

Aberdeenshire Council

Our Ref: ENQ/2022/1487

Your Ref:

Ask for:

Tel: 01467 534919

Email:

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

14 November 2022

Dear Sir/Madam

**Marine Licence Consultation for Offshore Wind Farm Scoping Consultation at Caledonia Offshore Wind Farm, ScotWind NE4 Site, Moray Firth**

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**

**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2007**

**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017 (collectively referred to as the “EIA Regulations”).**

Thank you for your consultation request concerning the proposed Caledonia Offshore Windfarm. Your request sought advice relating to the content of a future environmental assessment and a scoping report has been provided for consideration.

Aberdeenshire Council, as terrestrial authority, are generally only concerned with potential effects upon the intertidal zone between mean high-water springs (MHWS) and mean low-water springs (MLWS) with offshore infrastructure projects like this. As such, our comments will be limited to effects on the intertidal zone, with Marine Scotland being best placed to consider whether the offshore elements of the scoping report are acceptable and if the proposals can be adequately managed with low risk to the marine environment.

It is noted within the scoping report that an environmental appraisal will include a chapter addressing potential impacts of the project within the intertidal zone between MHWS and MLWS which is welcomed.

The main potential impacts relate to ecology and archaeology. In terms of ecology, the Council's Natural Environment Service was consulted and noted the following. The benthic, subtidal and intertidal ecology will be scoped into the environmental appraisal, and this will cover the cable landfall. The area of search for the landfall is the Sandend to Macduff coastline which is mostly designated as a SSSI. The potential impact of the cable landfall on this will have to be considered, although this is a matter that NatureScot will likely have raised through its consultation. Otherwise, the Service has no other comment to make on the remainder of the scoping report.

Chapter 14 of the scoping report addresses Marine Archaeology, and this was considered by the Council's Archaeology Service which provided the following comment. The Service agrees with the scope of the study area for capturing baseline data relating to designated and non-designated historic environment features. The Service agrees with the key datasets used at this stage for informing the baseline data, as listed in Table 14.1 of the scoping report, however, notes that the Aberdeenshire and Moray Historic Environment Records (HER) have been described as unavailable. The Service notes surprise at this as to its knowledge the HER have been available. It does note though that this does not necessarily affect the baseline data too adversely in this instance but does ask that the HER data be fully included within the EIA assessment going forward, as per the methodology later detailed in this section. The Service also agrees with the proposed project surveys for characterising the Marine Archaeology and Cultural Heritage baseline.

The Service agrees with the Offshore EIA scoping assessment for Marine Archaeology and Cultural Heritage, and what critically has been scoped in, as detailed within Table 14.3 of the Scoping Report. The Service has no additional pathways, receptors or potential impacts to be added.

The Service agrees with the proposed approach to the EIA and assessment, as detailed in Sections, 14.6 to 14.8 etc. It notes that any subsequent Marine Licence, should this development be minded for approval, granted in relation to UXO clearance activities should ensure there is provision for archaeological assessment and recording, should a target be identified as not being an UXO but which still requires removal.

The Service further notes agreement that transboundary impacts for Marine Archaeology and Cultural Heritage can be scoped out of the Offshore EIA. Finally, the Service agrees on the suitability of the proposed embedded mitigation for archaeology and cultural heritage for this proposed development and confirms it has no others to add.

Having assessed the Scoping Report and having received comment from the abovementioned consultees, who will also be formally consulted on the EIA, the Planning Service is content with the approach taken and the scope of the assessment, the environmental issues identified, and the methodology proposed.

This opinion will be held for public inspection for a two-year period, or until a planning application is submitted at which time the opinion will be transferred to the planning register with the application.

Yours faithfully  
[Redacted]

Head of Planning and Economy

Banff, Macduff and Portsoy Harbour Authority

**From:**  
**To:** [MS Marine Renewables](#)  
**Subject:** FW: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 03 October 2022 14:45:37  
**Attachments:** [image001.png](#)

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Marc,  
Regarding the above.

“nil return”

Thanks,

British Telecoms

**From:**  
**To:** [MS Marine Renewables](#)  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022 WID11987  
**Date:** 04 October 2022 14:35:53  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)

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Ref :- WID11987

Good afternoon Marc

Thank you for your e-mail dated 30/09/22

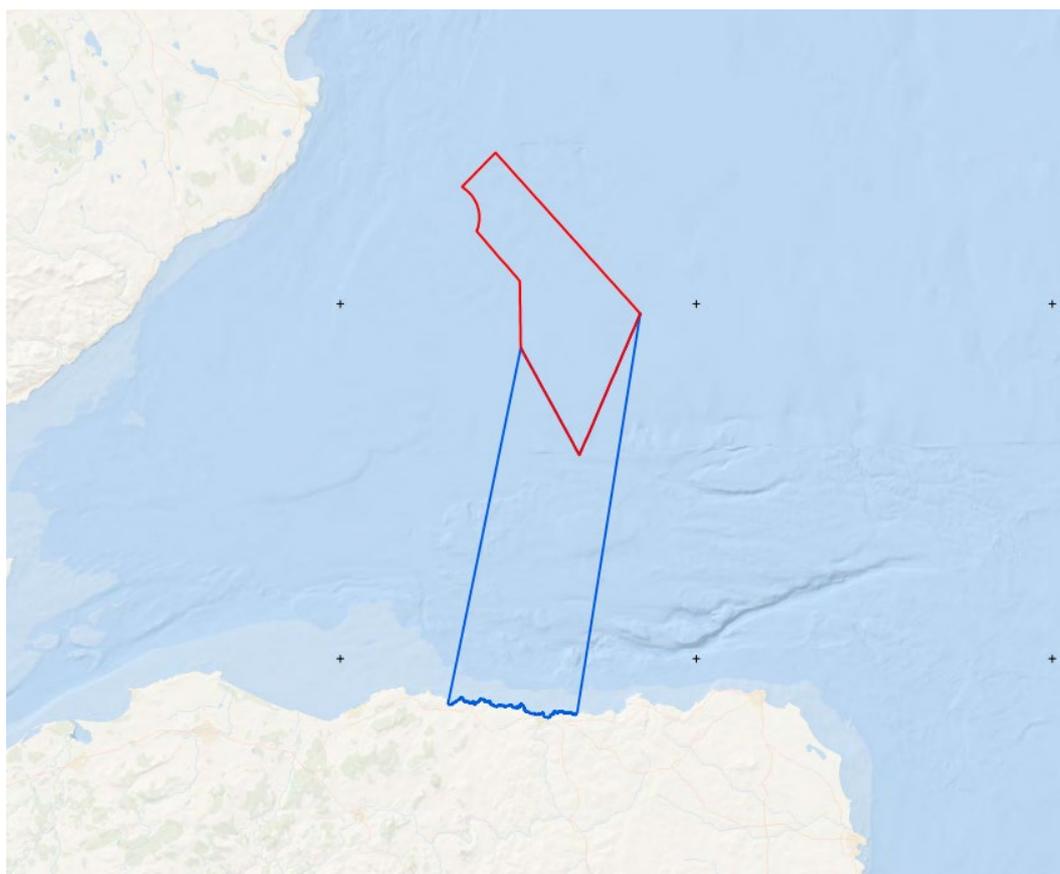
Having checked this scoping consultation of the proposed offshore windfarm, with respect to EMC and related problems to BT point-to-point microwave radio links.

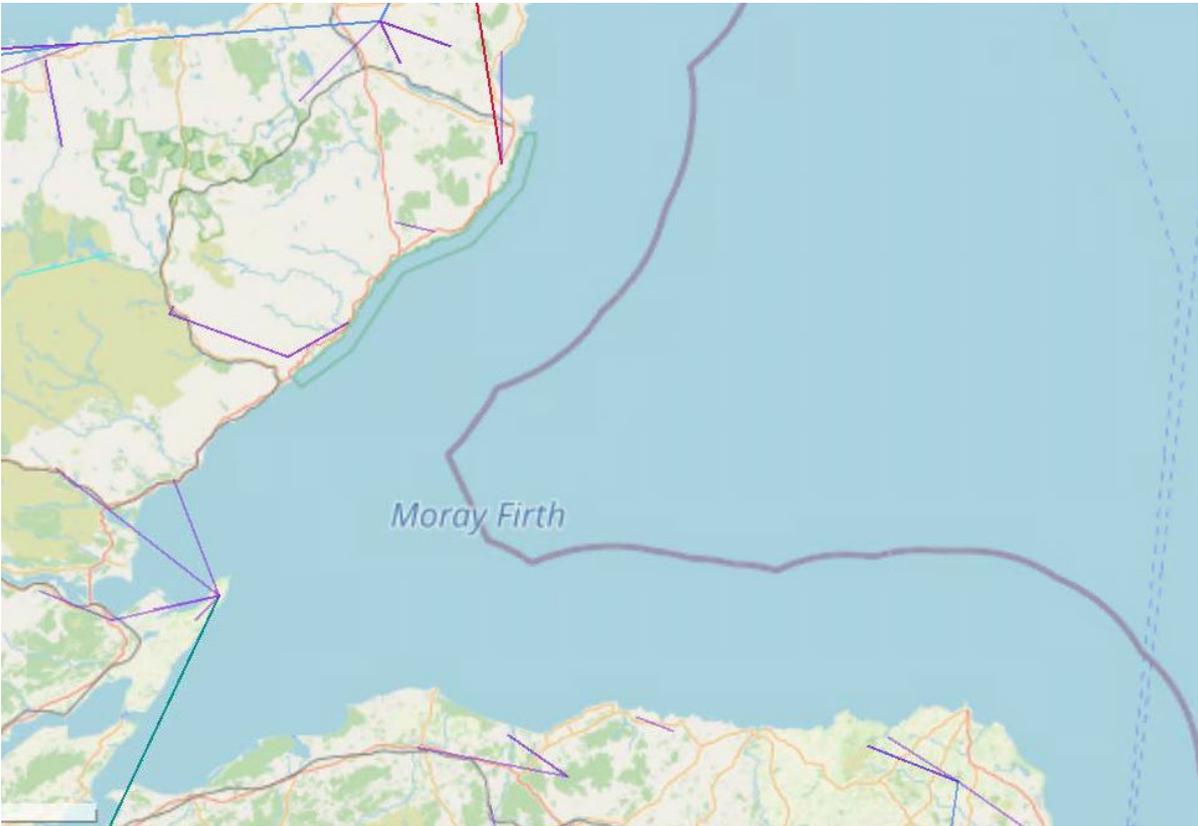
The conclusion is that the location shown should not cause interference to BT's current and presently planned radio network.

The image below shows there are no issues, however once a comprehensive scoping opinion has been adopted.

Then please provide accurate grid-ref and structure heights

Thank you





Civil Aviation Authority

**From:**  
**To:** [MS Marine Renewables](#)  
**Subject:** Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation  
**Date:** 13 October 2022 14:30:10  
**Attachments:** [image001.png](#)

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Good afternoon,

Thank you for sight of the scoping report for the proposed development above. We have reviewed the document, in particular tables 15.2 and 15.3, and have no comments to make.

Kind regards

Manager Rulemaking and Safety Publications  
Safety and Business Delivery  
Civil Aviation Authority

Tel: 0330 138 3166  
Mob: [Redacted]

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Please consider the environment. Think before printing this email.



Highlands and Islands Airports Limited

**From:**  
**To:** [MS Marine Renewables](#)  
**Cc:**  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 14 October 2022 11:58:43  
**Attachments:** [image001.png](#)  
[image002.png](#)

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Hi Marc,

Thank you for providing this information. Please see below our response:

**Your Ref: SCOPING**

**Our Ref: 2022/342/WIC**

Dear Sir/Madam,

**Proposal: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm**

**Location: ScotWind NE4 Site, Moray Firth**

The development has been assessed using the criteria below:

**Grid Ref and Height**

Point	Long (DD)	Lat (DD)	BNG Easting*	BNG Northing*
1	-2.569732	58.134654	366549.09	916333.7
2	-2.571085	58.219111	366549.09	925737.43
3	-2.673439	58.282743	360606.82	932877.67
4	-2.708013	58.339026	358645.25	939164.81
5	-2.627196	58.381835	363421.48	943884.12
6	-2.283641	58.176644	383416.07	920901.83
7	-2.431967	57.998343	374564.66	901097.14

The Highland and Islands Airport has been consulted on the above proposed development, received by this office on 30/09/2022.

With reference to the above proposal, our preliminary assessment shows that, at the position and heights given in the scoping report, the proposed wind farm may impact the safeguarding criteria and operation of Wick Airport

Highlands and Islands Limited (HIAL) request that an Aviation Impact Feasibility Study (AIFS), of the proposed Wind Farm, is undertaken to understand any impact on the infrastructure and operation of Wick Airport. The following are required to be assessed by the applicant:

Safeguarding Assessment		
Hazard	Impact	Additional Information
Air Traffic Control Surveillance Minimum Altitude Chart (ATCSMAC)	<input type="checkbox"/>	Please see CAP777 requirement.
Safeguarding of technical sites	<input type="checkbox"/>	Please see CAP670 & CAP764 requirements (NAVAIDS)
Instrument Flight Procedures (IFPs)		Please see CAP785 requirement. The IFP Assessment MUST be produced by an Approved Procedure Design Organisation (APDO). A list of

	<input checked="" type="checkbox"/>	APDO can be found on the CAA website: <a href="https://www.caa.co.uk/procurement/procurement-design-organisations">Approved procedure design organisations   Civil Aviation Authority (caa.co.uk)</a> <b>*The IFP impact assessment should include the currently published procedures, as available in the UK AIP, and the Discrete IFPs. The Discrete IFPs are available from this office.</b>
Primary Surveillance Radar	<input type="checkbox"/>	Please see CAP670 & CAP764 inc. Optical Line of Site assessment. Please consider the Thales STAR PSR & proposed Terma Scanner Radar - Expected to be commissioned Oct 2023. Contact this office for details of the location and electronics height.
New Airspace and Instrument Flight Procedures (Inverness Airport only)	<input type="checkbox"/>	It should be noted that Inverness Airport are in the process of developing new airspace and instrument flight procedures; this work is relatively mature and should be included in the AIFS. Data and information can be found: <a href="https://www.caa.co.uk/procurement/procurement-design-organisations">Inverness Airport   Civil Aviation Authority (caa.co.uk)</a>
Lighting Requirement	<input checked="" type="checkbox"/>	For further information please refer to Advice Note 2 'Lighting' (available at <a href="http://www.aoa.org.uk/policy-campaigns/operations-safety">http://www.aoa.org.uk/policy-campaigns/operations-safety</a> ). Please also consider the lighting requirements as documented in The Air Navigation Order 2016, Article 222.
Crane Permit	<input type="checkbox"/>	Please see CAP1096, British Standard Code of Practice for the safe use of Cranes and Advice Note 4, 'Cranes' (available at <a href="http://www.aoa.org.uk/policy-campaigns/operations-safety/">http://www.aoa.org.uk/policy-campaigns/operations-safety/</a> ). A crane permit must be completed and submitted to HIAL. Please contact the HIAL safeguarding for a crane permit application.
Glint and Glare Assessment	<input type="checkbox"/>	A glint and glare assessment must be submitted for the proposed development. More information can be found: <a href="https://www.aoa.org.uk/wp-content/uploads/2016/09/Advice-Note-5-Renewable-Energy-2016.pdf">https://www.aoa.org.uk/wp-content/uploads/2016/09/Advice-Note-5-Renewable-Energy-2016.pdf</a>
Construction Management Strategy	<input checked="" type="checkbox"/>	A construction management strategy must be submitted for the proposed development. This should include the following details: <ul style="list-style-type: none"> <li>• Details of the construction of the Wind Turbines onshore</li> <li>• Turbine route map from onshore to the offshore location</li> </ul>

It should be noted that HIAL would work with the developer towards a resolution. However, HIAL currently submit a holding objection until the AIFS has been submitted to and reviewed by HIAL.

Once the AIFS has been reviewed by HIAL, and any impact to Wick Airport is understood, the applicant may then expect to be contacted by HIAL to enter formal discussions.

Kind regards,

**Safeguarding Officer and Operational Assistant  
Highlands and Islands Airports Limited**



 Visit our Website at [www.hial.co.uk](http://www.hial.co.uk)

# Historic Environment Scotland



HISTORIC  
ENVIRONMENT  
SCOTLAND

ÀRAINNEACHD  
EACHDRAIDHEIL  
ALBA

**By email to:**

[MS.MarineRenewables@gov.scot](mailto:MS.MarineRenewables@gov.scot)

Marine Scotland (Marine Renewables)  
Marine Laboratory  
375 Victoria Road  
Aberdeen  
AB11 9DB

Longmore House  
Salisbury Place  
Edinburgh  
EH9 1SH

Enquiry Line: 0131-668-8716  
[HMConsultations@hes.scot](mailto:HMConsultations@hes.scot)

Our case ID: 300061138

09 November 2022

Dear Marine Scotland

[The Marine Works \(Environmental Impact Assessment\) \(Scotland\) Regulations 2017](#)  
[Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4](#)  
[Site, Moray Firth](#)  
[Scoping Report](#)

Thank you for your consultation which we received on 30 September 2022 about the above scoping report. We have reviewed the details 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 (HMPAs).

The relevant local authority archaeological and cultural heritage advisors will also be able to offer advice on the scope of the cultural heritage assessment. This may include heritage assets not covered by our interests, such as unscheduled archaeology, and category B- and C-listed buildings.

