. There is no indication of definitions (or quantitative thresholds) for the terms “complete loss”, “partial loss”, “minor loss”, and “very slight”. This means that expert judgement is the only deciding factor, and though this can be appropriate, it is not transparent in the decisions being reached and why. We question whether the conclusions of magnitude for impacts (Suspended Sediment Concentration (SSC) and sediment deposition (construction/operation and maintenance) and long-term habitat loss (operation and maintenance)) are correct, but the criteria set out makes this difficult to assess.

The significance conclusions appear to be heavily weighted towards Negligible outcomes as shown in Table 5-11 (fish and shellfish) and Table 5-14 (basking sharks). This means that many more conclusions are Negligible than we would usually expect to see for a development of this scale.

Basking shark

There is currently no density or population estimates for basking sharks in the North Atlantic. However, the approach explained to assess the magnitude of impact on basking sharks, is the proportion of the population likely to be impacted, as detailed in Table 5-12. Given the lack of data on population size for basking shark in this location, we do not think that proportion of population affected can be used to assess magnitude of impacts in any meaningful way.

Sensitivity for basking shark is presented in Table 5-13. In section 5.5.1.16, it states that basking sharks are of very high value and therefore the concept of value is not considered within the definition of sensitivity. Rather, value is considered further in terms of suitable mitigation, if required.

Impact assessment

Fish and shellfish – Section 5.5.2

Changes in prey availability

In our scoping response, dated 4 November 2022, we identified that changes to prey species availability was not wholly captured within the impacts table. Changes in prey species availability should be assessed under its own impact category, with more attention given to key prey species (such as sandeel, herring, mackerel and sprat). It is important to understand impacts at the ecosystem scale and across key trophic levels. **This does not appear to have been assessed in the EIA and if consented, this aspect should be considered further as part of any post-consent plans in respect of mitigation.**

Operation and maintenance - Long-term SSC (Caledonia South Only)

There is a potential for long-term increases in SSC in the operation and maintenance phase due to mooring lines and dynamic cables for floating WTG, that has not been included within the worst-case scenario. **This may or may not be an issue but justification of why this has not been included should be provided as clarification.**

Operation and Maintenance – Electro-magnetic fields (EMFs)

There are conflicting statements in the EIA Report as to whether EMF effects are direct or indirect impacts. We consider both in our assessment.

Basking shark – Table 5-16

Operation and maintenance - long term displacement/habitat loss/barrier effects from floating technology (Caledonia South Only)

Floating wind turbines with up to 6 mooring lines per turbine at a radius of 1,000 m have not been included in the worst-case scenario. **This additional infrastructure may have a potential to increase the barrier effects for basking sharks. This is an unknown and is a knowledge gap requiring further research/monitoring which is to be discussed if this proposal is consented.**

We are content with the remainder of the impacts scoped out.

Key Parameters for Assessment – Worst Case Scenario – Floating technology (Caledonia South only)

We are not clear on the worst-case scenario presented for floating technology specific to the Caledonia South. There are a variety of installation methods that could be utilised for this type of technology, and these have not been fully assessed.

If consented and as installation methods and component parts such as foundation types are further refined, we request that further consideration is given to assessing and mitigating the following aspects:

- Mooring lines - consideration of duration, scale and extent of SSC and habitat impacts during construction and operation from temporary and fixed laydown on the seabed.
- Tension leg floating WTGs - consideration of duration and extent of habitat disturbance and SSC from suction anchors if chosen.
- Operational floating WTGs - consideration of catenary lines causing abrasions to the seabed, particularly the scale and depth of any abrasion and the likelihood of SSC and habitat impacts.

Temporary increases in Suspended Sediment Concentrations (SSCs) during construction

We consider the impact of temporary increases in SSCs during construction to be medium-term duration and not short-term. We are satisfied that Low magnitude is expected for this type of activity, but the justification is unclear. The lack of clarity is related to the radii referred to when describing the increased levels of suspended solids - with both 10 and 20 km mentioned and the worst-case scenario and the modelling outputs between drilling and dredging for suction buckets.

With regards to the impact of SSCs on the various receptor groups, we are broadly satisfied with the conclusions, that the significance of effect is either Minor or Negligible and therefore Not Significant in EIA terms. We note that due to the multitude of options across both array areas, the ability to fully identify, comprehend and assess worst case scenarios has been difficult. **This should be further considered if consented.**

Temporary habitat loss and disturbance

We have identified the **need for further consideration of UXO clearance in terms of temporary habitat loss and disturbance**. We advise that this issue is addressed once more information is available on the number of UXOs likely to be in the area and the method of UXO removal.

Increased risk of introduction and/or spread of invasive non-native species (INNS) from vessel traffic

We support the embedded mitigation measure regarding the development and adherence to an Offshore Environmental Management Plan (M-8), which has been included within the EIA Report in Table 5-19. This will cover all the requested information once vessel contractors have been contracted, and this will be incorporated into an INNS component of the Offshore Environmental Management Plan.

Temporary Habitat Loss and Disturbance (Caledonia South)

For Caledonia South, the Marine and Coastal Processes Numerical Modelling Report (Volume 7B, Appendix 2-2) does not model the potential increase in SSCs from floating WTGs. It is therefore not possible to assess the potential impacts and likely need for mitigation at this stage.

Electromagnetic Fields (EMF) Effects Arising from Cables During Operational Phase

In relation to EMF effects from subsea electrical cabling, it is noted that recent research publications have been used to inform the assessment of EMF effects. However, collective understanding of EMF effects remains poor, particularly in relation to in-field measurements of EMF and potential impacts to sensitive receptors, including elasmobranchs. We continue to push for a greater understanding of the potential for EMF effects.

Impacts affecting the key receptors

Sandeel

Particularly for Caledonia North, there is overlap with areas identified as having high potential for sandeel spawning and 'preferred' sediment across the Caledonia Offshore Wind Farm (OWF) area and OECC. The EIA report concludes that for sandeel this particular impact is Low magnitude, and the sensitivity is Medium, so the overall conclusion is a Minor significance of effect and therefore Not Significant in EIA terms for sandeel.

Although less sensitive to the impacts of noise, there is evidence that the area contains good sandeel spawning habitat. **We advise that the developer carries out additional survey work to establish the importance of the area for sandeels, and this is considered further if necessary, as part of a Fish Mitigation Plan if consented and as the project envelopes are refined.**

Herring

The noise contours for piling overlap with the Buchan, and Orkney/Shetland herring spawning grounds and indicate the potential for mortality and injury on spawning herring.

We note the conclusions reached in the EIA Report. However, **as there are still impacts to spawning habitat, we advise is that it is still important to try to reduce this impact as far as possible, particularly in the context of potential cumulative impacts with other offshore wind developments and should be addressed within a Fish Mitigation Plan if consented.**

Diadromous fish

Our understanding of Atlantic salmon movements in the marine environment is increasing through various tracking studies. However, there is less understanding of potential impact pathways during the construction and operation of wind farms – this issue requires further monitoring and research. We advise there may be further opportunities to contribute to wider studies and or project specific studies.

Elasmobranchs and basking sharks

Further consideration in the Fish Mitigation Plan for cables and EMF emissions for elasmobranchs is required.

Secondary entanglement remains poorly understood for OWFs with floating turbines. We welcome the commitment to a risk-based adaptive approach. **We recommend, should Scottish Ministers be minded to grant consent, a detailed and comprehensive report on how this risk-based adaptive approach will work and how its success will be measured.** The mitigation measure should include but not be limited to:

- The frequency of mooring checks.
- Who will carry out the checks.
- What action will be taken to address any identified issues.
- The reporting format and schedule.

We suggest this is included as part of the Fish Mitigation Plan as part of the Offshore Environmental Management Plan.

In-combination effects

In the Scoping Opinion, it was asked that Caledonia assess ecosystem effects – this has not been covered within this EIA.

Mitigation

We recommend the following mitigation measures:

- **Mitigation measures proposed for marine mammal species include basking sharks.**
- The **production of a Fish Mitigation Plan**, which could include measures such as noise mitigation techniques during peak spawning periods for herring and/or sandeel, and seasonal restrictions on piling during peak spawning periods for sandeel and/or herring (or additional monitoring, as described in the next section).

Monitoring

No specific monitoring is proposed for fish and shellfish receptors. **Should Scottish Ministers be minded to grant consent, we advise that the following monitoring be considered:**

- Additional sediment analysis to confirm the suitability of habitat for spawning species (e.g. herring and sandeel) in the development area prior to construction (or the production of a Fish Mitigation Plan as described above).
- Monitoring of EMF either alone or in collaboration via strategic research to contribute to the evidence gap in relation to EMF impacts and dynamic cables associated with a floating offshore wind farm.
- Contribution to strategic monitoring for migratory freshwater fish species (diadromous/anadromous) to complete evidence/knowledge gaps on any potential impact pathways.
- Monitoring to help understand, and to reduce any damage caused by, secondary entanglement.
- Continued engagement by OceanWinds with stakeholders to identify relevant strategic monitoring opportunities, particularly for diadromous fish (Atlantic salmon), EMF effects and secondary entanglement.

Report to Inform Appropriate Assessment (RIAA)

In relation to fish and shellfish interests specifically, the only fish SAC species to consider are Atlantic salmon, which are a qualifying species for a number of SAC rivers around the Moray Firth. As mentioned in previous correspondence, due to our extremely limited knowledge of the behaviour of these species in the marine environment, we conclude that it is not currently possible to carry out an informed assessment of diadromous fish as qualifying species of SACs to the level required under HRA. Our advice on Atlantic salmon is included as part of our consideration of the EIA Report.

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX D – BENTHIC, SUBTIDAL AND INTERTIDAL ECOLOGY

Benthic, Subtidal and Intertidal Ecology is considered in the EIA Report in Volume 2, Chapter 4 for the Proposed Development (Offshore), Volume 3, Chapter 4 for Caledonia North, and Volume 4, Chapter 4 for Caledonia South. This receptor is also considered in Appendices 8 and 9 of Volume 7, Appendix 7-1 of Volume 7A and Appendices 4-1 to 4-5 of Volume 7B. Benthic interests are further considered in the Habitat Regulations Appraisal (HRA) Stage 1 Screening Report.

The following EIA Report advice is in relation to Volume 2, Chapter 4 for the Proposed Development (Offshore) but is also relevant to Volume 3, Chapter 4 for Caledonia North and Volume 4, Chapter 4 for Caledonia South, unless otherwise specified.

The assessment for Benthic, Subtidal and Intertidal Ecology concludes **no significant impacts, both alone and cumulatively**. We broadly agree with these conclusions.

In this Appendix, we provide comments and advice which addresses elements of the assessment process but does not affect the outcome of the assessment or the overall conclusion of our advice.

Study area

The Study Area has been established using a 10 km buffer. This is based on the maximum distance suspended sediments will travel in one tidal excursion on a mean spring tide. The Coastal Processes chapter (Volume 2, Chapter 2) states *“The ZoI (see Figure 2-1) has been defined using the outputs from the site-specific numerical modelling (see Volume 7B, Appendix 2-2: Marine and Coastal Processes Numerical Modelling Report), and has been scaled to conservatively represent the equivalent distance of tidal excursion on a mean spring tide and comprises a distance of 10km.”* There is no mention of tidal excursion distances in Appendix 2-2 of Volume 7B, and it is not clear what is meant by *“scaled to conservatively represent the equivalent distance”*. **We request clarification on the justification used to select the study area.**

Baseline characterisation

We are satisfied with the habitats and species identified in Table 4-12 as valued ecological receptors:

- Burrowed mud (MPA feature, PMF, OSPAR T&D)
- Offshore subtidal sands and gravels (PMF)
- Tide-swept coarse sands with burrowing bivalves (PMF)
- Kelp beds (PMF)
- Ocean quahog (PMF)

The developer has carried out a thorough review of existing datasets and utilised the benthic survey data from the other Moray Firth wind farms.

In Table 4-12, *Devonia perrieri* is listed as a PMF, which it is not (it is on the Scottish Biodiversity List, but not on the PMF list).

Impact Assessment

In section 4.5.5.3, magnitude is defined as including factors such as spatial extent, likelihood, frequency and duration of potential impacts. However, in Table 4-15, which contains descriptions of each category of magnitude, most of these factors are not mentioned. Only spatial extent is included, and only in a qualitative way. There is no indication of definitions (or quantitative thresholds) for the terms “complete loss”, “partial loss”, “minor loss”, and “very slight”. However, given the overall risk to the habitats and species, we do not require any amendment or additional information, as this is unlikely to affect our overall conclusions.

In section 4.7.1.7, it is not clear whether the conclusion for magnitude of impacts on habitats is only for the Southern Trench NCMPA, or whether this applies to all habitats.

In section 4.7.1.9, ocean quahogs are assessed for the magnitude of impact from habitat disturbance, with a conclusion of Negligible magnitude. For all other receptors the conclusion is Low. It is not clear why magnitude is lower for ocean quahog than for all other species and biotopes, and no quantitative assessment has been done. Few ocean quahogs were recorded in the Applicant’s surveys, but this is not unusual as this species is difficult to detect with grab or video surveying. A recommended approach for determining magnitude is to use the extent of ‘offshore sands and gravels’ as a proxy for the distribution of ocean quahog. In addition, sensitivity has not been scored for ocean quahog, based on the fact that magnitude is Negligible. From experience of similar assessments elsewhere and the parameters presented here, our recommendation would be to score magnitude as Low, and sensitivity as High, giving a Minor significance of effect. This is still Not Significant in EIA terms, so the overall conclusion will not change.

All other impacts are predicted to result in Minor or Negligible significance of effect. We agree with these conclusions.

Some of the conclusions from the coastal processes chapter have been carried through to the benthic chapters. Our advice is that an incorrect assessment process has been followed. Where a conclusion of Not Significant has been reached in the coastal processes chapter, this has been automatically carried over to the benthic chapter. What should be carried over is the magnitude assessment, which can then be assessed against the benthic receptors which may have a differing sensitivity and thus result in different conclusions (see connected point a. on p108, MPA Assessment, Appendix G). In the case of benthic receptors, however, it is unlikely to result in a material change to the final conclusions.

Cumulative impacts

The existing Moray Firth wind farms are not included as they are now regarded as baseline for this receptor topic.

The main cumulative issues that arise are in the context of the Southern Trench NCMPA. We give further comments on this in Appendix G.

Mitigation

The embedded mitigation includes the standard range of plans, to be finalised post-consent, along with micro-siting. Although we would prefer to see more detail at this stage, this is consistent with

that produced for similar developments elsewhere. In this particular case, minimal impacts are predicted, so we are content to accept this approach.

We provide advice on mitigation in the context of the Southern Trench NCMPA in Appendix G.

Monitoring

No monitoring is proposed and given the low impacts predicted, we are content with this.

Report to Inform Appropriate Assessment (RIAA)

In the context of benthic habitats, we have no comments in relation to the RIAA due to the distance and lack of connectivity to any benthic SAC qualifying features.

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX E – MARINE AND COASTAL PROCESSES

Marine and Coastal Processes are considered in the EIA Report in Volume 2, Chapter 2 for the Proposed Development (Offshore), Volume 3, Chapter 2 for Caledonia North, and Volume 4, Chapter 2 for Caledonia South. This receptor is also considered in Appendices 8 and 9 of Volume 7, Appendix 7-1 of Volume 7A and Appendices 2-1 and 2-2 of Volume 7B.

The following EIA Report advice is in relation to Volume 2, Chapter 2 for the Proposed Development (Offshore) but is also relevant to Volume 3, Chapter 2 for Caledonia North and Volume 4, Chapter 2 for Caledonia South, unless otherwise specified.

The assessment for Marine and Coastal Processes concludes **no significant impacts, both alone and cumulatively**. We broadly agree with these conclusions based on our understanding of the available science.

In this Appendix, we provide comments and advice which addresses elements of the assessment process but does not affect the outcome of the assessment or the overall conclusion of our advice.

Study area

We are content with the study areas used in the assessment. The ZOI for marine processes receptors has been defined as 10 km. This was informed by the outputs of the site-specific numerical modelling report (Volume 7B, Appendix 2-2).

Baseline characterisation

We are content that the relevant key data sources have been used for the baseline characterisation.

Impact Assessment

We have some concerns about the definitions of magnitude used in the assessment. Overall, changing the magnitude does not alter the overall conclusion of Not Significant for these particular receptors, but we give examples below to illustrate our point. This helps to explain our concerns on how these assessments of impact are carried over to other receptors, e.g. benthic ecology. This may consequently lead to an underestimation of the potential impacts for these other receptors.

Modifications to wave and tidal regimes and associated impacts to morphological features

The assessment conclusion in the EIA Report is that the potential impact of modifications to wave and tidal regimes and associated impacts to morphological features is of Low magnitude. However, we advise that as a Low magnitude is incapable of triggering a Significant impact (see the significance of effect matrix at Table 2-10), the Low magnitude criterion “*restricted to the near-field and immediately adjacent far-field*” (Table 2-8) effectively treats these spatial extents as unimportant. We consider it would be more appropriate as a Medium magnitude impact.

As an example, the predicted reduction in peak tidal current flow would be “noticeable” over fairly small parts of the near-field (section 2.7.2.30), while reduction in wave height during large storms could be “noticeable” both within the near-field and for several kilometres (section 2.7.2.38). On this basis the EIA classes the magnitude of the potential impact of modifications to wave and tidal regimes and associated impacts to morphological features as Low (sections 2.7.2.39 & 2.7.2.42).

Even for the reduction in tidal flow, this area of “noticeable” effect could extend many kilometres, as shown in Figure 2-8. Therefore, we consider the criterion “*restricted to the near-field and immediately adjacent far-field*” is inappropriate. Putting this aside, we advise that the effects identified at sections 2.7.2.39 & 2.7.2.42 meet the criteria for a Medium magnitude.

It is important to note that the reduction in tidal current flow is predicted to be only 3.5%, as stated in section 2.7.2.29, which might seem marginal for being “noticeable”. However, using the stated comparison with baseline (section 2.4.3.5), we calculate it as approximately a 5% reduction. The predicted reduction in wave heights is also 5%, as stated in section 2.7.2.38. Though modest, both these changes are predicted to occur at times of maximum marine energy, so could also reduce sediment transport. We acknowledge that to assess any potential effect on mobile bedforms, which is part of this impact, could be difficult; and this has not been attempted in Chapter 2.

Caledonia North only

The advice above largely applies. The predicted reduction in wave height during large storms is far lower, due to the use of only bottom-fixed WTG foundations, so does not justify a Medium magnitude. However, predicted reduction in tidal flow (Figure 2-8 in Volume 3, Chapter 2) still justifies a Medium magnitude.

Caledonia South only

The advice above for the Proposed Development (Offshore) applies equally.

Our advice in respect of the cable corridor is contained in the Southern Trench MPA Assessment advice in Appendix G.

Cumulative impacts

Regarding the potential cumulative impact of *cumulative modifications to the wave and tidal regime and associated potential impacts to the sediment transport regime*, we are not clear why the existing operational Moray Firth wind farms have not been included in the cumulative impacts assessment. According to Table 2-20, none of the array areas of nearby offshore wind farms are scoped into the CIA, only three cable routes. This is not explained but may be based on overlap with the Zol for Marine & Coastal Processes (Figure 1-3 in Volume 7A, Appendix 7-1 Cumulative Impact Assessment Methodology). However, in Figure 2-10, and Volume 7B, Appendix 2-2 Marine and Coastal Processes Numerical Modelling Report (page 84), we note that the array areas of Stromar, Broadshore, Sinclair and Scaraben proposed offshore wind farms are considered in the assessment, despite being outwith the Zol.

This does not raise any issues regarding changes to tidal currents because of their limited spatial extent. However, there are several issues regarding waves and wave-related sediment transport which may affect the geodiversity features of the Southern Trench NCMFA. We provide further advice on this in Appendix G.

Mitigation and Monitoring

We are content with the proposals for mitigation and monitoring based on the impact assessment presented.

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX F – BLUE CARBON

Blue Carbon is discussed in Volume 2, Chapter 3 (Marine Water and Sediment quality), Volume 6, Chapter 4 (Greenhouse Gases) and is assessed in Volume 7F, Appendix 4-1 (Blue Carbon Assessment).

Overall, the information provided is high level, with limited detail provided around assessment approach and consideration of impacts. We also found the signposting of information confusing with incorrect documents referred to. However, the assessment generally aligns with our pre-application advice issued in our scoping response, and as such, we are broadly content.

We agree with the Applicant that disturbance to blue carbon stocks from the proposed development will not result in a significant impact. Further consideration of the cumulative impact on blue carbon stores from multiple development proposals will be required. This is likely to be of relevance to future applications.

We acknowledge that Blue Carbon Assessment is a relatively new element of marine energy EIA Reports and welcome its inclusion in this application. In this Appendix we provide comments and advice on aspects of the assessment process which do not affect the outcome of the assessment or the overall conclusion of our advice, however we hope they will be of benefit to future Blue Carbon Assessments.

Assessment approach

Volume 7F, Appendix 4-1

Paragraph 2.4.1.4 states that the Caledonia blue carbon assessment utilises data presented in Smeaton *et al.* (2021)⁴⁰. Whilst we accept this approach as it is in line with our scoping advice, for future developments, we advise that site-specific benthic survey data is utilised in combination with publicly available data / scientific literature. A new publication from Smeaton *et al.* is due spring 2025, which may alter current guidance.

Paragraph 2.4.1.5 states that the carbon densities calculated above were then applied to the volumes of construction related spoil to calculate a total volume of disturbed sediment per constructed asset. It is unclear whether this includes disturbance from all infrastructure (such as cabling, scour protection, etc.), and how this has been applied to the operation & maintenance, and decommissioning phases of the proposed development. To support the assessment presented, a table displaying quantitative breakdowns at each step of the calculation would be useful and transparent, to indicate the volume at each step.

Furthermore, there is likely to be uncalculated impacts during the operation and maintenance and decommissioning phases of the proposed development. For instance, the structures may enhance

⁴⁰ Smeaton, C., Hunt, C.A., Turrell, W.R. and Austin, W.E. (2021). Marine sedimentary carbon stocks of the United Kingdom's exclusive economic zone. *Frontiers in Earth Science*, 9, p.593324

deposition of sediments through reduced current speeds, which may then result in additional disturbance. It is not clear whether this has been considered in the blue carbon assessment.

The Applicant assumes that only organic carbon is remineralised and released as CO₂, at a rate of 22.5% (Heinatz and Scheffold, 2023⁴¹). Paragraph 2.4.1.9 notes various limitations of the assessment, including that the remineralisation rate is uncertain. As such, we typically recommend a range of remineralisation rates are presented, including a worst-case scenario of 100%, alongside other rates informed by scientific literature. However, we acknowledge that a remineralisation rate of 100% is highly precautionary and likely to be an overestimate, especially as sedimentary organic carbon in Scottish offshore waters appear to be relatively stable to degradation (Smeaton and Austin, 2022⁴²). We note and agree with the justification and use of 22.5% in this assessment.

Impact assessment

Volume 6, Chapter 4 and Volume 7F, Appendix 4-1

Table 4-17, 4-18 and 4-19 in Volume 6, Chapter 4 (Greenhouse Gases) presents the total estimated value of released CO₂, as a result of the proposed development during the construction, operation & maintenance, and decommissioning phases respectively.

Comparisons to the UK Carbon Budgets are presented in Table 4-20 of Volume 6, Chapter 4 and the total estimated released CO₂ from the proposed development for the Blue Carbon and Land Use category represents 0.001% of the UK Carbon Budget. Based on these figures, we agree that a conclusion of Minor Adverse significance is reasonable. We are also content with the conclusions of Minor Adverse significance for the ongoing loss of sequestration from blue carbon habitat as a result of the development.

Other comments

Volume 6, Chapter 4 presents the sensitivity of greenhouse gas emissions on a global scale. No information is presented around the sensitivity of blue carbon habitats, including vulnerability or recoverability. However, we note that some commentary is presented around this topic in Paragraphs 3.4.3.63-3.4.3.67 of Volume 2, Chapter 3 (Marine Water and Sediment Quality). To avoid any confusion in the terms used, it would be helpful to refer to “remineralisation potential” (as per Smeaton and Austin, 2022) and “potential CO₂ production/emission” when discussing any potential disturbance.

Cumulative impact assessment

The consideration of the cumulative impact on blue carbon stores from multiple development proposals has not been undertaken for this application. Although we do not currently advise that this is a requirement for the Caledonia proposals, blue carbon is a fast-developing topic area and

⁴¹ Heinatz, K. and Scheffold, M.I.E. (2023). A first estimate of the effect of offshore wind farms on sedimentary organic carbon stocks in the Southern North Sea. *Frontiers in Marine Science*, 9, p.1068967.

⁴² Smeaton, C. and Austin, W.E.N. (2022). Quality not quantity: prioritizing the management of sedimentary organic matter across continental shelf seas. *Geophysical Research Letters*, 49(5), p.e2021GL097481.

cumulative impacts may become more relevant for consideration with future development applications.

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX G – SOUTHERN TRENCH NCMPA ASSESSMENT

The Marine Protected Area Assessment is presented in Application Document 9.

The Proposed Development (Offshore) is located near to the Southern Trench NCMPA, with the Export cable Corridor (ECC) crossing the NCMPA. This site is designated for the protection of four biodiversity features: burrowed mud, fronts, minke whale and shelf deeps; as well as two geodiversity features: Quaternary of Scotland and Submarine Mass Movement.

We agree with the Applicant in that there is a high degree of uncertainty regarding minke whale responses to underwater noise, particularly from piling, which precludes a confident assessment as to whether “significant” disturbance could occur. Therefore, **we agree that the risk of hindering the conservation objectives of the Southern Trench NCMPA is uncertain for minke whale disturbance from underwater noise, both for the proposal alone and in-combination with other projects.** We have made various research and monitoring recommendations to help validate the assessments in the MPA Assessment and to address knowledge gaps regarding minke whale behavioural responses to disturbance.

We also **request clarification of why the PTS impact range for minke whale is the same for monopiles and pin piles despite the monopiles being significantly larger in diameter.**

With regard to the predicted cumulative impact of storm wave height reduction on geodiversity features, **we request that further assessment is completed which includes Moray West, and this considers coastal receptors including SSSIs designated for coastal geomorphology and/or habitats.** The assessment should take into account the fact that storm waves, which would be most affected, cause the majority of coastal land forming.