### **Proposed Development**

We understand that the proposed development comprises up to 150 wind turbines, to a maximum height of 350m, most with fixed foundations, in the NE4 Plan Option area in the Moray Firth. The northern edge of the proposed development is c. 22km from Wick and the southern edge is c. 38km from Banff.

### **Scope of assessment**

The scoping report considers Cultural Heritage issues at chapter 14. The applicants propose to consider the marine archaeology in the development area and a buffer of 3km around this. Their scoping of impacts (4.5.1.1 – 4.7.1.1) does not include consideration of setting impacts for on-shore historic environment assets and focuses on direct and indirect impacts on submarine archaeological remains.

We disagree with the exclusion of onshore heritage assets at paragraph 14.5.1.4. Given the scale of the proposed development and the potential for cumulative impacts with this and adjacent wind farms, assessment of the impacts of the proposed development on

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

Scottish Charity No. **SC045925**

VAT No. **GB 221 8680 15**



these assets, including A-listed buildings, Inventory Gardens & Designed landscapes, and scheduled monuments, should be included in the Environmental Impact Assessment. If they are excluded after assessment, a written explanation of the process and results of the assessment, and reasons for their exclusion, should be provided.

We are content with the proposed study area for the marine archaeology, as described in paragraph 14.2.1.1. We advise that the list of baseline sources should be broadened for the marine component of the proposal to also include nautical charts and site-specific survey work, as intimated in section 14.8.1 of the scoping report. We welcome that the site surveys will be undertaken in a way that allows for archaeological assessment and analysis, and we would reinforce that it is important that the survey should be designed so that the presence or absence of submerged or semi-submerged paleo landscapes can also be identified, particularly in the intertidal zone.

In due course, if the scheme continues to involve works below MHWS that would also require a marine licence, then we would expect the EIA Report to result in a proposed mitigation strategy for marine assets that builds on the mitigation as set out in paragraph 14.4.1.2 and encompasses the following elements:

- Avoidance of known/identified heritage features using Archaeological Exclusion Zones and a pre-defined buffer;
- Archaeological monitoring of works in the intertidal zone at potentially sensitive landfalls, covered by a Written Scheme of Investigation (WSI);
- Implementation of a Protocol for Archaeological Discoveries (PAD) for works below the low water mark where a watching brief would not be feasible.

### **Further information**

Guidance about national policy can be found in our 'Managing Change in the Historic Environment' series available online at [www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/managing-change-in-the-historic-environment-guidance-notes](http://www.historicenvironment.scot/advice-and-support/planning-and-guidance/legislation-and-guidance/managing-change-in-the-historic-environment-guidance-notes). Technical advice is available on our Technical Conservation website at <https://conservation.historic-scotland.gov.uk/>.

We hope this is helpful. Please don't hesitate to contact us if you have any questions about this response. The officer managing this case is \_\_\_\_\_ and they can be contacted by phone on 0131 668 8710 or by email on \_\_\_\_\_

Yours faithfully

### **Historic Environment Scotland**

## Joint Nature Conservation Committee

**From:**  
**To:** [MS Marine Renewables](#)  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 04 October 2022 13:08:58  
**Attachments:** [image009.png](#)

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Good Afternoon Marc,

Thank you for consulting JNCC on the Caledonia Offshore Wind Farm consultation, which we received on 30/09/2022.

JNCC's role in relation to offshore renewables 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. Where requested by NatureScot, JNCC will provide input into this consultation.

As such JNCC have not reviewed this application and will not be providing further comment.

Please contact me with any questions regarding the above comments.

Kind regards,

*Offshore Industries Advice Officer*

*Marine Management Team*

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

Tel: 01224 083522

Mobile

Email:



[jncc.gov.uk](http://jncc.gov.uk)



**JNCC have been monitoring the outbreak of COVID-19 closely and developed a response plan. As a result, the vast majority of our staff are working from home and adhering to the government's advice on social distancing and travel restrictions. Whilst we are taking these actions we are available for business as usual. We will respond to enquiries as promptly as possible. However, there may be some delays due to the current constraints and we ask for your understanding and patience.**

## Marine Analytical Unit

## Caledonia Offshore Wind Farm

### Marine Analytical Unit Response

This document provides MAU's response to the assessment of social and economic impacts in Ocean Winds' scoping report for the Caledonia Offshore Wind Farm.

We recommend that a full Socio-Economic Impact Assessment be scoped into the Environmental Impact Assessment. MAU have provided further suggestions on doing SEIA in the attached annex.

### Study Area

You have said that the exact location of onshore activity such as ports and harbours has not been decided yet, and so the 'local' study area for socio-economic impacts is defined as 'North Scotland' and includes the local authorities of Aberdeen City, Aberdeenshire, Highland and Moray. This is a large area which stretches to the West Coast and may be too large to enable sufficiently granular analysis for certain types of socio-economic impact.

Four electoral wards are used for defining the impact area for the Tourism and Recreation analysis. However for some analyses North Scotland is still used due to a lack of data at ward level.

Considerations for how to define the impact area are provided in the attached annex.

If you know the locations of onshore activity in time for the assessment, this can be used to inform the definition of the impact area so that it is more refined than currently proposed.

If the specific locations of onshore activity are not known at the time the SEIA is conducted, we suggest the following approach for the analysis:

- 1) Where possible, provide an assessment of the impacts with a breakdown by local authority area as well as grouped together under the "North Scotland" study area for desk based research. If possible it would be helpful to refine the area of impact by setting out the likely/anticipated port location and conduct the analysis based on this refinement.
- 2) Primary data collection will be necessary to obtain data for the analysis using social research methods especially to inform smaller scale impacts. This data can be used alongside the available datasets. Specific locations for this activity and for stakeholder engagement will need to be identified. Advice on how to identify appropriate locations for primary data collection is provided in the annex. A clear rationale for the selected locations should be provided.

- 3) Once the location of onshore activity is known, and impact areas are more accurately defined, it would be helpful to update the impact analysis for all geographic levels being used.

### **Stakeholder engagement**

The stakeholder engagement strategy you have proposed focuses primarily on statutory stakeholders. There is also a commitment to engage with wider stakeholders including affected communities and for this to be an iterative process, which is positive.

We would like further information on:

- The list of stakeholders being considered and how would they be identified/selected.
- Methods for contacting and engaging with these stakeholders, including communities
- At what point/s will you engage with stakeholders and how will this be determined.

Two rounds of in person consultation events have been described in your scoping report. We would like further information on what is involved in each round of events (e.g. how many events will take place in a round), the participatory engagement methods that will be used at these events, and what steps will be taken to maximise participation for different groups and ensure that difficult to reach groups are included.

### **Primary data collection**

It would be helpful to provide details of social research methods that could be used to collect primary data from groups that are likely to be affected. This might include interviews, surveys or focus groups. These could be done alongside or in addition to the participatory engagement. See the attached annex for more information on primary data collection.

### **Baseline**

The report presents a good range of indicators selected to develop the baseline. Our preference would be to have a few more indicators to help understand the impact of the development in the impact area as presented below:

As part of the population and economic activity baseline it would be good to have a breakdown of the qualifications of the population and ideally what change there is to the % of educated people in the impact area, and the change in particular types of qualifications obtained, as in those related to the additional economic activity resulting from the development.

A baseline on income inequality in the area will also be of interest. A breakdown of income by income deciles or a baseline for deprivation (gini coefficient).

In addition to the industrial classification breakdown, it would be good to have a breakdown of the size of the companies within them in order to be able to assess if there is growth in the number of companies in the impact area(s) and what size of companies are thriving as a result of the additional economic activity.

## **Scoping of Impacts**

To ensure potential impacts are correctly identified, it is recommended that stakeholder engagement informs this process. The attached annex provides a list of potential social and economic impacts that may be useful to consider. Both positive and negative impacts should be considered throughout the assessment, including the potential for the development to have negative impacts on other sectors.

### *GVA and Employment Impacts*

The scoping report proposes to scope in employment and GVA impacts during the construction, operation and maintenance, and decommissioning phases of the development. In addition to assessing the years of employment and headcount, it will be important to consider the types of jobs being created (i.e. full time, part time, skilled) and how these jobs compare to existing jobs in the study area (see attached annex for types of employment impacts to consider).

The analysis carried out in the scoping and assessment of the impacts should include the additional indicators suggested in the baseline section.

### *Commercial Fisheries*

In the Commercial Fisheries chapter of the scoping report, a range of impacts are proposed to be scoped in to the EIA, including reduction in access to, or exclusion from established fishing grounds, displacement, and additional steaming to alternative fishing grounds. The knock-on socio-economic impact of these impacts has not been discussed or scoped in to the Socio-economics, Tourism and Recreation chapter.

It is therefore our recommendation that the socio-economic impact of any reduction, displacement or disruption to commercial fisheries across the different stages of the development is scoped into the SEIA. For example, a reduction in access to established fishing grounds may have implications for socio-economic factors such as commercial fishing employment and GVA.

The possible socio-economic impacts on commercial fishing may not be limited to fishing activity that takes place directly within the site, as the development may also impact vessels transiting through. For example, increased steaming times to alternative fishing grounds may have knock-on socio-economic implications for commercial fishers, such as increased fuel costs or changes to working patten, and these should be explored.

### *Social impacts*

We feel that the impacts scoped in are a little narrow. We would like to see an assessment of the wider social impacts associated with the economic impacts identified. For example, what might the social implications be of an increase in

population? This could affect access to services, community cohesion, benefits associated with good quality employment, increased wealth in the area.

Primary data collection will be needed to fully understand social impacts. This can complement any desk based research that is carried out. We would recommend the use of appropriate social research methods such as interviews, focus groups, surveys. The SEIA should include details of the methods used and the rationale for the chosen approach. Please see the attached annex for further information.

### **Other economic considerations**

The report mentions in the transboundary impact section: “The widest study area used in this assessment is the UK. However, the Proposed Development will result in supply chain expenditure abroad, in addition to demand for specialist skills which are not available locally” but there is no consideration of leakage, displacement and substitutions effects within Scotland or the UK in the report. We suggest that in order to assess the net impact of the economic activity that leakage is considered as those impacts taking effect outside of the area of impact, displacement to take account of those impacts offset by reductions elsewhere in the area of impact and substitution effects to take account of firms substituting activities for similar ones. An example of such effects can be found in this feasibility study.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/50267/7\\_Regional\\_Economic\\_Impacts\\_Study.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/50267/7_Regional_Economic_Impacts_Study.pdf)

#### *Other receptor groups*

We would like the assessment to consider how impacts to other receptors covered in other parts of the EIA might have socio-economic consequences. Commercial fisheries have already been mentioned. Visual impacts and Marine Archaeology and Cultural Heritage have been scoped in. These could both also have socio-economic impacts in relation to sense of place or identity, tourist attractions, etc.

### **Scoping Questions**

We are not sure if all the scoping questions are relevant to SEIA but hope that these are covered adequately in the comments above and the attached annex.

*Do you agree with the characterisation of the existing environment?*

More details are needed for the assessment as set out above and in annex below.

*Do you agree that all pathways, receptors and potential impacts have been identified for Socio-economics, tourism and recreation?*

See response above on recommendation to consider wider list of impacts, including socio-economic impacts on commercial fisheries.

*Do you agree with the project impacts which have been scoped out of the EIA Socio-economics, tourism and recreation?*

We think that demographic changes, demand for housing and other services may need to be scoped in. Further details above.

*Do you agree with the proposed approach to assessment?*

See response above on including primary social research for the assessment.

*Do you agree on the suitability of proposed embedded mitigation of relevant to Socio-economics, Tourism and Recreation that have been identified for the Proposed Development?*

It does not appear that any mitigation is yet proposed. The completed SEIA will help to identify if and where any mitigation is needed.

## **Annex 1: General Advice for Socio-Economic Impact Assessment Marine Analytical Unit, December 2022**

This document sets out some suggestions for delivering socio-economic impact assessment drawing on the professional expertise of the Marine Analytical Unit.

### **Section 1. Some general best practice tips**

- Take a proportionate approach to SEIA in line with the size and generating capacity of the development
- Consider offshore and onshore components of the development in the same assessment.
- Employ experts to design and carry out the assessment. The relevant expertise would include:
  - Social research and economist training, qualifications and experience
  - Familiarity and experience with appropriate methods for each discipline (including economic appraisal, social research methods such as surveys, sampling, interviews, focus groups and participatory methods)
- Consider potential secondary socio-economic impacts of any changes that affect the other relevant receptor groups covered in the wider EIA e.g. commercial fisheries, cultural heritage and archaeology and visual impacts.
- Include consideration of the cumulative impact of multiple offshore developments.
- Outline the rationale for scoping out impacts that are deemed to be minimal, including any evidence or analysis that has been used. If this is not provided it can be difficult for MAU to understand why impacts have been scoped out and we may suggest scoping them back in.

### **Section 2. Key components of a Socio-economic Impact Assessment**

We set out below what we consider to be the key steps to an assessment. We recommend a combined approach so that social and economic impacts are covered together in the assessment, whilst acknowledging that different methodologies for social and economic impacts assessment are needed at certain stages, and that the two disciplines are distinct.

We wish to highlight the importance of stakeholder engagement throughout the assessment, and the use of social research methods to gather primary data and first hand perspectives from particular groups and communities that are affected. These are helpful in order to better understand the nature and degree of impacts that might be caused by changes that are expected occur. A change in itself may or may not bring about tangible impact, impacts may vary for different people or be perceived in different ways, are affected by individual values and attitudes, and conditioned by the context.

Stakeholder engagement and data collection can occur at a number of stages in the SEIA process and may involve similar methodologies but there are important differences to note. The primary aims of stakeholder engagement are to inform, consult or involve key stakeholders, and to communicate information and gather

feedback. Data collection, in contrast is a more rigorous analytical process involving:

- Setting out a planned methodology in advance with clear objectives of what you wish to achieve through data collection
- Sampling strategies that take account of the demographic variations in the population and the need to include difficult to reach groups
- Robust methods to collect information from people in a neutral and unbiased way
- Awareness of how data will be analysed and reported on to obtain and disseminate robust conclusions
- Taking account of research ethics including informed consent, and data protection requirements under GDPR

The stages below are divided into the activities that we suggest are **before** the developer submits a request for a scoping opinion and those that are done **after** the scoping phase. We recommend an iterative approach which means that steps inform each other, information is built up over time, and some steps may be repeated or done in a different order.

The key steps should include:

### **Pre-scoping activities**

- 1) **Getting started:** Employ economist and social research experts and work with them to develop a plan for the SEIA that sets out data requirements, and the proposed social and economic data collection and impact assessment methodologies, timescales, any data protection considerations, risk assessment and ethical issues that might arise from the work.
- 2) Develop a **detailed description** of the planned development and consider the project phases where socio-economic impacts might be experienced (covering development, construction, operation and maintenance and decommissioning phases). Start to map out potential socio-economic impacts and initial consideration of areas of impact on land that will need to be covered.
- 3) **Initial scoping of impacts:** develop a broad list of potential impacts informed by experts (including social researcher, economist, local representatives from key groups, community stakeholders and others).
- 4) **Define potential impact areas on land** taking into account locations and connections between activities. Different types of impacts may be experienced at different geographic levels, some in the area nearest the landfall or the nearest coastline to the development at sea, and others much further away (at Scotland level, UK level and internationally). The geographical scale at which social impacts are experienced may be different for social impacts compared with economic impacts. There may be multiple epicentres from which impacts radiate including the site of the development, land-based areas such as landfall and grid connections, construction bases and places from which the development is visible. Activities that take place in the sea are also relevant for defining the impact area on land, for example the location of fishing activity and ports where

fish are landed. The definition of the impact area will inform which communities and which sectors are included in the assessment and vice versa, so this exercise needs to be done iteratively with step 3, the initial scoping of impacts.

- 5) **Stakeholder mapping** is required to identify all the people, groups and stakeholders who may be affected by the development and is a first step in order to conduct effective stakeholder engagement. This exercise is informed by the definition of the impact area. A broad approach is recommended. Stakeholders are likely to include local communities, businesses, workers, other users of the sea, interest groups, community councils and so on.

**Steps 4 and 5 may lead to a change in the list of potential impacts so this will need refined/checked.**

- 6) **Stakeholder engagement (with those affected by the development, sea users, communities etc)** is a key requirement of SEIA that is done at different stages of the process. We recommend doing some initial stakeholder engagement before submitting the scoping report. Stakeholder engagement will fulfil a number of requirements:

- **Provide information about the development** so that those who might be affected are able to make an informed judgement about potential impacts
- **Present and refine list of potential impacts based on feedback** - identify impacts that are most relevant and add any additional ones that are identified
- **Collect initial data/ insights from stakeholders** on what potential socio-economic impacts (to be developed later)
- **Build relationships** with the community and key groups affected for later stages of the SEIA process so that they can understand the decisions making process and how they can influence it.

There are many **participatory methodologies** that can be used for effective stakeholder engagement that provide a deliberative space for community discussions.

This stage may also require the setting up of governance structures and a community liaison officer. **Early engagement** with those who might be affected is very important, as is meaningful and inclusive engagement where people feel that they are being listened to and that their feedback will be acted upon. It is important to set out clearly how stakeholder engagement is being done for the SEIA specifically.

- 7) **Gather contextual information** to develop a social and economic profile of the area prior to the development that will help with setting the baseline and impact prediction, identifying potential industries and communities that might be affected and sources of data that can be used in the assessment. This might include primary data collection using social research methods (such as surveys,

interviews, focus groups) as well as desk based analysis (of existing data sets such as fishing data, population data).

Primary data collection may occur alongside participatory activities (e.g. engagement events) but must be done in a rigorous and systematic fashion and the findings should be robustly analysed and incorporated into the SEIA. Impacts that are identified for the other receptors in the wider EIA may also have socio-economic consequences and so it may be important to include these in the SEIA.

**8) Produce list of anticipated impacts to be covered in the scoping report**

setting out the range of potential impacts that could occur, building on what has already been done using data and insights that have been collected from various activities described above. Details of the methods that have been used should be included to enable Marine Scotland to determine if the analysis is based on a robust and appropriate approach. Justification should be provided for any impacts that are scoped in or out. This could be based on suggestions made by stakeholders and the public during stakeholder engagement or an assessment based on the analysis of primary and secondary data.

It is helpful if the scoping report includes details on the approach to be used for the SEIA including methods for data collection, planned stakeholder engagement activities and data-sets to be used.

**Post scoping activities for the SEIA**

The scoping opinion will advise on the final list of socio-economic impacts to be assessed in the SEIA. This may require additional data collection/ social research to enable a more rigorous assessment of a narrower set of anticipated impacts. It may also require further stakeholder engagement in order to check the significance of impacts with different groups, and the acceptability of mitigation options.

The data and information that has been collected throughout the scoping phase will be used to conduct steps 9, 10 and 11 below.

**9) Conduct baseline analysis** to assess the situation in the absence of the development, to provide a point of comparison against which to predict and monitor change. Appropriate social and economic measures should be used for the baseline and cover relevant issues (see section 4 for suggested data sources). Key stakeholders and other interested parties including affected communities and sectors may be aware of baseline data to be included, and this can be explored in the participatory approaches described above. The findings from social research can also be included in the baseline. Note that baseline data can be presented in the scoping report but is also the first stage of the SEIA and so should be included in the SEIA report.

**10) Predict impacts and assess their significance (otherwise known as impact appraisal or options appraisal):** Through analysis, estimate the social and economic changes and their expected impacts, considering any alternative development options and how significant the impacts might be. This is the core part of the assessment and forms the main part of the assessment report.

Different methodologies and both primary and secondary data inform this part of the exercise.

Different phases of the development should be covered (development, construction, operation and maintenance) and also transitions between phases (if relevant).

The knock on socio-economic consequences of impacts in other parts of the EIA assessment should be assessed here, such as the impact on commercial fisheries, and impacts on related industries such as tourism could also be included.

It is important to consider distribution of impacts among different social groups (covering protected quality characteristics, socio-economic groups and geographic area where relevant to do so).

Economic impact appraisal should include consideration of:

- Direct, indirect and induced impacts
- Leakage, displacement and substitution effects
- Deadweight
- Cumulative impacts
- Sensitivity analysis to account for risk, uncertainty and optimism bias

There are a range of methodologies for calculating direct, indirect and induced impacts. These include the appropriate use of multipliers, a local content methodology, stakeholder involvement and expert opinion.

Modelling approaches should be realistic, based on robust data, and avoid over promising the economic impacts

All prices should be presented in real terms (excluding inflation) and should state which year the prices represent.

## **11) Development enhancement, mitigation strategy and complete SEIA report.**

There may be an opportunity for adaptation or other approaches to mitigate potentially adverse impacts and to maximise positive opportunities. This may include engagement with the community to develop a strategy for enhancing benefits and mitigating against impacts; or development of a Community Benefit Agreement (CBA). Again these activities should be done collaboratively with stakeholders where relevant and appropriate.

The SEIA report should clearly set out the methods used in the assessment, justification for decision made such as scoping certain impacts in or out of the assessment, and the approach to analysis. The report should cover the baseline analysis and results of the impact prediction or appraisal, and distributional impacts. Social and economic impacts can be set out separately (where this makes sense) and together where they overlap.

It is good practice for the report to be reviewed by the people (i.e. the wider group of stakeholders and communities) who were involved in providing data for its production.

### **Section 3. Examples of different types of socio-economic impacts**

In the literature social and economic impacts are defined in many different ways. Sometimes social and economic impacts are covered separately, whilst other sources refer to socio-economic impacts.

The following table sets out some commonly identified socio-economic impacts.

#### **Examples of Socio-economic Impacts from Glasson 2017<sup>1</sup>**

##### **1. Direct economic:**

- GVA
- employment, including employment generation and safeguarding of existing employment;
- characteristics of employment (e.g. skill group);
- labour supply and training; and
- other labour market effects, including wage levels and commuting patterns.

##### **2. Indirect/induced/wider economic/expenditure:**

- employees' retail expenditure (induced);
- linked supply chain to main development (indirect);
- labour market pressures;
- wider multiplier effects;
- effects on existing commercial activities (eg tourism; fisheries);
- effects on development potential of area; and

##### **3. Demographic:**

- changes in population size; temporary and permanent;
- changes in other population characteristics (e.g. family size, income levels, socio-economic groups); and
- settlement patterns

##### **4. Housing:**

- various housing tenure types;
- public and private;
- house prices and rent / accommodation costs;
- homelessness and other housing problems; and
- personal and property rights, displacement and resettlement

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<sup>1</sup> Glasson J (2017a) "Socio-economic impacts 2: Overview and economic impacts" in Therivel R and Wood G (eds.), *Methods of Environmental and Social Impact Assessment*, Abingdon: Routledge

## 5. Other local services:

- public and private sector;
- educational services;
- health services; social support;
- others (e.g. police, fire, recreation, transport); and
- local authority finances

## 6. Socio-cultural:

- lifestyles/quality of life;
- gender issues; family structure;
- social problems (e.g. crime, ill-health, deprivation);
- human rights;
- community stress and conflict; integration, cohesion and alienation; and
- community character or image

## 7. Distributional effects:

Distributional analysis is a term used to describe the assessment of the impact of interventions on different groups in society. Interventions may have different effects on individuals according to their characteristics such as income level or geographical location

- effects on specific groups in society (eg: by virtue of gender, age, religion, language, ethnicity and location); environmental justice

## Section 4: Useful Data Sources for Socio-Economic Impact Assessments

Name	Summary	Link to Source
Statistics.gov.scot	Contains a wide range of data by local authority and other geographic breakdowns. Has a search by subject and area option.	<a href="https://statistics.gov.scot">statistics.gov.scot</a>
Marine Economic Statistics, 2019	Annual economic statistics publication including GVA and employment data for marine economy sectors.	<a href="https://www.gov.scot/Topics/economy/marine-statistics-2019">Scotland's Marine Economic Statistics 2019 - gov.scot (www.gov.scot)</a>
Scottish Sea Fisheries Statistics, 2021	Provides data on the tonnage and value of all landings of sea fish and shellfish by Scottish vessels, all landings into Scotland, the rest of the UK and abroad, and the size and structure of the Scottish	<a href="https://www.gov.scot/Topics/economy/sea-fisheries-statistics-2021">Summary - Scottish Sea Fisheries Statistics 2021 - gov.scot (www.gov.scot)</a>

	fishing fleet and employment on Scottish vessels.	
Scottish Shellfish Farm Production Survey 2021	Statistics on employment, production and value of shellfish from Scottish shellfish farms.	<a href="http://www.gov.scot">Scottish Shellfish Farm Production Survey 2021 - gov.scot (www.gov.scot)</a>
Scottish Annual Business Statistics 2020	Scottish Annual Business Statistics (SABS) presents estimates of employment, turnover, purchases, Gross Value Added and labour costs. Data are provided for businesses that operate in Scotland. Data are classified according to the industry sector, location and ownership of the business.	<a href="http://www.gov.scot">Scottish Annual Business Statistics 2020 - gov.scot (www.gov.scot)</a>
Sub-Scotland Economic Statistics Database	The Sub-Scotland Economic Statistics Database provides economic, business, labour market and population data for Scotland, and areas within Scotland.	<a href="http://www.gov.scot">Sub-Scotland Economic Statistics Database - gov.scot (www.gov.scot)</a>
Nomis Official Labour Market Statistics	Labour market statistics including data on employment, unemployment, qualifications, earnings etc.	<a href="http://nomisweb.co.uk">Nomis - Official Labour Market Statistics (nomisweb.co.uk)</a>
Economics of the UK Fishing Fleet 2020	Economic estimates at UK, home nation and fleet segment level for the UK fishing fleet. The estimates are calculated based on samples of fishing costs and earnings gathered by Seafish as part of the 2020 Annual Fleet Economic Survey.	<a href="#">Economics of the UK Fishing Fleet 2020 — Seafish</a>

Scotland's Census, National Records of Scotland	Census data that provides information about the characteristics of people and households in the country.	<a href="https://www.nrscotland.gov.uk">Scotland's Census   National Records of Scotland (nrscotland.gov.uk)</a>
Scottish Index of Multiple Deprivation	Collection of documents relating to the Scottish Index of Multiple Deprivation - a tool for identifying areas with relatively high levels of deprivation.	<a href="https://www.gov.scot/Scottish-Index-of-Multiple-Deprivation-2020">Scottish Index of Multiple Deprivation 2020 - gov.scot (www.gov.scot)</a>
The Green Book	HM Treasury guidance on how to appraise and evaluation policies, projects and programmes.	<a href="https://www.gov.uk/government/publications/the-green-book">The Green Book: appraisal and evaluation in central government - GOV.UK (www.gov.uk)</a>
The Magenta Book	HM Treasury guidance on evaluation. Chapter 4 provides specific guidance on data collection, data access and data linking.	<a href="https://www.gov.uk/government/publications/the-magenta-book">The Magenta Book - GOV.UK (www.gov.uk)</a>
Enabling a Natural Capital Approach (ENCA)	Supplementary guidance to The Green Book. ENCA resources include data, guidance and tools to help understand natural capital and know how to take it into account.	<a href="https://www.gov.uk/government/publications/enabling-a-natural-capital-approach">Enabling a Natural Capital Approach (ENCA) - GOV.UK (www.gov.uk)</a>

## Section 5: Further sources of guidance:

HM Treasury guidance on how to appraise and evaluate policies, projects and programmes: [The Green Book: appraisal and evaluation in central government](https://www.gov.uk/government/publications/the-green-book)

Best practice in Social Impact Assessment according to the International Association for Impact Assessment: [Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects](https://www.iaia.org/publications/guidance-for-assessing-and-managing-the-social-impacts-of-projects)

The project A two way Conversation with the People of Scotland on the Social Impacts of Offshore Renewables (CORR/5536) has developed elements of a conceptual framework on social values that can be used to support and inform existing processes for assessing the potential social impacts of offshore renewables plans: [Offshore renewables - social impact: two way conversation with the people of Scotland](https://www.gov.uk/government/publications/offshore-renewables-social-impact-two-way-conversation-with-the-people-of-scotland)

Best practice guidance for assessing the socio-economic impacts of OWF developments: [Guidance on assessing the socio-economic impacts of offshore wind farms \(OWFs\)](https://www.gov.uk/government/publications/guidance-on-assessing-the-socio-economic-impacts-of-offshore-wind-farms)

# Marine Scotland Science

T: +44 (0)131 244 2500  
E:

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

**04 November 2022**

**CALEDONIA OFFSHORE WIND FARM - SCOTWIND NE4 SITE, MORAY FIRTH - SCOPING CONSULTATION**

Marine Scotland Science (MSS) have reviewed the relevant documentation and have provided the following comments.

**Commercial fisheries**

MSS advise that all potential impacts have been identified in relation to commercial fisheries and agree with the potential impacts that have been scoped in and scoped out of the EIA.

MSS advise that 2021 fisheries data are now available and these should be used in the EIA.

MSS advise that depending on the findings from the commercial fisheries assessment in the EIA, commercial fisheries pre-construction, during construction and post-construction monitoring should be considered as a method of validating the assumptions made within the EIA.

Hopefully these comments are helpful to you.

Yours sincerely,

**Renewable Energy Environmental Advice group**  
Marine Scotland Science

Maritime Coastguard Agency



Maritime &  
Coastguard  
Agency

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105 Commercial Road  
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[www.gov.uk/mca](http://www.gov.uk/mca)

**Marc MacFarlane**

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26 October 2022

Dear Mr MacFarlane

**REQUEST FOR SCOPING OPINION FOR PROPOSED SECTION 36 AND MARINE LICENCE APPLICATIONS FOR THE CALEDONIA OFFSHORE WIND FARM LIMITED- SCOTWIND- NE4 SITE, MORAY FIRTH- UNDER THE EIA REGULATIONS.**

The MCA has reviewed the scoping report provided by Ocean Winds Ltd on the Caledonia offshore wind farm, as detailed in your email dated 30<sup>th</sup> September 2022 and we would comment as follows:

The Environmental Statement should supply detail on the possible impact on navigational issues for both commercial and recreational craft, specifically:

- Collision Risk
- Navigational Safety
- Visual intrusion and noise
- Risk Management and Emergency response
- Marking and lighting of site and information to mariners
- Effect on small craft navigational and communication equipment
- The risk to drifting recreational craft in adverse weather or tidal conditions
- The likely squeeze of small craft into the routes of larger commercial vessels.

The development area carries a significant amount of through traffic to major ports, with a number of important shipping routes in close proximity, and attention needs to be paid to routing, particularly in heavy weather ensuring shipping can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects on shipping routes should also be considered, the impact on navigable sea room and include an appropriate assessment of the distances between wind farm boundaries and shipping routes as per MGN 654.

A Navigational Risk Assessment will need to be submitted in accordance with MGN 654 and the MCA Methodology for Assessing the Marine Navigation Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI). This NRA should be accompanied by a detailed MGN 654 Checklist which can be found at <https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping>

I note, in paragraph 13.8.1.1 that vessel traffic surveys will be undertaken to the standard of MGN 654 i.e. at least 28 days which is to include seasonal data (two x 14-day surveys) collected from a

vessel-based survey using AIS, radar and visual observations to capture all vessels navigating in the study area, and we note this survey will be conducted within 2-years of application submission.

The turbine layout design will require MCA approval prior to construction to minimise the risks to surface vessels, including rescue boats, and Search and Rescue aircraft operating within the site. Any additional navigation safety and/or Search and Rescue requirements, as per MGN 654 Annex 5, will be agreed at the approval stage. There is a reference to MGN-543 Search and Rescue Annex 5 in the section 13.4.1.2 M-27. Kindly note, this document is now replaced with *MGN-654 Annex 5- Offshore Renewable Energy Installations: Requirements, guidance and operational considerations for SAR and Emergency Response*.

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. If cable protection measures are required e.g. rock bags or concrete mattresses, the MCA would be willing to accept a 5% reduction in surrounding depths referenced to Chart Datum. This will be particularly relevant where depths are decreasing towards shore and potential impacts on navigable water increase, such as at the HDD location.

Under Section 13.4.1.2 - M-31 regulatory mooring expectations is identified as a potential mitigation for floating infrastructure, and I can confirm this guidance should be followed and that a Third-Party Verification of mooring arrangements will be required. Also identified in 13.4.1.2 M-30 is the IALA recommendations O-139 Marking of Man-Made Offshore Structures, however this was replaced by G1162 ED1.0 The Marking of Man-Made Offshore Structures.

Particular consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response Co-operation Plans (ERCoP). 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. A SAR Checklist will also need to be completed in consultation with MCA.

MGN 654 Annex 4 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. Failure to report the survey or conduct it to Order 1a might invalidate the Navigational Risk Assessment if it was deemed not fit for purpose.

It is noted that HVAC transmission infrastructure maybe installed. If HVDC is being considered, consideration must be given to electromagnetic deviation on ships' compasses. The MCA would be willing to accept a three-degree deviation for 95% of the cable route. For the remaining 5% of the cable route no more than five degrees will be attained. The MCA would however expect a deviation survey post the cable being laid; this will confirm conformity with the consent condition. The developer should then provide this data to UKHO via a hydrographic note (H102), as they may want a precautionary notation on the appropriate Admiralty Charts.

Paragraph 13.9.1.1 Table 13.4 asks some scoping questions to which our responses are as follows:

- *Do you agree with the data sources, including project specific surveys, to be used to characterise the Shipping and Navigation baseline within the NRA and the Offshore EIA?*

Yes

- *Do you agree that all potential impacts (hazards and associated risks) have been identified for Shipping and Navigation?*

The full list of risk controls will be identified during the NRA process of consultation with navigation stakeholders and hazard analysis.

- *Do you agree with the project impacts (hazards and associated risks) which have been scoped out of the EIA for Shipping and Navigation?*

As per above

- *Do you agree that cumulative impacts and transboundary impacts (hazards and associated risks) for Shipping and Navigation may be scoped out of the Offshore EIA?*

We believe the cumulative and transboundary impacts (specific to shipping and navigation) should be a part of the EIA process and should be addressed in the NRA and offshore EIA.

- *Do you agree with the proposed approach to assessment?*

Yes.

- *Do you agree on the suitability of proposed embedded mitigation of relevance to Shipping and Navigation that have been identified for the Proposed Development?*

The full list of risk controls and associated mitigation measures will be identified during the NRA process of consultation with navigation stakeholders and hazard analysis. However, as previously stated M-27 refers to MGN-543 Annex 5 which is superseded by MGN-654 Annex 5. M-30 refers to IALA O-139 which is superseded by G1162.

On the understanding that the Shipping and Navigation aspects are undertaken in accordance with MGN 654, its annexes and the above comments, MCA is likely to be content with the approach.

Yours sincerely,

[Redacted]

Navigation Policy Advisor  
UK Technical Services Navigation

Ministry of Defence



Defence  
Infrastructure  
Organisation

Safeguarding Manager  
Ministry of Defence  
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Marc MacFarlane  
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18 November 2022

Dear Marc,

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**  
**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2007**  
**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017**  
**(Collectively referred to as the "EIA Regulations").**

**Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth.**

Thank you for consulting the Ministry of Defence (MOD) on the above detailed Scoping Opinion request in respect of the Caledonia Offshore Wind Farm development. Consultation correspondence was received by this office on 30 September 2022.