In relation to the burrowed mud feature, we advise that an important impact has been missed. Only temporary habitat loss has been considered and not long-term/permanent habitat loss. **Unless a justification can be provided as to why it has not been included, the potential impacts of permanent habitat loss on the burrowed mud feature should be assessed, both for project alone and cumulatively.** Noting this will need to be based on a worst-case scenario, given the final cable route(s) and design will only be available if consented. This is discussed further in appendix G.

Minke whale

The potential effects from the Proposed Development (Offshore) on the minke whale qualifying species are summarised in Table 4-2. We agree with the impacts considered.

The cumulative MPA assessment is discussed in section 4.3. Interestingly, ECCs/cabling is considered cumulatively, which we agree with. However, we argue that this should have also been considered in the CIAs in the EIA Report.

UXO clearance

As with the EIA, the Applicant has not included high order detonation for UXO clearance, as stated in section 5.1.1.37. We are content with this approach in this case, as explained in Appendix B of

our advice. High order detonation and the use of ADDs should still be considered post-consent when undertaking UXO clearance, should consent be granted.

Auditory injury (PTS) from piling

We note that cumulative PTS impact ranges for minke whale are up to 34 km for monopiles and 34 km for pin piles, resulting in a maximum overlap of 18.75% with the Southern Trench NCMPA area, as explained in section 5.1.1.43. **We request clarification of why the PTS impact range for minke whale is the same for monopiles and pin piles despite the monopiles being significantly larger in diameter.** We agree however, that conservatism is built into the cumulative PTS ranges and that they are likely to be over precautionary.

Piling disturbance

In Table 5-11, we note that up to 65.3% of the Southern Trench NCMPA area could be exposed to disturbance from underwater noise associated with impact piling. We recognise that the assessment is likely to be highly precautionary and that less precautionary alternative assessment approaches result in a much smaller overlap with the MPA (16.5% of the site) or no overlap at all (section 5.1.1.69).

We agree with the Applicant that there is a high degree of uncertainty regarding minke whale responses to underwater noise from piling which precludes a confident assessment as to whether “significant” disturbance could occur. Therefore, **we agree that the risk of hindering the conservation objectives of the Southern Trench NCMPA is uncertain for minke whale disturbance from piling, both for the proposal alone and in-combination with other projects.**

We highlight that the Applicant has stated in Table 5-13 that they will utilise the latest available evidence from Moray West OWF piling activity (to be published in 2025), emerging monitoring results and refined design parameters to inform and optimise the piling strategy. Should the proposed development be consented, we request to be involved in post-consent consultation regarding ways impacts can be reduced further. This could include piling outside of peak minke whale season, the investigation of appropriate swim speeds to use in modelling, species-specific dose response curves, and the use of non-piling techniques.

Geophysical surveys and other construction activities

We agree that with JNCC mitigation for geophysical surveys deployed, injury from geophysical surveys is unlikely, as explained in section 5.1.1.56. Although, we appreciate at this stage the full details of the survey campaigns are not finalised. Should consent be granted, further consultation should be sought post-consent when considering the equipment type, length of time, location and time of year. We advise avoiding peak season (summer months) within the Southern Trench NCMPA.

Monitoring

Regarding minke whale and the Southern Trench NCMPA, **monitoring of minke whale behaviour pre-, during, and post- construction, will be required to validate the assessments in Application Document 9.** The Applicant has stated in Table 5-13 that they are committed to collaborating with stakeholders, academic institutions and other developers to address knowledge gaps regarding

minke whale behavioural response to disturbance through ongoing research and monitoring efforts. We welcome this commitment.

In particular, we are aware that there are ongoing discussions with other developers in the region around strategic studies for minke whale and the Southern Trench NCMPA. We support **that the Applicant will contribute to the strategic minke whale monitoring partnership study focusing on broadband acoustics that is already proposed in the Southern Trench NCMPA. This will increase the understanding of minke whale temporal distribution within the NCMPA**, including effort outwith the summer months.

Furthermore, we encourage the Applicant to conduct line transect surveys to better understand finer scale abundance, density, and distribution within the NCMPA and nearby outer Moray Firth area, across the pre-, during, and post-construction stages. Noting that, it would be useful for any survey proposal to compliment the broadband acoustics monitoring discussed above and similarly, larger-scale and more strategic surveys are encouraged particularly for low density species like minke whale. **We recommend the development of a survey plan design for the collection of new visual data** – e.g. multi-year monthly (March – October) systematic boat/aerial transects – which we would be content to engage further with post-consent. Survey work of this nature would more effectively address the uncertainty in the EIA Report conclusions, as well as improving baseline knowledge of the area.

We also recommend collaboration with organisations such as CRRU, WDC and/or academic institutions, to assess **analysis of existing (DAS, boat-based and/or land) sightings data from the area for minke whale occurrence in the outer Moray Firth**, which would be valuable prior to collection of new monitoring data.

Geodiversity features

In section 2.7.2.5 of Volume 2, Chapter 2 of the EIA Report, the magnitude for *potential impacts to the seabed* is assessed as Low because it is restricted to the near-field. The spatial extent of the effect of this impact appears to be far reaching (up to 7.6 km² for the Proposed Development (Offshore), up to 4.2 km² for Caledonia North and up to 3.9 km² for Caledonia South). Therefore, we consider the magnitude should be Medium instead of Low. **Combining this with the High sensitivity of the MPA results in a Moderate significance of effect, which is Significant in EIA terms.**

This coarse-scale assessment raises two considerations. Firstly, we agree with the argument in section 2.7.2.4 of Volume 2, Chapter 2 that after a limited period of adjustment of seabed level, morphology at the new level is likely to be little changed. In section 5.1.1.26 of the MPA Assessment this argument is repeated and again we agree with this conclusion.

Secondly, regarding potential impacts to the seabed within the OECC on the Southern Trench NCMPA's geodiversity features, we agree that, for the Quaternary feature, the proposals do not create a risk of hindering the conservation objectives because of the scale and resistance of the tunnel valleys element, and because of the distance from the moraines element. We also agree that, for the Submarine Mass Movement feature, the proposals do not create a risk of hindering the conservation objectives because of the distance from the slide scar landforms.

Cumulative impacts

There are several issues regarding waves and wave-related sediment transport, some of which affect the Southern Trench NCMPA:

- a. The Southern Trench NCMPA would be in the 'shadow' of the Proposed Development (Offshore) array area for waves from the north. The CIA modelling predicted reduction of storm wave heights within the MPA of approximately 2% (Figure A16 in the Numerical Modelling Report, Volume 7B, Appendix 2-2). Incorporating an assessment of the effects of Moray West into the CIA could increase this noticeably and could certainly increase the effect magnitude to Medium⁴³, which could result in a Significant impact in EIA terms. This would also have knock on implications for consideration in the Benthic Ecology assessment. We note that the reduction would likely still be a small percentage, and the burrowed mud feature of the MPA is likely to be relatively insensitive to reduction in marine energy.
- b. Incorporating the Moray West array area into the CIA will not alter the conclusion of Not Significant in EIA terms for the impact of *cumulative modifications to the wave and tidal regime and associated potential impacts to the sediment transport regime*. This is because the MPA's geodiversity features are not sensitive to this kind of hydrodynamic change, and other potentially affected receptors in Chapter 2 have Low sensitivity.
- c. Along the coasts of the Moray Firth, the CIA modelling predicted that heights of storm waves coming from between north east and south east could be reduced, but only by <2%. **If the Moray West array area was incorporated into the CIA, it seems likely that this predicted reduction could be noticeably greater. That could increase the effect magnitude to Medium. We request that further assessment is completed which includes Moray West, and this considers coastal receptors including SSSIs designated for coastal geomorphology and/or habitats. The assessment should take into account the fact that storm waves, which would be most affected, cause the majority of coastal land forming.**

Caledonia North only

The advice above is not relevant to Caledonia North. This is because the use of only bottom-fixed WTG foundations results in very limited spatial extent of wave-height reduction from Caledonia North.

Caledonia South only

The above advice very largely applies to Caledonia South. Regarding point c above, predicted reductions in storm wave heights have less spatial extent. Nevertheless, for waves from the east or south east, it seems likely that incorporating Moray West array area into the CIA could result in a noticeable reduction at the coast.

⁴³ The magnitude of this cumulative effect is assessed as 'low' because it is "restricted temporally", i.e. it only occurs during storm wave events (2.8.3.5). We don't consider this appropriate because however rare (e.g. 1:10 year return period storm), all such events would be affected, throughout the OWF operation, and because such events cause the majority of potential seabed change (e.g. see 2.8.3.4). Moreover this form of 'temporal restriction' is not a criteria for 'low' magnitude (Table 2-8).

Benthic habitats – Burrowed mud

We agree with the majority of the conclusions of the Southern Trench NCMPA Assessment with regards to benthic habitats. However, we are concerned that there is a missing impact on the burrowed mud feature that has not been considered. Only temporary habitat loss/disturbance is considered (see section 5.1.1.2), and not long-term/permanent habitat loss.

Table 3-13 in Volume 1, Chapter 3 describes the use of rock placement, grout bags, iron cast, engineered CPS, or concrete mattresses for cable protection along the export cable. Table 3-13 also states that up to 50% of the OECC may require cable protection. The cable protection will introduce hard substrate over burrowed mud habitat and will effectively cause permanent or long-term loss of this habitat for epifaunal, demersal and some infaunal species. There is therefore the potential for a considerable impact to the burrowed mud feature of the MPA, which should be assessed. Section 4.7.2.6 of Application Document 9 states that cable protection will cover an area less than 0.01% of the whole MPA. But for the MPA assessment, the extent of the burrowed mud feature affected (rather than of the whole MPA) needs to be considered.

The text in section 5.1.1.2 in Application Document 9 indicates that long-term habitat loss is considered elsewhere in the document (*“Any potential permanent habitat loss is discussed in the O&M section.”*) but there does not seem to be an O&M section in this document. **We request a clarification as to why long-term habitat loss has not been included. If this impact has been omitted, we will require an assessment of the potential impacts of long-term permanent habitat loss. Noting this will need to be based on a worst-case scenario, given the final cable route(s) and design will only be available if consented.**

In addition, other cables within the MPA are also likely to use cable protection, and so this impact should be considered cumulatively. Even in cases where cables do not directly overlap, there is the potential for cumulative impact if the additive extent of cable protection is such that significant areas of burrowed mud within the MPA are lost. **We therefore advise that an assessment of the potential cumulative effects of long-term/permanent habitat loss is required.**

We also recommend the inclusion of additional mitigation measures which could further reduce the impact of permanent habitat loss within the MPA, such as type of protection or use of nature-inclusive designs. These could be implemented as a best practice measure, even if the final impact assessment is not deemed significant.

NATURESCOT ADVICE ON CALEDONIA OFFSHORE WIND FARM

APPENDIX H – DEROGATION

The Applicant has submitted a derogation case alongside the s36 and marine licence applications. This covers aspects where the Applicant has concluded an adverse effect on site integrity (termed derogation case), as well as where the Applicant concluded there could be a predicted adverse effect on site integrity, either as a result of the use of the SNCB approach or the inclusion of Berwick Bank in the in-combination assessment (termed without prejudice derogation case). The derogation case documents comprise:

- Application Document 15 - Caledonia North Habitats Regulations Appraisal Derogation Case
- Application Document 15 – Appendix 15-1 – Caledonia North Statement of Need
- Application Document 15 – Appendix 15-2 – Caledonia North Compensation Long List and Short List
- Application Document 15 – Appendix 15-3 - Caledonia North Compensation Plan and Site Selection
- Application Document 15 - Appendix 15-4 - Caledonia North Outline Implementation and Monitoring Plan
- Application Document 16 - Caledonia South Habitats Regulations Appraisal Derogation Case
- Application Document 16 – Appendix 16-1 – Caledonia South Statement of Need
- Application Document 16 – Appendix 16-2 - Caledonia South Compensation Long List and Short List
- Application Document 16 – Appendix 16-3 - Caledonia South Compensation Plan and Site Selection
- Application Document 16 -Appendix 16-4 - Caledonia South Outline Implementation and Monitoring Plan

We note that the contents of the documents for Caledonia North and Caledonia South are identical, therefore our advice below is relevant to both Application Document 15 and Application Document 16.

We have focused our advice on the ecological feasibility of the proposed compensation measures submitted as part of the without prejudice derogation package, acknowledging that at this point in time the Appropriate Assessment has yet to be undertaken. Our initial detailed advice on the proposed compensation measures, is provided below. We also provide some comments regarding the delivery of a cohesive, well planned and considered strategic or plan level set of compensation measures below.

Delivery of compensation

In the absence of the publication of the Sectoral Marine Plan for Offshore Wind Energy (anticipated Autumn 2025) we provide advice on project-specific compensation. We are aware there are several relevant projects and workstreams considering compensation delivery - at a plan-level and/or

regionally co-ordinated compensation - being conducted across Scottish and UK Governments. Clarity on predicted impacts for Scottish offshore wind project proposals, together with clear policy direction on plan level, strategic and / or proposal-specific compensation requirements are currently being led by Scottish Government. We continue to engage in these discussions to ensure relevant, meaningful, high-quality measures are secured to address the biodiversity crisis, and particularly the decline of seabird populations.

We welcome and acknowledge the collaboration and desire to collectively identify potential regional compensation measures by the North East and East Ornithology Group (NEEOG). However, in the absence of a final, updated sectoral marine plan (SMP) and plan-level compensation measures and / or delivery mechanisms for coordinated compensation, individual proposal developers submitting applications are having to consider and submit, largely in isolation, individual proposal derogation cases.

Summary of NatureScot advice

We provisionally advise that the following designated sites will require compensation:

- East Caithness Cliffs SPA for razorbill
- North Caithness Cliffs SPA for puffin
- *North Caithness Cliffs SPA for guillemot*
- *Troup, Pennan and Lion's Head SPA for guillemot*
- *Troup, Pennan and Lion's Head SPA for razorbill*
- *Fair Isle SPA for puffin (with Berwick Bank only)*
- *Foula SPA for puffin*
- *Hermaness, Saxa Vord and Valla Field SPA for gannet*

However, these may be subject to change, pending further information requested in Appendix A.

Potential impacts to the Moray Firth SPA qualifying species as a result of vessel disturbance within the marine SPA have not been adequately assessed. We therefore cannot conclude whether compensation would be required for any of the features of this SPA.

We consider that most of the short-listed compensation measures have potential to compensate for the predicted impacts of the proposal to seabirds. However, **we advise there is insufficient information provided in the Derogation Case to have confidence that the proposed measures are likely to compensate for the predicted impacts of the proposal to seabirds.** We require significantly more detail on the proposed compensation measures, any indirect impacts on other species or habitats, as well as how the success of the measure will be monitored.

Lastly, we do not recommend pursuing avian predator management as a compensatory measure.

Appraisal of proposed compensation measures

As per the DTA Ecology framework⁴⁴, the following stepwise approach is suggested for assessment of compensatory measures. In section 1.2 of Appendix Document 16, Appendix 16-2, the Applicant considers each of the five steps in developing their derogation package.

1. Have the nature and extent of adverse effects been quantified appropriately?

Table 3-2 of Appendix 16-2 presents a summary of predicted mortalities for the four species the Applicant assessed within the RIAA as having an adverse effect on site integrity (kittiwake, gannet, guillemot and puffin). The total number of sites NatureScot consider to have adverse effect on site integrity differs. Furthermore, the NatureScot assessment of the RIAA has provisionally concluded adverse effect on site integrity for razorbill. We therefore consider that step 1 of the compensatory measures approach has not been met yet.

We consider the following additional sites are likely to require compensation (note that this list is provisional based on the current Applications, but is subject to change based on additional information as requested):

- East Caithness Cliffs SPA for razorbill
- North Caithness Cliffs SPA for puffin
- *North Caithness Cliffs SPA for guillemot*
- *Troup, Pennan and Lion's Head SPA for guillemot*
- *Troup, Pennan and Lion's Head SPA for razorbill*
- *Fair Isle SPA for puffin (with Berwick Bank only)*
- *Foula SPA for puffin*
- *Hermaness, Saxa Vord and Valla Field SPA for gannet*

(For the sites in italics we have provisionally advised that we are unable to conclude no adverse effect on site integrity).

As stated within our Appendix A advice, impacts to the Moray Firth SPA qualifying species as a result of vessel disturbance within the marine SPA have not been adequately assessed. A substantial increase in vessel traffic is predicted for the project (3,992 vessel trips during construction). We therefore cannot conclude whether compensation would be required for any of the features of this SPA. The relevant conservation objective that would also need to be considered for this SPA would be '*The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species*'.

⁴⁴ DTA Ecology (2021) Framework to Evaluate Ornithological Compensatory Measures for Offshore Wind. Process Guidance Note for Developers.

2. Have the aims/objectives of compensatory measures been clearly defined in light of step 1 and with reference to the site's conservation objectives and the coherence of the network?

As stated in the DTA Ecology framework (2021), “the overarching objective of all compensatory measures is to ensure network coherence is protected”. This main objective is what we have kept in mind when assessing the suitability of the proposed compensatory measures for ornithology.

The Applicant has correctly identified that the compensatory measures should reduce mortality and increase recruitment, breeding success and/or productivity.

3. Have all potentially feasible compensatory measures been identified?

The long list of proposed compensation measures presented by the Applicant in Appendix 16-2 was informed by the strategic long list developed by Royal Haskoning DHV and HiDef for the North East and East ScotWind projects (NEEOG)⁴⁵. However, the Applicant notes that the NEEOG report options were developed for strategic level compensation rather than project level compensation and therefore the list has been adapted to reflect the project level needs.

The long list in section 5 of Appendix 16-2 includes a comprehensive overview of the 18 compensatory measures identified in the NEEOG report, including the species for which they are considered. Five of these measures are taken forward to the short list in section 6:

- Reduction of disturbance and colonies (kittiwake, gannet, guillemot, puffin)
- Mammalian predator management and eradication (all species)
- Avian predator management (kittiwake, guillemot, puffin)
- Bycatch reduction (gannet, guillemot)
- Restoration or maintenance of breeding sites (puffin)

A sixth measure of ‘conservation management funding’ for all species was included in the short list following consultation with NatureScot in July 2024. This measure proposes funding site management activities (e.g., those outlined in management plans or proposed elsewhere) that have not been realised or have been discontinued/scaled back due to limited funds and/or resource. This support could include, but is not limited to, disturbance reduction, litter removal, predator management or vegetation clearance. The opportunity and scope for such funding will be investigated as part of a site-selection assessment for potential compensatory measures which will be carried out as part of the “next steps” of the compensation development. We note, and welcome, the Applicants consideration of additionality.

Please note we do not recommend pursuing avian predator management as a compensatory measure.

4. Is the preferred list of compensatory measures sufficient?

⁴⁵ Pizzolla, P., Tyler, G., Grant, M., Salmon, W., Harker, J. & Bower, R. (2024) *Development of Ornithology Regional Compensation Measures*. Reference: PC4885-RHD-XX-XX-RP-X-0001

While some of the proposed short listed compensation measures could pose sufficient compensation, the Derogation Case is lacking necessary evidence to support the claim that these measures would compensate for the current predicted losses.

5. Can the compensatory measures be secured?

A feasibility assessment of the long listed and short-listed compensation measures was carried out by the Applicant in Table 7-1 of Appendix 16-2.

It is noted that the short list does not represent a final list. Overall, we advise from an ecological feasibility perspective that there is potential for some of these proposed measures to compensate for the impacts predicted by the Applications. We acknowledge and accept that there will be some uncertainty, until completion of the Appropriate Assessment, as to the level of any adverse impact, where this is predicted and for which qualifying species/colonies.

As this is an outline plan, an emerging process with largely novel compensation measures, Marine Directorate as the Competent Authority will need to advise on the appropriateness of the process outlined in Document 15, Appendix 15-4 and Document 16, Appendix 16-4. Additionally, we strongly advise on the need for ongoing, continuing dialogue with all relevant parties. We consider the following principles are key to any process:

- Key stages are identified at which points of agreement can be made.
- Any site-specific or other baseline survey / data collection is built in to inform discussions / reports and help identify effectiveness of measures.
- We request if this proposal is consented, any final compensation plan should be agreed prior to any turbines operating at site.

Lastly, due to the novel nature of some of the proposed measures:

- **We request assurance that adaptation of these measures and / or additional measures (to be implemented or funded by the Applicant) will be a condition of any consent.** Should monitoring (to be agreed) indicate these measures are failing to provide the required compensation, additional steps may be required as part of an adaptive management approach.

Roadmap

The Applicant intends to establish a steering group to assist on implementation, monitoring, reporting, adaptive management and other relevant matters. This steering group will be established post-submission and will include representatives from the Applicant, NatureScot, Marine Directorate - Licensing Operations Team (MD-LOT), the Royal Society for the Protection of Birds (RSPB), local wildlife trusts, local authorities and other local stakeholders (for example relevant representatives of commercial fisheries for developing the bycatch compensation measure). We appreciate the creation of such a group, however, as this is in the planning stage, we are only able to provide high-level advice on the expected outcomes. This is considering the Applicant's statement that steering group formation, site selection (including partnership formation and securing of measures through agreements/contracts) and technical design planning will be progressed immediately following submission of the consent application. The Applicant also notes that

consideration and conclusions by Scottish Ministers are needed to specify the scale of compensation required before measures can be fully progressed and finalised, which we accept.

Advice on proposed compensation measures

We provide advice on each of the proposed short listed compensation measures below. However, our advice is proportionate to the level of detail provided, noting where measures have potential for proposal-level compensation.

Reduction of disturbance at colonies (kittiwake, gannet, guillemot, puffin)

We agree that this proposed measure has potential to compensate for impacts from offshore wind developments. To establish the effectiveness of this measure we would require more detail on any proposed scheme, including quantifying any existing pressures, which colonies and species would benefit, frequency and duration of the measure, predicted effectiveness and how this integrates with any existing management measures, as well as any landowner agreements. There would also need to be consideration of any indirect effects, for example on other species or habitats. This measure would also require monitoring to establish its effectiveness.

Mammalian predator management and eradication (all species)

We agree that this proposed measure has potential to compensate for impacts from offshore wind developments. To establish the effectiveness of this measure we would require more detail on any proposed scheme, including which predators would be targeted (and evidence of their impacts), which colonies and species would benefit, frequency and duration of the measure, predicted effectiveness and how this integrates with any existing management measures, as well as any landowner agreements. There would also need to be consideration of any indirect effects, for example on other species or habitats. This measure would also require monitoring to establish its effectiveness. We highlight the change in guidance in rodenticide use⁴⁶, namely the use of second-generation anti-coagulant rodenticides (SGARs) in open areas is now illegal following a voluntary ban. There are currently no acceptable alternatives to SGARs, and the best practice guidance is that no UK ground-based eradication should proceed without a SGAR product. However, a Critical Situation Permit⁴⁷ could be applied for from HSE which may allow for an exemption. Please note this process is in place for brown rat (*Rattus norvegicus*) only.

Avian predator management (kittiwake, guillemot, puffin)

While we agree that this proposed measure has potential to compensate for impacts from offshore wind, we would not support this as a measure. There would need to be consideration of any indirect effects, for example on other species or habitats, namely great black-backed gull, which we also expect to need compensation from the impacts of offshore wind. Moreover, many of these avian predator species are also SPA qualifying species and/or Birds of Conservation Concern (UK Red List) and have policy frameworks supporting their conservation (e.g. draft Scottish Seabird Conservation Action Plan). Species known for kleptoparasitism, such as great skua and large gulls, were also badly

⁴⁶ <https://www.thinkwildlife.org/guidance-changes-for-gamekeepers-on-rodenticide-use/>

⁴⁷ <https://www.hse.gov.uk/biocides/critical-situation-permits.htm>

affected by the HPAI outbreak and therefore the site conservation objectives where the colonies are located may be at risk from this measure. It is also unclear how deterrents would not impact the compensated species. Any compensation measure for the proposed development should not undermine the conservation of other marine birds known to be affected by the development (even if an adverse effect on site integrity is not predicted). As such, **we do not recommend pursuing avian predator management as a compensatory measure.**

Bycatch reduction (gannet, guillemot)

We agree that this proposed measure has potential to compensate for impacts from offshore wind developments. However, there are many dependencies that make delivery of such a measure especially complex, nor is it clear without further information which elements the Applicant has the ability to deliver. Nonetheless, we welcome the Applicant's initiative in conducting a pilot study in collaboration with fishing vessels and building a working relationship with the industry. We also appreciate the range of methods (e.g. static, scallops, trawl/nephrops) included in the pilot study. However, to establish the effectiveness of this measure, we would require more detail on any proposed scheme, including quantifying the existing pressures and management measures, which colonies would benefit and how this is established, as well as how the measure integrates with any existing management measures. This measure would also require monitoring to establish its effectiveness. We would also require additional information on the methodology and results of the pilot study in order to assess the effectiveness of a scaled-up measure.

Restoration or maintenance of breeding sites (puffin)

We agree that this proposed measure has potential to compensate for impacts from offshore wind developments. To establish the effectiveness of this measure we would require more detail on any proposed scheme, including quantifying any existing pressures and management measures, which colonies would benefit, frequency and duration of the measure, predicted effectiveness and how this integrates with any existing management measures, as well as any landowner agreements. There would also need to be consideration of any indirect effects, for example on other species or habitats. This measure would also require monitoring to establish its effectiveness.

Conservation management funding (all species)

We agree that this proposed measure has potential to compensate for impacts from offshore wind developments. To establish the effectiveness of this measure we would require more detail on any proposed scheme, including quantifying any existing pressures and management measures, which colonies would benefit, frequency and duration of the measure, predicted effectiveness and how this integrates with any existing management measures, any landowner agreements, as well as details on the funding body. There would also need to be consideration of any indirect effects, for example on other species or habitats. This measure would also require monitoring to establish its effectiveness.

North and East Coast Inshore Fishery Group

From: <Redacted>
To: <Redacted> [MD Marine Renewables](#)
Cc: <Redacted> [MD Marine Renewables](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Date: 04 February 2025 12:20:00
Attachments: [image001.png](#)

Good afternoon,

Thank you for the update. We have noted the response will be included with SFF comments.