The development will comprise of up to 150 wind turbines, up to 350m in height (to blade tip) that will be located in the Moray Firth off the northeast coast of Scotland. In addition to the turbine structures there will be up to 6 associated Offshore Substation Platforms (OSP), inter-array cables, up to 6 offshore export cables, as well as scour materials and cable protection. The onshore components of the project will be subject to a separate application.

I write to confirm the safeguarding position of the MOD with respect to the Scoping Report that has been submitted (Caledonia Offshore Wind Farm Offshore Scoping Report dated 14 September 2022, Reference: UKCAL1-ARP-GEN-ENV-RPT-00001 Rev: 005).

The MOD has assessed the location and scale of the offshore element of the development scheme proposed, including the proposed cable route to make landfall.

The use of airspace in the vicinity of the proposed development for defence purposes has been appropriately identified. The Scoping Report highlights some of the aviation and radar systems that may be affected by the proposed wind farm receptor in Chapter 15 Military and Civil Aviation of the Scoping Report and Section 15.1.1.3 identifies the MOD as a relevant aviation stakeholder.

Wind turbine development has the potential to affect, and be detectable by, radar systems and can have a significant and detrimental impact on the capability and operation of such systems. In Section 15.2.1.1 the developer appropriately identifies the potential impacts of wind turbines upon ground-based aviation surveillance radars for air traffic control as well as MOD air defence radars and the need to account for any such impacts. In Section 15.3.2.24 the developer acknowledges that the Primary Surveillance Radar at RAF Lossiemouth is nearest to the offshore array and that most of the array area will be Radar Line of Sight. The applicant should take into account that, at present, there are two primary surveillance air traffic control radars at RAF Lossiemouth. The impact of the development on these radars should be considered as the design is progressed and any impact will need to be mitigated, it will be for the applicant to provide appropriate technical mitigation(s).

Furthermore, the presence of the precision approach radar at RAF Lossiemouth has not been identified. The potential impacts of the proposed wind farm upon the effective operation of these types of radars will also need to be taken into account.

Similarly, the effect of the development on Air Defence Radar (ADR) is acknowledged in Section 15.3.2.25 which identifies the context of the application site relative to Remote Radar Head (RRH) Buchan. The impact of the development on this radar should be considered as the design is progressed.

The applicant has appropriately recognised that the proposed development may have impacts upon military low flying activities that may be conducted in the area and upon military aircraft using Danger Area D809 South. The applicant has identified the necessity for the proposed offshore turbines to be fitted with aviation lighting. In implementing this, the applicant will need to ensure that MOD's lighting needs are accounted for.

The principal development zone for the offshore windfarm outlined in the submission will be located within MOD Danger Area D809 South. The extent of MOD Practise and Exercise Areas in the locality have been accurately identified in the scoping report (ref. Section 15.2.3.1) and the need to take account of defence activities has also been recognised. However, it will be necessary for defence maritime navigational interests to be specifically taken into account in the preparation of any application for this development proposal. The eastern extent of the development zone, in which offshore turbine structures are to be located, extends over an area containing a highly surveyed route that is retained to maintain national defence requirements. To prevent this route from being obstructed it will be necessary to ensure that any wind turbines or other offshore structures (including associated offshore safety zones) deployed within the project boundary defined are not located eastward of a line connecting the points 58° 22.171N 002° 38.83W and 58° 07.171N 002° 19.00W.

In progressing this development proposal, the applicant should also take into account the effects that vessels, barges, platforms and associated traffic that will be present during the construction of the proposed windfarm and the associated offshore infrastructure may have upon the military training activities that can be conducted in Danger Area 809 South. Therefore, the applicant should make provision to ensure that the MOD is given advance notification of the schedule of marine works and activities to install the proposed development so that that this can be taken into account in the management of defence activities and interests.

The MOD therefore has concerns with the proposed development of the Caledonia Offshore Wind Farm due to the impact upon the PSR and PAR at RAF Lossiemouth, the ADR at RRH Buchan, and defence maritime navigational interests. These need to be taken in to account in the progression of this development proposal. The MOD wishes to be consulted on all subsequent submissions relating to this proposed development.

I trust this adequately explains our position on this matter.

Yours sincerely,

[Redacted]

Safeguarding Manager

## Moray Council

**From:**  
**To:** [MS Marine Renewables](#)  
**Cc:**  
**Subject:** Moray council reference 22/01436/S36SCO - Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Response -  
**Date:** 25 November 2022 10:33:24

---

Good morning,

**22/01436/S36SCO - Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping**

Apologies for the delay in responding.

We note that the proposed development area is some distance offshore from the Moray Coast, and that the energy transmission infrastructure is proposed to make landfall entirely within Aberdeenshire. On this basis the only comment we would have is a request that in preparing photomontages and night-time lighting photo montages that one viewpoint be selected from within Moray, such as from Cullen viaduct or some other coastal viewpoint at the eastern side of Moray just to give a better understanding of the distances and degree of impact anticipated (or lack thereof).

Regards,

| Principal Planning Officer | Development Management Planning

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| [website](#) | [facebook](#) | [twitter](#) | [newsdesk](#)

Working pattern - Mon to Friday (except Thurs PM)



Moray East

**From:**  
**To:** [MS Marine Renewables](#)  
**Cc:**  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 01 November 2022 09:20:26  
**Attachments:** [image001.png](#)

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Good morning Marc,

Apologies for the delay in replying to your email.

I can confirm Moray East Offshore Wind Farm have reviewed the Scoping Report and at this stage we have no objections, comments or request for any clarifications.

Many thanks,

Consents and Environmental Compliance Associate

Phone:

Email:

Moray West 1



Marc MacFarlane  
Marine Scotland  
Marine Planning & Policy  
Scottish Government Marine Laboratory  
375 Victoria Road  
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AB11 9DB

27 October 2022

**Re: EIA Scoping Report - Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth**

Dear Marc

Thank you for the invitation to respond to the consultation on the above EIA Scoping Report.

Moray West Offshore Windfarm (West) Limited welcomes the development of the proposed Caledonia Offshore Windfarm.

Ocean Winds' common interest in Moray West, Moray East and Caledonia will provide opportunities for co-operation on a range of matters, in particular when Caledonia is operational.

It could allow consideration of matters such as co-ordinated procurement, where scale may allow greater local advantage to be taken of the opportunities created, through existence of a larger, and therefore lower risk market, which will encourage local supply chain investment.

Similar arguments of scale can be applied to skills development and training; the establishment of the Moray Firth as an offshore wind hub will result in greater opportunities for upskilling and specialisation, making the Firth home to a staff specialist in the skills needed to operate and maintain offshore wind facilities.

The concentration of generating capacity in the Moray Firth with a common Ocean Winds interest will also create the potential for consideration of a new control facilities centre for the generation infrastructure.

We therefore look forward to the development of Caledonia Offshore Windfarm, and the publication of its Environmental Impact Report.

Yours sincerely,

[Redacted]

EPCI Director

For and on behalf of Moray Offshore Windfarm (West) Limited

Moray West 2

**From:**  
**To:** [MS Marine Renewables](#)  
**Cc:**  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 28 October 2022 11:32:06  
**Attachments:** [image003.png](#)

---

Hello,

Due to a potential conflict of interest with consultancy services being undertaken with other ScotWind sites in the vicinity I am unable to comment at this time. As such I will respond with a "nil return"

Thank you for your consideration,

**Senior Marine Mammal Consultant  
Industry and Renewables UK**

I'm #MadeByDyslexia – expect curious ideas & curious spelling.

*Please note that our working culture allows staff to work at times which suit their circumstances. If this email arrives outside of your own working hours, please do not respond until you would normally do so.*

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Please consider the environment - do you need to print this e-mail?

# Mountaineering Scotland

By email to: [ms.marinerenewables@gov.scot](mailto:ms.marinerenewables@gov.scot)

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

17 October 2022

Dear Sir/Madam

**Caledonia Offshore Wind Farm – ScotWind NE4 Site, Moray Firth**

Thank you for the opportunity to comment on the EIA Scoping Report for the proposed Caledonia Offshore Wind Farm.

Mountaineering Scotland is a membership organisation with more than 15,000 members and is the only recognised representative organisation for hill walkers, climbers, mountaineers and ski-tourers who live in Scotland or who enjoy Scotland's mountains. We represent, support and promote Scottish mountaineering, and provide training and information to mountain users for safety, self-reliance and the enjoyment of our mountain environment.

Our interests in this project lie with any potential effects of power export cable landfall locations on recreational climbing routes on the coastal cliffs. The relevant part of the Report for this is Chapter 17 Socio-economics, Tourism and Recreation.

We note that the Report indicates that onshore elements will be considered as part of the Onshore Scoping Report, however, surfing has been considered in Table 17.7 and we wish to bring to your attention the popular sea cliff climbing routes on this part of the coast.

There are three separate documented climbing venues within the Search Area of potential cable landfall: Redhythe Point, west of Portsoy, NGR NJ 575671; Tarlair, east of Macduff, NGR NJ 721647; and Mull Cleave, east of Macduff, NGR NJ 736647.

Details of these venues can be found in the climbing guide North-East Outcrops, published by the Scottish Mountaineering Club: <https://www.smc.org.uk/publications/climbing/north-east-outcrops>

Climbing here is conducted informally by individuals and small groups and there is not an established climbing club for these locations.

We request that Marine Scotland ensure sea cliff climbing interests are taken into account as a Tourism and Recreation receptor and especially when cable landfall locations are considered.

We will be happy to advise if further information is required.

Yours sincerely

[Redacted]

**Access & Conservation Officer  
Mountaineering Scotland**

T: [Redacted]

E: [access@mountaineering.scot](mailto:access@mountaineering.scot)



# National Air Traffic Services

**From:**  
**To:** [MS Marine Renewables](#)  
**Cc:**  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022 [SG33685]  
**Date:** 03 October 2022 13:09:28  
**Attachments:** [image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)  
[image007.png](#)  
[image008.png](#)  
[SG33685 Caledonia Offshore Wind Farm - TOPA Issue 2.pdf](#)

---

Our Ref: SG33685

Dear Sir/Madam

We refer to the application above. The proposed development has been examined by our technical safeguarding teams and conflicts with our safeguarding criteria.

Accordingly, NATS (En Route) plc **objects to the proposal**. The reasons for NATS's objection are outlined in the attached report TOPA SG33685.

We would like to take this opportunity to draw your attention to the legal obligation of local authorities to consult NATS before granting planning permission. The obligation to consult arises in respect of certain applications that would affect a technical site operated by or on behalf of NATS (such sites being identified by safeguarding plans that are issued to local planning authorities).

In the event that any recommendations made by NATS are not accepted, local authorities are obliged to follow the relevant directions within Planning Circular 2 2003 - Scottish Planning Series: Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003 or Annex 1 - The Town And Country Planning (Safeguarded Aerodromes, Technical Sites And Military Explosives Storage Areas) Direction 2002.

These directions require that the planning authority notify both NATS and the Civil Aviation Authority ("CAA") of their intention. As this further notification is intended to allow the CAA to consider whether further scrutiny is required, the notification should be provided prior to any granting of permission.

It should also be noted that the failure to consult NATS, or to take into account NATS's comments when determining a planning application, could cause serious safety risks for air traffic.

Should you have any queries, please contact us using the details below.

Yours faithfully

**NATS**

**NATS Safeguarding**

E: [natssafeguarding@nats.co.uk](mailto:natssafeguarding@nats.co.uk)

4000 Parkway, Whiteley,

Fareham, Hants PO15 7FL

[www.nats.co.uk](http://www.nats.co.uk)



# Technical and Operational Assessment (TOPA)

For Caledonia Offshore  
Wind Farm Development

NATS ref: SG3685

Issue 2

## Contents

1.	Background	4
1.1.	En-route Consultation	4
1.2.	Airport Consultation	4
2.	Scope	5
3.	Application Details	6
4.	Assessments Required	8
4.1.	En-route RADAR Technical Assessment	8
4.1.1.	Predicted Impact on Alanshill RADAR	8
4.1.2.	En-route operational assessment of RADAR impact	8
4.2.	En-route Navigational Aid Assessment	9
4.2.1.	Predicted Impact on Navigation Aids	9
4.3.	En-route Radio Communication Assessment	9
4.3.1.	Predicted Impact on the Radio Communications Infrastructure	9
4.4.	Airport Assessment – Aberdeen Airport ATC	9
4.4.1.	Airport Technical Assessment	9
4.4.2.	Airport Operational Assessment	9
5.	Conclusions	9
5.1.	En-route/Airport Consultation	9

## Publication History

Issue	Month/Year	Change Requests and summary
1	August 2022	Combined Pre-Planning Assessment
2	October 2022	Planning Assessment

## Document Use

External use: Yes

## Referenced Documents

# 1. Background

## 1.1. En-route Consultation

NATS en-route plc is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility it has a comprehensive infrastructure of RADAR's, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a wind farm.

In this respect NATS is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control (ATC).

In order to discharge this responsibility NATS is a statutory consultee for all wind farm applications, and as such assesses the potential impact of every proposed development in the UK.

The technical assessment sections of this document define the assessments carried out against the development proposed in section 3.

## 1.2. Airport Consultation

NATS provides air traffic services at most of the UK's major airports. Included in the service that NATS provides to these airports is technical and operational safeguarding.

Whilst the airport owner or operator remains the statutory planning consultee, NATS carries out the assessment and provides technical advice to the airport. This includes making a recommendation on whether to object or not to a planned development.

The Airport Assessment section of this document details any advice NATS would provide to relevant airports.

Please note that where airport consultation is undertaken, any assessment and any statements made refer exclusively to the impact of wind turbines upon the Air Traffic Control infrastructure and only to airports where NATS provides safeguarding services namely Aberdeen, Cardiff, Glasgow, Heathrow, Stansted, Manchester and Southampton.

An airport operator may object on other aviation grounds such as obstacle clearance despite no impact being anticipated on its ATC infrastructure. If in doubt, the airport operator should be consulted for advice.

## 2. Scope

This report provides NATS En-Route plc's view on the proposed application in respect of the impact upon its own operations and in respect of the application details contained within this report.

Where an impact is also anticipated on users of a shared asset (e.g. a NATS RADAR used by airports or other customers), additional relevant information may be included for information only. While an endeavour is made to give an insight in respect of any impact on other aviation stakeholders, it should be noted that this is outside of NATS' statutory obligations and that any engagement in respect of planning objections or mitigation should be had with the relevant stakeholder, although NATS as the asset owner may assist where possible.

### 3. Application Details

Marine Renewables Scotland (Scottish Government) submitted a request for a NATS technical and operational assessment (TOPA) for the development at Caledonia Offshore Wind Farm. It will comprise turbines as detailed in Table 1 and contained within an area as shown in the diagrams contained in Appendix B.

Turbine	Lat	Long	East	North	Hub (m)	Tip (m)
1	58.0121	-2.4240	375047	902619	195	350
2	58.0377	-2.4443	373862	905478	195	350
3	58.0310	-2.4106	375847	904721	195	350
4	58.0699	-2.4985	370690	909093	195	350
5	58.0633	-2.4648	372676	908337	195	350
6	58.0566	-2.4310	374662	907580	195	350
7	58.0499	-2.3973	376648	906824	195	350
8	58.0955	-2.5190	369505	911952	195	350
9	58.0889	-2.4852	371491	911196	195	350
10	58.0822	-2.4514	373477	910439	195	350
11	58.0755	-2.4177	375463	909682	195	350
12	58.0688	-2.3839	377449	908926	195	350
13	58.1211	-2.5394	368320	914811	195	350
14	58.1145	-2.5056	370306	914054	195	350
15	58.1078	-2.4718	372292	913298	195	350
16	58.1011	-2.4381	374277	912541	195	350
17	58.0945	-2.4043	376264	911786	195	350
18	58.0878	-2.3705	378250	911029	195	350
19	58.1401	-2.5261	369121	916913	195	350
20	58.1334	-2.4923	371107	916157	195	350
21	58.1267	-2.4585	373093	915400	195	350
22	58.1201	-2.4247	375079	914645	195	350
23	58.1134	-2.3909	377065	913888	195	350
24	58.1067	-2.3571	379051	913132	195	350
25	58.1590	-2.5128	369922	919016	195	350
26	58.1523	-2.4790	371908	918260	195	350
27	58.1457	-2.4451	373894	917504	195	350
28	58.1390	-2.4113	375879	916747	195	350
29	58.1323	-2.3775	377865	915991	195	350
30	58.1256	-2.3438	379851	915234	195	350
31	58.1846	-2.5333	368737	921875	195	350
32	58.1779	-2.4995	370722	921119	195	350
33	58.1713	-2.4656	372708	920363	195	350
34	58.1646	-2.4318	374694	919606	195	350
35	58.1579	-2.3979	376680	918850	195	350
36	58.1512	-2.3641	378666	918094	195	350
37	58.1445	-2.3303	380652	917338	195	350
38	58.2035	-2.5200	369537	923978	195	350
39	58.1969	-2.4861	371523	923222	195	350
40	58.1902	-2.4522	373510	922465	195	350
41	58.1835	-2.4184	375496	921709	195	350
42	58.1769	-2.3845	377482	920953	195	350

43	58.1702	-2.3507	379467	920196	195	350
44	58.1634	-2.3169	381453	919440	195	350
45	58.2291	-2.5405	368353	926837	195	350
46	58.2225	-2.5066	370339	926081	195	350
47	58.2158	-2.4727	372325	925324	195	350
48	58.2091	-2.4389	374310	924569	195	350
49	58.2025	-2.4050	376296	923812	195	350
50	58.1958	-2.3711	378282	923055	195	350
51	58.1891	-2.3373	380268	922299	195	350
52	58.1824	-2.3034	382254	921542	195	350
53	58.2481	-2.5272	369153	928940	195	350
54	58.2414	-2.4933	371139	928183	195	350
55	58.2348	-2.4593	373125	927428	195	350
56	58.2281	-2.4254	375111	926671	195	350
57	58.2214	-2.3916	377097	925914	195	350
58	58.2147	-2.3577	379083	925158	195	350
59	58.2869	-2.6157	363996	933312	195	350
60	58.2803	-2.5817	365982	932555	195	350
61	58.2737	-2.5478	367968	931799	195	350
62	58.2670	-2.5138	369954	931043	195	350
63	58.2604	-2.4799	371940	930287	195	350
64	58.2537	-2.4459	373926	929530	195	350
65	58.2470	-2.4120	375911	928773	195	350
66	58.3191	-2.6704	360825	936928	195	350
67	58.3125	-2.6364	362811	936171	195	350
68	58.3059	-2.6024	364797	935414	195	350
69	58.2926	-2.5344	368770	933902	195	350
70	58.2860	-2.5004	370755	933146	195	350
71	58.2793	-2.4665	372741	932389	195	350
72	58.3447	-2.6911	359641	939787	195	350
73	58.3381	-2.6571	361627	939030	195	350
74	58.3315	-2.6230	363613	938273	195	350
75	58.3248	-2.5890	365598	937518	195	350
76	58.3182	-2.5550	367584	936761	195	350
77	58.3116	-2.5210	369570	936005	195	350
78	58.3571	-2.6437	362427	941132	195	350
79	58.3504	-2.6097	364413	940377	195	350
80	58.3760	-2.6304	363228	943236	195	350

Table 1 – Turbine Details

## 4. Assessments Required

The proposed development falls within the assessment area of the following systems:

En-route Surv	Lat	Long	nm	km	Az (deg)	Type
Alanshill Radar	57.6431	-2.1655	23.7	43.9	343.6	CMB
Perwinnes Radar	57.2123	-2.1309	49.0	90.8	349.6	CMB
En-route Nav	Lat	Long	nm	km	Az (deg)	Type
None						
En-route AGA	Lat	Long	nm	km	Az (deg)	Type
None						

**Table 2 – Impacted Infrastructure**

### 4.1. En-route RADAR Technical Assessment

#### 4.1.1. Predicted Impact on Alanshill RADAR

Using the theory as described in Appendix A and development specific propagation profile it has been determined that the terrain screening available will not adequately attenuate the signal, and therefore this development is likely to cause false primary plots to be generated. A reduction in the RADAR's probability of detection, for real aircraft, is also anticipated.

#### 4.1.2. En-route operational assessment of RADAR impact

Where an assessment reveals a technical impact on a specific NATS' RADAR, the users of that RADAR are consulted to ascertain whether the anticipated impact is acceptable to their operations or not.

Unit or role	Comment
Prestwick ATC	<b>Unacceptable</b>
Aberdeen Offshore ATC	<b>Unacceptable</b>
Military ATC	<b>Unacceptable</b>

*Note: The technical impact, as detailed above, has also been passed to non-NATS users of the affected RADAR, this may have included other planning consultees such as the MOD or other airports. Should these users consider the impact to be unacceptable it is expected that they will contact the planning authority directly to raise their concerns.*

## 4.2. En-route Navigational Aid Assessment

### 4.2.1. Predicted Impact on Navigation Aids

No impact is anticipated on NATS' navigation aids.

## 4.3. En-route Radio Communication Assessment

### 4.3.1. Predicted Impact on the Radio Communications Infrastructure

No impact is anticipated on NATS' radio communications infrastructure.

## 4.4. Airport Assessment – Aberdeen Airport ATC

### 4.4.1. Airport Technical Assessment

The Alanshill radar is also used by Aberdeen approach and therefore the technical impact as described in section 4.1.1. also applies to Aberdeen Airport operations.

### 4.4.2. Airport Operational Assessment

The planned development is **unacceptable** due to the amount of primary clutter that it is predicted to show. This area is frequented by offshore helicopters and inbound fixed wing aircraft from the North West.

## 5. Conclusions

### 5.1. En-route/Airport Consultation

The proposed development has been examined by technical and operational safeguarding teams. A technical impact is anticipated, this has been deemed to be **unacceptable** from both an en-route and Airport perspective.

## Appendix A – Background RADAR Theory

### Primary RADAR False Plots

When RADAR transmits a pulse of energy with a power of  $P_t$  the power density,  $P$ , at a range of  $r$  is given by the equation:

$$P = \frac{G_t P_t}{4\pi r^2}$$

Where  $G_t$  is the gain of the RADAR's antenna in the direction in question.

If an object at this point in space has a RADAR cross section of  $\sigma$ , this can be treated as if the object re-radiates the pulse with a gain of  $\sigma$  and therefore the power density of the reflected signal at the RADAR is given by the equation:

$$P_a = \frac{\sigma P}{4\pi r^2} = \frac{\sigma G_t P_t}{(4\pi)^2 r^4}$$

The RADAR's ability to collect this power and feed it to its receiver is a function of its antenna's effective area,  $A_e$ , and is given by the equation:

$$P_r = P_a A_e = \frac{P_a G_r \lambda^2}{4\pi} = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4}$$

Where  $G_r$  is the RADAR antenna's receive gain in the direction of the object and  $\lambda$  is the RADAR's wavelength.

In a real world environment this equation must be augmented to include losses due to a variety of factors both internal to the RADAR system as well as external losses due to terrain and atmospheric absorption.

For simplicity these losses are generally combined in a single variable  $L$

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r^4 L}$$

## Secondary RADAR Reflections

When modelling the impact on SSR the probability that an indirect signal reflected from a wind turbine has the signal strength to be confused for a real interrogation or reply can be determined from a similar equation:

$$P_r = \frac{\sigma G_t G_r \lambda^2 P_t}{(4\pi)^3 r_t^2 r_r^2 L}$$

Where  $r_t$  and  $r_r$  are the range from RADAR-to-turbine and turbine-to-aircraft respectively. This equation can be rearranged to give the radius from the turbine within which an aircraft must be for reflections to become a problem.

$$r_r = \sqrt{\frac{\lambda^2}{(4\pi)^3}} \sqrt{\frac{\sigma G_t G_t P_t}{r_t^2 P_r L}}$$

## Shadowing

When turbines lie directly between a RADAR and an aircraft not only do they have the potential to absorb or deflect, enough power such that the signal is of insufficient level to be detected on arrival.

It is also possible that azimuth determination, whether this done via sliding window or monopulse, can be distorted giving rise to inaccurate position reporting.

## Terrain and Propagation Modelling

All terrain and propagation modelling is carried out by a software tool called ICS Telecom (version 11.1.7). All calculations of propagation losses are carried out with ICS Telecom configured to use the ITU-R 526 propagation model.

Appendix B – Diagrams

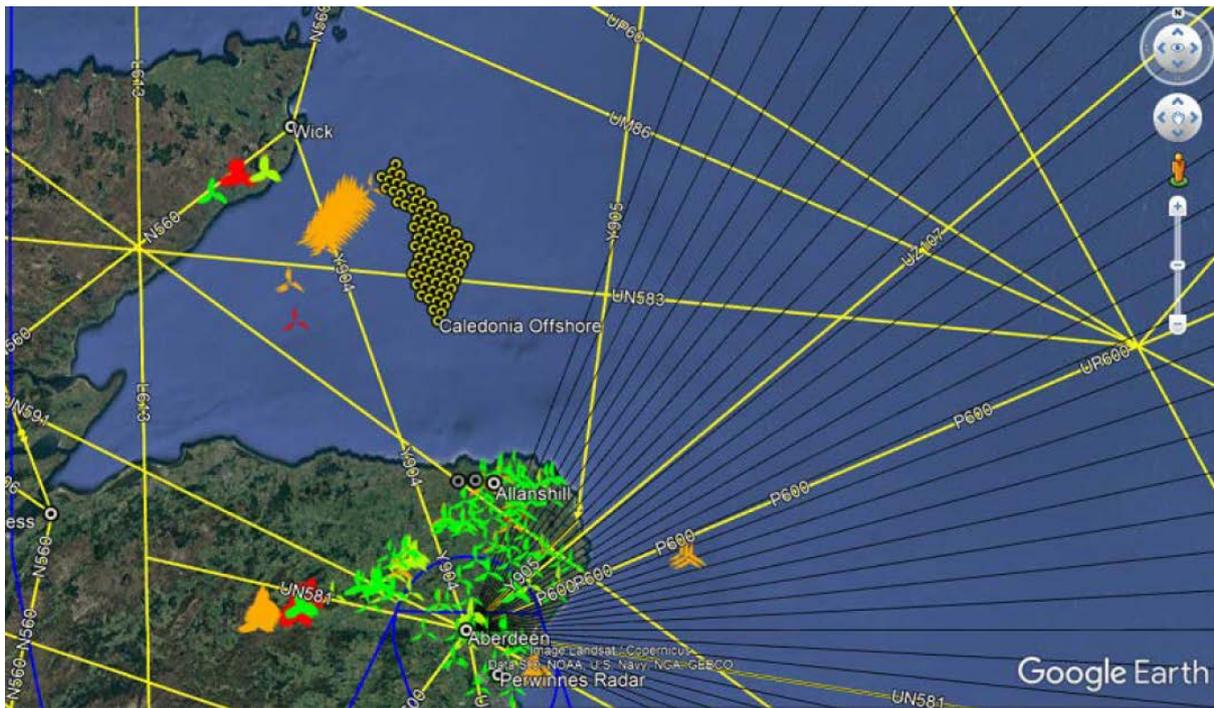


Figure 1: Proposed development location shown on an airways chart



Figure 2: Proposed development shown alongside other recently assessed applications

- consented/built
- impact –accepted
- impact –objection
- mitigated
- mitigation –proposed
- no impact
- refused/withdrawn

NatureScot

Marc MacFarlane  
Marine Scotland – Licensing Operations Team  
Marine Laboratory  
PO Box 101  
375 Victoria Road  
Aberdeen  
AB11 9DB

04 November 2022

Our ref:  
CNS/REN/OSWF/CALEDONIA – NE4  
– PRE-APPLICATION

Dear Marc

## **NATURESCOT ADVICE ON THE SCOPING REPORT AND HRA SCREENING REPORT FOR THE CALEDONIA OFFSHORE WIND FARM**

Thank you for your consultation on the 30<sup>th</sup> September and the 5<sup>th</sup> October 2022 for the scoping report and Habitats Regulations Appraisal (HRA) screening report for the Caledonia offshore wind farm (NE4), and for agreeing to extend the response deadline.

Our advice on the natural heritage interests to be addressed within the Environmental Impact Assessment Report (EIA Report) and HRA is outlined below. Please note that the advice contained within this letter is in relation to the offshore infrastructure (seawards of MHWS) only. A separate scoping report will be submitted for the onshore part of the project.

### **Policy context**

We are currently facing two crises, that of climate change and biodiversity loss and as the Scottish Government's adviser on nature, our work seeks to inspire, enthuse and influence others to manage our natural resources sustainably.

NatureScot works in support of the Scottish Government's vision for an energy sector that delivers secure, affordable and clean energy for Scotland<sup>1</sup>. We provide advice in the spirit of Scotland's National Marine Plan<sup>2</sup> which balances the promotion of the sustainable development of offshore wind, whilst protecting our biodiversity and taking account of seascapes, landscapes and visual impacts. We also recognise that this proposal is a lease awarded through the ScotWind process and identified in the Sectoral Marine Plan for Offshore Wind.

---

<sup>1</sup> Scottish Government Energy Strategy 2017: <https://www.gov.scot/Publications/2017/12/5661/3>

<sup>2</sup> Scotland's National Marine Plan: <https://www.gov.scot/Publications/2015/03/6517>

## **Proposal**

The proposal includes a project design envelope approach, comprising:

- Up to 150 wind turbines, with an indicative split of 111 fixed and 39 floating foundations.
- A maximum blade tip height of 350m above MSL and a minimum blade tip clearance of 35m above MSL.
- An installed capacity of 2 GW with an indicative split of 75% fixed and 25% floating.
- Wind turbine foundations currently being considered are: fixed (monopile; fully restrained platform (FRP); jacket with pin piles; jacket with suction caissons; gravity based structure (GBS)) and floating (semi-submersible; tension leg platform).
- Up to six Offshore Substation Platforms with jacket with pin piles, jacket with suction caissons, monopile and GBS currently under consideration.
- Up to 720 km of inter-array cables and five interconnector cables with a total length of up to 135 km.
- Up to six export cables, with an indicative total cable length of 610 km.
- Multiple landfall locations are being considered along the Aberdeenshire coast between Sandend and Macduff, with techniques proposed for installation including horizontal directional drilling, open-cut trench and rock-pinning, or a combination of each method.

## **Content of the Scoping Report**

The scoping report provides a broad level of detail on the project design parameters. There is a lack of detail regarding the construction and operational phases, and the assessment methods, including how data will be analysed and the determination of significance. We note that baseline characterisation surveys (e.g. digital aerial surveys) are ongoing, but no preliminary results have been provided in the scoping report to better inform key species, impact pathways and resulting impact assessments.

Information on impact assessment methods and tools is predominantly high level and will require ongoing engagement throughout the post-scoping opinion/pre-application period to discuss and agree methods. This is particularly relevant as no scoping workshops were held for this project. We had hoped that the process of having scoping workshops, and resultant discussions, would inform the scoping request and result in less post scoping opinion engagement.

This lack of detail means that our advice is not as detailed, project-specific and thus as informative as it could have been. Furthermore, the broad project design envelope and high level scoping report means that the realistic worst case scenario required for assessment and determination is not clear. This may result in an increased degree of uncertainty about the potential environmental effects that could arise as a result of this development.

It is noted that the design will evolve from scoping to post-consent, but it isn't clear from the information provided that this process will be sufficiently advanced by the time the EIA and HRA assessments are being undertaken to inform robust assessments and thus determination.

## **Assessment approach**

The EIA Report should consider the impact of all phases of the proposed development on the receiving environment, including effects from pre-construction activities as well as the construction, operation and maintenance and decommissioning phases. Increasingly, there is a need to understand potential impacts holistically at a wider ecosystem scale in addition to the standard set of discrete individual receptor assessments. This assessment should focus on potential impacts across key trophic levels particularly in relation to the availability of prey species. This will enable a better understanding of the consequences (positive or negative) of any

potential changes in prey distribution and abundance from the development of the wind farm on seabird and marine mammal (and other top predator) interests and what influence this may have on population level impacts.

Wet storage could represent a very significant impact pathway with respect to floating wind. It is unclear from the scoping report if there are any plans for wet storage of assembled floating turbines in the construction, and operation and maintenance phases, and what this would entail or potential locations identified. Consideration of wet storage, including potential impacts on receptors, needs to be addressed with the EIA and HRA.

The impact of climate change effects should be considered, both in future proofing the project design and how certain climate stressors may work in combination with potential effects from the proposed wind farm. The EIA Report should also consider the carbon cost of the wind farm (including supply chain) and to what extent this is offset through the production of green energy.

In addition to the climate change assessments mentioned in the scoping report, we advise that a blue carbon assessment is undertaken. This should expand on the information and assessment conducted for benthic ecology to focus on the potential impacts of the proposed development on marine sediments.

### **Habitats Regulations Appraisal (HRA)**

We welcome the opportunity on being consulted on the scoping report and HRA screening report at the same time, and combining our advice in a single response. We provide HRA advice for ornithology, marine mammals, benthic ecology and migratory fish in each of the relevant appendices (please see below).

The proposed development area is likely to be important for foraging marine birds from multiple SPAs. Potential in-combination impacts on key marine bird species will be an important consideration for the proposed development.

### **NE4 – high ornithological constraint**

The Sectoral Marine Plan for Offshore Wind identifies NE4, where Caledonia is proposed, as being subject to 'higher levels of ornithological constraint' and 'require that sufficient scientific evidence, which reduces the level of risk to an acceptable level, is made available'. The plan also notes that 'this may, therefore, delay the progression of licence and consent determinations.....until such time that further evidence, research and knowledge around mitigation is available to support decision-making in this region'.

Identifying scientific evidence and reducing the level of risk to an acceptable level will be a crucial part of the assessment process. Development in this location is likely to also require the consideration / submission of a derogation package under the Habitats Regulations with identification of suitable compensation measures as well as evidence of meeting all the required tests.

### **Mitigation**

We have some concerns about the approach taken with respect to mitigation within the scoping report. Much of the embedded mitigation detailed throughout includes the development and adherence to post consent plans/programmes, which don't strictly constitute mitigation. The EIA Report must clearly articulate those mitigation measures which are informed by the EIA (or HRA)

and are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development.

### **Moray Firth Regional Advisory Group**

Considering the location of the proposed development, and the developers' involvement with Moray East and Moray West offshore wind farms, there may be merit in the developer joining the Moray Firth Regional Advisory Group.

### **Positive Effects for Biodiversity / Biodiversity Gain**

We recommend the consideration of Positive Effects for Biodiversity / Biodiversity Gain at an early stage and can provide further information if required, noting that this is not currently a requirement of Scottish policy.