Kind regards,

Christine McGhie
Marine Licensing and Consenting Casework Officer, Licensing Operations Team, Marine Directorate
Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB
T: <Redacted>
E: <Redacted>
Group Email: MD.marinerenewables@gov.scot

The Scottish Government



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From: <Redacted>
Sent: 04 February 2025 12:16
To: MD Marine Renewables <MD.MarineRenewables@gov.scot>
Cc: <Redacted>
<Redacted> MD Marine Renewables <MD.MarineRenewables@gov.scot>
Subject: Re: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

Good afternoon

The RIFG response is included in the SFF response. Could you please note that.

Thank you

Jen
Sent by Jennifer Mouat

On 4 Feb 2025, at 12:08, MD.MarineRenewables@gov.scot wrote:

Dear Sir/Madam,

I am writing regarding the below consultation which ended yesterday, Monday 03 February 2025.

The Marine Directorate – Licensing Operations Team (“MD-LOT”) has not received a response from your organisation. Therefore, MD-LOT is assuming a nil response.

Kind regards,

Christine McGhie
Marine Licensing and Consenting Casework Officer, Licensing Operations Team, Marine Directorate
Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB
T:<Redacted>
E: <Redacted>
Group Email: MD.marinerenewables@gov.scot

The Scottish Government

<image001.png>

To see how we use your personal data, please view our [Marine licensing and consenting: privacy notice - gov.scot \(www.gov.scot\)](https://www.gov.scot/marine-licensing-and-consenting-privacy-notice)

From: MD Marine Renewables <MD.MarineRenewables@gov.scot>

Sent: 04 December 2024 17:04

Cc: <Redacted>
<Redacted> >;

MD Marine Renewables <MD.MarineRenewables@gov.scot>

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 -
Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore
Wind Farms – EIA Section 36 consents and Marine Licence Applications -
Consultation – Response Required by 03 February 2025

Dear Sir/Madam,

ELECTRICITY ACT 1989

*The Electricity Works (Environmental Impact Assessment) (Scotland)
Regulations 2017*

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007

MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited– Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km from Wick and southern limit approx. 48km from Banff

MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

On 20 November 2024 Caledonia Offshore Wind Farm Limited submitted applications to the Scottish Ministers, in accordance with the above legislation, to construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm.

The application for section 36 consents, marine licence applications, Environmental Impact Assessment Report and supporting documentation can be accessed via the following links for each of the applications:

[Caledonia Offshore Wind Farm | marine.gov.scot](https://marine.gov.scot/caledonia-offshore-wind-farm)

Caledonia North:

There are three application pages, as follows:

1. [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
1. [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
1. [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

1. [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
1. [Marine Licence – Construction and Operation of Generating](#)

Station – Caledonia Offshore Wind Farm – South (MS-00011012)

1. Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South (MS-00011013)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

Marine Licensing and Consenting Casework Officer, Licensing Operations Team, Marine Directorate

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T:<Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government

<image001.png>

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Northern Lighthouse Board



Northern Lighthouse Board

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Edinburgh EH2 3DA

Tel: 0131 473 3100
Fax: 0131 220 2093

Website: www.nlb.org.uk
Email: enquiries@nlb.org.uk

Your Ref: Caledonia OWF – S36 & Marine Licence Applications
Our Ref: AL/OPS/ML/WIND_074_24

Ms Christine McGhie
Licensing Operations Team – Marine Directorate
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

6 December 2024

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007

00011012/00011013/00011014/00011014 – Caledonia Offshore Wind Farm Ltd - Caledonia North Offshore Wind Farm & Caledonia South Offshore Wind Farm – Outer Moray Firth

Thank you for your e-mail correspondence dated 4th December 2024 relating to the application submitted by **Caledonia Offshore Wind Farm Ltd** in accordance with the above legislation, to construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm, located in the Outer Moray Firth.

Northern Lighthouse Board understand that the numbers of Wind Turbine Generators (WTG) in Caledonia North and Caledonia South are dependent on which phase will be constructed first. If constructed first, the number of WTGs in Caledonia North will not exceed 77 fixed foundation structures. If Caledonia South is constructed first, the number of WTGs in Caledonia South will not exceed 78, split between both fixed and floating foundations. In all instances, the number of WTGs in the following phase will be such that the total number of WTGs across the Proposed Development (Offshore) will not exceed 140.

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To find out more, please see our Privacy Notice at www.nlb.org.uk/legal-notice/

It is also noted that each development (North and South) will consist of up to two Offshore Substation Platforms (OSP) and two offshore export cables, with a proposed landfall at Boyndie Bay, Aberdeenshire.

NLB acknowledges that the developer wishes to retain a degree of flexibility over the phasing of the construction programme, with the application addressing the potential for either sequential or concurrent construction of the two sites, due to the uncertainty around timing of the phases for connecting the Proposed Development to the National Electricity Transmission System. It is also noted that should the phases be constructed sequentially, there is potential gap of up to 5 years between the projects.

In order to ensure safety of navigation in proximity to the development area and minimise disruption to mariners, NLB request that the applicant maintains close cooperation with navigation stakeholders.

Northern Lighthouse Board note the inclusion of Chapter 9 (Shipping and Navigation) in Volumes 2, 3 and 4, reflecting the combined site, and North and South sites. NLB also note the development of the Structure Exclusion Zone (SEZ) following consultation with Serco Northlink over concerns for adverse weather routing. As noted within sections 9.7.1.24 (Vol 2) and 9.7.1.23 (Vol 3 & 4), NLB will work with the applicant to ensure that any deployed buoyage appropriately demarcates the construction area(s) and ensures the safety of navigation for any passing vessels.

NLB also acknowledge the inclusion of Table 9-1 (Mitigation Measures for Shipping and Navigation), which provides commitment to develop post-consent documentation including a Development Specification and Layout Plan (DSLPL), Lighting and Marking Plan (LMP) and a Navigational Safety Plan (NSP). The commitment within Section 9.7.2.75 to develop a lighting and marking solution should a floating Significant Peripheral Structure be removed for maintenance is also welcomed.

NLB also welcome Section 3.2.1.7 and 3.2.1.8 where the requirement for wet storage of component parts and completed turbines is acknowledged. NLB will work with the developer and other stakeholders to develop lighting and marking solutions when required.

Northern Lighthouse Board would consider it appropriate that should the construction of the two sites not be concurrent, individual post-consent documentation, such as the LMP, is generated for each windfarm. However, the interaction between the two sites with regard to layout and Lighting and Marking (L&M) must be considered, and NLB would look to have the whole development area (North and South) lit and marked as a single entity, to ensure continuity for the mariner.

The establishment, alteration and discontinuation of any Aid to Navigation is subject to the Statutory Sanction of the Commissioners of Northern Lighthouses. An application form can be obtained on request from the NLB Navigation Department (navigation@nlb.org.uk).

Northern Lighthouse Board have no objection to the proposed Caledonia North and South developments, and will continue to work with the applicant in the development of the required post-consent documentation when required.

Yours sincerely

<Redacted>

Peter Douglas
Navigation Manager

Orkney Islands Council

Orkney Islands Council response to:

- **MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited– Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km from Wick and southern limit approx. 48km from Banff**
- **MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff**

Orkney Islands Regional Marine Plan (OIRMP)

It should be noted that Orkney Islands Council (OIC) has prepared the Orkney Islands Regional Marine Plan – Consultation Draft (OIRMP). Subject to approval by Scottish Ministers, the OIRMP is scheduled to be adopted in 2025.

Commercial Fisheries

The EIAR assessment for the proposed development which includes Caledonia North and South in Volume 2 Chapter 8 Commercial Fisheries, concludes that the majority of impacts on commercial fishing during construction will be highly localised, short term and not significant.

However, the impact of cumulative displacement Leading to Gear Conflict and Increased Fishing Pressure on Adjacent Grounds for demersal otter trawl, demersal seine and dredge fishing fleets, during construction is deemed to be significant in EIA terms, when associated with Tier 2 projects such as Ayre, West of Orkney and Stromar Windfarms. The overall magnitude of the cumulative effect is deemed to be Medium and the sensitivity of the receptor is considered to be Medium. The cumulative effect will, therefore, be Moderate and Significant in EIA terms.

The displacement of fishing activities can impact existing fleets operating in areas adjacent to the proposed offshore wind farms. We advise that direct and targeted consultation should be undertaken with Orkney Fisheries Association and the Orkney Regional Inshore Fisheries Group to inform the consideration of any displacement effects on Orkney fishing interests.

SLVIA

An SLVIA has been undertaken as part of the EIA process for the proposed developments. OIC agree with the viewpoint on South Ronaldsay and the viewpoint on the Aberdeen-Kirkwall Ferry route included in the EIAR. We agree with the assessment that there would no significant landscape/seascape impacts that will arise from the Proposed Developments (Caledonia North/South) at these viewpoints.

Community benefit and associated implications for the EIA socio-economic impact assessment

Orkney Islands Council has established a policy position on community benefit from offshore renewable energy projects ([here](#)), and the Scottish Government is currently undertaking a review of the Good Practice Principles for onshore and offshore renewable energy, which seeks to ensure that our guidance helps communities and developers get the best from community benefits. Whilst recognising that community benefit packages are additional voluntary measures which are provided by a developer outside of the planning and licensing processes (as detailed in the relevant Scottish Government [guidance](#)), it is recommended that the project

developer should give due consideration to the relevant guidance and any associated implications for the EIA socio-economic impact assessment. It is recommended that the project developer should give due consideration to the relevant guidance and any associated implications for the EIA socio-economic impact assessment, and to make specific commitments in line with these standards.

Socio-economics

Orkney Islands Council was not consulted at the EIA scoping stage for this proposed development. It is noted that Orkney was not scoped in as an area to be included in the EIA socio-economic impact assessment. If it is now reasonably foreseeable that Orkney ports and supply chain companies could be used and/or have a material role during the construction, operation and/or decommissioning phases of the proposed development, it is requested that an assessment of associated socio-economic impacts on Orkney be carried out. If such an assessment is considered necessary, it is important to address Orkney as a specific area in its own right. This is because as an Island Archipelago, Orkney has a unique socio-economic footprint and profile which is distinct to that of Mainland Scotland. This should include an assessment of potential effects on the Orkney economy, demographics, local housing market, labour market and local services i.e. changes in demand for housing and local services resulting from the proposed development. Identified impacts should include direct employment impacts and displacement effects on the local workforce and supply chain e.g. workers from other sectors moving to offshore wind related employment or local suppliers (e.g. freight) not being able to service existing sectors/customers. This should consider both the impacts and opportunities arising from the development. In this regard, Orkney has distinct characteristics in terms of the high level of SME business base and a significant number of businesses operating in marine and environmental sectors.

Public Representative 1

From: <Redacted>
To: [MD Marine Renewables](#)
Subject: Caledonia Offshore Wind Farm EIAR representations
Date: 09 January 2025 18:20:18

Dear Sirs

I have spent some time in looking through the documents posted on line by Caledonia Offshore Wind Farm Limited, for both their North and South intended wind farms. In accordance with the Notice in the Press and Journal of 19th December I am submitting some representations for your consideration in your review of the EIAR.

My submissions in this email are limited to the references to cetaceans in regard to these OWFs, a subject in which I have some knowledge. Hence Volume 2 Chapter 7, and Volume 3 Chapter 7, and their associated Appendices, are most relevant. Rather than repeat all references, my representations apply equally to both the South and North, especially as the bulk of my comments relate to the landward end of the offshore element, from MHWS seaward.

1/ The EIAR includes considerable data as regards the density of cetaceans in the area of the OWF; much use is made of the snapshot monthly aerial surveys over a two year period. These photography flights covered the actual OWF, but did cover the cable route to shore. Indeed, Vol2Ch7 and Vol3Ch7 do considerable appraisal of cetacean densities within the OWF itself, but with no reference to the cable corridor to shore. Some of the species they observed offshore, had indeed a very low density, for example Bottlenose Dolphins, not unexpected as this species is most often seen within 5km or so of the shore.

Hence this EIAR does not appear to take into account the risks to cetaceans from rock removal operations nor cable laying (including trenching, laying and back fill) on the cable route corridor.

As was witnessed during the Moray East construction, some of the risks to cetaceans closer to shore are significant and most appropriate to an EIAR.

2/ Additionally the risks to cetaceans in the OWF itself, that are considered, do not appear to be complete. While the included statement that floating turbines are relatively new in the area, and therefore there is no experience to draw on, is no doubt fair, to ignore some of the risks from this sort of design is not fair. The EIAR Ch7 does include entanglement risks, both primary, secondary and tertiary, but it does not at all consider the risk of physical injury from a moving mooring line. Dynamic analysis can output the speed through the water of a moving chain-rope-chain catenary in different sea conditions, and this will represent a risk to passing cetaceans - especially considering some of the species observed are deep diving. My own experience with designing and operating moorings suggest that such physical contact with cetaceans is possible. Although not a bad weather dynamic mooring incident, such an occurrence took place during the construction of the Moray East cables to shore; as is stated for Caledonia, Moray East directionally drilled to get the cables onshore. To facilitate the seaward end of this drilling and the pulling in of the cables a spread moored barge was put in place. To move the barge the four mooring lines can be tensioned or slackened as appropriate. On one occasion a pod of dolphins was observed to be moving through the mooring pattern; before they were clear of the mooring pattern the barge adjusted it's mooring lines with one bottlenose dolphin in the way of the NE line. No physical injury fortunately appears to have occurred on that occasion to the dolphin, but the sightings data clearly shows it had an impact on the willingness of bottlenose dolphins from approaching the same area in the following months.

3/ Another risk is that of crew boats. The Caledonia Offshore Wind Farm plans do not seem detailed enough to know how they will service the vessels involved in the cable laying and the cable landfall. For example the barge used by Moray East at the seaward end of the drilled holes stayed there 24/7, and it's crew and supplies were ferried at least twice daily by a fast crew boat from a local port (Macduff in the case of Moray East). Only a 4km trip, but at 20+ knots, cetaceans had not been considered, as was clearly observed; probably due to insufficient lookout combined with the high speed of the craft. While the risk of a physical injury to a bottlenose dolphin may be very small from such craft, the impact to their future safe foraging areas is noticeable.

4/ Much mention is made in the EIAR that only five vessels will be on site in the OWF itself at any one time, but no consideration seems to have been given to how many vessels will be on site near the cable landing, and the effect this may have on cetaceans, perhaps principally bottlenose dolphins. Impacts can be not just noise, but a plume of sediment, fast boats, cables and ropes in the water column; as well as accidental spills etc.

Bottlenose dolphins, the species most likely to be encountered in the coastal zone, have been observed numerous times to be particularly inquisitive, approaching all sorts of vessels close to the shore, including during cable laying and rock dumping operations.

Cetacean density data of all species in the coastal zone over many years is available - including observed species not mentioned in this EIAR.

5/ Based on the above I suggest it is not correct to dismiss many of the risks to cetaceans to be so minor as to not be relevant to this EIAR, and therefore for the Marine Mammal Mitigation Protocol (Volume 7 Appendix 13) to consider only acoustic issues. These are of course most important, but previous wind farm operations have resulted in specific incidents highlighting other risks to cetaceans that are significant and not considered in this EIAR. A full review of all risks to cetaceans, in all locations of the operations, would be appropriate for an EIA; this current EIAR does not appear to do that and therefore the Marine Mammal Mitigation Protocols are incomplete.

Your acknowledgement of this email would be appreciated.

I assume all representations are passed on to Caledonia Offshore Wind Farm Ltd; I would welcome any comments they may wish to sent to me about my representations.

Thanks and regards

<Redacted>

Public Representative 2

From: <Redacted>
To: MD Marine Renewables; eplanning@highland.gov.uk
Subject: Highland Council reference numbers: 24/05129/S36 & 24/05124/S36 Marine Licences: 00011012, 00011013, 00011014, 00011015 Project name: Caledonia North Offshore Wind Farm & Caledonia South Offshore Wind Farm
Date: 15 January 2025 14:09:45

Highland Council reference numbers: 24/05129/S36 & 24/05124/S36

Marine Licences: 00011012, 00011013, 00011014, 00011015

Project name: Caledonia North Offshore Wind Farm & Caledonia South Offshore Wind Farm

<Redacted>

I wish to object to the above planning application. The reasons I am objecting are...

Cumulative effect on the benthic. Not sustainable in the long term. Affecting marine life.

Kind regards.

<Redacted>

HMRC state that businesses should not undertake non revenue earning activities. The discussion continues on [Substack](#).



Favourite tenets: time=money, knowledge is power



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Public Representative 3

From: <Redacted>
To: [MD Marine Renewables](#); eplanning@highland.gov.uk
Subject: 24/05129/S36 & 24/05124/S36 Marine Licences: 00011012, 00011013, 00011014, 00011015
Date: 15 January 2025 12:59:49

Dear Sirs,

I object to the above on the grounds of consolidation of windfarms, affecting the benthic and mammals.

Scotland cannot use all the power it already makes and the communities get nothing except higher electricity bills.

<Redacted>

Kind regards.

<Redacted>

HMRC state that businesses should not undertake non revenue earning activities. The discussion continues on [Substack](#).



Favourite tenets: time=money, knowledge is power



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Public Representative 4

From: <Redacted>
To: eplanning@highland.gov.uk; [MD Marine Renewables](#)
Subject: Objection
Date: 16 January 2025 11:19:01

Subject: Objection to Planning Applications 24/05129/S36 & 24/05124/S36 (Caledonia North & South Offshore Wind Farms)

Dear [Planning Authority/Marine Scotland],

I am writing to formally object to the above planning applications for the construction and operation of the Caledonia North and South Offshore Wind Farms. While I acknowledge the importance of renewable energy in addressing climate change, I believe that the scale and location of this development pose significant concerns that must be addressed.

Key Reasons for Objection

1. Cumulative Impact

This development will expand the existing Beatrice-Moray Cluster to the north and east, further saturating the area with turbines. The cumulative impact on the local environment, seascape, and community is disproportionate and excessive.

2. Visual Impact and Light Pollution

The proposed turbines, at a maximum blade tip height of 355 meters, are nearly double the size of the Beatrice turbines. These massive structures will dominate the seascape and drastically alter the visual character of the area. Furthermore, the additional red aviation warning lights will contribute to significant light pollution, detracting from the natural beauty of the coastline and affecting the area's nighttime landscape.

3. Negative Effects on Wildlife and Nature

The construction and operation of the wind farm will have detrimental effects on marine and bird life in the region. The disruption to habitats, risk of collisions for seabirds, and impacts on marine mammals are substantial concerns that must not be overlooked.

4. Impact on Tourism

Tourism is a vital part of the local economy. The visual and environmental changes caused by this development could deter visitors, impacting businesses and livelihoods in the area.

5. Noise and Construction Impacts

The construction phase will bring significant noise, vibration, and potential disruptions to local communities and marine environments. This is especially concerning for residents and wildlife in the vicinity.

6. Risk of Serious Incidents

The increased number of turbines and associated infrastructure raises the risk of serious incidents, such as oil or hydraulic fluid leaks, which could have devastating consequences for the local marine ecosystem.

7. Question of Need and Lack of Local Benefit

While renewable energy is critical, it is essential to question whether a development

of this magnitude is necessary at this specific location. Additionally, as the electricity will be exported to Aberdeenshire, the benefits to local communities in Caithness are minimal. The lack of substantial community benefit exacerbates the negative impacts felt locally.

8. Personal Stress and Well-being

The scale of this project, combined with its potential impacts on the environment and local lifestyle, contributes to significant stress and anxiety for residents who value the area's natural beauty and tranquility.

For the above reasons, I urge you to reconsider the approval of this planning application. I request that a full and transparent assessment of the cumulative impacts, environmental consequences, and community feedback be carried out before any decisions are made.

Thank you for considering my objection.

Yours sincerely,

Dunbeath and Berriedale Community say NO to PYLONS Action Group.

Public Representative 5

From: <Redacted>
To: MD Marine Renewables; eplanning@highland.gov.uk
Subject: Highland Council reference number: 24/05129/S36 & 24/05124/S36 Marine Licences: 00011012, 00011013, 00011014, 00011015
Date: 07 February 2025 09:52:56

Hello,

I object to the massive development that will extend the existing Beatrice - Moray Cluster to the north and east with turbines close to double the size of the Beatrice turbines. Construction and operation of an offshore wind farm comprising in total up to 155 turbines with a maximum blade tip height of 355m, subsea interconnector and export cabling and associated infrastructure will further impact the sea, before proper research of the consequences of these developments to the environment has been evaluated. Stop this madness!

Highland Council reference number: 24/05129/S36 & 24/05124/S36 Marine Licences: 00011012, 00011013, 00011014, 00011015

<Redacted>

Receiver of Wreck

From: [ROW](#)
To: [MD Marine Renewables](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Date: 05 December 2024 11:14:33
Attachments: [image002.png](#)
[image003.png](#)

Good Morning,

Could you please confirm that you have surveyed the area for any historic wrecks.
If not, and you can provide a file with the grid co-ordinates, I can check this for you.

Thank you

Steve

Stephen White
Receiver of Wreck



<Redacted>
<Redacted>
HM Coastguard
Spring Place
105 Commercial Road
Southampton
SO15 1EG
United Kingdom

Report recovered wreck here: <https://www.gov.uk/report-wreck-material>

Find out about wreck and salvage law here: <https://www.gov.uk/guidance/wreck-and-salvage-law>

From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Sent: 04 December 2024 17:04

Cc: <Redacted> ;

MD.MarineRenewables@gov.scot

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

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Dear Sir/Madam,

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007

MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited– Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx. 28km from Wick and southern limit approx. 48km from Banff

MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

On 20 November 2024 Caledonia Offshore Wind Farm Limited submitted applications to the Scottish Ministers, in accordance with the above legislation, to construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm.

The application for section 36 consents, marine licence applications, Environmental Impact Assessment Report and supporting documentation can be accessed via the following links for each of the applications:

[Caledonia Offshore Wind Farm | marine.gov.scot](#)

Caledonia North:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

Marine Licensing and Consenting Casework Officer, Licensing Operations Team, Marine Directorate

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



To see how we use your personal data, please view our
[Marine licensing and consenting: privacy notice - gov.scot \(www.gov.scot\)](http://www.gov.scot/marine-licensing-and-consenting-privacy-notice)

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Royal Society for the Protection of Birds

Judith Horrill
Consenting and Licensing Casework Officer
Licensing Operations Team – Marine Directorate
Scottish Government
Victoria Quay
Edinburgh
EH6 6QQ

By email: MS.MarineRenewables@gov.scot

28 March 2025

Dear Judith

Application for Consent under Section 36 Consent under Electricity Act 1989 and Marine Licenses under Section 20 Marine (Scotland) Act 2009- Caledonia Offshore Wind Farm – North/South – Moray Firth

Thank you for consulting RSPB Scotland on the above applications to construct and operate an offshore windfarm in the Moray Firth off the Aberdeenshire coastline, and for allowing RSPB Scotland an extension of time in which to submit our response – we are extremely grateful, though due to unforeseen circumstances in terms of staffing our response is necessarily more limited than previous responses.

RSPB Scotland recognises that climate change is the greatest threat to nature, and we support the transition to renewable energy. We consider that offshore wind has a part to play in a just transition from Scotland's dependence on fossil fuels. We support the principle of offshore wind development and agree that renewable electricity generation offshore has strong policy support. However, for the reasons set out below we **object** to the application.

General Comments

We understand that two applications are grouped together consisting of Caledonia North and South. They are presented in this way to allow a phased approach to development. Overall, the proposals involve up to 77 Wind Turbine Generators (WTGs) in Caledonia North and up to 78 WTGs in Caledonia South, although it is confirmed that the total number will not exceed 140 WTGs in total.

It is important to recognise the continued use of models for all OWF ecological assessments and that these are theoretical models that do not always correspond to reality. These models are not able to fully capture the nuances of our dynamic natural environment, the complex behaviours of seabirds or the interlinkages between the two. Therefore, models are not able to evaluate fully the possible risks windfarms pose to seabirds. This fact, combined with the sensitivities of seabird populations to e.g. small changes in adult mortality, availability

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Edinburgh Park
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EH12 9DH

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rspb.org.uk/Scotland



The RSPB is part of BirdLife International, a network of passionate organisations, working together to save nature across the world.

of food etc makes them particularly vulnerable and the Habitats Regulations are clear on the requirement to take a precautionary approach when assessing all possible effects of a proposed development.

The Application site is within the foraging range of several seabird species. The sectoral marine plan for Offshore Wind Energy 2020 suggests that option NE4 (Caledonia OWF) is likely to be important as a foraging area for seabirds including Kittiwake, and from multiple designated sites. It was classified as being subject to high levels of ornithological constraints. There are also numerous seabird colonies in the vicinity, many of which are also designated as Special Protected Areas (SPA) due to supporting one or more rare, threatened, or vulnerable bird species as listed in Annex I of the Birds Directive or regularly occurring migratory species. There are therefore legal obligations under the Habitats Regulations including avoiding disturbance to and deterioration of the protected sites and their species.

Seabirds are relatively long-lived, tend to breed later in their life cycle and have fewer young than other birds and, as a result, their populations are sensitive to even the smallest increases in adult mortality. Their survival and productivity rates can be impacted by offshore windfarms directly (i.e. collision) and indirectly (e.g. displacement from foraging areas and additional energy expenditure required to avoid and due to additional flying distances to alternative foraging areas). They are also already under severe pressure. In Scotland, the number of breeding seabirds has declined by 49% since the 1980s, according to the Scottish biodiversity indicator in 2019 they were assessed as moving away from target to achieve Good Environmental Status¹.