### **Natural heritage interests to be considered**

We refer you to our advice as detailed below within receptor-specific technical appendices for key natural heritage interests to be considered in the EIA Report and HRA:

- Advice on ornithological interests is provided in **Appendix A**.
- Advice on marine mammal interests is provided in **Appendix B**.
- Advice on seascape, landscape and visual impact assessment (SLVIA) is provided in **Appendix C**.
- Advice on benthic interests is provided in **Appendix D**.
- Advice on fish and shellfish interests is provided in **Appendix E**.
- Advice on marine and coastal processes is provided in **Appendix F**.

We will continue to engage with Caledonia Offshore Wind Farm Ltd and have sought to identify within each Appendix where there is the need for further discussion to refine and agree assessment methods.

### **Further information and advice**

NatureScot can provide further advice on natural heritage interests, at appropriate stages, as work is undertaken by the applicant in support of their final submission. Please note I will be shortly be leaving NatureScot to take up another position, and so in the interim until a new caseworker is appointed to this case please contact Erica Knott ([erica.knott@nature.scot](mailto:erica.knott@nature.scot)) and our marine energy mailbox – [marineenergy@nature.scot](mailto:marineenergy@nature.scot) - in the first instance for any further advice.

Yours sincerely,

Marine Sustainability Advisor, Sustainable Coasts and Seas

## **NATURESCOT ADVICE ON THE SCOPING REPORT AND HRA SCREENING REPORT FOR THE CALEDONIA OFFSHORE WIND FARM**

### **APPENDIX A - ORNITHOLOGICAL INTERESTS**

Ornithological interests are considered in *Chapter 10* of the Scoping Report and we have responded to the scoping questions raised within our advice below.

#### **Key data sets and sources**

Generally, we accept and support the data sources listed. However, the report suggests that data from post consent monitoring will be used to inform baseline characterisation. The data sources presented are regionally relevant to the present proposal. However, some caution needs to be applied with consideration to data that exceeds 5 years, particularly in the context of the recent outbreak of Avian Influenza. This data should be treated as context only and should not be used to determine baseline characterisation. Additional advice pertaining to this is provided on site specific surveys below.

#### **Site specific surveys**

The report states (Section 10.8.1.1) that “Site specific digital aerial surveys are currently being undertaken (between May 2021 and April 2023) covering the array area plus a 4 km buffer.”

We would have anticipated seeing at least preliminary, data from the initial 12 months of these surveys (i.e. up to and including May 2022) being presented in this scoping report to support baseline characterisation, with published sources and data from other OWF projects being used to a) provide wider context for the area surveyed; and b) indicate potential ornithological interest across the offshore Export Cable Corridor (ECC).

The 4 km buffer is acceptable, although note we have not yet seen an interim survey report showing species present.

The report states (Section 10.8.3.7) that the proposed approach to baseline characterisation will be undertaken using a combination of the site-specific digital aerial survey data as well as data from other Moray Firth development surveys including Moray East OWF pre-construction surveys and Moray West OWF EIA Report data. However, there is no description of the proposed analyses of the DAS survey data or how additional data from other Moray Firth OWF will be dealt with and incorporated into baseline characterisation. Furthermore, the implications will be very dependent on the DAS survey design and the survey designs for previous OWF projects (transects detailed at Figure 10.2) e.g. boat based survey design.

We require further detail of how they intend to analyse the site specific DAS and how they plan to combine datasets for baseline characterisation.

#### **Pathways receptors and potential impacts**

In general terms the standard pathways of collision, disturbance, displacement and barrier effects have been captured (Table 10.4, p.193).

With respect to project definition, we are concerned that wet storage aspects are scoped out of the EIA and are inadequately captured. Wet storage could represent a very significant impact pathway with respect to floating wind. However, the only mention of wet storage is in Table 10.4

where both displacement and collision risk from wet storage are scoped out. It is unclear from the project description if there are any plans for wet storage of assembled floating turbines during the construction phase, what this would entail or potential locations identified. Wet storage might also presumably be required for floating turbine maintenance operations, but this is not mentioned in the document. Consideration of impacts of wet storage on bird receptors is required.

The report states in Table 10.4 that barrier effects are scoped out. We disagree that they should be scoping out barrier effects from the assessment. However, we accept that this can be hard to separate from displacement and we agree that these can both be dealt with together in the assessment.

Indirect impacts from accidental pollution during construction are scoped out. We agree that this can be scoped out of the ornithology specific assessment assuming that it is dealt with within the relevant EIA chapter.

Operational disturbance and displacement within the ECC is scoped out (Table 10.4). However, we note that the ECC overlaps with the Moray Firth SPA. The report states that operational impacts would be highly localised and episodic. In general, we accept that impacts arising from operational phase within the ECC is likely to be limited. However, due to the overlap with the SPA, and potential disturbance from cable maintenance and vessel movement associated with the operational phase within the ECC, there is a likely significant effect with the qualifying species of the Moray Firth SPA.

With respect to nocturnal species, impacts of lighting on ornithological receptors is not considered sufficiently. There is no mention of the potential effects of lighting attraction with respect to species such as European storm petrels, Leach's storm-petrels and Manx shearwaters. This should be recognised as presenting additional potential risk to these species; in particular attraction to turbine lighting and/or lighting on vessels could impact assessment of both displacement and collision risk. We recognise at this point that this can only be assessed qualitatively.

### **'Important Ornithological Features'**

In general the species listed as 'Important Ornithological Features' is what might be expected for this area. However, the method for defining this list is not provided and the report scopes out some species at this early stage. (See HRA advice below for further detail regarding species.)

On p.182, 183, 184, fulmar, kittiwake, guillemot, razorbill, puffin, herring gull, lesser black-backed gull, great black-backed gull, gannet, great skua and Arctic tern are identified as the "key species" as defined by presence in surveys of adjacent OWFs. While this seems broadly appropriate, we are concerned this does not use site specific data from the development site. The report goes on to state on p. 184 for sooty shearwater, Manx shearwater, European storm petrel, Leach's storm petrel, pomarine skua, long-tailed skua, black headed gull, common gull, Iceland gull, Sandwich tern, common tern and black guillemot that "due to being recorded in such low numbers/ and or low sensitivity to potential impacts these species are not considered as important ornithological features".

This assertion is based on historic data from neighbouring sites (see Table 10.1) rather than recent data from site specific surveys for this development. Our concern is that this data is limited in temporal coverage and/ or aging. For example, the most recent data provided from Moray East

OWF pre-construction aerial survey report in 2018 only surveyed between May and July. Additionally, the report does not share counts of each of these species so it is unclear what constitutes 'low numbers' of each of these species. We require two years of site specific surveys before any species can be scoped out of further consideration. The site-specific surveys should be used to define species presence within the project area with any additional data as context only.

With respect to nocturnal species (i.e. Manx shearwater, European storm petrel, Leach's storm petrel) we advise that another important consideration at this site will be degree of confidence, or otherwise, in likelihood and ability of DAS to detect petrels. Alternative sources relating to nocturnal species distributions should also be used to consider the likelihood of these species presence within the project area (e.g. Waggitt *et al.*, 2020) and any available tracking data.

There is a list of key sites provided in section 10.3.2.11. There is no description for the methods for defining these sites, or justification for their inclusion, so interpretation of this list is difficult. Several of these sites are also listed in the HRA screening report, but the list here is shorter, missing several of the sites scoped into the HRA. We advise that key sites to take forward will be those sites that have theoretical connectivity and an impact pathway, so we would expect this list to include several additional sites as per the HRA and our advice on HRA screening below.

### **Proposed approach to assessment**

We outline below our advice with respect to assessment methodologies to be used for those key impact pathways as discussed above. Overall, we are content with the approach outlined in section 10.8 of the scoping report for impact assessment.

NatureScot guidance on seasonal definition for birds in the Scottish marine environment should be used for breeding and non-breeding season definitions<sup>3</sup>. Note that our guidance has been replicated in the report (Table 10.3) as species specific 'bio-seasons'. To avoid confusion, and for consistency, we recommend the use of seasons rather than 'bio-seasons'. It is unclear what the adaptation of our guidance in the table is presenting (for instance, it is unclear what the different widths mean). We advise that seasonal definitions retain the months for clarity. We do not recommend adapting our guidance.

### ***Barrier/ displacement***

The report states an intention to use the SNCB (2017)<sup>4</sup> matrix method approach for assessing displacement and mortality rates for each species. We advise that the SeabORD tool should be used in their barrier/ displacement assessment during the breeding season for Atlantic puffin, common guillemot, razorbill and black-legged kittiwake.

Regarding the use of SeabORD, we advise the following:

- SeabORD can currently be undertaken for the chick-rearing period. Other periods of the year require the use of the matrix approach.
- SeabORD can be run both with and without site-specific tracking data. The two key parts of this are the forage site selection and prey availability.
- The forage site selection method uses either distance decay (where tracking data are not available) or the tool can be used to create a map where these data are available.

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<sup>3</sup> <https://www.nature.scot/doc/guidance-note-seasonal-definitions-birds-scottish-marine-environment>

<sup>4</sup> [Joint SNCB Interim Displacement Advice Note \(jncc.gov.uk\)](https://www.jncc.gov.uk/info/1/203/12122/joint-sncb-interim-displacement-advice-note)

- The prey distribution can either be a uniform distribution or when the “map” option is selected, data can be uploaded (as described in the user guide) to create a heterogeneous distribution.

All other species require an alternative assessment using the matrix approach. If it is possible to undertake a bespoke Individual Based Model (IBM) (e.g. if there is sufficient data) this would require agreement with NatureScot and Marine Scotland.

For species where SeabORD should be used in the breeding season, the matrix approach should be undertaken during the non-breeding season. For the non-breeding season, population sizes should be derived from the zones determined by the BDMPS Report (Furness, 2015). The exception to this being guillemot where the population and impacts should be based on an assessment area derived from the breeding season foraging range (Buckingham *et al.*, 2022).

#### *Displacement rates*

For displacement assessments we advocate adoption of a range of mortality figures, including consideration of potential seasonal differences. We advise the following values for auks (guillemots, razorbills and puffins), gannet and kittiwake as per Table 1 below:

*Table 1: Displacement and mortality ranges to be used in impact assessments*

	Displacement rate	Mortality rate (breeding season)	Mortality rate (non-breeding season)
Auks (Guillemot, razorbill and puffin)	60%	3% and 5%	1% and 3%
Gannet	70%	1% and 3%	1% and 3%
Kittiwake	30%	1% and 3%	1% and 3%

Additionally, a correction factor of 0.67 must be applied for large auks (guillemot and razorbill) for converting individual counts to breeding pairs for use in SeabORD, see Harris *et al.* (2015) for further details.

#### **Collision risk**

We note and support the intention to use the stochastic Collision Risk Model (sCRM) App developed by Masden (2015) to assess collision risk (10.8.3.8). The report also states that it will be run deterministically. We accept the use of deterministic CRM but advise that the stochastic models should also be presented.

The report states that they will use option 2 and 3 of the basic and extended Band (2012)<sup>5</sup> models which is in line with our guidance. They make reference to generic flight height and distributions from Johnston *et al.* (2014a; 2014b) which is appropriate. For flight speed, we rely on published data (i.e. Pennycuick 1997; Alerstam *et al.* 2007), however we recognise ‘in the field’ measurements are contributing to new evidence so would welcome further discussion on appropriate, evidence-based values to be used, in consultation with Marine Scotland.

#### *Avoidance rates*

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<sup>5</sup> Band collision risk model, guidance and model spreadsheets - <https://www.bto.org/our-science/wetland-and-marine/soss/projects>

We are currently advising that the SNCB guidance (2014)<sup>6</sup> on avoidance rates should be used with a standard deviation of +/- 2. For species where there are no agreed avoidance rates, we recommend use of 98% as default. Where there are terrestrial estimates based on the species in question those rates should be used. Any deviations from this advice will require clear justification and evidence and be presented in conjunction with advised approaches.

#### *Presentation of outputs*

Outputs from each model should be supplied in full as appendices with input parameters stored. There is not as yet a standard approach for sCRM output reports, but as a minimum, presentation of results should be accompanied by input values used. Where tables are used, column titles should be standardised as far as possible to allow comparisons to be made where this is appropriate.

#### *Strategic collision risk*

Potential collision risk to migratory species should be assessed qualitatively with reference to the survey results and the Marine Scotland commissioned strategic level report (Marine Scotland, 2014)<sup>7</sup>. To note, Marine Scotland are also in the process of commissioning an updated strategic review of migratory routes via ScotMER. This update should be used if available within assessment timescales.

#### **Apportioning**

In order to consider any population consequences arising from displacement and estimated collisions, the overall impacts will need to be apportioned by season, between SPAs and across age classes.

Age class apportioning should be based on stable age population models. For half months the collisions calculated for that month should be split equally between breeding and non-breeding period. In respect of sabbaticals, we recommend that all adults recorded during survey work are considered as breeding adults. This is a precautionary assumption and it may be possible to refine it, depending on the choice and structure of population models. For the breeding season, we recommend apportioning between adults and immatures on the basis of developers site-specific survey work.

#### *Breeding season*

The Marine Scotland apportioning tool (Butler *et al.* 2020<sup>8</sup>) should be used for guillemot, razorbill and kittiwake (and shag, if required). For all other species that require detailed consideration in the assessment we advise use of our (2018) interim guidance<sup>9</sup>.

#### *Non-breeding season*

The BDMPS Report (Furness, 2015) should be used for species where the majority of birds are wintering elsewhere rather than in the northern North Sea. Further discussion will be needed to

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<sup>6</sup> <https://www.nature.scot/sncb-position-note-avoidance-rates-use-collision-risk-modelling>

<sup>7</sup> Marine Scotland strategic CRM, report available from: <http://www.gov.scot/Resource/0046/00461026.pdf>

<sup>8</sup> Butler, A., Carroll, M., Searle, K., Bolton, M., Waggitt, J., Evans, P., Rehfish, M., Goddard, B., Brewer, M., Burthe, S. and Daunt, F. 2020. Attributing seabirds at sea to appropriate breeding colonies and populations (CR/2015/18). Scottish Marine and Freshwater Science Vol 11 No 8, 140pp. <https://data.marine.gov.scot/dataset/attributing-seabirds-sea-appropriate-breeding-colonies-and-populations-cr201518>

<sup>9</sup> NatureScot (SNH) guidance on apportioning breeding season impacts - <https://www.nature.scot/interim-guidance-apportioning-impacts-marine-renewable-developments-breeding-seabird-populations>

finalise the approach, with respect to birds who largely remain in the northern North Sea during the non-breeding season, but at present if non-breeding season assessment of displacement of guillemot is required, then we would wish to see the non-breeding season population defined in terms of the mean maximum foraging range (Woodward *et al.* 2019)<sup>10</sup>.

### **Population consequences (PVA)**

In general the process detailed for PVA in section 10.8.3.16 is appropriate with the following exceptions and additions.

We note and support the intention to use the NE PVA tool<sup>11</sup>. We request that the modelling of impacts is undertaken over two set time periods; 25 years and 50 years due to increased uncertainty in interpreting outputs from model predictions further than 25 years ahead which necessitates a more cautious approach to their interpretation. No recovery period should be applied to either model run. Impacts should be applied to all ages in agreement with the age apportioning approach, and sabbatical rates of adult birds should be taken into account. The report notes an intention to operate the model at a 40 year time span (the operational lifespan of the proposed development, paragraph 10.8.3.16). This can be run in addition to the models run at 25 and 50 years.

We advise the two ratio metrics<sup>12</sup> which are generally termed ‘Counterfactual (ratio) of final population size’ and ‘Counterfactual (ratio) of population growth-rate’ should be presented. The report intends to use density independent models as a more precautionary approach (section 10.8.3.17), which is considered suitable.

Initial population sizes inputted into PVAs for the biogeographic scale are intended to be taken from Furness (2015). For productivity values Horswill and Robinson (2015) are intended to be used as well as for survival rates for gannet, kittiwake, guillemot, razorbill and puffin. The report proposes that survival rates for great black-backed gull will be taken as for herring gull as presented in Horswill and Robinson (2015), due to the age of the underlying data in the review. In general we support the intention to use these data sources, with the following addition regarding great black-backed gull. Juvenile herring gull survival rate should be used for juvenile great black-backed gull and then an ‘average survival for juvenile and adult herring gull for immature great black-backed gull.

### **Cumulative impacts**

We note and support the intention to use the Cumulative Effects Framework (CEF) tool<sup>13</sup>. Prior to completing the cumulative assessment NatureScot and Marine Scotland should be consulted with the proposed list.

### **Breeding season**

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<sup>10</sup> Woodward, I., Thaxter, C.B., Owen, E., and Cook, A.S.C.P. 2019. Desk-based revision of seabird foraging ranges used for HRA screening. BTO research report number 724

<sup>11</sup> Searle, K., Mobbs, D., Daunt, F. & Butler, A. 2019. A Population Viability Analysis Modelling Tool for Seabird Species. Natural England Commissioned Reports, Number 274.

<http://publications.naturalengland.org.uk/publication/4926995073073152> also see [https://github.com/naturalengland/Seabird\\_PVA\\_Tool](https://github.com/naturalengland/Seabird_PVA_Tool)

<sup>12</sup> Cook, A.S.C.P. & Robinson, R.A. 2016. Testing sensitivity of metrics of seabird population response to offshore wind farm effects. JNCC Report No. 553. JNCC, Peterborough.