Detailed Comments

RSPB Scotland welcome the Applicant's recognition of there being potential for Adverse Effects on Site Integrity (AEoSI) for six sites and five species arising from the project in combination with other North Sea wind farms. However, RSPB Scotland **objects** to the Application on account of these AEoSI, principally in relation to the following designated sites, species, and adverse impacts (more detail contained within appendix 1 attached):

Black-legged Kittiwake at the following SPAs:

- Buchan Ness to Collieston Coast SPA
- East Caithness Cliffs SPA
- Troup, Pennan and Lion's Head SPA

Northern Gannet at the following SPA:

- Forth Islands SPA

Puffin at the following SPA:

- Sule Skerry and Sule Stack SPA

Guillemot at the following SPA:

- East Caithness Cliffs SPA

Due to the Application's AEoSIs and the further potential AEoSIs especially due to the impact they are likely to have on the achievement of the conservation objectives, further tests apply. Under the Habitats Regulations, a project that would result in AEoSIs on European protected sites cannot be permitted unless it can be demonstrated there are no less damaging alternative solutions, there are imperative reasons of overriding public interest (IROPI) for the project to go ahead, and compensation measures required to maintain the coherence of the UK/National Sites Network can be secured. European sites are the most important sites for wildlife and as such it is right that maintaining them in favourable conservation status and protecting them from development carries a high weight in decision making.

We also have concerns in relation to Manx Shearwater, European storm petrel and Leach's petrel and that it is not possible to rule out AEoSIs upon UK SPA sites for these species given the difficulties outlined in Appendix 1.

¹ [Scottish Biodiversity Indicator – The Numbers and Breeding Success of Seabirds \(1986 to 2019\)](#)

Recognising that the Application site is identified as a suitable site for development in the Sectoral Marine Plan for Offshore Wind Energy, it is nonetheless clear from the Derogation Case put forward by the Applicant that the Scottish Government must ensure the requirements of Regulations 29 and 6 of the Offshore Habitats Regulations² are passed before it can grant consent for the proposed development.

The Scottish Government may be unable to identify suitable alternative solutions to the Application if renewable energy climate-related targets are to be achieved, and it may determine that the development must be consented for Imperative Reasons of Overriding Public Interest. But it is vital the Scottish Government undertakes the most rigorous assessment of the suitability and efficacy of the compensation measures proposed and requires rigorous application of any agreed compensation in the interests of ensuring the overall coherence of the UK Sites Network (Natura 2000 Network). Nothing less would be acceptable.

RSPB Scotland acknowledges the proposed compensation put forward by the applicant including the reference to potentially convert to more strategic measures should a strategic framework for compensation be brought forward. However, the proposed measures are relatively generic in nature at this point in time with only limited reference to particular sites where compensation may take place. We welcome references to adaptive management should measures not provide adequate compensation as predicted by any initial measures. This should include alternative options and strategies for compensation. We understand that the following key measures are proposed:

- i. Mammalian Predator control;
- ii. Disturbance reduction to colonies;
- iii. Non-lethal avian predator management, and;
- iv. Bycatch mitigation.

Commentary on, and analysis of these proposed compensation measures is attached to this letter is attached at appendix 2. In summary, RSPB Scotland does not believe that these compensation measures are appropriate or sufficient as currently proposed. We have several concerns about the proposed mink control measure. We do not believe Seabird Bycatch Reduction can compensate for the possible harm arising from the application, but should it be pursued, it should first be considered for Scottish waters.

There is also the need for compensation measures for Guillemot and Puffin.

We welcome the opportunity to engage in ongoing dialogue with the Applicant, the Marine Directorate and NatureScot with a view to shaping and improving proposed compensation measures to ensure that they are as effective as required (ecologically, financially and legally), are as close as possible to the affected colonies, and therefore will ensure the coherence the UK Sites Network.

Summary

In summary RSPB Scotland **object** to the application based upon a number of AEOIs and in particular the 'in combination' impacts with other offshore wind farms, particularly Berwick Bank. Some of these effects are identified by the Developer's EIA and HRA. This results in the need for compensation. However, the compensation suggested is of a largely generic nature that is not detailed to a level that would provide confidence that it would provide the substantive compensation required to address the adverse impacts identified.

Should you require any further information, please do not hesitate to get in contact.

Yours sincerely

² <https://www.legislation.gov.uk/ukxi/2017/1013/contents>

<Redacted>

Andrew Tait
Senior Conservation Planner, RSPB Scotland

Appendix 1

Caledonia Offshore Windfarm Application

Detailed Response by the Royal Society for the Protection of Birds

Introduction

1. This appendix sets out the steps for the habitat regulations with the legal steps that must be taken, together with the wider legal context and the policy landscape for offshore wind development. This is followed by a summary of the most relevant seabird colonies and their current status.

Offshore ornithology assessment

2. RSPB Scotland recognise that the Applicant invested a great amount of time and resource into the ornithological re-assessment process and wish to formally express that we welcome and appreciate this work.
3. We consider the approach advised by NatureScot and detailed in their online guidance to be the best reflection of the likely impact of the proposed OWF development.
4. As set out in Searle et al (2023a)¹, assessing impacts of offshore windfarms and other renewables developments is inherently uncertain. This uncertainty is propagated throughout the impact assessments, as there are not only direct impacts, but ecosystem wide impacts that can change, for example, the abundance and availability of prey. Multiple data sources and modelling techniques are used to capture a simplified version of reality. They do not fully capture the complexity of seabird behavioural or demographic processes in an inherently dynamic marine environment.
5. It is therefore vital that the precautionary approach required by the Habitats Regulations is taken. This means if scientific data is incomplete or hard to get and it is not possible to complete a full evaluation of all possible or potential risks an activity/development may cause, account should be taken of all possible harm. Potential harm should not be dismissed due to the lack of scientific data.
6. Importantly, the precautionary principle requires the Applicant to demonstrate with scientific certainty that something would not be harmful. The concept of something being overly precautionary dismisses the inherent uncertainty in modelling and overlooks the simplistic version of reality that the modelling captures.
7. Not recognising these uncertainties risks poorly informed decisions being made. Furthermore, an underestimation of impacts will have repercussions when consenting later offshore wind development. If a precautionary approach is taken from the beginning, the likelihood of irreversible damage occurring is reduced even whilst our knowledge base is incomplete and modelling improves.

The Habitats Regulations

8. The Habitats Regulations seek to conserve particular habitats and species across the UK. The overall aim of these Regulations is to ensure the long-term survival of viable populations of the UK's most valuable and threatened species and habitats, throughout their natural range and to maintain and promote biodiversity.

9. These Regulations relevant to this application are:
- 9.1. *The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)* (“the 1994 Regulations”) - applies on land in Scotland, and in Scottish inshore waters (the area of sea adjacent to Scotland from 0 to 12 nautical miles);
 - 9.2. *The Conservation of Habitats and Species Regulations 2017* -applies to specific reserved and devolved activities on land in Scotland, and in Scottish inshore waters, including for consents under sections 36 and 37 of the Electricity Act 1989; and
 - 9.3. *The Conservation of Offshore Marine Habitats and Species Regulations 2017* -applies to all UK offshore waters (the area of sea beyond 12 nautical miles).
10. These are referred to as “the Habitats Regulations” in this submission.
11. In Scotland, 162 Special Protection Areas (SPAs) have been classified. These have been specifically identified and protected due to supporting one or more rare, threatened, or vulnerable bird species as listed in Annex I of the Birds Directive, or regularly occurring migratory species.
12. Although the UK has withdrawn from the EU, the aims and objectives (as set out in the Habitats and Birds Directives recitals/preambles) remains relevant and important as discussed below. SPAs are protected in Scotland and the rest of the UK, and the standard of protection and requirements has not changed.
13. There have however been some changes to terminology and process due to Brexit. Of relevance to this submission is that the EU-wide network of SPAs and SACs known as “Natura 2000” Network post Brexit, no longer is of legal relevance. However, the UK-wide network of protected sites is, and is referred to as the “UK site network”. In addition, references in the Habitats Regulations to the “coherence of Natura 2000” must now be read as references to the coherence of the UK/National site network.
14. Using *the Conservation of Habitats and Species Regulations 2017* (since all Habitats Regulations have identical requirements), the Regulations set out the sequence of steps to be taken by the competent authority (here the Scottish Ministers) when considering authorisation for a project that may have an impact on a European site and its species before deciding to authorise that project. These are as follows:
- Step 1: consider whether the project is directly connected with or necessary to the management of the SPA and its species (regulation 63(1)). If not –
 - Step 2: consider, on a precautionary basis, whether the project is likely to have a significant effect on the SPA and its species, either alone or in combination with other plans or projects (the Likely Significance Test) (regulation 63(1)).
 - Step 3: make an appropriate assessment of the implications for the SPA and its species in view of its conservation objectives. There is no requirement or ability at this stage to consider extraneous (non-conservation e.g. economics, renewable targets, public safety etc) matters in the appropriate assessment (regulation 63(1)).
 - Step 4: consider whether it can be ascertained that the project will not, alone or in combination with other plans or projects, adversely affect the integrity of the SPA and its species, having regard to the manner in which it is proposed to be carried out, and any conditions or restrictions subject to which that authorisation might be given (the Integrity Test) (regulation 63(6)).

- Step 5: In light of the conclusions of the assessment, the competent authority shall agree to the project only after having ascertained that it will not adversely affect the integrity of the SPA, alone or in combination with other plans or projects (regulation 63(5)).
 - Step 6: only if the competent authority is satisfied that, there being no alternative solutions and the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to (regulation 64(2)), may be of a social or economic nature), they may agree to the plan or project notwithstanding a negative assessment of the implications for the European site (regulation 64(1)).
 - Step 7: in the event of the no alternative solutions and imperative reasons of overriding public interest tests being satisfied, the Scottish Ministers must secure that any necessary compensatory measures are taken to ensure that the overall coherence of the Natura 2000 network is protected (regulation 68).
15. It is important to add that in addition to the requirements set out above, in relation to both inshore area and the offshore marine area, any competent authority must exercise its functions so as to secure compliance with the requirements of the Habitats Directive and the Birds Directive; and in particular to take such steps as it considers appropriate to secure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds, having regard to the requirements of Article 2 of the Birds Directive.⁷ And for offshore SPAs regulation 26, Offshore Regulations requires competent authorities to exercise their functions (as far as possible) to secure steps to avoid the disturbance of species and the deterioration of habitats or habitats of species within those sites.

Appropriate assessment

16. As part of the assessment requirements, regulation 63, Habitats Regulations (regulation 28, Offshore Regulations) require the application of the precautionary principle. Meaning that if it cannot be excluded, on the basis of objective scientific information, that it is likely to have a significant effect on a SPA and its species, an appropriate assessment will be required: see *Waddenzee*.
17. Following that appropriate assessment, a project may only be granted consent if the competent authority is convinced that it will not have an adverse effect on the integrity of the European site(s) and their species of concern, having applied the precautionary principle and taken account of the conservation objectives for those sites and their habitats and species. *Waddenzee* confirmed that where doubt remains as to the absence of adverse effects on the integrity of the site, approval should be refused (subject to the considerations of alternative solutions, imperative reasons of overriding public interest and the provision of compensatory measures as set out in regulations 64 & 68).
18. An appropriate assessment requires all aspects of the project which could affect the site, its species and its conservation objectives to be identified in the light of the best scientific knowledge in the field. The competent authority,
- “taking account of the conclusions of the appropriate assessment of the implications...for the site concerned, in the light of the conservation objectives, are to authorise such activity only if they have made certain that it will not adversely affect the integrity of the site. That is the case where no reasonable scientific doubt remains as to the absence of such effects”.*

19. Integrity of the SPA should be considered as the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is classified. A site can be described as having a high degree of integrity where the inherent potential for meeting site conservation objectives is realised, the capacity for self-repair and self-renewal under dynamic conditions is maintained, and a minimum of external management support is required. When looking at the 'integrity of the site', it is therefore important to take into account a range of factors, including the possibility of effects manifesting themselves in the short, medium and long-term.
20. As is clear from the requirements of the Habitats and Offshore Regulations, the assessment of integrity is to be considered by reference to the impact of the project alone and in-combination with other plans and projects, taking account of the site(s) conservation objectives. As clearly set out in *Waddenzee*, para 61:

*"61 In view of the foregoing, the answer to the fourth question must be that, under Article 6(3) of the Habitats Directive, **an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field.** The competent national authorities, taking account of the appropriate assessment of the implications of mechanical cockle fishing for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects."* (emphasis added)

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

21. These EIA requirements state that consent cannot be granted for Environmental Impact Assessment (EIA) development unless the decision-maker has taken into account environmental information including an environmental statement which describes the significant effects, including cumulative effects, of the development on the environment. This will include effects on all wild bird species whether SPA species or not.
22. Offshore wind farms have the potential to impact on birds through collision with rotating blades, direct habitat loss, disturbance from construction activities, displacement during the operational phase (resulting in loss of foraging/roosting area) and impact on bird flight lines (i.e. barrier effect) and associated increased energy use by birds for commuting flights between roosting and foraging areas. These additional potential impacts must be taken into account.

The UK Marine Strategy Regulations and Good Environmental Status

23. Also of relevance to achieving sustainable development in our seas is the Marine Strategy Framework Directive¹³. This was developed in response to concerns that although existing legislation protected the sea from some specific impacts, it was sectoral and fragmented. To overcome this, the directive seeks to reduce impacts on marine waters regardless of where impacts occur by applying an ecosystem approach.
24. Applying an ecosystem approach is important. Our natural environment is complicated, and the outcome of an impact may manifest elsewhere. It also feeds into the concept of sustainable development and the vision for clean, healthy, safe, productive, and diverse seas; managed to meet the long term needs of nature and people as set out Scotland's National Marine Plan.

25. The Marine Strategy Framework Directive was transposed into UK law by the Marine Strategy Regulations 2010. It requires the UK to put in place the necessary management measures to achieve 'Good Environmental Status' (GES) in UK seas by 2020. This involves protecting the marine environment, preventing its deterioration, and restoring it where practical alongside using marine resources sustainably. As with the Habitats Regulations, although the UK has withdrawn from the EU, the legislative requirement for GES remains in place.
26. Governments of the UK have collectively failed to meet 11 out of the 15 indicators of Good Environmental Status (GES) for our seas with the marine bird indicator moving away from target. For breeding seabirds, more species, especially surface feeders who depend on small fish at the surface (35% in the Greater North Sea), are now experiencing frequent, widespread breeding failures. The reduced availability of small fish is largely responsible for these declines and impacts on breeding success.

Section summary

27. Taken together, there is a clear legal and policy requirement to protect the marine environment and deliver sustainable development. The UK Marine Strategy is clear in its aims of improving the state of the marine environment through taking a large scale, holistic approach. Therefore, proposals which further impact the ability of the UK to achieve GES should be considered carefully. The ability of an application to comply with the vital requirements of the Habitats Regulations which seek the long-term survival of viable populations of Europe's most valuable and threatened species and habitats, must also be scrutinised and considered in detail.

Policy Position

28. In accordance with the requirements of the Marine (Scotland) Act 2010 when considering an application and making a recommendation to Ministers, MD-LOT must consider the extent to which the proposed activity accords with any marine plan for an area and the impact that it would have on the environment, human health, and other legitimate users of the sea as well as other matters considered relevant.
29. Scotland's National Marine Plan² (NMP) (adopted 2015) sets out the strategic policies for sustainable development in both the Scotland inshore region (0 to 12 nautical miles) and within the Scottish Offshore region (12 to 200 nautical miles).
30. A core aim of marine planning, as set out by the NMP, is to manage human impact on the marine environment. The plan therefore seeks to put the marine environment at the heart of the planning process and adopt the principles of sustainable development. The environmental, social, and economic policies of the plan are intended to be complementary with one another as elements of sustainability.
31. Through policy GEN 9 (Natural Heritage), the NMP requires that development and use of the marine environment complies with legal requirements for protected areas and protected species, not result in significant impact on the national status of priority marine features, and protect, and where appropriate, enhance the health of the marine area. It also encourages a strategic approach to mitigation of potential and cumulative impacts, stating that these form an integral part of marine planning and decision making.
32. Renewables specific policies within the NMP direct commercial scale development to the plan options areas (as identified in the Sectoral Marine Plan) and require applications to demonstrate compliance with the Environmental Impact Assessment (EIA) and Habitat Regulations Appraisal (HRA) legislative requirements.

33. Since the adoption of the NMP, Scottish Government have further recognised that net zero and energy goals will have impacts on the environment, specifically marine biodiversity, as well as other users of sea. In particular, the draft Energy Strategy and Just Transition Plan (2023), recognises the potential impacts on biodiversity arising from the major expansion in offshore wind. It contains a commitment to work in a way that recognises this reality and ensures appropriate protection of the natural environment as part of a joined-up approach to tackling the climate and nature crisis.
34. This follows the approach of the National Planning Framework 4 which, in policy 1 clearly sets the expectation that significant weight will be given to the global climate and nature crises when considering all development proposals. Although this document is not directly applicable to marine development, it is applicable to onshore elements and RSPB Scotland believe it is a relevant consideration, albeit one with limited weight, for development offshore. Although in early stages of development, RSPB Scotland understands that consideration is being given as to how National Marine Plan 2 can follow the approach in NPF4.

Ornithological interest of the Application site

35. The UK is of outstanding international importance for its breeding seabirds and wintering marine birds. As with all Annex I and regularly migratory species, the UK has a particular responsibility under the Birds Directive to secure their conservation.
36. Seabirds are relatively long-lived, and as a result, their populations are sensitive to small increases in adult mortality. Their survival and productivity rates can be impacted by offshore windfarms directly (i.e. collision) and indirectly (e.g. displacement from foraging areas, additional energy expenditure, potential impacts on forage fish and wider ecosystem impacts such as changes in stratification).
37. The probability of seabirds being impacted by an application relates to whether they are likely to be in the area of the development, and their behaviour in the vicinity of the development. This will depend on a number of factors, including the application's proximity to seabird colonies, the species within those colonies, the species behaviours (including their foraging range, food preferences and flight behaviour), the attraction of the application array itself as a foraging area, and the attraction of areas beyond the application array for foraging (which would require birds to transition through the development array or detour around it).
38. Screening stage we had raised the issue of. Should he water Manx, shearwater, European storm petrel and Leach's petrel. While we, we agreed that low numbers of these species have been recorded in historical surveys, it may be that these low numbers arise through biases inherent in the survey methods (such as the timing of surveys and low visibility of birds on the water) rather than low numbers on the site. Furthermore an additional consideration for these species is the extent to which nocturnally active seabirds, such as Manx shearwaters, may be attracted to the illuminations required for turbines, support vessels and the construction or expansion of ports. Such attraction will cause behaviour change, which could. In turn result in increased collision risk, for example, if birds fly higher when attracted to light. Consequently, we do not believe it is possible to rule out the potential effects upon a European site in combination with other projects.

Species of interest

39. The **key species of interest in relation to the application are** Black-legged Kittiwake (*Rissa tridactyla*), Northern Gannet (*Morus bassanus*), Common Guillemot (*Uria aalge*), Atlantic Puffin

(*Fratercula artica*) Manx Shearwater (*Puffinus puffinus*), European Storm-petrel (*Hydrobates pelagicus*) and Leach's Storm-petrel (*Hydrobates leucorhous*).

40. A summary of their population status within the Britain, Isle of Man and Channel Islands is provided in Table 1 below.

Species	% World Population	UK Colony Trends 1986 to 2021
Black-legged Kittiwake	5.3	Declining
Northern Gannet	59.1	Mostly increasing but a few declining colonies (<i>N.B. Gannets were badly impacted by HPAI in 2021-22</i>)
Guillemot	6.2	Some colonies increasing but many declining
Atlantic Puffin	3.3-3.9	Declining
Manx Shearwater	81.0	Increasing
European Storm-petrel	6.8	Increasing
Leach's Storm-petrel	0.1	Declining

Table 1

Northern Gannet

41. Northern Gannet are endemic to the North Atlantic although the majority breed in Britain and Ireland. They tend to breed on offshore islands and stacks. Gannets are typically long-lived seabirds, living to an average age of 17 years and not breeding until the age of 5 years. During the breeding season, adults will take it in turn to incubate the single egg for approximately 42-46 days with the chick fledging unaccompanied by its parents after approximately 90 days. Some colonies, such as that on the Bass Rock in the Firth of Forth – the largest Gannetry in the world - are particularly large and conspicuous. Gannet can catch fish at depths of 20 metres but also feed from the surface on small shoaling fish such as sandeel.
42. During the breeding season Gannets are central-place foragers meaning they are constrained to return to the nest after foraging to maintain territories and raise their young. Foraging trip durations are dependent on colony size with birds from larger colonies making longer foraging trips (both in distance and duration).
43. Gannet were particularly badly impacted by Highly Pathogenic Avian Influenza (HPAI) during the 2022 breeding season with large numbers of deaths reported. On the Bass Rock a catastrophic breeding failure was reported which is likely to vastly impact their future population numbers and the robustness of those populations to additional mortality.
44. They are amber listed in the Birds of Conservation Concern.
45. Northern Gannet have been assessed as having a high vulnerability to collisions with rotating turbine blades (Furness *et al.*, 2013, Wade *et al.*, 2016), partly due to their flight altitude and manoeuvrability. Breeding Gannets tracked with GPS from Helgoland in the eastern North Sea travelled around and through operational wind farms.
46. There is a need to assess the possible impacts to Gannets throughout the year as behavioural constraints change; starting when they arrive back at the colony for the breeding season until they leave on migration, and then throughout the winter. During autumn and winter potential interaction with turbines will not be limited to birds from the closest breeding colony but birds from across the breeding range as they disperse and travel south.

47. There is consistent evidence of wind farm avoidance by non-breeding Gannets and Gannets on migration. But little is known about the behavioural responses of breeding Gannets to offshore turbines resulting from a lack of operational turbines within foraging range of breeding colonies.

Black-legged Kittiwake

48. Black-legged Kittiwake are members of the gull family. They tend to nest on vertical rocky-sea cliffs and during the breeding season feed on energy rich pelagic shoaling fish, such as sandeel, sprat and juvenile herring. Kittiwakes are surface feeders and are highly dependent on sandeels in the breeding season, as such they are particularly vulnerable to food shortage. During the breeding season Kittiwakes are central-place foragers meaning they are constrained to return to the nest after foraging to maintain territories and raise their young. When not in attendance at the nest or away on a foraging trip, Kittiwakes use the sea below the cliffs for maintenance behaviours such as loafing (spending time on the water to preen or rest, not related to feeding), preening and bathing. During the breeding season the highest densities of Kittiwakes at sea are within 1km of the colony.
49. Kittiwake are red listed in the Birds of Conservation Concern and on the OSPAR list of threatened and/or declining species and have been assessed by the IUCN as vulnerable to global extinction. They are particularly susceptible to collision risk but are also vulnerable to distributional changes as a result of the presence of turbines.

Common Guillemot

50. Common Guillemot are member of the auk family along with Puffin and Razorbill. They typically form highly dense colonies and lay a single egg (without a nest) on a cliff, narrow ledges, or other inaccessible areas. They tend to eat fish and crustaceans. Guillemots are typically long-lived seabirds, living to an average age of 23 years and not breeding until the age of 5 years. Breeding success is highest where birds are most tightly packed. Adults will incubate the egg for 28-37 days, fledging then taking place when the chick is ~3 weeks old. The chick will then complete its growth at sea accompanied by its male parent.
51. The response of Guillemots to offshore wind farms is mixed although there is a paucity of data for breeding birds. Non-breeding birds have been shown to avoid offshore wind farms, as have breeding birds in the southern North Sea, whereas in the Irish Sea, Guillemots have shown no changes in abundance post construction and at another site, increased in abundance. More recent work has suggested that there may be some habituation over time to the presence of wind farms.
52. While details are still emerging, the 2024 breeding season for Guillemot appears to be extremely poor, with large number of nest sites vacant, birds present but not laying eggs and high degree of breeding asynchronicity. The causes of this are likely to be multifactorial, and may include HPAI, high water temperatures and resultant poor body conditions. The long term, population scale consequences are unclear, but may be severe. As a result, an extremely high level of precaution should be applied in considering the impacts arising from any offshore development on this species.
53. They are amber listed in the Birds of Conservation Concern.

Puffin

54. Puffin are one of the most iconic seabird species around Scotland with their brightly coloured beaks during the breeding season. They tend to nest in burrows and so are susceptible to

mammalian predators. There is some evidence their diet changes seasonally but during the breeding season, they typically feed on shoaling fish such as sandeel, sprat and herring which they catch by underwater pursuit.

- 55. They are vulnerable to displacement which can lead to a loss of feeding grounds and excess energy expenditure as they take less direct routes to reach alternative prey sources.
- 56. Puffin are red listed in the Birds of Conservation Concern and have been assessed by the IUCN as vulnerable to global extinction.

Manx Shearwater

- 57. This medium-sized sooty black and white seabird is a skilful navigator of the open ocean, but rarely seen on land. Manx shearwaters are long-lived birds that typically glide on stiff wings low over the sea surface. They are nocturnal at their breeding colonies, which are often located in steep and inaccessible terrain at a few dozen localities, mostly located on our western seaboard.
- 58. Outside of the breeding season, these migratory birds winter in the South Atlantic, predominantly off Brazil and Argentina.
- 59. The birds are amber listed as a UK bird of conservation concern.

European Storm-petrel

- 60. This small petrel, not much larger than a House Martin and very similar in appearance, is extremely pelagic, spending most of its life at sea.
- 61. The Storm Petrel only comes to land during the summer months, making its breeding attempts on offshore islands and a few isolated headlands. Although it has an estimated breeding population in the UK of around 30,000 pairs, this is an extremely difficult species to see during the breeding season, only coming to land during the hours of darkness often staying at sea on bright moonlit nights.
- 62. Several Storm Petrel breeding colonies have been the subject of detailed study, with ringing data demonstrating that this is a long-lived bird, with some individuals living for over 30 years.
- 63. This is the most marine of our breeding birds and a difficult species to see, visiting its underground nests at night and spending the rest of the time at sea.
- 64. The birds are amber listed as a UK bird of conservation concern.

Leach's storm-petrel

- 65. Leach's Petrel has a more restricted breeding distribution within Britain & Ireland than the more familiar Storm Petrel, its colonies all located within 70 km of the Atlantic continental shelf. While significant numbers breed at colonies on remote islands far off the coasts of Scotland and Ireland, our population is small compared to those off North America.
- 66. As with other burrow-nesting seabirds, the species faces a threat from mammalian predators inadvertently introduced to islands. Leach's Petrels may also be taken by avian predators, which is one reason for their nocturnal habits at breeding sites.
- 67. The birds are red listed as a bird of UK conservation concern.

Proximity of seabird colonies

68. The application array location is close to several SPAs with qualifying features within foraging range of the application array area. This includes the East Caithness Cliffs SPA, North Caithness Cliffs SPA, Outer Firth of Forth and St Andrews Bay Complex SPA, the Forth Islands SPA, Fowlsheugh SPA and St Abb's Head to Fast Castle SPA, Flannan Isles, Foula, North Rona and Sgula Sgeir, St Kilda, Sule, Skerry and Sule Stack, Auskerry, Mousa, Priest Islands (Summer Isles), Seas of St Kilda, St Kilda, Treshnish Isles, Copeland Islands, Aberdaron Coast and Bardsey Island, Irish Sea Front, Rum, Skomer, Skolkholm and seas off Pembrokeshire.
69. As SPAs, these sites are subject to general duties to protect, conserve and restore the designated features of the site to meet their conservation objectives, to prevent deterioration of the site's habitats and to prevent significant disturbance to the sites. If an application might impact a qualifying feature, as set out in Chapter 1, assessment in accordance with the Habitats Regulations is required.

Forth Islands SPA

70. The Forth Islands SPA consists of a series of islands in the Firth of Forth. The islands of Inchmickery, Isle of May, Fidra, The Lamb, Craigleith and Bass Rock were classified in 1990 and an extension to the site, consisting of Long Craig, was classified in 2004.
71. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:
- Migratory species including:
 - **Northern Gannet**, representing 8.2% of world's biogeographical population and 13.6% of the Great Britain population); and
 - **Atlantic Puffin**, (representing 1.5% of the total F.a.grabae biogeographic population and 3.1% of the Great Britain population).
 - In excess of 20,000 individual seabirds during the breeding season including, in addition to Northern Gannet and Atlantic Puffin:
 - **Razorbill** representing 1.4% of the Great Britain population;
 - **Common Guillemot** representing 2.2% of the Great Britain population; and
 - **Black-legged Kittiwake** representing 1.7% of the Great Britain population.
72. The conservation objectives for the Forth Islands SPA are:
- “To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

Fowlsheugh SPA

73. Fowlsheugh SPA is a stretch of sheer cliffs on the east coast of Aberdeenshire plus a two-kilometre extension into the marine environment. The cliffs were designated in 1992 and the marine extension in 2009.

74. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- Migratory species including:
 - **Common Guillemot** representing 5% of the Great Britain population; and
 - **Black-legged Kittiwake** representing 7.5% of the Great Britain population.
- In excess of 20,000 individual seabirds during the breeding season including:
 - **Razorbill** representing 3.9% of the Great Britain population.

75. The conservation objectives for the Fowlsheugh SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

St Abb's Head to Fast Castle SPA

76. St Abb's Head to Fast Castle SPA comprises an area of sea cliffs and 1km marine extension stretching over 10km along the Berwickshire Coast. The cliffs were designated in 1997 and the marine extension in 2009.

77. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
 - **Razorbill** representing 1% of the Great Britain population;
 - **Common Guillemot** representing 3% of the Great Britain population; and
 - **Black-legged Kittiwake** representing 4% of the Great Britain population.

78. The conservation objectives for the St Abb's Head to Fast Castle SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

East Caithness Cliffs

79. The East Caithness Cliffs SPA includes most of the sea-cliff areas between Wick and Helmsdale on the north-east coast of the Scottish mainland and includes an approximate 2km seaward extension. It was designated in 1996 and the marine extension in 2009.
80. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:
- In excess of 20,000 individual seabirds during the breeding season including:
 - **Razorbill** representing 2% of the Great Britain population;
 - **Common Guillemot** representing 3% of the Great Britain population; and
 - **Black-legged Kittiwake** representing 1% of the Great Britain population.

81. The conservation objectives for the East Caithness Cliffs SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

North Caithness Cliffs

82. The North Caithness Cliffs SPA includes sea-cliffs and islands at the north coast of the Scottish mainland. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1996 and the marine extension in 2009.
83. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:
- In excess of 20,000 individual seabirds during the breeding season including:
 - **Razorbill** representing 3% of the Great Britain population;
 - **Common Guillemot** representing 4% of the Great Britain population; and
 - **Black-legged Kittiwake** representing 3% of the Great Britain population.

84. The conservation objectives for the North Caithness Cliffs SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

Troup, Pennan and Lion's Heads

85. The Troup, Pennan and Lion's Heads SPA is a 9km stretch of sea cliffs along the Aberdeenshire coast in Scotland. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1997 and the marine extension in 2009.

86. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
 - **Black-legged Kittiwake** representing 6% of the Great Britain population;
 - **Common Guillemot** representing 4% of the Great Britain population.

87. The conservation objectives for the Troup, Pennan and Lion's Heads SPA are:

"To avoid deterioration of the habitats of the qualifying species (listed below) 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"*

Buchan Ness to Collieston Coast

88. The Buchan Ness to Collieston Coast SPA is a stretch of south-east facing cliff in Aberdeenshire, Scotland. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1998 and the marine extension in 2009.

89. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- In excess of 20,000 individual seabirds during the breeding season including:
 - **Common Guillemot** representing 1% of the Great Britain population; and
 - **Black-legged Kittiwake** representing 6% of the Great Britain population.

90. The conservation objectives for the Buchan Ness to Collieston Coast SPA are:

"To avoid deterioration of the habitats of the qualifying species (listed below) 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"*

Farne Islands

91. The Farne Islands SPA is a group of low-lying islands 2-6km off the coast of Northumberland in north-east England. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. It was designated in 1996 and the marine extension in 2009.
92. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:
- In excess of 20,000 individual seabirds during the breeding season including:
 - **Common Guillemot** representing 2% of the biogeographic population; and
 - Seabird assemblage including Black-legged Kittiwake.

93. The conservation objectives for the North Caithness Cliffs SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

Flamborough and Filey Coast SPA

94. The Flamborough and Filey Coast SPA is a stretch of cliffs running along the Yorkshire coast. It includes a seaward extension that extends approximately 2km into the marine environment to include the seabed, water column and surface. The Flamborough Head and Bempton Cliffs SPA was originally designated in 1993 for its internationally important colony of Kittiwakes. In 2016, the protected area was extended and renamed as the Flamborough and Filey Coast SPA. This extension provided specific protection to another three species, the overall seabird assemblage, and the terrestrial cliff environment of Filey Brigg. The revised SPA also protects the inshore waters around the seabird breeding cliffs, from mean low water to 2km offshore.

95. It qualifies under Article 4(2) of the Birds Directive due to the regular presence of:
- In excess of 20,000 individual breeding seabirds and more than 1% of the biogeographical population of four regularly occurring migratory species;
 - **Black-legged Kittiwake** (2% North Atlantic);
 - **Northern Gannet** (2.6% North Atlantic);
 - **Common Guillemot** (15.6% North Atlantic);
 - **Razorbill** (2.3% North Atlantic); and
 - **Seabird assemblage** including over 2,000 individual **Northern Fulmar**

96. The conservation objectives for the Flamborough and Filey Coast SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

Hoy SPA

97. Hoy is a mountainous island at the south-western end of the Orkney archipelago. Hoy SPA covers the northern and western two-thirds of Hoy island, which is formed of Old Red Sandstone and contains Orkney's highest hills, and adjacent coastal waters. The SPA supports an extremely diverse mixture of mire, heath and alpine vegetation and Britain's most northerly native woodland. These upland areas and the high sea cliffs at the coast support an important assemblage of moorland breeding birds and breeding seabirds.
98. It was designated in December 2000 with a marine extension on 25 September 2009 and qualifies under Article 4(2) of the Birds Directive by regularly supporting 120,000 seabirds including nationally important populations of the following species:
- **Atlantic puffin** (3,500 pairs, 0.7% of the GB population);
 - **Black-Legged Kittiwake** (3,000 pairs, 0.6% of the GB population);
 - **Arctic Skua** (59 pairs, 2% of the GB population);
 - **Northern Fulmar** (35,000 pairs, 6% of the GB population);
 - **Great Black-Backed Gull** (570 pairs, 3% of the GB population);
 - **Common Guillemot** (13,400 pairs, 2% of the GB population).
99. The conservation objectives for Hoy SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

Rousay

100. Rousay is an island off the north-east of Orkney. The SPA consists of sea cliffs and areas of maritime heath and grassland in the northwest and northeast of the island.
101. It was designated in February 2000 with a marine extension in 2009 and qualifies under article 4(1) and 4(2) of the Birds Directive by regularly supporting 30,000 seabirds including nationally important populations of the following species:
- **Arctic Tern** (790 pairs, 2% of the GB population),
 - **Arctic Skua** (130 pairs; 4% of the GB population),

- **Black-legged Kittiwake** (4,900 pairs; 1% of the GB population),
- **Common Guillemot** (10,600 individuals, 1% of the GB population),
- **Northern Fulmar** (1,240 pairs, 0.2% of GB population).

102. The conservation objectives for Rousay SPA are:

“To avoid deterioration of the habitats of the qualifying species (listed below) 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”*

Proximity of Marine Protected Areas

Outer Firth of Forth and St Andrews Bay Complex SPA

103. The Outer Firth of Forth and St Andrews Bay Complex SPA is a large estuarine and marine site consisting of the adjacent Firth of Forth and Tay. It attracts one of the largest and most diverse marine bird concentrations in Scotland. It complements adjacent SPAs including the Forth Islands SPA.

104. It was designated in 2020 and qualifies under Article 4(2) of the Birds Directive due to the regular presence of:

- Migratory species including:
 - **Northern Gannet** (*Morus bassanus*), representing 1.4% of biogeographical population and 2.7% of the Great Britain population.
- In excess of 20,000 individual seabirds during the breeding season including:
 - **Atlantic Puffin** (*Fratercula arctica*) representing 5.3% of the Great Britain population,
 - **Black-legged Kittiwake** (*Rissa tridactyla*) representing 1.6% of the Great Britain population and;
 - More than 2,000 individual **Common Guillemots** (*Uria aalge*).
- In excess of 20,000 individual seabirds during the non-breeding season including more than 2,000 individual **Common Guillemot**, **Black-legged Kittiwake**, and **Razorbill** (*Alca torda*).

105. The draft conservation objectives for the Outer Firth of Forth and St Andrews Bay Complex SPA are:

“To ensure that the qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.

To ensure that the integrity of the Outer Firth of Forth and St Andrews Bay Complex SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

- *The populations of qualifying features are viable components of the site.*

- *The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.*
- *The supporting habitats and processes relevant to the qualifying features and their prey/food resources are maintained, or where appropriate restored, at the Outer Firth of Forth and St Andrews Bay Complex SPA.”*

106. Black-legged Kittiwake and other species are considered to be in an unfavourable condition and therefore there is an overarching ‘restore’ objective for the site. Should plans or projects compromise the ability of the unfavourable qualifying features to recover (e.g. result in a further decline or accelerate the rate of decline, or prevent a recovery from occurring), then the Outer Firth of Forth and St Andrews Bay Complex SPA will not make an appropriate contribution to achieving Favourable Conservation Status (FCS) across the Atlantic Biogeographic Region.

Appendix 2

RSPB Scotland commentary on the Applicant's proposed compensation measures

1. The fundamental issues with the Applicant's assessment, along with the presentation of the outputs of the modelling of population scale impacts, in our view mean the appropriate assessment is inadequate, and therefore insufficient for the robust consideration required to enable a proper understanding of all potential adverse effects of the Application. Whilst we appreciate the Applicant may provide more information (and we reserve the right to review our comments and concerns in light of it) unless the Applicant resolves these fundamental issues, in our view the assessment currently provided is not fit for purpose and therefore the full extent of the compensation measures required cannot be calculated.

RSPB Scotland approach to evaluating compensation measures

2. In short - it is vital that details and evidence are provided to enable confidence ecologically, financially and legally, in the compensation proposals and such information must be available for review by all Interested parties. This section sets out RSPB Scotland's approach to evaluating compensation measures. It includes our general approach to assessing compensation proposals and the level of detail we consider is required in order to evaluate compensation proposals as part of the Application's determination, before drawing out some general issues raised by the Applicant's proposals. We have set it out under the following headings:
 - RSPB Scotland's approach to assessing compensation proposals;
 - What level of detail is required on proposed compensation measures?
 - Generic issues raised by the Applicant's compensation proposals:
 - Lack of specific proposals and locations for compensation measures
 - Scale of compensation
 - Lead-in times for compensation
 - Lifetime of compensation in relation to damage
 - Environmental assessment of the proposed compensation measures.

RSPB Scotland's approach to assessing compensation proposals

3. Set out in Table 1 below is the key criteria and requirements from the EC guidance¹ on compensatory measures, along with additional commentary based on RSPB Scotland's experience of the principles that should be applied when assessing compensatory measures.

EC criteria	EC guidance summary (emphasis added)	RSPB Scotland additional commentary
Targeted	Measures should be the most appropriate to the impact predicted and focused on objectives and targets addressing the Natura 2000 elements affected. Must refer to structural and functional aspects of site integrity and habitats/species affected. Must consist of ecological measures: payments to individuals/funds are not appropriate.	Clear objectives and success criteria must be established for the compensation measures. Must address the ecological functions and processes required by impacted species/habitat. Requires shared understanding and agreement on what the impacts are i.e. need to agree nature, magnitude including that they will continue for as long as the project's impacts. This includes the time likely to be required for the SPAs to recover from those impacts in the case of proposals that are in place for a specified time period. This is in order to define objectives for compensation measures and to set out the

		success criteria to determine whether those objectives have been/are being achieved.
Effective	<p>Based on best scientific knowledge available alongside specific investigations for the location where the measures will be implemented. Must be feasible and operational in reinstating the conditions needed to ensure the overall coherence of the Natura 2000 network.</p> <p>Measures where no reasonable guarantee of success should not be considered. The likely success of the compensation scheme should influence final approval of the plan or project in line with the prevention principle.</p> <p>The most effective option, with the greatest chance of success, must be chosen.</p> <p>Detailed monitoring required to ensure long-term effectiveness with remediation provisions if shown to be less effective.</p>	<p>Scientific evaluation of proposed measures must be carried out before consent is granted to avoid agreeing to measures that is/are not effective or technically feasible. This should include appropriate baseline survey and assessment.</p> <p>Compensation must address the impacted SPAs features to ensure overall coherence of the network for that feature is maintained.</p> <p>Substitution is not acceptable.</p> <p>Must be clearly defined timescales for delivery and measuring success (See success criteria under Targeted above).</p> <p>Monitoring must directly relate to the target species and the relevant ecological functions and processes.</p> <p>The compensation measures should be provided in perpetuity in line with obligations to ensure the overall coherence of the UK Site Network is maintained.</p> <p>Where it is not possible to devise compensatory measures to offset the adverse effects on site integrity, the project should not proceed.</p>
Technical feasibility	Design must follow scientific criteria and evaluation in line with best scientific knowledge and take into account the specific requirements of the ecological features to be reinstated.	See Effective above.
Extent	<p>Extent required directly related to:</p> <ul style="list-style-type: none"> the quantitative and qualitative aspects inherent to the elements of integrity likely to be impaired estimated effectiveness of the measure(s) <p>Therefore, ratios best set on a case-by-case basis. Ratios should generally be well above 1:1. Ratios of 1:1 or below only considered when shown measures will be fully effective in reinstating structure and functionality in a short period of time.</p>	<p>Based on an assessment of the necessary ecological requirements to restore species' populations and the related habitat structure and functions identified in the compensation objectives. Determining the minimum appropriate quantity will require an understanding of the quality of the compensation measures and how effective they will be in reinstating the required structures and functions. Any identified uncertainty in success should be factored in to increased ratios.</p> <p>Ratios need to be used where they make ecological sense and will help secure a successful outcome by providing more of something.</p> <p>Simply multiplying capacity to address uncertainty risks giving a false level of confidence.</p> <p>If there is no reasonable guarantee of success that measure should not be considered (see Effective under EC criteria).</p>
Location	<p>Located in areas where they will be most effective in maintaining overall coherence of the Natura 2000 network.</p> <p>Pre-conditions to be met include:</p> <ul style="list-style-type: none"> must be within same range/ migration route/wintering areas for bird 	<p>While the preference is for compensation measures as geographically close to the location of the damage, it is important to consider whether or not the compensation measures will be subject to pressures impacting their efficacy in that location e.g. prey availability, disturbance, and/or other impacts from the</p>

	<p>species and provide functions comparable those justifying selection of original site esp. geographical distribution;</p> <ul style="list-style-type: none"> • must have/be able to develop the ecological structure and functions required by the relevant species (or habitat) • must not jeopardise integrity of any other Natura 2000 site. <p>Spatial search hierarchy starting as close as possible to the impacted Natura 2000 site and working out from there.</p>	<p>same or similar developments such as collision risk or displacement due to offshore wind farms. Therefore, compensation measures should be located so as to maximise proximity while minimising external pressures that may reduce likelihood of success.</p> <p>Compensation measures proposed to benefit SPA features must not result in damage to the integrity of any other SPA, SAC or Ramsar site and their features.</p>
Timing	<p>Case by case approach but must provide continuity in the ecological processes essential to maintain the structure and functions that contribute to the Natura 2000 network coherence.</p> <p>Requires tight co-ordination between implementation of the plan or project and the compensation measures.</p> <p>Factors to consider include:</p> <ul style="list-style-type: none"> • no irreversible damage to the site before compensation in place • compensation operational at the time damage occurs. If not possible, over-compensation required • time lags only admissible if will not compromise objective of “no net loss” to coherence of Natura 2000 network; May be possible to scale down in time depending on whether the negative effects are expected to arise in short, medium or long term. <p>All technical, legal or financial provisions must be completed before plan or project implementation starts to prevent unforeseen delays that compromise effective compensation measures.</p>	<p>Compensation measures should be fully functional before any damage occurs to ensure the overall coherence of the UK Site Network is protected. This requires careful alignment of the timelines for implementing the plan or project and the compensation measures.</p> <p>Suggested time lags in delivering fully functional compensation will need to be carefully considered and can only be accepted where this will not compromise the continuity of essential ecological processes,</p> <p>Any effect of delay should be factored into the design and additional compensation measures provided (see also Extent above).</p>
Long-term implementation	<p>Legal and financial security required for long-term implementation and for protection, monitoring and maintenance of sites to be secured before impacts occur.</p>	<p>Legal rights to secure and implement the compensation measures must be in place prior to consent being granted.</p> <p>And robust financial guarantees are required to fund implementation, monitoring and any necessary remediation measures.</p>

Table 1: Criteria for designing compensatory measures

RSPB Scotland's response to specific proposals

4. Compensation proposals are put forward for Kittiwake, Gannet, Guillemot and Puffin.

Kittiwake

5. Proposals put forward for Kittiwake include the reduction of disturbance at colonies such as the provision of wardens, signage and path diversions. While this can have a practical effect, little detail is included regarding how this would actually work, and, more particularly, how it would increase productivity.
6. Mammalian predator eradication is also suggested. However, development of an existing program is suggested as being more beneficial than individual project- based proposals. However, again no detailed proposals beyond a list of potential sites is put forward.
7. Non-lethal avian predator control is also suggested. Will stop, however, the difficulties of this and the potential impacts upon species associated with other designated SPAs. Is reference. Commenting commentary is provided in relation to scarecrows. And auditory measures. As is recovery of fledglings at sea. Again, while some of these methods could be effective, there is no comprehensive plan or location suggested for these measures.

Gannet

8. Again, the potential for reducing disturbance at Gannet colonies is referred to with the use of Walden Wardens, signage and path diversions.
9. Bycatch mitigation is also referred to. There is reference for funding being made available to an existing program, or for research and collaboration with other developers.

Guillemot

10. Prediction of disturbance at colonies is referenced for Guillemot. The commentary notes that there is some evidence of this species being negatively affected by recreational activity. It is suggested that this provides ecological evidence for the disturbance threat that compensation measures including path diversions, signage and warden coverage measures are intended to address.
11. Mammalian predator management and eradication is also referred to. This approach is like the approach for the species mentioned above.
12. Non- lethal avian predator control is referred to as being successful for some seabird colonies.

Puffin

13. Reduction of disturbance and predator control is references for puffin as per the species referred to above.

14. An additional measure for this species is the restoration or maintenance of breeding sites. This includes the removal of vegetation that restricts access to the nesting burrows of puffins, which has, for example, allowed the recovery of puffin populations in the Forth Islands. Consequently, it is considered that there is ecological evidence for this measure, and existing guidelines for habitat restoration and vegetation removal are available. This measure is therefore viewed as being technically feasible.
15. From what we can see, while the measures proposed make reference to approaches pursued elsewhere and by other developments, the proposals contained within the Outline Implementation and Monitoring Plan (OIMP) here are all theoretical and desk based at this time, with little actual reference to site specific areas where compensation could be provided, or detailed information on how any measures could be successfully implemented at those potential sites.
16. Several options are put forward regarding predator eradication and reducing disturbance measures for several species. The measures proposed are generally regarded as technically feasible. However, they may require the agreement of third-party landowners and the co-operation of other groups, such as fishing operators regarding by-catch for instance. As mentioned above, the measures are generic rather than site-based proposals that have been subject to some level of investigation and demonstration of feasibility.
17. There is no sound methodology and research basis at this time that would allow us to conclude that the measures proposed are appropriate in terms of compensation, and there is limited evidence of engagement with sites where compensation may be carried out. There is reference to relevant SPAs where work could be carried out for which species, and reference to previous studies and projects for various interventions. However, they are generic and not related to what work may be carried out at a particular site. We do not think consent can be granted for the project on an IROPI basis without further, more detailed assessment of these measures on specific, geographic sites. If this is dealt with by granting consent on a conditional basis, we do not consider at this stage that there could be any real confidence that such conditions could be fulfilled and would question the actual legal competency of such a condition with so much doubt about what could be delivered and when against a regulatory requirement that sets a high bar for derogation.
18. In terms of the timing of any compensation this must be carried out before the impacts of the development occur. It would be unacceptable if both the need for compensation and any provision of it was to be delivered 'post impact occurring'. All compensation measures (whether project specific or strategic) must be delivered ahead of impacts occurring if they are to be ecologically efficacious, especially as many of the proposed measures would take time to plan, secure permissions for, implement and take effect.
19. The measures do not comply with the criteria set out in the table above in that they are not targeted, proven technically feasible on a site basis with the location and extent of feasible compensation not being considered. Consequently, they cannot be considered as being effective and the timing of their delivery cannot be clear with no agreements in place in relation to specific sites. Because of this we can have no confidence that the generic measures proposed will deliver the necessary compensation outcomes.

20. Should Scottish Ministers be minded to support the proposal, RSPB Scotland would not want to see a situation where consent is granted without a detailed and realistic assessment and associated plan setting how the measures can be implemented. We welcome the reference to adaptive management measures and to the proposed establishment of a steering group to oversee implementation of compensation measures. RSPB Scotland generally welcome involvement in these groups, alongside NatureScot and MD-LOT, although we are unlikely to have the capacity to engage as we might ideally like, given the number of similar requests likely to be made by multiple developers within a similar time frame. For capacity and other reasons, we are currently questioning whether we will engage in compensation discussions outside of a strategic compensation framework for development proposals that are not approaching finalisation.

Royal Yachting Association Scotland



27 January 2025

Christine McGhie
Marine Licensing and Consenting Casework Officer
Licensing Operations Team
Marine Directorate
Marine Laboratory,
375 Victoria Road,
Aberdeen,
AB11 9DB
MD.MarineRenewables@gov.scot

Dear Christine,

MS-00011014/ MS-00011015 – Caledonia North Offshore Wind Farm
MS-00011012/ MS-00011013 – Caledonia South Offshore Wind Farm

I have read the relevant parts of the documentation relating to the two projects on behalf of RYA Scotland. We have no objections to these applications. I note that navigation within the sites will be permitted during the operational phase. However, if Caledonia South uses floating turbines then a condition of its licence should be that a Navigational Risk Assessment is carried out for any wet storage area.

Yours sincerely,

<Redacted>

Dr G. Russell FCIEEM(retd) FRMetS

Planning and Environment Officer, RYA Scotland

Scottish & Southern Electricity Networks Transmission

Scottish Hydro Electric Transmission Plc.
Prime View, Prime Four Business Park
Kingswells Causeway
Aberdeen
AB15 8NY

The Scottish Government
Marine Directorate Licensing and Operations Team
Marine Laboratory
Aberdeen
AB11 9DB

Submitted via email: MD.MarineRenewables@gov.scot

14 March 2025

Dear Marine Directorate, Licensing and Operations Team,

REF: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 – Caledonia offshore wind farm limited

Thank-you for the opportunity to provide comment on the Caledonia Offshore Wind Farm consents and applications that include the North and South generation areas and the transmission corridors.

As the owner of the electricity transmission network in the North of Scotland, Scottish Hydro Electric Transmission plc (SSEN Transmission) we are currently progressing a £20bn investment across our network area both onshore and offshore, enabling the connection of the renewable energy needed to meet Scottish and UK Government 2030 energy targets and beyond: providing greater home-grown energy security and supporting Scotland and the UK's pathway to net zero.

SSEN Transmission welcome the inclusion and consideration of our assets: Caithness-Moray HVDC link and Shetland 2 HVDC link throughout the documentation shared. We highlight that the Caledonia site boundaries are adjacent to and, intersect with the Caithness-Moray HVDC link. Therefore, it is imperative that a suitable, agreed distance between assets is established to allow for access for operational, maintenance and decommissioning activities. It should also be noted that as providers of critical national infrastructure there is the potential for future projects beyond 2030 to be located within and adjacent to the Caledonia offshore array and transmission corridor, therefore presenting the potential for future interactions.

We remain committed to working with other legitimate users of the sea in a proactive manner, enabling all parties to deliver successful projects wherever reasonably possible. We highlight our ongoing proactive communication with the Caledonia project team and we will rely on each other to continue engagement particularly where proximity and crossing agreements maybe be developed, giving due consideration and provision for present and future cables to cross both export and generation sites, maintaining the freedom of the seas for both telecommunications and power cables.

I am happy to discuss further the comments above should there be any follow on questions or concerns.