<sup>13</sup> <https://www.ceh.ac.uk/our-science/projects/cumulative-effects-framework-key-ecological-receptors>

For the breeding season, the cumulative assessment should consider effects from projects within mean-max foraging range of the colony SPA under consideration, based on Woodward *et al.* (2019) with species specific caveats (see Annex 1).

#### *Non-breeding season*

Cumulative assessment in the non-breeding season should include all relevant developments within the region defined for the species, either by BDMPS or other agreed approach.

#### **Mitigation and monitoring**

Where significant impact pathways have been identified, we advise that the full range of mitigation techniques and published guidance is considered and discussed in the EIA Report.

In general the embedded mitigation (detailed at 10.4.1.2) looks appropriate. However, we would advise that a wet storage plan is included within the embedded mitigation, and that operational maintenance activities are included within the vessel management plan as per above.

#### **Transboundary impacts**

Further discussion will be required regarding transboundary / cross-border impacts. It is likely that impacts will occur to seabird populations that breed outside Scotland as well as to wintering water birds that originate outside the UK.

#### **Highly Pathogenic Avian Influenza (HPAI)**

The scoping report makes no mention of the recent outbreak of HPAI. We acknowledge that HPAI is an ongoing mortality event and at this point it is challenging to quantify impacts on populations. However, a qualitative assessment of this proposal in light of HPAI should be presented in the EIA.

NatureScot are developing advice on the HPAI impacts.

#### **HRA screening report**

The overall conclusions as to which sites should be screened in for further consideration following the second stage can mostly be supported on basis of potential connectivity and generic impact pathways. However, not all associated commentaries on individual species are correct.

#### ***Impact pathways***

The HRA screening takes into consideration key impact pathways. However, impacts arising from wet storage have not been sufficiently addressed in the HRA screening report and requires further assessment of the potential impacts.

#### ***Connectivity and identification of key sites for breeding seabirds***

The use of mean maximum plus 1 S.D. foraging ranges from Woodward *et al.* (2019) is broadly correct. However, we advise some exceptions to this with respect to gannets, guillemots and razorbills (see Annex 1). This will be relevant to several sites currently scoped in, including Forth Islands SPA, Fowlsheugh SPA, Buchan Ness to Collieston Coast SPA.

Shag is scoped out for further assessment for Moray Firth SPA. Despite its relatively low risk of displacement and collision, given the proximity to the site and the lack of any assessment with respect to wet storage, we advise that there remains a potential for LSE.

Sandwich tern at Ythan Estuary SPA is within connectivity to the offshore ECC. The impacts during construction phase within the ECC therefore require further consideration for this species.

In addition, there are several omissions on the basis of incorrect application of the foraging range for Leach's petrel. The foraging range advised for this species is the mean foraging range of 657 km (Woodward *et al.* 2019). Therefore, the following SPAs are within theoretical connectivity and should be scoped into the long list of SPAs to be taken forward:

- North Rona and Sula Sgeir SPA
- Foula SPA
- Flannan Isles SPA
- Sule Skerry and Sule Stack SPA
- St Kilda SPA
- Ramna stacks and Gruney SPA

Additionally several SPAs have been scoped out on the sole basis that the SPA is located on the west coast of the UK. For example, see Appendix A – Rum SPA, p. 69 - which states “This SPA is located on the west coast of the UK. It is unlikely to resolve in meaningful connectivity with the array due to the distance required to travel around land. LSE can therefore be discounted”. We disagree with this statement. The scoping process for HRA requires that all species within theoretical connectivity are scoped in for further consideration – taking into account at sea connectivity distances.

As a result the following species and sites must be considered to have LSE:

- Handa SPA for Great skua, Fulmar and Kittiwake, Guillemot and Razorbill
- Preist Island (Summer Isles) SPA for Storm Petrel
- Shiant Isles SPA for Kittiwake, Fulmar and Puffin
- Rum SPA for Manx shearwater
- Canna and Sanday SPA for Kittiwake and Puffin
- Flannan Isles SPA for Kittiwake, Fulmar and Leach's Petrel
- Treshnish Isles SPA for Storm petrel
- Mingulay and Berneray SPA for Fulmar
- St Kilda SPA for Gannet, Fulmar, Manx shearwater, Great skua, and Leach's petrel

### ***Connectivity and identification of key sites for migratory birds (non-seabirds)***

The HRA scopes out barrier effects on migratory birds but scopes in collision impacts. This is broadly appropriate.

The list of SPAs scoped in for non-migratory birds which present a collision risk also seems generally appropriate, although are perhaps missing some SPAs.

With the exception of those sites in closest proximity to the development, several sites for migratory species have been scoped out of the report based on the statement that “These non-breeding features are unlikely to have non-breeding season connectivity with Caledonia due to their migratory path or proximity to the array”. This does not provide clear justification for which

species are within migratory pathways and this statement is not verified by the references provided (with a few exceptions).

We would have like to see reference to bird migration pathways as presented in WWT and McArthur Green (2014). We recommend seeking an update on the ongoing migratory collision risk project from Marine Scotland. If this is published in time it should be used within the assessment.

### ***Transboundary impacts***

Transboundary sites scoped in include two sites in England, Coquet Island SPA and Flamborough and Filey Coast SPA for Fulmar.

However, several have been scoped out on the basis that they are on the west coast and, therefore, have no connectivity. For an example see page 150 of the screening report - Appendix A. We disagree with this approach and advise that the following sites have connectivity and potential impact pathways and should therefore be considered to have LSE.

- Rathlin island SPA for Fulmar
- Copelin Islands SPA for Manx shearwater
- Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast SPA and Bardsey Island SPA for Manx shearwater
- Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA for Manx shearwater
- Isles of Scilly SPA for Fulmar and Manx shearwater

### **Climate change**

We recommend that climate sensitivity information is incorporated qualitatively within the assessment for key species (to be determined after LSE stage) where the information on their current population trend is included. This climate information can explicitly specify if the species is considered to be sensitive to climate change and what the latest population predications are, i.e. referencing MARPAMM or CEH modelling, Johnston *et al.* 2013<sup>14</sup>, and Searle *et al.* 2022<sup>15</sup>. This can provide context for considering the projection of the population trend.

### ***In-combination impacts***

Please see advice above on cumulative impacts.

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<sup>14</sup> Johnston, A., Ausden, M., Dodd, A. et al. Observed and predicted effects of climate change on species abundance in protected areas. *Nature Clim Change* 3, 1055–1061 (2013) <https://doi.org/10.1038/nclimate2035>

<sup>15</sup> <https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2022/06/study-examine-impact-climate-change-seabird-species-east-coast-scotland-potential-implications-environmental-assessments/documents/study-examine-impact-climate-change-seabird-species-east-coast-scotland-potential-implications-environmental-assessments/study-examine-impact-climate-change-seabird-species-east-coast-scotland-potential-implications-environmental-assessments/govscot%3Adocument/study-examine-impact-climate-change-seabird-species-east-coast-scotland-potential-implications-environmental-assessments.pdf>

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## Annex 1: variations to standard approach to establishing connectivity

This is a summary of key information contained in following draft Guidance Notes:

### 2a - Ornithology / Marine Birds - Identifying Theoretical Connectivity for Breeding Seabird Foraging Ranges and Special Protection Areas

We advise mean max + 1SD from Woodward et al (2019) should be used to screen in connectivity to colony SPAs with the following exceptions:

1. Tracking on Fair Isle showed foraging distances are greater than those of all other colonies for both common **guillemot and razorbill**. This may relate to poor prey availability during the study. However, trends for seabirds in the Northern Isles indicate this may be becoming a more frequent occurrence. We therefore recommend for common guillemot and razorbill:
  - Use of mean max+1SD, including data from Fair Isle for all **Northern Isles** designated sites.
  - For all designated sites south of the Pentland Firth (i.e. excluding the Northern Isles) use of mean max+1SD discounting Fair Isle values.
  
2. **For gannet** we recommend using mean max +1SD for all colonies without site specific maximum values. However, for the SPA colonies where site specific evidence exceeds this value (509.4km), namely:
  - Forth Islands (Bass Rock),
  - Grassholm and
  - St Kilda
 - then the site specific maximum should also be used.
  
3. For species with insufficient data to calculate mean max +1SD then the closest metric is to be used in the following order of preference:
  - Mean Max (MM),
  - Max,
  - Mean.

Specifically, the exceptions for gannet, guillemot and razorbill are:

Species	Exception Applied	Recommended Foraging Range (km)	Metric
Northern gannet	Forth Islands SPA	590	Max
	Grassholm SPA	516.7	Max
	St Kilda SPA	709	Max
Common guillemot	All Northern Isles SPAs	153.7	MM+SD
Razorbill	All Northern Isles SPAs	164.6	MM+SD

## NATURESCOT ADVICE ON THE SCOPING REPORT AND HRA SCREENING REPORT FOR THE CALEDONIA OFFSHORE WIND FARM

### APPENDIX B – MARINE MAMMALS

Marine mammal interests are considered in *Chapter 11* of the Scoping Report and we have responded to the scoping questions raised within our advice below.

#### Study area

We are content with the description of the study area, which will depend on species ecology, behaviour and life history.

#### Baseline characterisation

We agree with the listed data sources, and do not have any others to add.

Project-specific digital aerial surveys (DAS) are currently underway. In other areas, we have requested developers to consider the use of PAM to supplement DAS. However, in this case, we consider it unnecessary to include baseline PAM surveys in addition to the DAS, given the extensive acoustic survey work already undertaken in this region.

We advise using the UK portion of the Management Unit (MU) as the reference population, rather than the full MU for assessment under EIA. The full MUs as detailed are large areas, and in most cases too large for a meaningful impact at the local level. Local level is important for consideration due to its contribution to favourable conservation status (FCS). This is a pragmatic view, as it is unrealistic to consider local impacts against UK wide seas. Therefore, where appropriate, the assessment should also look at smaller units to provide a regional context, e.g. SCANS survey blocks.

Note that in section 11.3.2.25, the report states that basking sharks are EPS. This is incorrect. They may be assessed in a similar way to cetaceans (EPS), but they are not EPS themselves. Basking shark are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

We advise that any potential impacts on the minke whale feature of the Southern Trench NCMPA should be fully assessed within the EIA Report especially regarding the export cable corridor route.

#### Potential impacts

In most cases, we consider that the correct pathways, receptors and potential impacts have been identified. However, there are some we do not agree with:

- Potential impacts from electromagnetic fields (EMF) should be scoped in, at this stage, for both cetaceans and basking sharks, particularly for floating turbines with dynamic cables. There is still a lot of uncertainty around how EMF from cables in the water column will interact with these species, and with their prey.
- As the proposal is for a mix of fixed and floating turbines, we advise that operational noise for both types should be scoped in. In addition, the Fully Restrained Platform<sup>16</sup> design is

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<sup>16</sup> One of the options considered for fixed foundations is the fully restrained platform (FRP), consisting of a monopole with mooring lines and piled anchors, and a transition piece. The scoping reports states that this is an 'innovative

one that we have not seen before, and we do not know the potential for noise produced by this design (e.g. the mooring cables may act similarly to floating turbine cables in producing strumming noises). Recent Marine Scotland advice has required operational noise from fixed foundations specifically for minke whale to be monitored. We anticipate the operational noise of the development should be assessed, which will include the mix of foundation types.

- Indirect entanglement is being scoped in for floating turbines only. We consider that this could also be an issue for the Fully Restrained Platform design which uses mooring chain or rope.

### **Approach to assessment**

We agree with the approach to assessment.

### **Cumulative impacts**

The approach to cumulative impacts assessment for marine mammal interests for HRA, EIA and EPS licensing requirements will also require agreement in advance of submission of the application.

### **Mitigation and monitoring**

We agree with the suitability of the proposed embedded mitigation.

Where impact pathways have been identified, we advise that the full range of mitigation techniques and published guidance is considered and discussed in the EIA Report. This should include the development of, and adherence to, a Marine Mammal Mitigation Protocol (MMMP).

Extensive discussions have been held by the FTRAG and MFRAG marine mammal sub-groups regarding potential mitigation and monitoring methods in relation to underwater noise disturbance particularly as a result of pile-driving activity. We anticipate that the approach to noise mitigation will be informed by best available evidence. In addition, we recommend referring to our commissioned reports on noise abatement<sup>17</sup> and entanglement<sup>18</sup>, which may be helpful.

### **Transboundary impacts**

We agree transboundary impacts should be considered further. Please see comments below in relation to HRA screening for grey seals.

### **HRA screening report**

We agree with the protected sites scoped in/out for bottlenose dolphins and harbour porpoise.

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fixed foundation concept by Entrion with mooring lines for additional stability, therefore combining characteristics of fixed and floating technologies to extend monopole feasibility to 80+ m water depth’.

<sup>17</sup> Verfuss, U.K., Sinclair, R.R. & Sparling, C.E. (2019) A review of noise abatement systems for offshore wind farm construction noise, and the potential for their application in Scottish waters. Scottish Natural Heritage Research Report No. 1070. <https://www.nature.scot/naturescot-research-report-1070-review-noise-abatement-systems-offshore-wind-farm-construction-noise>

<sup>18</sup> S Benjamins et al. (2014) Understanding the potential for marine megafauna entanglement risk from renewable marine energy developments. Scottish Natural Heritage Commissioned Report No. 791. <https://www.nature.scot/naturescot-commissioned-report-791-understanding-potential-marine-megafauna-entanglement-risk>

We do not agree with the protected sites which are scoped in for grey seals and harbour seals. All of these sites are outside the 20 km (grey seal) and 50 km (harbour seal) connectivity distances we advise for screening (as justified below). The developer needs to consider if there is tagging data that might support connectivity. We also do not advise that transboundary sites are screened in for grey seals, for the same reason.

### ***Grey seals***

We advise screening sites in for assessment if the project site/impact radii is within 20 km of the SAC. Although grey seals can and do forage considerable distances, the Conservation Objectives for grey seal SACs are related to the protection of the breeding colony. During this sensitive time, grey seals do not travel in general further than the 20 km and, therefore, we use this distance as a connectivity buffer. Outside the breeding season the number of grey seals present at a protected site can dramatically decrease. There is evidence to show that grey seals do not forage close to the SAC outside the breeding season and instead can travel to different management units when foraging (Carter *et al.*, 2022<sup>19</sup>).

### ***Harbour seals***

We advise screening sites in for assessment if the project site/impact radius is within 50 km of the SAC. Harbour seals show greater site fidelity throughout the year and, unlike grey seals, there is no seasonal difference. We would consider ranges further than this if there is tagging information to suggest SAC animals were travelling to the project site area.

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<sup>19</sup> <https://www.frontiersin.org/articles/10.3389/fmars.2022.875869/full>

## NATURESCOT ADVICE ON THE SCOPING REPORT AND HRA SCREENING REPORT FOR THE CALEDONIA OFFSHORE WIND FARM

### APPENDIX C - SEASCAPE, LANDSCAPE AND VISUAL IMPACT ASSESSMENT (SLVIA)

Seascape, Landscape and Visual interests are considered in *Chapter 16* of the Scoping Report and we have responded to the scoping questions raised within our advice below.

#### Mitigation and Design

We consider that the most likely significant effects are to be derived from the cumulative design relationship between the existing/under construction OWFs in the Moray Firth and the proposed development. Particularly in the context that the turbines of Beatrice are 182m blade tip height and the proposed development is at a maximum blade tip height of 350m, with a more open and wider spaced composition. As part of design iteration, we encourage the consideration of alternative heights and locations within the Caledonia array area to mitigate potential significant effects from poor cumulative composition and higher turbines on sensitive coastal receptors, in particular on the closest east Sutherland coast.

To have a combination of both fixed and floating technology to secure WTGs within the array area, could mean that opportunities for a clear and contained design solution could be fully explored. The use of both fixed and floating WTG technologies could potentially avoid or reduce the appearance of illogical gaps or breaks in the layout (derived from benthic constraints). Furthermore, the use of different turbine heights within the array area could reduce significant cumulative effects arising from the substantial difference in turbine heights proposed (350m tip heights versus ~200m) against those existing in particular in the adjacent developments of Beatrice and Moray East. We request further design iteration is given to this aspect with the aim of producing a cohesive composition with those existing Moray OWF developments.

This advice is in line with our Sectoral Plan Consultation Design Guidance<sup>20</sup> and the extract for the NE4 draft plan option contained in Annex 2.

#### SLVIA baseline receptors

We agree with the proposed 50km radius outer limit for the SLVIA with a reduced 40km for the landscape and coastal character/receptors assessment. We support the amendment of the proposed study area as refinement of the proposed layout continues with design iteration.

As part of the consideration of baseline landscape and coastal character, consideration should be given to the night-time component of that character and visual amenity. This then provides a robust basis for the assessment of lighting on sensitive receptors.

We support the use of baseline coastal character information used for the previous assessment of the Moray OWFs, filling in gaps where required.

We agree to the draft location of viewpoints proposed within the scoping report - Table 16.4.

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<sup>20</sup> <https://www.nature.scot/doc/sectoral-plan-consultation-summary-and-design-guidance>

**Nationally protected landscapes**

The *Dornoch Firth* and *Hoy and West Mainland* NSAs are well beyond the outer 60 km study radius and we agree with the scoping report that these can be scoped out of the SLVIA.

Whilst partially within the 60 km outer study area radius, the closest *WLA 36* is 40 km to the site boundary. At this distance we consider that there is unlikely to be significant effects introduced by the proposed development. As such we agree that the WLAs can also be scoped out of the SLVIA.

**Cumulative assessment**

The assessment of the proposed development in addition to those developments existing and under construction (terrestrial and marine) form part of the baseline 'landscape' assessment, and should be considered under that section.