Yours sincerely

Tetienne Kerswell-Box

Marine Consents and Environment Manager |

<Redacted>

| Working 9-5

Scottish Environment Protection Agency

From: [Planning.North](#)
To: [MD Marine Renewables](#)
Cc: <Redacted>
Subject: PCS-20003921 SEPA Response to
Date: 13 December 2024 14:41:39
Attachments: [image.png](#)

To Whom It May Concern,

SEPA Ref: PCS-20003921

**Section 36 Consent - Construction and Operation Of Generating Station -
Caledonia Offshore Wind Farm - South**

**Moray Firth, approx. northern limit is approx. 45 km from Wick and southern
limit approx. 35km from Banff**

Thank you for the above consultation. Based on the information provided, it appears that this application falls below the thresholds for which SEPA provide site specific advice. Please refer to our standing advice and other guidance which is available on our [website](#). In addition, please also refer to our SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations available [here](#).

If there is a significant site-specific issue, not addressed by our guidance or other information provided on our website, with which you would want our advice, then please reconsult us highlighting the issue in question and we will try our best to assist.

I trust these comments are of assistance - please do not hesitate to contact me if you require any further information.

Kind regards,
Zoe Griffin
Senior Planning Officer



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Dh'fhaodadh gum bi am fiosrachadh sa phost-d seo agus ceanglachan sam bith a tha na chois

diomhair, agus cha bu chòir am fiosrachadh a bhith air a chleachdadh le neach sam bith ach an luchd-faighinn a bha còir am fiosrachadh fhaighinn. Chan fhaod neach sam bith eile cothrom fhaighinn air an fhiosrachadh a tha sa phost-d no a tha an cois a' phuist-d, chan fhaod iad lethbhreac a dhèanamh dheth no a chleachdadh arithist. Mura h-ann dhuibhse a tha am post-d seo, feuch gun inns sibh dhuinn sa bhad le bhith cur post-d gu postmaster@sepa.org.uk. Togalach Aonghais Mhic a' Ghobhainn, 6 Craobhraid Parklands, Eurocentral, Baile a' Chuilinn, Siorrachd Lannraig a Tuath, ML1 4WQ. Faodar conaltradh còmhla ri SEPA a sgrùdadh no a chlàradh no a sgaoileadh gus obrachadh èifeachdach an t-siostaim a ghlèidheadh agus airson adhbharan laghail eile.

From: [Planning.North](#)
To: [MD Marine Renewables](#)
Cc: <Redacted>
Subject: PCS-20003919 SEPA Response to MS-00011014
Date: 13 December 2024 14:35:57
Attachments: [image.png](#)

To Whom It May Concern,

SEPA Ref: PCS-20003919

Marine (Scotland) Act 2010

**MS-00011014 - Construction And Operation Of Generating Station -
Caledonia Offshore Wind Farm North**

**Moray Firth, northern limit approx. 28km from Wick and southern limit
approx. 48km from Banff**

Thank you for the above consultation. Based on the information provided, it appears that this application falls below the thresholds for which SEPA provide site specific advice. Please refer to our standing advice and other guidance which is available on our [website](#). In addition, please also refer to our SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations available [here](#).

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Kind regards,

Zoe Griffin

Senior Planning Officer



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From: [Planning.North](#)
To: [MD Marine Renewables](#)
Cc: <Redacted>
Subject: PCS-20003920 SEPA Response to MS-00011015
Date: 13 December 2024 14:46:24
Attachments: [image.png](#)

To Whom It May Concern,

SEPA Ref: PCS-20003920

Marine (Scotland) Act 2010

**MS-00011015 - Transmission Infrastructure - Caledonia Offshore Wind Farm
North**

**Moray Firth, northern limit approx. 28km from Wick and southern limit
approx. 48km from Banff**

Thank you for the above consultation. Based on the information provided, it appears that this application falls below the thresholds for which SEPA provide site specific advice. Please refer to our standing advice and other guidance which is available on our [website](#). In addition, please also refer to our SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations available [here](#).

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Kind regards,

Zoe Griffin

Senior Planning Officer



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From: [Planning.North](#)
To: [MD Marine Renewables](#)
Cc: <Redacted>
Subject: PCS-20003922 SEPA Response to MS-00011012
Date: 13 December 2024 14:29:17
Attachments: [image.png](#)

To Whom It May Concern,

SEPA Ref: PCS-20003922

Marine (Scotland) Act 2010

MS-00011012 - Construction And Operation Of Generating Station -

Caledonia Offshore Wind Farm - South

Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

Thank you for the above consultation. Based on the information provided, it appears that this application falls below the thresholds for which SEPA provide site specific advice. Please refer to our standing advice and other guidance which is available on our [website](#). In addition, please also refer to our SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations available [here](#).

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Kind regards,

Zoe Griffin

Senior Planning Officer



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From: [Planning.North](#)
To: [MD Marine Renewables](#)
Cc: <Redacted>
Subject: PCS-20003923 SEPA Response to MS-00011013
Date: 13 December 2024 14:50:00
Attachments: [image.png](#)

To Whom It May Concern,

SEPA Ref: PCS-20003923

Marine (Scotland) Act 2010

MS-00011013 - Transmission Infrastructure - Caledonia Offshore Wind Farm South

Moray Firth, approx. northern limit is approx. 45 km from Wick and southern limit approx. 35km from Banff

Thank you for the above consultation. Based on the information provided, it appears that this application falls below the thresholds for which SEPA provide site specific advice. Please refer to our standing advice and other guidance which is available on our [website](#). In addition, please also refer to our SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations available [here](#).

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Zoe Griffin

Senior Planning Officer



Disclaimer

The information contained in this email and any attachments may be confidential and is intended solely for the use of the intended recipients. Access, copying or re-use of the information in it by any other is not authorised. If you are not the intended recipient, please notify us immediately by return email to postmaster@sepa.org.uk. Registered office: SEPA, Angus Smith Building, 6 Parklands Avenue, Eurocentral, Holytown, North Lanarkshire, ML1 4WQ. Communications with SEPA may be monitored or recorded or released in order to secure the effective operation of the system and for other lawful purposes.

Dh'fhaodadh gum bi am fiosrachadh sa phost-d seo agus ceanglachan sam bith a tha na chois dìomhair, agus cha bu chòir am fiosrachadh a bhith air a chleachdadh le neach sam bith ach an luchd-faighinn a bha còir am fiosrachadh fhaighinn. Chan fhaod neach sam bith eile cothrom fhaighinn air an fhiosrachadh a tha sa phost-d no a tha an cois a' phuist-d, chan fhaod iad lethbhreac a dhèanamh dheth no a chleachdadh arithist. Mura h-ann dhuibhse a tha am post-d seo, feuch gun inns sibh dhuinn sa bhad le bhith cur post-d gu postmaster@sepa.org.uk. Togalach Aonghais Mhic a' Ghobhainn, 6 Craobhraid Parklands, Eurocentral, Baile a' Chuilinn, Siorrachd Lannraig a Tuath, ML1 4WQ. Faodar conaltradh còmhla ri SEPA a sgrùdadh no a chlàradh no a sgaoileadh gus obrachadh èifeachdach an t-siostaim a ghlèidheadh agus airson adhbharan laghail eile.

From: [Planning.North](#)
To: [MD Marine Renewables](#)
Cc: <Redacted>
Subject: PCS-20003916 SEPA Response to
Date: 13 December 2024 14:43:33
Attachments: [image.png](#)

To Whom It May Concern,

SEPA Ref: 20003916

**Section 36 Consent - Construction and Operation Of Generating Station -
Caledonia Offshore Wind Farm North**

**Moray Firth, northern limit approx. 28km from Wick and southern limit
approx. 48km from Banff**

Thank you for the above consultation. Based on the information provided, it appears that this application falls below the thresholds for which SEPA provide site specific advice. Please refer to our standing advice and other guidance which is available on our [website](#). In addition, please also refer to our SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations available [here](#).

If there is a significant site-specific issue, not addressed by our guidance or other information provided on our website, with which you would want our advice, then please reconsult us highlighting the issue in question and we will try our best to assist.

I trust these comments are of assistance - please do not hesitate to contact me if you require any further information.

Kind regards,
Zoe Griffin
Senior Planning Officer



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Dh'fhaodadh gum bi am fiosrachadh sa phost-d seo agus ceanglachan sam bith a tha na chois

diomhair, agus cha bu chòir am fiosrachadh a bhith air a chleachdadh le neach sam bith ach an luchd-faighinn a bha còir am fiosrachadh fhaighinn. Chan fhaod neach sam bith eile cothrom fhaighinn air an fhiosrachadh a tha sa phost-d no a tha an cois a' phuist-d, chan fhaod iad lethbhreac a dhèanamh dheth no a chleachdadh arithist. Mura h-ann dhuibhse a tha am post-d seo, feuch gun inns sibh dhuinn sa bhad le bhith cur post-d gu postmaster@sepa.org.uk. Togalach Aonghais Mhic a' Ghobhainn, 6 Craobhraid Parklands, Eurocentral, Baile a' Chuilinn, Siorrachd Lannraig a Tuath, ML1 4WQ. Faodar conaltradh còmhla ri SEPA a sgrùdadh no a chlàradh no a sgaoileadh gus obrachadh èifeachdach an t-siostaim a ghlèidheadh agus airson adhbharan laghail eile.

Scottish Fishermen's Federation



Our Ref: FH-CaledoniaS OWF LApp/0025/001

Your Ref: Caledonia South Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications – Consultation

Email dated: 06 December 2024

E-mail: MD.MarineRenewables@gov.scot
04 March 2025

Dear Christine McGhie/MD-LOT

Scottish Fishermen's Federation
24 Rubislaw Terrace
Aberdeen, AB10 1XE
Scotland UK

T: +44 (0) 1224 646944
E: sff@sff.co.uk

www.sff.co.uk

SFF Response to Caledonia South Proposed Offshore Windfarm License Application

The Scottish Fishermen's Federation (SFF) appreciate the opportunity to make representation on behalf of the 450 plus fishing vessels in membership of its constituent associations, the Anglo Scottish Fishermen's Association, Fife Fishermen's Association, Fishing Vessel Agents and Owners Association, Mallaig & North West Fishermen's Association, Orkney Fisheries Association, Scottish Pelagic Fishermen's Association, the Scottish White Fish Producer's Association and Shetland Fishermen's Association.

Please take this response as a total and unreserved objection to the planning application for the proposed Caledonia South Floating and fixed Offshore Wind Farm (OWF).

This response should be read with the SFF response to the scoping report. The concerns raised in that earlier response are adopted herein. Our further concerns are set out in this response. The fact that so much traditional fishing opportunities are to be removed in place of a new and unproven energy industry and to date we have no scientific evidence to prove that an OWF of this size will not have an impact on the ecosystem and the marine environment (resulting from the development's physical presence, noise, vibration, damage to seabed from mooring lines, anchors and cables, EMF and wake effects, stratification, and more).

Much has been said about the Spatial Squeeze as a result of the exponential growth of the Offshore Renewable Energy Industry (OREI) however very little has been said about the consequential environmental squeeze.

The proposed Caledonia South OWF presents significant challenges and the likelihood of real and significant harm to the fishing industry, as detailed in the environmental impact assessment report. This forms core of our objection. The following are some areas of specific concern.

Members:

Anglo Scottish Fishermen's Association · Fife Fishermen's Association · Fishing Vessel Agents & Owners Association (Scotland) Ltd · Mallaig & North-West Fishermen's Association Ltd · Orkney Fisheries Association · Scottish Pelagic Fishermen's Association Ltd · The Scottish White Fish Producers' Association Ltd · Shetland Fishermen's Association

VAT Reg No: 605 096 748

Loss of Access and Displacement

The Caledonia offshore wind farm, covering 204.5km² in total of which 114.33km² contains floating foundations. The whole site contains multiple scallop beds which will become inaccessible due to the catenary mooring systems. The scallop sector as well as the whitefish sector has been particularly hit by numerous offshore wind farms in the inner and outer Moray Firth. The Array will effectively be a 'no take zone' for fishers that have depended on the area for decades.

As a result, fishers will be displaced from the immediate area occupied by the wind farm, in turn causing a domino effect, forcing fishermen into other areas, increasing competition, and leading to conflict with those already fishing there. Areas within the Moray Firth where fishers could have been displaced to have already been developed for offshore wind farms. The EIA highlights the potential for damage to the fishing grounds themselves due to this increased pressure, however, does not highlight any mitigation measure to address this impact. The outline Fisheries Management and Mitigation Strategy (FMMS) is overwhelmed by communication and safety measures. Although the FMMS proposes a boundary reduction (c.6km²) a limited disturbance payments to some fishers affected by construction works. However, this cannot be an effective measure to bring the development's residual effect to minor.

The loss of access and displacement of fishing opportunities will result in an overall decline of fishery businesses, adversely impacting the socio-economy of coastal communities. It is well recognised that for every fisher working offshore creates five jobs on shore. The real and significant adverse impact upon fishermen will have real and significant impacts upon the communities they currently live in and support. The serious consequences for the coastal community's standard of living, health and well-being that cannot be mitigated by the development mitigation measures as proposed in Table 8-8: (Embedded mitigation).

Gear Conflicts and Safety

The underwater infrastructure of the array, including catenary mooring systems, dynamic cabling and inter array cables, presents a significant risk of gear entanglement. This could lead to damage or loss of expensive equipment but more importantly pose a real and significant safety risk for fishers.

Impact on Specific Fisheries

Demersal Otter Trawlers

These fishers will face significant impacts in EIA terms during construction and the operational and maintenance phase and will be displaced, even with a boundary reduction. This will force them to shift their efforts to other fishing grounds, with a significant reduction in productivity.

North Sea Herring

The array is a **critical for herring spawning and nursery. Disruption of spawning grounds has the potential to affect the herring population on a much larger scale.** We are not aware of any assessment of that likely impact.

Cumulative Impacts

The EIA acknowledges that the Caledonia South OWF is not an isolated project, and there are other projects, protected areas, and broader trends that affect fishing in the North Sea. The combined effects of multiple projects will further squeeze the space available for fishers, increasing competition and conflict. The EIA recognizes that this cumulative pressure, particularly from the increasing number of floating wind farms, could substantially impact almost every fisher operating

in the North Sea. While the report calls for 'boundary reduction' it **does not offer any concrete solutions since the proposed FMMS cannot address the development impacts on commercial fisheries.** There is no proper assessment of these cumulative impacts. **The cumulative impact is further exaggerated in the Moray Firth with the presence of Beatrice OWF, Moray East OWF, Moray West OWF and potentially the Caledonia OWF. It is the SFFs opinion that the cumulative impact has not been assessed as it should be and should be a major factor during decision making.**

EIA Methodology

Definitions: The criteria for defining magnitude of impact are based on the technical expert's experience and judgement which do not reflect the realistic impact of the development on commercial fisheries.

For instance, Table 8-6: 'Definition of Terms Relating to the Magnitude of an Impact' defines the 'High (adverse)' potential impact of the development on commercial fisheries in a vague and unrealistic manner as follows:

"Impact is expected to result in one or more of the following:

- *Substantial loss of target fish or shellfish biological resource (e.g., loss of substantial proportion of resource within Array Area); and*
- *Substantial loss of ability to carry on fishing activities (e.g., substantial proportion of effort within Array Area).*

And/or: Impact is of long-term duration (e.g., greater than 12 years duration) and/or is of extended physical extent."

In this definition, terms such as 'substantial loss of ability to carry out fishing activities' is confusing. In addition, there is no convincing justification for setting '*greater than 12 years*' for a '*long-term duration impact*'.

Magnitude of Impact: The EIA uses terms such as "high," "medium," "low," and "negligible" to define the magnitude of an impact. From the fisheries perspective, it is important to scrutinize whether the criteria for these definitions adequately reflect the real-world impacts on fishing businesses. A "minor loss of ability to carry on fishing activities" can have significant economic consequences for individual fishers.

Sensitivity of Receptors: The EIA defines the sensitivity of receptors based on their vulnerability to impacts and recoverability. The assessment needs to consider factors such as the availability of alternative fishing grounds and the adaptability of the fishing fleet.

Significance of Effects: The EIA combines the magnitude of the impact and the sensitivity of the receptors to determine the significance of the effect. Effects of moderate significance or more are considered "significant" in EIA terms. It is important to examine whether the thresholds for determining significance adequately protect the interests of commercial fisheries.

Effectiveness of Mitigation Strategies:

While the developers propose a Fisheries Management and Mitigation Strategy (FMMS), including a fisheries liaison officer, a fishing industry representative, and a 'boundary reduction for nephrops' these measures are not sufficient to reduce the magnitude of impact from significant to low or negligible. The current mitigation strategies will not fully resolve the long term and operational problems for fishers because of the Caledonia South OWF, such as the issue of displacement, navigation and the behavioural changes that would be required.

Financial Compensation

Access to fishing grounds within the Array Area during operation and maintenance is not feasible for all fishing methods due to presence of **floating and fixed** turbines and associated accessories. However, the outline FMMS does not have details about financial compensation for affected fishermen specifically for the operational phase of the wind farm. The focus seems to be on creating conditions for fishing to coexist with the wind farm through the 'boundary reduction (for nephrops) and other mitigation strategies, rather than offering compensation for lost fishing opportunities during the operational phase. **This is totally unacceptable.**

Uncertainty and Long-Term Effects

The long-term impacts of the wind farm are not known, and there are major concerns about the effectiveness of the mitigation strategies, particularly in relation to changes in **fishing and fish behaviour**. It is also uncertain how the ongoing monitoring program will be implemented and used to address the actual impacts experienced by the fishing community.

The potential damages to the seabed that the proposed floating turbine mooring lines (except TLP) will cause (as part of the mooring lines will be laid on seabed) has totally been ignored. Our experience from the oil and gas industry's similar floating infrastructures (e.g. floating production storage and offloading (FPSOs) show that mooring lines with contact to the seabed have created significant scours/crates that will require mechanical back-fill at decommissioning stage. This will damage the marine environment, and its remediation efforts will require rock-dump which will change benthic ecology.

Need for Holistic Approach

The EIA underscores the need for a more holistic approach to ocean management that considers the cumulative effects of multiple projects. It is crucial to balance the need for renewable energy with the need to protect the marine environment and livelihoods of fishers and the wider communities which depend upon them. There must be recognition that this is not just about one wind farm, but about the broader impact on the entire ecosystem.

While the fishing industry acknowledges the need for renewable energy, the Caledonia South OWF presents a significant threat to the fishing industry's access to lucrative fishing grounds, causes potential gear conflicts, creates significant displacement issues, that has potentially severe cumulative effects and the very real threat it will have on herring stock. **Its impact would be grossly disproportionate to the contribution it would make to energy supply.**

The SFF suggests that the regulators and policy makers must do more to come up with effective solutions to balance the need for renewable energy with the protection of fishers' livelihoods, food security (consideration of low carbon protein) and the broader marine ecosystem.

The SFF must stress that **our position is a robust objection to this application** therefore **all our focus is highlighting to the regulator that this array should not be consented for the reasons set out previously and within the EIA. Any Array that has a significant and grossly disproportionate impact on another industry that cannot be mitigated cannot and must not be granted consent.**

If it is consented, then, and only then we will be forced to look at the mitigation measures (financial compensation to affected fishers).

SFF also objects to the proposed nature compensation measure “Bycatch mitigation for gannet and guillemot” and reiterate that we oppose any nature compensation measures to offset the environmental damage from offshore wind developments that impose any types of restrictions on commercial fisheries. Once again, it is unconscionable that the fishing industry should be expected to pay the price for the environmental harms of the offshore wind industry.

The SFF stresses that our primary concern is protecting the marine environment which has supported the fishers and the wider communities which depend upon them for decades. If fishers are denied the right to earn their living, SFF will not support the proposal of any windfarm development therefore I reiterate that we strongly object to this application.

Sincerely yours

Fahim Mohammad Hashimi
Offshore Energy Policy Manager
Scottish Fishermen's Federation



Our Ref: FH-CaledoniaN OWF LApp/0025/002

Your Ref: Caledonia North Offshore Wind Farm Limited – EIA, Section 36 consent and Marine Licence Applications – Consultation

Email dated: 06 December 2024

E-mail: MD.MarineRenewables@gov.scot
04 March 2025

Dear Christine McGhie/MD-LOT

Scottish Fishermen's Federation
24 Rubislaw Terrace
Aberdeen, AB10 1XE
Scotland UK

T: +44 (0) 1224 646944
E: sff@sff.co.uk

www.sff.co.uk

SFF Response to Caledonia North Proposed Offshore Windfarm License Application

The Scottish Fishermen's Federation (SFF) appreciate the opportunity to make representation on behalf of the 450 plus fishing vessels in membership of its constituent associations, the Anglo Scottish Fishermen's Association, Fife Fishermen's Association, Fishing Vessel Agents and Owners Association, Mallaig & North West Fishermen's Association, Orkney Fisheries Association, Scottish Pelagic Fishermen's Association, the Scottish White Fish Producer's Association and Shetland Fishermen's Association.

Please take this response as a total and unreserved objection to the planning application for the proposed Caledonia North Offshore Wind Farm (OWF).

This response should be read with the SFF response to the scoping report. The concerns raised in that earlier response are adopted herein. Our further concerns are set out in this response. The fact that so much traditional fishing opportunities will be lost in place of an energy industry that, to date there is no scientific evidence to prove that an OWF of this size will not have an impact on the ecosystem and the marine environment (resulting from the development's physical presence, noise, vibration, damage to seabed from cables, EMF and wake effects, stratification, and more). Much has been said about the Spatial Squeeze as a result of the exponential growth of the Offshore Renewable Energy Industry (OREI) however very little has been said about the consequential environmental squeeze.

The proposed Caledonia North OWF presents significant challenges and the likelihood of real and significant harm to the fishing industry, as detailed in the environmental impact assessment report. This forms core of our objection. The following are some areas of specific concern.

Loss of Access and Displacement

Members:

Anglo Scottish Fishermen's Association · Fife Fishermen's Association · Fishing Vessel Agents & Owners Association (Scotland) Ltd · Mallaig & North-West Fishermen's Association Ltd · Orkney Fisheries Association · Scottish Pelagic Fishermen's Association Ltd · The Scottish White Fish Producers' Association Ltd · Shetland Fishermen's Association

VAT Reg No: 605 096 748

The Caledonia offshore windfarm North, covering approximately 218.5km² square kilometres is situated on prolific fishing grounds with multiple scallops beds and also other fishing methods which will cease to operate within the array once the development has been constructed.

Caledonia North using fixed foundations a number of fishing methods can resume during operation and maintenance; however, this will be on a much-reduced scale from pre-construction. In addition, some fishing methods will be prevented to return due to the physical presence of the WTGS and there spacings. As a result, fishers will be displaced from the immediate area occupied by the wind farm, in turn causing a domino effect, forcing fishermen into other areas, increasing competition, and leading to conflict with those already fishing there. Areas within the Moray Firth where fishers could have been displaced to have already been developed for offshore wind farms. The EIA highlights the potential for damage to the fishing grounds themselves due to this increased pressure, however, does not highlight any mitigation measure to address this impact. The outline Fisheries Management and Mitigation Strategy (FMMS) is overwhelmed by communication and safety measures. The FMMS proposes limited disturbance payments to some fishers affected by construction works.

The loss of access and displacement of fishing opportunities will result in an overall decline of fishery businesses, adversely impacting the socio-economy of coastal communities. It is well recognised that for every fisher working offshore creates five jobs on shore. The real and significant adverse impact upon fishermen will have real and significant impacts upon the communities they currently live in and support. The serious consequences for the coastal community's standard of living, health and well-being that cannot be mitigated by the development mitigation measures as proposed in Table 8-8: (Embedded mitigation).

Gear Conflicts and Safety

Gear entanglement for mid water trawlers and the demersal mobile sector including scallop vessels could lead to damage or loss of expensive equipment but more importantly pose a real and significant safety risk for fishers.

Impact on Specific Fisheries

Demersal Otter Trawlers (Including Scallop Dredgers)

These fishers will face significant impacts in EIA terms during construction and the operational and maintenance phase and will be displaced. This will force them to shift their efforts to other fishing grounds, with a significant reduction in productivity.

North Sea Herring

The array is a **critical for herring spawning and nursery. Disruption of spawning grounds has the potential to affect the herring population on a much larger scale.** We are not aware of any assessment of that likely impact.

Cumulative Impacts

The EIA acknowledges that the Caledonia North OWF is not an isolated project, and there are other projects, protected areas, and broader trends that affect fishing in the North Sea. The combined effects of multiple projects will further squeeze the space available for fishers, increasing competition and conflict. The EIA recognizes that this cumulative pressure, particularly from the increasing number of floating wind farms, could substantially impact almost every fisher operating in the North Sea. While the report calls for 'boundary reduction 'it **does not offer any concrete**

solutions since the proposed FMMS cannot address the development impacts on commercial fisheries. There is no proper assessment of these cumulative impacts. The cumulative impact is further exaggerated in the Moray Firth with the presence of Beatrice OWF, Moray East OWF, Moray West OWF and potentially the Caledonia OWF. It is the SFFs opinion that the cumulative impact has not been assessed as it should be and should be a major factor during decision making.

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- *Substantial loss of ability to carry on fishing activities (e.g., substantial proportion of effort within Array Area).*

And/or: Impact is of long-term duration (e.g., greater than 12 years duration) and/or is of extended physical extent."

In this definition, terms such as 'substantial loss of ability to carry out fishing activities' is confusing. In addition, there is no convincing justification for setting 'greater than 12 years' for a 'long-term duration impact'.

Magnitude of Impact: The EIA uses terms such as "high," "medium," "low," and "negligible" to define the magnitude of an impact. From the fisheries perspective, it is important to scrutinize whether the criteria for these definitions adequately reflect the real-world impacts on fishing businesses. A "minor loss of ability to carry on fishing activities" can still have significant economic consequences for individual fishers.

Sensitivity of Receptors: The EIA defines the sensitivity of receptors based on their vulnerability to impacts and recoverability. The assessment needs to consider factors such as the availability of alternative fishing grounds and the adaptability of the fishing fleet.

Significance of Effects: The EIA combines the magnitude of the impact and the sensitivity of the receptors to determine the significance of the effect. Effects of moderate significance or more are considered "significant" in EIA terms. It is important to examine whether the thresholds for determining significance adequately protect the interests of commercial fisheries.

Effectiveness of Mitigation Strategies:

While the developers propose a Fisheries Management and Mitigation Strategy (FMMS), including a fisheries liaison officer, and a fishing industry representative, these measures are not sufficient to reduce the magnitude of impact from significant to low or negligible. The current mitigation strategies will not fully resolve the long term and operational problems for fishers as a result of the Caledonia North OWF, such as the issue of displacement, navigation and the behavioural changes that would be required.

Uncertainty and Long-Term Effects

The long-term impacts of the wind farm are not known, and there are major concerns about the effectiveness of the mitigation strategies, particularly in relation to changes in **fishing and fish behaviour**. It is also uncertain how the ongoing monitoring program will be implemented and used to address the actual impacts experienced by the fishing community.

Need for Holistic Approach

The EIA underscores the need for a more holistic approach to ocean management that considers the cumulative effects of multiple projects. It is crucial to balance the need for renewable energy with the need to protect the marine environment and livelihoods of fishers and the wider communities which depend upon them. There must be recognition that this is not just about one wind farm, but about the broader impact on the entire ecosystem.

While the fishing industry acknowledges the need for renewable energy, the Caledonia North OWF presents a significant threat to the fishing industry's access to lucrative fishing grounds, causes potential gear conflicts, creates significant displacement issues.,,. Its impact would be grossly disproportionate to the contribution it would make to energy supply.

The SFF suggests that the regulators and policy makers must do more to come up with effective solutions to balance the need for renewable energy with the protection of fishers' livelihoods, food security (consideration of low carbon protein) and the broader marine ecosystem.

SFF also objects to the proposed nature compensation measure "Bycatch mitigation for gannet and guillemot" and reiterate that we oppose any nature compensation measures to offset the environmental damage from offshore wind developments that impose any types of restrictions on commercial fisheries. Once again, it is unconscionable that the fishing industry should be expected to pay the price for the environmental harms of the offshore wind industry.

The SFF stresses that our primary concern is protecting the marine environment which has supported the fishers and the wider communities which depend upon them for decades. If fishers are denied the right to earn their living, SFF will not support the proposal of any windfarm development therefore I reiterate that we strongly object to this application.

Sincerely yours

Fahim Mohammad Hashimi
Offshore Energy Policy Manager
Scottish Fishermen's Federation

Scottish Water

Monday, 09 December 2024



Marine Licensing
375 Victoria Road

Aberdeen

Development Operations
The Bridge
Buchanan Gate Business Park
Cumbernauld Road
Stepps
Glasgow
G33 6FB

Development Operations
Freephone Number - 0800 3890379
E-Mail - DevelopmentOperations@scottishwater.co.uk
www.scottishwater.co.uk



Dear Customer,

Caledonia Offshore Wind Farm, Moray, IV51 9LP
Planning Ref: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013
Our Ref: DSCAS-0073905-5VG
Proposal: Scoping - Caledonia Offshore Wind Farm - Moray Firth

Please quote our reference in all future correspondence

Scottish Water has no objection to this proposal. Please read the following carefully as there may be further action required. Scottish Water would advise the following:

Drinking Water Protected Areas

A review of our records indicates that there are no Scottish Water drinking water catchments or water abstraction sources, which are designated as Drinking Water Protected Areas under the Water Framework Directive, in the area that may be affected by the proposed activity.

Surface Water

For reasons of sustainability and to protect our customers from potential future sewer flooding, Scottish Water will not accept any surface water connections into our combined sewer system.

There may be limited exceptional circumstances where we would allow such a connection for brownfield sites only, however this will require significant justification from the customer taking account of various factors including legal, physical, and technical challenges.

In order to avoid costs and delays where a surface water discharge to our combined sewer system is anticipated, the developer should refer to our guides which can be found at <https://www.scottishwater.co.uk/Help-and-Resources/Document-Hub/Business-and-Developers/Connecting-to-Our-Network> which detail our policy and processes to support the application process, evidence to support the intended drainage plan should be submitted at

the technical application stage where we will assess this evidence in a robust manner and provide a decision that reflects the best option from environmental and customer perspectives.

Next Steps:

All developments that propose a connection to the public water or waste water infrastructure are required to submit a Pre-Development Enquiry (PDE) Form via our Customer Portal prior to any formal technical application being submitted, allowing us to fully appraise the proposals

I trust the above is acceptable however if you require any further information regarding this matter, please contact me on **0800 389 0379** or via the e-mail address below or at planningconsultations@scottishwater.co.uk.

Yours sincerely,

Angela Allison

Development Services Analyst

PlanningConsultations@scottishwater.co.uk

Scottish Water Disclaimer:

"It is important to note that the information on any such plan provided on Scottish Water's infrastructure, is for indicative purposes only and its accuracy cannot be relied upon. When the exact location and the nature of the infrastructure on the plan is a material requirement then you should undertake an appropriate site investigation to confirm its actual position in the ground and to determine if it is suitable for its intended purpose. By using the plan you agree that Scottish Water will not be liable for any loss, damage or costs caused by relying upon it or from carrying out any such site investigation."

Supplementary Guidance

- Scottish Water asset plans can be obtained from our appointed asset plan providers:
 - Site Investigation Services (UK) Ltd
 - Tel: 0333 123 1223
 - Email: sw@sisplan.co.uk
 - www.sisplan.co.uk
- Scottish Water's current minimum level of service for water pressure is 1.0 bar or 10m head at the customer's boundary internal outlet. Any property which cannot be adequately serviced from the available pressure may require private pumping arrangements to be installed, subject to compliance with Water Byelaws. If the developer wishes to enquire about Scottish Water's procedure for checking the water pressure in the area, then they should write to the Development Operations department at the above address.

- If a connection to the public sewer and/or water main requires to be laid through land out-with public ownership, the developer must provide evidence of formal approval from the affected landowner(s) by way of a deed of servitude.
- Scottish Water may only vest new water or waste water infrastructure which is to be laid through land out with public ownership where a Deed of Servitude has been obtained in our favour by the developer.
- The developer should also be aware that Scottish Water requires land title to the area of land where a pumping station and/or a Sustainable Drainage System (SUDS) proposed to vest in Scottish Water is constructed.
- Please find information on how to submit application to Scottish Water at our Customer Portal.

Sport Scotland

From: <Redacted>
To: [MD Marine Renewables](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 Feb
Date: 05 December 2024 13:44:55
Attachments: [image001.png](#)

Hello,

I've consulted with RYAS and confirming a nil return on this from **sportscotland**.

Thanks, Gillian

From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Sent: 04 December 2024 17:04

Cc: <Redacted>

MD.MarineRenewables@gov.scot

Subject: [EXTERNAL] MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 Febr...

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Sir/Madam,

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007

**MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited–
Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx.
28km from Wick and southern limit approx. 48km from Banff**

**MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited –
Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is
approx. 45 km from Wick and southern limit approx. 35km from Banff**

On 20 November 2024 Caledonia Offshore Wind Farm Limited submitted applications to the Scottish Ministers, in accordance with the above legislation, to

construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm.

The application for section 36 consents, marine licence applications, Environmental Impact Assessment Report and supporting documentation can be accessed via the following links for each of the applications:

[Caledonia Offshore Wind Farm | marine.gov.scot](#)

Caledonia North:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

**Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate**

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



To see how we use your personal data, please view our
[Marine licensing and consenting: privacy notice - gov.scot \(www.gov.scot\)](http://www.gov.scot/Marine%20licensing%20and%20consenting%3A%20privacy%20notice)

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Aithris-àichidh – Tha am post-d seo diomhair agus air a rùnachadh a-mhàin don neach gu bheil e air a sheòladh. Mura h-e thusa an neach sin, feuch gun cuir thu às don phost-d seo is ceangalan sam bith agus leth-bhreacan uile, agus cuir fios sa bhad gu an neach-seòlaidh. Cuimhnich mas e do thoil e gu bheil cleachdadh neo-ùghdarraichte sam bith air an sgrìobhainn seo air a thoirmeasg gu tur.

Mar bhuidheann poblach, tha **spòrsalba** a' tighinn fo riatanasan an Achd Saorsa Fiosrachaidh (Alba) 2002 a thaobh foillseachadh air fiosrachadh sam bith (a' gabhail a-steach conaltradh eileagtronaigeach) a dh'fhaodadh a bhith aige mu chuspair sònraichte, nuair a thèid sin iarraidh air le neach no buidheann sam bith. Ma bhios dragh ann mu dheidhinn seo, is urrainn do **spòrsalba** comhairleachadh mun chùis. Gus teagamh a sheachnadh, bidh co-dhùnadh **spòrsalba** deireannach a thaobh ceistean foillseachaidh is neo-fhoillseachaidh.

Is e **spòrs**alba a tha a’ gleidheadh dàta pearsanta a bheir sibh dhuinn ann am puist-dealain sam bith.

Thoiribh an aire gum bi an dàta pearsanta a bheir sibh dhuinn air a stòradh agus/no air a ghiullachd le **spòrs**alba gus seirbheisean a libhrigeadh no conaltradh ribh. Feuch gun tèid sibh gu <https://sportscotland.org.uk/privacy/> airson tuilleadh fiosrachaidh mu làimhseachadh air an dàta phearsanta agaibh.

The Highland Council

MEMORANDUM

To: Christine McGhie
From: Coastal Planner
Our Ref: 24/05125/MAR, 24/05128/MAR, 24/05130/MAR & 24/05131/MAR
Your Ref: MS-00011014, MS-00011015, MS-00011012 & MS-00011013
Date: 14th February 2025
Please Ask For: Alexis Chatterton

PLANNING REF: 24/05125/MAR
MS-00011014 - MARINE LICENCE - CONSTRUCTION AND OPERATION OF GENERATING STATION - CALEDONIA OFFSHORE WIND FARM - NORTH (24/05128/MAR & 24/05124/S36)
LAND 50 KM SE OF WICK HARBOUR, HARBOUR ROAD, WICK

PLANNING REF: 24/05128/MAR
MS-00011015 - MARINE LICENCE - TRANSMISSION INFRASTRUCTURE - CALEDONIA OFFSHORE WIND FARM - NORTH (24/05125/MAR & 24/05124/S36)

PLANNING REF: 24/05130/MAR
MS-00011012 - MARINE LICENCE - CONSTRUCTION AND OPERATION OF GENERATING STATION - CALEDONIA OFFSHORE WIND FARM – SOUTH

PLANNING REF: 24/05131/MAR
MS-00011013 - MARINE LICENCE - TRANSMISSION INFRASTRUCTURE - CALEDONIA OFFSHORE WIND FARM - SOUTH

Consultation advice related to the above proposals is provided in response to the request dated 4th December 2024.

I have reviewed the application document, and the accompanying documents provided, and I have no major concerns to raise. However, I have included some minor comments or observations below.

I note that primarily the inshore and coastal element of the development are outside the Highland Council's boundaries however a key consideration for the Highland Council will be landscape and visual impacts and these aspects of the development will be covered by colleagues dealing with the S36 application.

Marine & Coastal Processes

The likely effects of the construction, operation, and decommissioning phases on Marine Coastal Processes has been assessed and we agree with the assessment that the affects are negligible / non-significant.

We welcome the mitigation measures that include development of a Cable Plan, Construction

MEMO

Method's Statement, Environmental Management Plan, and Marine Pollution Contingency Plan and have no further comment to make.

Coastal Erosion & Flood Risk

We are satisfied that there is minimal risk to flooding and coastal erosion within our boundary.

Marine Biodiversity & Protected Areas

Several designations within our boundary could be adversely affected by this development. Namely, East Caithness SPA, Moray Firth SPA, North Caithness Cliffs SPA, and Moray Firth SAC. This has been covered by the applicants HRA, report to inform appropriate assessment and consultation with NatureScot. However, the Report to Inform Appropriate Assessment (RIAA) has identified that an adverse effect on site integrity, in combination with other plans or projects, could not be ruled out for East Caithness Cliffs SPA for Guillemot and Kittiwake. It is accepted that Caledonia North has presented compensation measures to offset the potential impact of the operation. This could constitute development and I would encourage the developer to engage early with THC if they believe it is likely that they will require to undertake any additional development.

Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects. A study has been included that assesses the potential of underwater noise and its effects during the construction and operation of the development. The applicant has also included Marine Mammal Mitigation Protocol.

Comments made by the THC at the scoping stage had indicated that INNS can have a regional affect. We are satisfied that the developer will introduce mitigation in the form of an EMP and Biosecurity management plan.

Onshore Infrastructure & Community Impacts

Given that the landfall is out with The Highland Council Boundaries we have no comment to make.

Navigation & Marine Safety

To safeguard activities within the marine area we recognise the commitment to ongoing discussions with harbour authorities with Whitehills, Banff and Macduff being specifically mentioned. We would encourage this to be extended to the Green Free Port within our region should these facilities be directly utilised.

Marine Directorate
Per: Christine McGhie
The Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

Please ask for: Mark Fitzpatrick
Direct Dial: [REDACTED]
E-mail: [REDACTED]
Our Ref: 24/05124/S36
Your Ref: MS-00011014 / MS-00011015
Date: 13 August 2025

By email only to: [REDACTED]
[REDACTED]
[REDACTED]

Cc: MD.MarineRenewables@gov.scot

Dear Christine,

HIGHLAND COUNCIL REFERENCE: 24/05124/S36

DEVELOPMENT: CALEDONIA NORTH OFFSHORE WIND FARM - CONSTRUCTION AND OPERATION OF AN OFFSHORE WIND FARM COMPRISING UP TO 77 TURBINES WITH A MAXIMUM BLADE TIP HEIGHT OF 355M, SUBSEA INTERCONNECTOR AND EXPORT CABLING AND ASSOCIATED INFRASTRUCTURE

LOCATION: SEA 50KM SE OF WICK HARBOUR, HARBOUR ROAD, WICK

The Highland Council was consulted by your office on the above Section 36 application on 04 December 2024 for the above Section 36 application and associated Marine License applications. Due to resourcing and competing demands, this response to the Section 36 application has missed the deadline of Monday 03 February 2025. Nevertheless, Council officers reported their assessment of the terrestrial impacts of Caledonia North within the Highland Council area to the North Planning Applications Committee (NPAC) on 06 August 2025. This letter seeks to convey the response of The Highland Council to the proposal.

Following consideration of the item by The Highland Council's NPAC on 06 August 2025, the Council **RAISE NO OBJECTION** to the application subject to the conditions and reasons as set out in Section 11 of the Report on Handling as agreed to at NPAC, but amended as below (and which shall apply for the purposes of the Council's response):

1. The Development must be constructed and operated in accordance with the Application and the Environmental Impact Assessment (EIA) submitted by the Company on 26 September 2023 and the EIA Additional Information submitted by

the Company on 18 October 2024, unless otherwise agreed in advance in writing with Scottish Ministers.

Reason: To ensure that the Development is carried out in accordance with the approved details.

2. No development shall commence until the finalised layout and design of the development has been submitted to, and approved in writing by the Marine Directorate, the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, and, in consultation with NatureScot. The details must include, but not be limited to the following:
 - a) A plan showing the location of each individual Wind Turbine Generator (WTG) (subject to any required micro-siting), including information on WTG spacing, WTG identification/numbering, and any key constraints recorded on the site;
 - b) A list of latitude and longitude co-ordinates accurate to three decimal places of minutes of arc for each WTG. This should also be provided as a Geographic Information System shape file using WGS84 format;
 - c) A table or diagram of each WTG dimensions including - height to blade tip (measured above Lowest Astronomical Tide ("LAT")) to the highest point, height to hub (measured above LAT to the centreline of the generator shaft), rotor diameter and maximum rotation speed;
 - d) The finishes for each WTG; and
 - e) The length and proposed arrangements on the seabed of all inter-array cables.

Thereafter the development shall be built out in accordance with the approved details.

Reason: To ensure that the Development's environmental, seascape, landscape and visual impacts are suitably mitigated.

3. No development shall commence until a Decommissioning Programme ("DP") has been submitted to and approved in writing by the Scottish Ministers. Such approval may only be granted following consultation by the Scottish Ministers with Scottish Environmental Protection Agency ("SEPA") and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The DP must outline measures for the decommissioning of the Development, proposals for the removal of the Development, the management and timing of the works and, environmental management provisions.

The Development must be decommissioned in accordance with the approved DP, unless otherwise agreed in writing in advance with the Scottish Ministers.

Reason: To ensure the decommissioning and removal of the Development in an appropriate and environmentally acceptable manner, and in the interests of safety and environmental protection.

- 4.
- (1) No wind turbines shall be erected until a scheme for aviation lighting for the Development has been submitted to, and approved by, the Scottish Ministers in consultation with the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, and the Civil Aviation Authority. The scheme shall include details of aviation lighting which is to be applied.
 - (2) No later than the first, third and fifth anniversary of the date of First Commissioning and every five-year anniversary thereafter, the Company shall submit a written review of the Aviation Lighting Scheme to Scottish Ministers and the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils. Each review shall include:
 - a. An assessment of options available for the reduction in the number of visible lights installed on turbines and the time period when lights are visible in consultation with neighbouring existing and approved offshore wind farms;
 - b. An assessment of the potential for installation of an Aircraft Detection Lighting System (“ADLS”), including a statement setting out the current and anticipated regulatory environment in relation to ADLS; and
 - c. An assessment of whether, in the Company’s view, it is reasonably practicable to install an ADLS at the Development.
 - (3) The review may propose amendment of the Aviation Lighting Scheme. If a review assesses that it is reasonably practicable to install ADLS, provided that such installation shall not require planning permission, such review shall also include the Company’s proposals for installation of ADLS together with a proposed timetable for installation. Any proposed amendment shall be compliant with the then current aviation lighting requirements of the Civil Aviation Authority and the Ministry of Defence.
 - (4) Any proposed amendment to the Aviation Lighting Scheme shall be subject to the written approval of the Scottish Ministers in consultation with the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, the Civil Aviation Authority, and the Ministry of Defence and shall thereafter be installed in accordance with the approved details.
 - (5) The Aviation Lighting Scheme, or such alternative scheme as may be approved under part (4), shall thereafter be maintained throughout the operational life of the Development.

- (6) No lighting other than that described in the approved scheme for aviation lighting shall be applied within the site, other than that required for health and safety purposes, unless otherwise approved in writing by Scottish Ministers in consultation with the neighbouring Planning Authorities of The Highland Council and Moray and Aberdeenshire Councils, or required by law.
- (7) The Development shall be operated in accordance with the approved scheme, or any alternative scheme as may be approved under part (4), as a result of a periodic review.

Reason: In the interests of aviation safety and to minimise visual effects of the Development.

5. Prior to the Commencement of Development, a Local Employment Scheme for the construction of the development shall be submitted to and agreed in writing by the Scottish Ministers, after consultation with the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils. The submitted Scheme shall make reference to the Environmental Impact Assessment (EIA) submitted by the Company on 26 September 2023, and the EIA Additional Information submitted by the Company on 18 October 2024. The Scheme shall include the following:
- a) details of how the staff/employment opportunities at the development will be advertised and how liaison with the Council and other local bodies will take place in relation to maximising the access of the local workforce to information about employment opportunities;
 - b) details of how sustainable training opportunities will be provided for those recruited to fulfil staff/employment requirements including the provision of apprenticeships or an agreed alternative;
 - c) a procedure setting out criteria for employment, and for matching of candidates to the vacancies;
 - d) measures to be taken to offer and provide college and/or work placement opportunities at the development to students within the locality;
 - e) details of the promotion of the Local Employment Scheme and liaison with contractors engaged in the construction of the development to ensure that they also apply the Local Employment Scheme so far as practicable having due regard to the need and availability for specialist skills and trades and the programme for constructing the development;
 - f) a procedure for monitoring the Local Employment Scheme and reporting the results of such monitoring to the Scottish Ministers and the neighboring

Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils; and

- g) a timetable for the implementation of the Local Employment Scheme.

Thereafter, the development shall be implemented in accordance with the approved scheme.

Reason: In order to ensure compliance with NPF4 Policy 11c) and to maximise the local socio-economic benefits of the development to the wider community. To make provision for publicity and details relating to any local employment opportunities.

6. No development shall commence unless and until a Community Liaison Plan has been approved in writing by Scottish Ministers, after consultation with the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, relevant local community councils and affected businesses. This plan shall include the arrangements for establishing a Community Liaison Group to act as a vehicle for the community to be kept informed of project progress by the Company. The terms and condition of these arrangements must include that the Community Liaison Group will have timely dialogue in advance on the provision of all transport-related mitigation measures and keep under review the timing of the delivery of turbine components. The terms and conditions shall detail the continuation of the Community Liaison Group until the wind farm has been completed and is fully operational. The approved Community Liaison Plan shall be implemented in full.

Reason: To assist with the provision of mitigation measures to minimise potential hazards to surrounding sea and land users.

7. (1) There shall be no Commencement of Development until a Traffic Management Plan has been submitted to, and approved in writing by, the relevant Roads Authorities The Highland Council, Moray and Aberdeenshire Councils, and Transport Scotland. The Traffic Management Plan shall provide:
- (a) the phasing and duration of the construction period;
 - (b) details of sources of bulk materials and components;
 - (c) identification of ports for transporting materials and components;
 - (d) the routing of all traffic associated with the Development on public roads with up-to-date details current traffic flows on the impacted routes;
 - (e) details of the likely traffic generation of HGVs and all other vehicles using public roads based on accurate forecasts for quantities of

materials to inform an Impact Assessment including a Cumulative Impact Assessment of construction traffic on impacted roads;

- (f) an updated Schedule of Mitigation Measures on public roads where there is an extraordinary increase in HGV traffic volumes;
- (g) measures to ensure that the specified routes are adhered to, including monitoring procedures;
- (h) details of all signage and lining arrangements to be put in place;
- (i) provisions for emergency vehicle access;
- (j) provision for the submission and agreement of a roads condition survey pre-and post-construction accompanied by an appropriate agreement between the Planning Authority and the Company to ensure the delivery of any post-construction public road restoration that may be required; and
- (k) identification of a nominated person to whom any road safety issues can be referred.

(2) The approved Traffic Management Plan shall be implemented in full, unless otherwise approved in advance in writing by the Planning Authority.

Reason: In the interests of road safety.

8. (1) There shall be no abnormal load deliveries to the site until an Abnormal Load Route Assessment Report, including proposed trial runs, has been submitted to and approved in writing in consultation with the relevant Roads Authorities The Highland Council, Moray and Aberdeenshire Councils and Transport Scotland. The Abnormal Load Route Assessment Report shall provide:
- (a) Details of a communications strategy to inform the relevant communities of the programme of abnormal load deliveries;
 - (b) Details of any accommodation measures required for the local road network including the removal of street furniture, junction widening and traffic management;
 - (c) Any additional signing or temporary traffic control measures deemed necessary on the trunk road network due to the size or length of any loads being transported must be undertaken by a recognised QA traffic management consultant, to be approved by Transport Scotland.
 - (d) Details of the route for abnormal loads on the local and trunk road networks and any recommendations for delivery of abnormal loads;

- (e) An assessment of the capacity of any bridge crossings on the route to cater for abnormal loads, and details of proposed upgrades and mitigation measures required for any bridge crossings; and
 - (f) A plan for access by vehicles carrying abnormal loads, including but not limited to the number and timing of deliveries and the length, width and axle configuration of all such traffic associated with the Development;
 - (g) A Schedule of Mitigation measure for impacts on roads and structures identified in a swept path analysis.
- (2) Prior to the first delivery of an abnormal load, a programme for abnormal load deliveries shall be submitted to, and be approved in writing by the Planning Authorities in consultation with Transport Scotland. Prior to any movement of abnormal loads (including trial runs) the Company must complete any mitigation works set out in the scheme approved under part (1) of this condition, and maintain such measures during the period of abnormal load deliveries.
 - (3) The trial-run shall be undertaken in accordance with the details approved under part (1) prior to the movement of any abnormal loads.
 - (4) The details in the approved report shall thereafter be implemented in full prior to the first delivery of an abnormal load.

Reason: In the interest of road safety and to ensure that abnormal loads access the site in a safe manner.

Attached is a copy of the report on handling which sets out the Council's assessment in detail. It is requested that this report be appended to this letter and be made available on the Marine Directorate's website.

The minute of the meeting shall be made available on the Council's website via the following weblink:

https://www.highland.gov.uk/meetings/committee/36/north_planning_applications_committee

All letters of representation received by The Highland Council are available on our ePlanning webpage for your consideration.

Please do get in touch should you require any further information.

Yours Sincerely,

Mark Fitzpatrick

Principal Planner MRTPI – Strategic Projects Team

Enc.
Report of Handling

Marine Directorate
Per: Christine McGhie
The Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

Please ask for: Mark Fitzpatrick
Direct Dial: [REDACTED]
E-mail: [REDACTED]
Our Ref: 24/05129/S36
Your Ref: MS-00011012/MS-00011013
Date: 13 August 2025

By email only to: [REDACTED]
[REDACTED]
[REDACTED]

Cc MD.MarineRenewables.gov.scot

Dear Christine,

HIGHLAND COUNCIL REFERENCE: 24/05129/S36

DEVELOPMENT: CALEDONIA SOUTH OFFSHORE WIND FARM - CONSTRUCTION AND OPERATION OF AN OFFSHORE WIND FARM COMPRISING UP TO 78 TURBINES WITH FIXED-BOTTOM OR FLOATING SUBSTRUCTURES AND MAXIMUM BLADE TIP HEIGHTS OF 355M AND 325M RESPECTIVELY, SUBSEA INTERCONNECTOR AND EXPORT CABLING AND ASSOCIATED INFRASTRUCTURE

LOCATION: SEA 50KM SE OF WICK HARBOUR, HARBOUR ROAD, WICK

The Highland Council was consulted by your office on the above Section 36 application on 04 December 2024 for the above Section 36 application and associated Marine License applications. Due to resourcing and competing demands, this response to the Section 36 application has missed the deadline of Monday 03 February 2025.

Following consideration of the proposal by Council officers, officers have concluded that the proposal is unlikely to result in significant environmental effects within the Highland Council Area. This conclusion has considered the EIA Report submitted with the applications as well as such matters as:

- no terrestrial infrastructure sited within the Highland Council area;
- the distance of Caledonia South from the Highland Council coastline;
- the relative positioning of Caledonia South in relation to existing and proposed offshore turbines; and,

- the scope of the likely significant seascape/landscape/visual effects resulting from Caledonia North.

Consequently, the Highland Council **RAISE NO OBJECTION** to the application subject to the following conditions and reasons, which the Council requests are attached to any subsequent permission that the Scottish Ministers may grant:

1. The Development must be constructed and operated in accordance with the Application and the Environmental Impact Assessment (EIA) submitted by the Company on 26 September 2023 and the EIA Additional Information submitted by the Company on 18 October 2024, unless otherwise agreed in advance in writing with Scottish Ministers.

Reason: To ensure that the Development is carried out in accordance with the approved details.

2. No development shall commence until the finalised layout and design of the development has been submitted to, and approved in writing by the Marine Directorate, the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, and, in consultation with NatureScot. The details must include, but not be limited to the following:
 - a) A plan showing the location of each individual Wind Turbine Generator (WTG) (subject to any required micro-siting), including information on WTG spacing, WTG identification/numbering, and any key constraints recorded on the site;
 - b) A list of latitude and longitude co-ordinates accurate to three decimal places of minutes of arc for each WTG. This should also be provided as a Geographic Information System shape file using WGS84 format;
 - c) A table or diagram of each WTG dimensions including - height to blade tip (measured above Lowest Astronomical Tide ("LAT")) to the highest point, height to hub (measured above LAT to the centreline of the generator shaft), rotor diameter and maximum rotation speed;
 - d) The finishes for each WTG; and
 - e) The length and proposed arrangements on the seabed of all inter-array cables.

Thereafter the development shall be built out in accordance with the approved details.

Reason: To ensure that the Development's environmental, seascape, landscape and visual impacts are suitably mitigated.

3. No development shall commence until a Decommissioning Programme ("DP") has been submitted to and approved in writing by the Scottish Ministers. Such approval

may only be granted following consultation by the Scottish Ministers with Scottish Environmental Protection Agency (“SEPA”) and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers. The DP must outline measures for the decommissioning of the Development, proposals for the removal of the Development, the management and timing of the works and, environmental management provisions.

The Development must be decommissioned in accordance with the approved DP, unless otherwise agreed in writing in advance with the Scottish Ministers.

Reason: To ensure the decommissioning and removal of the Development in an appropriate and environmentally acceptable manner, and in the interests of safety and environmental protection.

4. (1) No wind turbines shall be erected until a scheme for aviation lighting for the Development has been submitted to, and approved by, the Scottish Ministers in consultation with the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, and the Civil Aviation Authority. The scheme shall include details of aviation lighting which is to be applied.
- (2) No later than the first, third and fifth anniversary of the date of First Commissioning and every five-year anniversary thereafter, the Company shall submit a written review of the Aviation Lighting Scheme to Scottish Ministers and the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils. Each review shall include:
 - a. An assessment of options available for the reduction in the number of visible lights installed on turbines and the time period when lights are visible in consultation with neighbouring existing and approved offshore wind farms;
 - b. An assessment of the potential for installation of an Aircraft Detection Lighting System (“ADLS”), including a statement setting out the current and anticipated regulatory environment in relation to ADLS; and
 - c. An assessment of whether, in the Company’s view, it is reasonably practicable to install an ADLS at the Development.
- (3) The review may propose amendment of the Aviation Lighting Scheme. If a review assesses that it is reasonably practicable to install ADLS, provided that such installation shall not require planning permission, such review shall also include the Company’s proposals for installation of ADLS together with a proposed timetable for installation. Any proposed amendment shall be compliant with the then current aviation lighting requirements of the Civil Aviation Authority and the Ministry of Defence.
- (4) Any proposed amendment to the Aviation Lighting Scheme shall be subject to the written approval of the Scottish Ministers in consultation with the

neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, the Civil Aviation Authority, and the Ministry of Defence and shall thereafter be installed in accordance with the approved details.

- (5) The Aviation Lighting Scheme, or such alternative scheme as may be approved under part (4), shall thereafter be maintained throughout the operational life of the Development.
- (6) No lighting other than that described in the approved scheme for aviation lighting shall be applied within the site, other than that required for health and safety purposes, unless otherwise approved in writing by Scottish Ministers in consultation with the neighbouring Planning Authorities of The Highland Council and Moray and Aberdeenshire Councils, or required by law.
- (7) The Development shall be operated in accordance with the approved scheme, or any alternative scheme as may be approved under part (4), as a result of a periodic review.

Reason: In the interests of aviation safety and to minimise visual effects of the Development.

- 5. Prior to the Commencement of Development, a Local Employment Scheme for the construction of the development shall be submitted to and agreed in writing by the Scottish Ministers, after consultation with the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils. The submitted Scheme shall make reference to the Environmental Impact Assessment (EIA) submitted by the Company on 26 September 2023, and the EIA Additional Information submitted by the Company on 18 October 2024. The Scheme shall include the following:
 - a) details of how the staff/employment opportunities at the development will be advertised and how liaison with the Council and other local bodies will take place in relation to maximising the access of the local workforce to information about employment opportunities;
 - b) details of how sustainable training opportunities will be provided for those recruited to fulfil staff/employment requirements including the provision of apprenticeships or an agreed alternative;
 - c) a procedure setting out criteria for employment, and for matching of candidates to the vacancies;
 - d) measures to be taken to offer and provide college and/or work placement opportunities at the development to students within the locality;
 - e) details of the promotion of the Local Employment Scheme and liaison with contractors engaged in the construction of the development to ensure that they

also apply the Local Employment Scheme so far as practicable having due regard to the need and availability for specialist skills and trades and the programme for constructing the development;

- f) a procedure for monitoring the Local Employment Scheme and reporting the results of such monitoring to the Scottish Ministers and the neighboring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils; and
- g) a timetable for the implementation of the Local Employment Scheme.

Thereafter, the development shall be implemented in accordance with the approved scheme.

Reason: In order to ensure compliance with NPF4 Policy 11c) and to maximise the local socio-economic benefits of the development to the wider community. To make provision for publicity and details relating to any local employment opportunities.

- 6. No development shall commence unless and until a Community Liaison Plan has been approved in writing by Scottish Ministers, after consultation with the neighbouring Planning Authorities of The Highland Council, and Orkney, Moray, and Aberdeenshire Councils, relevant local community councils and affected businesses. This plan shall include the arrangements for establishing a Community Liaison Group to act as a vehicle for the community to be kept informed of project progress by the Company. The terms and condition of these arrangements must include that the Community Liaison Group will have timely dialogue in advance on the provision of all transport-related mitigation measures and keep under review the timing of the delivery of turbine components. The terms and conditions shall detail the continuation of the Community Liaison Group until the wind farm has been completed and is fully operational. The approved Community Liaison Plan shall be implemented in full.

Reason: To assist with the provision of mitigation measures to minimise potential hazards to surrounding sea and land users.

- 7. (1) There shall be no Commencement of Development until a Traffic Management Plan has been submitted to, and approved in writing by, the relevant Roads Authorities The Highland Council, Moray and Aberdeenshire Councils, and Transport Scotland. The Traffic Management Plan shall provide:
 - (a) the phasing and duration of the construction period;
 - (b) details of sources of bulk materials and components;
 - (c) identification of ports for transporting materials and components;

- (d) the routing of all traffic associated with the Development on public roads with up-to-date details current traffic flows on the impacted routes;
 - (e) details of the likely traffic generation of HGVs and all other vehicles using public roads based on accurate forecasts for quantities of materials to inform an Impact Assessment including a Cumulative Impact Assessment of construction traffic on impacted roads;
 - (f) an updated Schedule of Mitigation Measures on public roads where there is an extraordinary increase in HGV traffic volumes;
 - (g) measures to ensure that the specified routes are adhered to, including monitoring procedures;
 - (h) details of all signage and lining arrangements to be put in place;
 - (i) provisions for emergency vehicle access;
 - (j) provision for the submission and agreement of a roads condition survey pre-and post-construction accompanied by an appropriate agreement between the Planning Authority and the Company to ensure the delivery of any post-construction public road restoration that may be required; and
 - (k) identification of a nominated person to whom any road safety issues can be referred.
- (2) The approved Traffic Management Plan shall be implemented in full, unless otherwise approved in advance in writing by the Planning Authority.

Reason: In the interests of road safety.

8. (1) There shall be no abnormal load deliveries to the site until an Abnormal Load Route Assessment Report, including proposed trial runs, has been submitted to and approved in writing in consultation with the relevant Roads Authorities The Highland Council, Moray and Aberdeenshire Councils and Transport Scotland. The Abnormal Load Route Assessment Report shall provide:
- (a) Details of a communications strategy to inform the relevant communities of the programme of abnormal load deliveries;
 - (b) Details of any accommodation measures required for the local road network including the removal of street furniture, junction widening and traffic management;
 - (c) Any additional signing or temporary traffic control measures deemed necessary on the trunk road network due to the size or length of any

loads being transported must be undertaken by a recognised QA traffic management consultant, to be approved by Transport Scotland.

- (d) Details of the route for abnormal loads on the local and trunk road networks and any recommendations for delivery of abnormal loads;
 - (e) An assessment of the capacity of any bridge crossings on the route to cater for abnormal loads, and details of proposed upgrades and mitigation measures required for any bridge crossings; and
 - (f) A plan for access by vehicles carrying abnormal loads, including but not limited to the number and timing of deliveries and the length, width and axle configuration of all such traffic associated with the Development;
 - (g) A Schedule of Mitigation measure for impacts on roads and structures identified in a swept path analysis.
- (2) Prior to the first delivery of an abnormal load, a programme for abnormal load deliveries shall be submitted to, and be approved in writing by the Planning Authorities in consultation with Transport Scotland. Prior to any movement of abnormal loads (including trial runs) the Company must complete any mitigation works set out in in the scheme approved under part (1) of this condition, and maintain such measures during the period of abnormal load deliveries.
- (3) The trial-run shall be undertaken in accordance with the details approved under part (1) prior to the movement of any abnormal loads.
- (4) The details in the approved report shall thereafter be implemented in full prior the first delivery of an abnormal load.

Reason: In the interest of road safety and to ensure that abnormal loads access the site in a safe manner.

All letters of representation received by The Highland Council are available on our ePlanning webpage for your consideration.

Please do get in touch should you require any further information.

Yours Sincerely,

Mark Fitzpatrick

Planner MRTPI – Strategic Projects Team

Transport Scotland

Christine McGhie
Marine Directorate
Marine Laboratory
Aberdeen
AB11 9DB

Your ref:

Our ref:
GB01T19K05

Date:
13/02/2025

md.renewables@gov.scot

Dear Sirs,

ELECTRICITY ACT 1989

THE ELECTRICITY (APPLICATIONS FOR CONSENT) REGULATIONS 2017

CALEDONIA OFFSHORE WIND FARM – ENVIRONMENTAL IMPACT ASSESSMENT

With reference to your recent correspondence on the above development, we acknowledge receipt of the Environmental Impact Assessment Report (EIAR) prepared by Ocean Winds in support of the above development, and thank you again for the extension of time.

This information has been passed to SYSTRA Limited for review in their capacity as Term Consultants to Transport Scotland – Roads Directorate. Based on the review undertaken, Transport Scotland would provide the following comments.

Proposed Development

We understand that applications for S36 Consent and Marine licenses have been submitted for the Caledonia North and South offshore wind farms comprising 140 turbines in total, to be located within the Outer Moray Firth. The Caledonia North array area is located approximately 28km from Wick and 48km from Banff, and the Caledonia South array area is located 45km from Wick and 35km from Banff. The nearest trunk road to the site is the A99(T) at Wick, whilst the A96(T) lies south of Banff.

Transport Scotland was consulted on the Scoping Report for the offshore elements of this project, with comments provided in our letter dated 28th October 2022.

Assessment of Environmental Impacts

Volume 5, Chapter 9 of the EIAR presents the assessment of Traffic and Transport associated with the On-shore elements of the project. This states that the assessment has been carried out in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines, entitled Environmental Assessment of Traffic and Movement (July 2023).

These specify that road links should be taken forward for further detailed assessment of environmental effects where the following two rules are breached:

- Rule 1: Include road links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)
- Rule 2: Include road links of high sensitivity where traffic flows have increased by 10% or more.

Chapter 9 states that the Onshore Transmission Infrastructure (OnTI) comprises the following:

- A Landfall Site on the Aberdeenshire coast at 'Stake Ness', located to the west of Banff;
- An Onshore Export Cable Corridor (ONEC) of circa 37km (running south-east from the Landfall Site to the Onshore Substation Site);
- An Onshore Substation Site with two Onshore Substations co-located within the same footprint, located within proximity to New Deer; and
- An Onshore Grid Connection Cable Corridor connecting the Onshore Substation to the Grid Connection Point at the existing New Deer Substation.

A review of the location of the OnTI reveals that all components are remote from the trunk road network, with no requirements to cross any trunk roads.

Consequently, the study area for the assessment comprises the following:

- A98 near Portsoy;
- West of A98/A95 Junction;
- East of A98/A95 Junction;
- A95 East of Cornhill;
- A98 South of Boyndie;
- A98 Southeast of Inverboyndie;
- A97 Southwest of Banff;
- A947 East of Dounepark;
- A97 North of Aberchirder;
- South of B9025/B9121 Junction;
- North of B9025/B9121 Junction;
- A947 South of Plaidy;
- A947 Northeast of Turriff; and
- B9170 Northwest of Cuminestown.

We note that no trunk road locations have been included within the assessment. It is also noted that the distribution of construction trips has been based upon the construction information available at this time, with 33.3% of all construction trips originating from the west, 33.3% from the south and 33.3% from the east. Table 9.13 of the EIAR presents the expected peak daily construction vehicle generation, where it is demonstrated that the worst-case scenario will result in a total of 422 daily trips. These will then be distributed across the network as identified above.

Given the magnitude of trips generated and the distance from the trunk road network, Transport Scotland is satisfied that construction of the OnTI is unlikely to have any significant impact on the trunk road and no further assessment is required.

Abnormal Loads Assessment

Chapter 9 states that the transportation of electricity transformers will result in a requirement for Abnormal Indivisible Loads (AIL), with these most likely originating from Peterhead via the Maryhill crossroads. It is noted that the number of AILs is not yet known, however, this will be identified as part of the final CTMP and AMSC applications where a detailed AIL report will be prepared.

We note that an Outline Construction Traffic Management Plan has been prepared, and this states the following in regard to AILs:

“The routing of these loads will be subject to detailed discussions between the Applicant, Aberdeenshire Council and Police Scotland. Transport Scotland will also be consulted where / if the movement of AILs requires the use of the trunk road or Strategic Road Network (SRN).”

With the Port of Origin being Peterhead, we would expect that AILs will require to route via the A90(T), therefore, we would state that Transport Scotland will require to be satisfied that the size of loads proposed can negotiate the selected route and that their transportation will not have any detrimental effect on structures within the trunk road route path.

The detailed AIL report should identify key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes to street furniture or structures along the route.

Conclusions

Based on the review undertaken, we can confirm that we are satisfied with the submitted EIAR, and we have no objection to the development in terms of environmental impacts on the trunk road network. We would, however, request that the following conditions be attached to any consent that may be granted:

- Condition 1: Prior to commencement of deliveries to site, the proposed route for any abnormal loads on the trunk road network must be submitted to and approved by the Planning Authority, in consultation with Transport Scotland as the trunk roads authority.

Reason: To minimise interference and maintain the safety and free flow of traffic on the Trunk Road as a result of the traffic moving to and from the development.

- Condition 2: Prior to the movement of any abnormal load, any accommodation measures required on the trunk road network, including the removal of street furniture, junction widening and traffic management must be approved and implemented to the satisfaction of the Planning Authority, in consultation with Transport Scotland.

Reason: To minimise interference and maintain the safety and free flow of traffic on the Trunk Road as a result of the traffic moving to and from the development.

- Condition 3: Prior to the movement of any components and/or construction materials, any additional signing or temporary traffic control measures deemed necessary on the trunk road network due to the size or length of any loads being transported must be undertaken by a recognised QA traffic management consultant, to be approved by Transport Scotland.

Reason: To ensure that the transportation of any components/materials will not have any detrimental effect on the road and structures along the route.

In addition to the above Conditions, the applicant should be informed of the following advisory notes setting out requirements relating to works within the trunk road boundary:

- I. The applicant should be informed that the granting of planning consent does not carry with it the right to carry out works within the trunk road boundary and that permission must be granted by Transport Scotland Roads Directorate.
- II. Trunk road modification works shall, in all respects, comply with the Design Manual for Roads and Bridges and the Specification for Highway Works published by HMSO. The developer shall issue a certificate to that effect, signed by the design organisation.
- III. Trunk road modifications shall, in all respects, be designed and constructed to arrangements that comply with the Disability Discrimination Act: Good Practice Guide for Roads published by Transport Scotland. The developer shall provide written confirmation of this, signed by the design organisation.
- IV. The road works which are required due to the above Conditions will require a Road Safety Audit as specified by the Design Manual for Roads and Bridges.
- V. Any trunk road works will necessitate a Minute of Agreement with the Trunk Roads Authority prior to commencement.
- VI. To obtain permission to work within the trunk road boundary the developer should contact the Area Manager through the general contact number 0141 272 7100.
- VII. The Operating Company has responsibility for co-ordination and supervision of works and after permission has been granted it is the developer's contractor's responsibility to liaise with the Operating Company during the construction period to ensure all necessary permissions are obtained.

I trust that the above is satisfactory and should you wish to discuss any issues raised in greater detail, please do not hesitate to contact me or alternatively, Alan DeVenny at SYSTRA's Glasgow Office on 0141 343 9636.

Yours faithfully,

<Redacted>

Iain Clement

**Transport Scotland
Roads Directorate**

cc Alan DeVenny – SYSTRA Ltd.

UK Chamber of Shipping

Marine Scotland Marine Renewables
MD.MarineRenewables@gov.scot

Date: 29/01/2025

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 (AS AMENDED), MARINE LICENCES UNDER PART 4 OF THE MARINE (SCOTLAND) ACT 2010 AND MARINE AND COASTAL ACCESS ACT 2009 TO CONSTRUCT AND OPERATE CALEDONIA OFFSHORE WIND FARM NORTH AND SOUTH, MORAY FIRTH

Dear Marine Scotland,

The UK Chamber of Shipping (hereafter "the Chamber") welcomes the opportunity to respond to the Application for Consent for Caledonia Offshore Wind Farm North and South. The Chamber is the trade association for the UK shipping industry, representing over 200 members operating 900 vessels across multiple maritime sectors, including freight, passenger transport, offshore supply, and specialist services. The Chamber plays a key role in ensuring that the navigational safety and economic viability of UK shipping are not adversely affected by new developments.

The Chamber supports the UK and Scottish Governments' commitment to Net Zero, recognising the essential role offshore wind plays in achieving this. However, we stress the importance of ensuring that maritime safety, operational efficiency, and economic considerations are properly accounted for in the planning and implementation of such projects. Specifically, we draw attention to Transport 3 Policy of the Scottish Marine Plan, which mandates safeguarding lifeline ferry services from undue disruption; <https://www.gov.scot/publications/scotlands-national-marine-plan-9781784128555/pages/13/>

Navigational Risk Assessment

The Navigational Risk Assessment (NRA) included in the Environmental Impact Assessment (EIA) for Caledonia North and South identifies key commercial shipping routes. Section 12.3 of the NRA addresses adverse weather routing for NorthLink; however, further clarity is required regarding the effectiveness of the SEZ in mitigating risks to navigational safety and minimizing impacts on the operational reliability of the lifeline ferry service. We recommend further validation through feedback from NorthLink.

The alignment of turbines between North and South requires further scrutiny to ensure predictable and safe routing for vessels. This is particularly important given Figure 16.16 of the NRA regarding navigational clarity. Isolated Structures in Caledonia South: Figure 16.16 and 6.7, indicate that the southern tip of Caledonia

South is not advisable from a navigational perspective due to the increased risk of allision. The Chamber strongly recommend that this section be adjusted or stepped back on the grounds of navigational safety. The Chamber recommends these be consolidated or additional mitigation measures implemented.

As shown in figure 6.7, it is not clearly evident that two lines of orientation have been provided for the entirety of both sites, nor is it confirmed that there is proper alignment between both sites. A safety justification should be submitted to the MCA for approval in cases where a single line of orientation is proposed. The Chamber therefore recommends the Scottish government seek confirmation of the developers' intentions and ensure that the MCA's agreement, recognising the navigational and Search and Rescue advantages of establishing two or more lines of orientation.

Dynamic Inter-array Cables and Mooring Lines, section 18.2.6.2 of the NRA, identifies these as potential under keel clearance (UKC) hazards. We recommend explicit mitigation commitments, including updating navigational charts and issuing notices to mariners to ensure awareness of these hazards.

Mitigation Measures and SEZ

The EIA outlines a range of embedded mitigation measures (Table 17.1) including turbine spacing, lighting, and marking. While these are positive steps, the Chamber highlights:

SEZ Adequacy, Sections 15.6 and 17 of the NRA, conclude that the SEZ reduces risk to ALARP parameters. The Chamber welcomes the SEZ and its contribution to risk reduction; however, it strongly recommends that the Scottish Government seek confirmation from NorthLink regarding their acceptance.

Key Recommendations

1. Continued Stakeholder Consultation: Ensure ongoing engagement with NorthLink Ferries to address concerns raised in Section 4 of the NRA. The Chamber recommends the MCA and the Scottish Government confirm that NorthLink is satisfied with the proposed measures.
2. Alignment and Mitigation: Seek confirmation from the MCA regarding their satisfaction with the alignment of turbines between North and South, consolidating structures to reduce navigational hazards.
3. Dynamic Cable Mitigation: Include clear charting commitments for dynamic inter-array cables to enhance mariner awareness.

Conclusion

The Chamber acknowledges the commitment of Caledonia Offshore Wind Farm Ltd to responsible offshore development. However, we maintain that navigational safety and economic impacts must be fully addressed. We encourage Marine Scotland and the project developers to engage with the maritime industry to refine mitigation measures and ensure that shipping interests are safeguarded.

We appreciate the opportunity to contribute to this consultation and look forward to ongoing discussions.

Yours sincerely,

Ellie Norris

Policy Manager - Safety
UK Chamber of Shipping
<Redacted>

UK Hydrographic Office

From: [Offshore Energy](#)
To: [MD Marine Renewables](#)
Cc: [SDR](#)
Subject: RE: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025
Date: 09 December 2024 11:13:04
Attachments: [image009.jpg](#)
[image010.png](#)
[image011.png](#)

Good morning,

Many thanks for forwarding a copy of the Marine Licence application to us. Please could you remind Caledonia Offshore Wind Farm Limited that we require updates during offshore construction phase to ensure our charts and services are maintained:

- The UKHO requires FIVE WEEKS advance notice of offshore installation activities to allow preparation of Admiralty Notices to Mariners. Please send notifications and correspondence to SDR@ukho.gov.uk.
- The operator should also be advised to contact our Radio Navigation Warnings section 24 hours before offshore work is due to commence, Email: NavWarnings@UKHO.gov.uk, Tel: 01823 353448 (direct line) Fax: 01823 322352.
- The UKHO should be notified of any changes to the existing installations as offshore work progresses (e.g. structure height changes, new/altered aids to navigation). Please send notifications and correspondence to SDR@ukho.gov.uk.
- The information supplied must include the start date and end date, a description of the works, positions of the work area and structures (referred to WGS84 datum), and details of any marking arrangements. Copies of any bathymetric survey data should be provided to sdr@ukho.gov.uk Copies of all local notice to mariners must be provided to the UKHO within 5 days.

Kind regards,

Sean

Sean Johnson
Geospatial Information Specialist
Marine Geospatial Data Management Team

DD: <Redacted>



gov.uk/ukho

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Please consider the environment before printing this email.

From: MD.MarineRenewables@gov.scot <MD.MarineRenewables@gov.scot>

Sent: Wednesday, December 4, 2024 5:04 PM

Cc: <Redacted>

MD.MarineRenewables@gov.scot

Subject: MS-00011014/ MS-00011015/ MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited – Caledonia North and South Offshore Wind Farms – EIA Section 36 consents and Marine Licence Applications - Consultation – Response Required by 03 February 2025

Dear Sir/Madam,

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017

MARINE AND COASTAL ACCESS ACT 2009

The Marine Works (Environmental Impact Assessment) Regulations 2007

**MS-00011014/ MS-00011015 - Caledonia Offshore Wind Farm Limited–
Caledonia North Offshore Wind Farm - Moray Firth, northern limit approx.
28km from Wick and southern limit approx. 48km from Banff**

**MS-00011012/ MS-00011013 - Caledonia Offshore Wind Farm Limited –
Caledonia South Offshore Wind Farm - Moray Firth, approx. northern limit is
approx. 45 km from Wick and southern limit approx. 35km from Banff**

On 20 November 2024 Caledonia Offshore Wind Farm Limited submitted applications to the Scottish Ministers, in accordance with the above legislation, to construct and operate the Caledonia North Offshore Wind Farm and Caledonia South Offshore Wind Farm.

The application for section 36 consents, marine licence applications, Environmental Impact Assessment Report and supporting documentation can be accessed via the following links for each of the applications:

[Caledonia Offshore Wind Farm | marine.gov.scot](https://marine.gov.scot)

Caledonia North:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – North \(MS-00011014\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind](#)

[Farm – North \(MS-00011015\)](#)

Caledonia South:

There are three application pages, as follows:

- [Section 36 Consent – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South](#)
- [Marine Licence – Construction and Operation of Generating Station – Caledonia Offshore Wind Farm – South \(MS-00011012\)](#)
- [Marine Licence – Transmission Infrastructure – Caledonia Offshore Wind Farm – South \(MS-00011013\)](#)

Please forward your comments on these proposals via electronic communication to MD.MarineRenewables@gov.scot by **Monday, 03 February 2025**. If you are unable to meet this deadline, please contact the Marine Directorate – Licensing Operations Team on receipt of this e-mail.

Kind regards,

Christine McGhie

**Marine Licensing and Consenting Casework Officer, Licensing Operations Team,
Marine Directorate**

Scottish Government | Marine Laboratory | Aberdeen | AB11 9DB

T: <Redacted>

E: <Redacted>

Group Email: MD.marinerenewables@gov.scot

The Scottish Government



To see how we use your personal data, please view our [Marine licensing and consenting: privacy notice - gov.scot \(www.gov.scot\)](#)

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