The assessment of the proposed development with the baseline 'landscape' assessment (above) and consented development (terrestrial and marine), represents a cumulative scenario for change and it is appropriate to assess this under the cumulative assessment section. From the EIA Regulations 2017, a cumulative assessment is no longer required to assess the cumulative effects of 'application' developments.

Annex 2 – Extract from NatureScot Sectoral Plan Design Guidance – NE4

Limit horizontal spread of development in views from Calthness coast

DPO NE4

Limit significant effects on views from north Grampian and wider Moray Firth landscape

**There is considerable opportunity for development across much of this site without significant landscape and visual impacts.**

**To reduce significant effects SNH recommends:**

- 250m maximum turbines
- >40km
- Limit horizontal extent

<p><b>NE4</b></p> <p>Smaller elongated site orientated north to south, abutting BOWL and Moray East windfarms to the west. Abutting DPO NE5 to the west.</p> <p>Distance of northern</p>	<p><b>SENSITIVITY</b></p> <p><b>Complexity</b> Broadly the Moray Firth (inner and outer) has a simple form with relatively uniform coastlines. Complexity is introduced further west and into the inner firth where the relationship between opposing shorelines becomes stronger and contributes to a greater experience of enclosure.</p> <p><b>Scale</b> Typically the scale of the Moray Firth is large, emphasised by the open flat plain of water and the lower lying landscapes, in particular to the south in Moray and Aberdeenshire. The scale of the seascape reduces with the increased enclosure experienced in the inner Moray Firth.</p>	<ul style="list-style-type: none"> <li>• Distinctive regional character of Moray Firth with views to the opposing shorelines, tempered by the large scale of the landscape</li> <li>• Distinctive regional character of East Sutherland Coast</li> <li>• Heavily populated coastlines, with high historic, scenic recreational interest and popularity both in Highland and Aberdeenshire</li> </ul>	<p><b>We advise that there are considerable opportunities to develop most of the DPO site to read as a well-designed extension to the existing BOWL and Moray East developments, avoiding further widespread significant cumulative effects.</b></p> <p>SNH Recommendations:</p> <ul style="list-style-type: none"> <li>• to the north of the DPO site limit development edge to reduce horizontal extent of DPO (in combination with</li> </ul>
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<p>edge to Wick 22km, and southern edge to Rosehearty 38km.</p>	<p>Nationally protected landscape with coastal special qualities</p> <ul style="list-style-type: none"> <li>• Dornoch NSA</li> </ul> <p>Distinctive 'regional' landscape Collectively the Scottish Firths are considered to have a distinctive regional landscape character which contributes to the identity and distinctiveness of the Scottish landscape at the national level, especially in relation to the settled populations which run along the coastline. The East Sutherland Coast is considered to have a regionally distinctive landscape character.</p> <p>Both stretches of the Highland, Moray and Aberdeenshire coastlines are designated for their scenic qualities at the local level.</p> <p>Focus of human activity Significant focus of populations with the City of Inverness at the inner apex, several large towns e.g. Brora, Wick, and historic scenically and culturally sensitive settlements with harbours and scattered residence. High tourism pressures with recreational pressures.</p> <p>Frontier coastlines Some frontier qualities expressed from the Tarbat Ness lighthouse on the outer Dornoch Firth peninsula.</p> <p><b>MAGNITUDE OF CHANGE</b></p> <p>Smaller elongated linear DPO site running perpendicular to both the Highland and Aberdeenshire coastlines therefore reducing horizontal field of view (individually).</p> <p>At 22km the nearest DPO edge to Calthness has the potential to introduce significant daytime and night-time landscape and visual effects onto the Calthness coastline from all scales of turbines assessed.</p> <p>At 35kms the proposed DPO site would potentially introduce significant effects onto the Aberdeenshire coastline from the larger turbines modelled.</p> <p>Cumulative wind energy Significant existing and ongoing pressures from terrestrial commercial scale wind energy in the immediate hinterland and along the coast at Calthness. Some coastal development along the Aberdeenshire coast.</p> <p>Significant cumulative daytime and night-time effects along the East Sutherland coast from existing BOWL and Moray East, and consented Moray West.</p> <ul style="list-style-type: none"> <li>• BOWL - 85 turbines x 182m tip height (existing)</li> <li>• Moray East - 99 turbines x 194m tip height (construction)</li> <li>• Moray West - 85 turbines x 285m tip height (consented)</li> </ul>	<ul style="list-style-type: none"> <li>• Smaller scale of the DPO sits perpendicular to and within the Outer Firth</li> <li>• Arrangement abutting the existing developments at BOWL and Moray East which cumulatively could increase extent of significant effects along Calthness coast</li> <li>• Increasing extent of night-time impacts of aviation lighting on well populated landscape</li> <li>• Existing and consented maritime wind energy comprising 200m turbines within the Moray firth already contributing to significant cumulative effects on a considerable length of the Highland coast of the Firth</li> </ul> <p><b>Design approach advised – Avoid significant additional cumulative effects</b></p>	<p>BOWL) avoiding cumulative significant effects.</p> <ul style="list-style-type: none"> <li>• to reduce impacts and maintain a cohesiveness in design and composition with neighbouring developments we suggest a maximum of 250m turbine heights. However this should be considered at a project level, informed by the consideration of cumulative in combination wind energy development.</li> <li>• to the south of the DPO site, pull back development edge to 40km from coastline and limit turbine height to 250m to reduce the extent of significant cumulative effects with Moray West on the Moray and Aberdeenshire coastline.</li> <li>• consideration should also be given to the DPO strategic design recommendations for NE5.</li> </ul>
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<b>NICE</b>	<p><b>SENSITIVITY</b></p> <ul style="list-style-type: none"> <li>• Distinctive regional character of Moray Firth</li> </ul>		<p><b>We advise that there is a limited</b></p>
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## NATURESCOT ADVICE ON THE SCOPING REPORT AND HRA SCREENING REPORT FOR THE CALEDONIA OFFSHORE WIND FARM

### APPENDIX D – BENTHIC AND INTERTIDAL ECOLOGY

Benthic interests (both subtidal and intertidal) are considered in *Chapter 8* of the scoping report and we have responded to the scoping questions raised within our advice below where possible.

#### Study area

We agree with the proposed benthic ecology study area, defined in section 8.2 as the array area and export cable corridor plus a 6 km buffer area, based on the maximum spring tidal excursion distance. Table 8.2 is entitled “Sites designated for nature conservation within the Benthic Subtidal and Intertidal Ecology Study Area”, yet lists a number of MPA/SAC/SPAs well beyond this distance. However, as this is a precautionary approach, we are content with including all these sites at this stage, for completeness.

#### Baseline environment

The information presented for data sources, baseline environment and features of conservation interest are all fine. Site-specific survey data collection is planned to inform the EIA, including geophysical surveys, grab sampling and drop down cameras. In addition, we recommend the developer should consider the use of innovative eDNA sampling to complement these traditional methods.

#### Potential impacts

We agree with the activities proposed to be scoped in. However, we advise the following pathways should also be scoped in, due to current high uncertainty about potential impacts: increased risk of invasive non-native species; changes in physical processes; electromagnetic fields (EMF) and thermal load.

#### Cumulative impacts

We agree that the only impact pathway scoped in for the CIA is the temporary increase in suspended sediment and sediment deposition. All other impacts on benthic and intertidal ecology are generally spatially restricted and within close proximity to the array area and offshore export cable corridor.

#### Approach to assessment

We agree with the proposed approach to assessment.

#### Mitigation

The embedded mitigation all looks as expected.

#### Transboundary impacts

We advise that there are unlikely to be any transboundary impacts.

#### HRA screening report

The site selection takes a very precautionary approach of including an initial selection range of 50 km, then a range of 20 km for determining likely significant effect. This seems suitably precautionary, and it is unlikely that impacts would extend beyond this range. There are no SACs within this range, and we agree with their conclusion that there are no designated sites for benthic

features close enough to the proposed development for any of the activities to result in a likely significant effect.

## NATURESCOT ADVICE ON THE SCOPING REPORT AND HRA SCREENING REPORT FOR THE CALEDONIA OFFSHORE WIND FARM

### APPENDIX E - FISH AND SHELLFISH INTERESTS

Fish and shellfish interests are considered in *Chapter 9* of the scoping report. Our advice below focuses on those fish and shellfish species, and where appropriate their associated habitats, that are protected features of European sites or Nature Conservation MPAs as well as those that are of conservation importance including PMFs and key prey species. In addition, we have responded to the scoping questions raised where possible.

#### Study areas

Section 9.2.1.3 states that the zone of impact buffer will be determined by the modelled suspended sediment plume (estimated to be 2-6 km). However, the study area for the EIA Report will also be defined based on site-specific underwater noise modelling. The report doesn't say if the noise modelling will include fish and, if so which fish they will base this on. Fish species identified during the desktop study suggests sandeel and herring (among others) are likely at the development site. We advise that noise modelling for fish should include both of these species because both are dependent (during part of their life-cycle) on the seabed and unable to flee from disturbance. Cod is also noise sensitive but is only found in low numbers and is able to move away from disturbance.

#### Baseline environment

We are content that *Table 9.1* captures relevant baseline datasets but recommend the inclusion of 'Essential Fish Habitat Maps for Fish and Shellfish Species in Scotland' developed by the Scottish Marine Energy Research (ScotMER)<sup>21</sup> programme, which is due for publication shortly. We also recommend the inclusion of the NatureScot commissioned report 'Understanding the potential for marine megafauna entanglement risk from marine renewable energy developments'<sup>22</sup>.

We agree that traditional site-specific fish ecology surveys are not required for the proposed development site due to existing data sources as listed in *Table 9.6*.

#### Priority Marine Features (PMFs)

In addition to being qualifying features of European sites, Atlantic salmon are PMFs<sup>23</sup> along with European eel and sea trout (the anadromous form of brown trout).

Atlantic salmon are undergoing a significant decline across their global range, and numbers in Scotland have declined dramatically since 2010. This has led to the recent publication of a Scottish Wild Salmon Strategy (Scottish Government, 2022)<sup>24</sup>, and continuing high levels of mortality at sea is a significant issue. European eel is a conservation priority due to a dramatic decrease in its population size over the last 20 years; it is listed as 'critically endangered' on the global IUCN Red

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<sup>21</sup> <https://www.gov.scot/policies/marine-renewable-energy/science-and-research/>

<sup>22</sup> <https://www.nature.scot/sites/default/files/2017-07/Publication%202014%20-%20SNH%20Commissioned%20Report%20791%20-%20Understanding%20the%20potential%20for%20marine%20megafauna%20entanglement%20risk%20from%20renewable%20marine%20energy%20developments.pdf>

<sup>23</sup> <https://www.nature.scot/professional-advice/protected-areas-and-species/priority-marine-features-scotlands-seas>

<sup>24</sup> <https://www.gov.scot/publications/scottish-wild-salmon-strategy/>

list. However, very little is known about their local migration pathways, either as juveniles or adults. Malcolm *et al.* (2010)<sup>25</sup> contains a review of available data in relation to migration routes and behaviour, and Gill & Bartlett (2010)<sup>26</sup> on effects of noise and electromagnetic fields (EMF) on European eel as well as sea trout. Sea trout support a number of fisheries in Scotland and many of these fisheries have undergone declines in the last 25 years. Note that juvenile Atlantic salmon and trout (including those destined to become sea trout) can also be a host species for freshwater pearl mussel (FWPM).

We also recommend that other anadromous fish species are scoped in, such as sea lamprey, river lamprey, Smelt (sparling) and shads (Allis and Twaite) for further consideration.

### **Potential impacts**

Table 9.5 of the scoping report summarises the impacts proposed to be scoped into the assessment.

#### *Habitat loss and disturbance*

Habitat loss and disturbance (both temporary and long-term) is a key impact pathway identified for construction, operation and maintenance activities. All appropriate pre-construction seabed preparation works should also be included.

#### *Underwater noise*

It is intended to scope out noise during the operation and maintenance phases. As detailed above within our marine mammal advice (Appendix B), noise related impacts during the operation and maintenance phase should be scoped in for both fixed and floating foundations. This will require further discussion and agreement with NatureScot and Marine Scotland.

UXO clearance should be explicitly considered in the assessment as should disturbance from construction related noisy activities, depending on the foundation type/installation method proposed.

#### *EMF*

Impacts from EMF are scoped out due to the cables being buried (mitigation measure, M-8), which will increase the distance between sensitive species and the source of EMF, thus reducing the likelihood of behavioural responses from species. However, research by Hutchinson *et al.* 2020<sup>27</sup> refutes this and make the assertion that reducing the EMF signal may cause a response from sensitive species as it brings the EMF levels into 'normal' ranges species use to hunt prey or navigate.

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<sup>25</sup> Malcolm I.A., Godfrey J., Youngson A.F. (2010) Review of migratory routes and behaviour of Atlantic salmon, sea trout and European eel in Scotland's coastal environment: implications for the development of marine renewables. Scottish Marine and Freshwater Science Vol 1, No 14

<sup>26</sup> Gill, A.B., Bartlett, M. (2010) Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Scottish Natural Heritage Commissioned Report No.401

<sup>27</sup> Hutchinson, Z.L., Gil, A. B., Sigray, P., Haibo, H., King, J. W. (2020) Anthropogenic electromagnetic fields (EMF) influence the behaviour of bottom-dwelling marine species. *Sci Rep* 10, 4219. <https://doi.org/10.1038/s41598-020-60793-x>

Also, dynamic cables for floating wind turbines will not be buried. Therefore, impacts from EMF from subsea electromagnetic cabling should be scoped in and considered for all relevant fish species, including elasmobranch species, nephrops and diadromous fish, including migratory fish.

#### *Colonisation of hard structures*

Due to the novel nature of floating offshore wind foundations and the FRP fixed foundations, we advise that colonisation of hard structures is scoped in. This potential impact is also linked to whether marine growth needs removing, and if so, how will this be carried out.

#### *Increased risk of introduction and / or spread in INNS*

The scoping report states that mitigation and control of invasive species measures, in line with International Maritime Organization (IMO, 2019), will be incorporated in the PEMP and, therefore, this impact is scoped out. However, due to the increase in vessel traffic and opportunities for hard structures on which to colonise, we advise this impact is scoped in.

#### *Changes in prey species availability*

Table 9.5 doesn't capture changes in prey availability as a result of habitat loss or disturbance in adequate detail. More consideration is required in the EIA Report to ensure that impacts to key prey species (such as sandeel, herring, mackerel and sprat) and their habitats are considered for this development and in combination with other wind farms. We recognise that most EIA Reports concentrate on receptor specific impacts. However, increasingly we need to understand impacts at the ecosystem scale. Therefore, consideration across key trophic levels will enable better understanding of the consequences (positive or negative) of any potential changes in prey distribution and abundance on marine mammal (and other top predator) interests and how this may influence population level impacts. Thus, consideration of how this loss and or disturbance may affect the recruitment of key prey (fish) species through impacts to important spawning or nursery ground habitats should also be assessed. In addition, the PrePARED (Predators and Prey Around Renewable Energy Developments) project will also assist in the understanding of predator-prey relationships in and around offshore wind farms.

#### **Approach to assessment**

We advise that benthic ecology surveys e.g. habitat maps and particle size analysis are used to understand the suitability of the seabed habitat for sandeel and herring spawning.

#### *PMFs*

We advise that the assessment should quantify where possible the likely impacts to key PMFs and consider whether this could lead to a significant impact on the national status of the PMFs being considered<sup>28</sup>

#### **Cumulative impacts**

The EIA Report should consider the cumulative effect of key impacts such as habitat loss/change especially in relation to diadromous fish as well as key fish and shellfish species that contribute ecological importance as a prey resource. This may differ depending on the life stage being considered.

#### **Mitigation and monitoring**

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<sup>28</sup> <https://www.nature.scot/priority-marine-features-guidance>

We advise that the full range of mitigation measures and published guidance is considered and discussed in the EIA Report.

No specific monitoring for fish and shellfish is mentioned, although the scoping report mentions that commitments to environmental monitoring will be developed in the project environmental monitoring plan (PEMP).

### **Transboundary impacts**

We agree that transboundary impacts are scoped out from further consideration in the EIA.

### **HRA screening report**

#### ***Diadromous fish***

There is the potential for European sites that have Atlantic salmon as a qualifying feature to have connectivity with the proposed development, despite being located a large distance away. This is due to the mobile nature of migrating Atlantic salmon, either as smolts travelling from rivers to offshore feeding grounds, or as adults returning to natal rivers to spawn. Although limited information is currently available on migratory routes, available tracking data indicates that tagged smolts migrate along the southern coast of Moray Firth (see Moray Firth Tracking Project<sup>29</sup>). However, it is unclear where they migrate to after this as is the migration routes of returning adult salmon.

We acknowledge there is a lack of data on diadromous fish movements in and around the north and eastern coasts of Scotland. However, a lack of data is not sufficient evidence to conclude no LSE.

Therefore, rather than using the 100 km approach as mentioned in the HRA screening report, we advise that all SACs designated for Atlantic salmon in Scotland are screened in at this stage for further assessment.

There is limited information on the distribution and behaviour of sea and river lamprey in marine waters and it is possible that migration routes may overlap with the proposed development. We agree that the River Spey SAC is screened in for HRA assessment.

Atlantic salmon are a host species for freshwater pearl mussel (FWPM) during a critical parasitic phase of the mussels lifecycle and so there is a need to consider indirect impacts upon this species to ensure populations are not adversely affected. Therefore, we advise that SACs with FWPM as a qualifying feature are also screened in for further assessment.

Despite advising that all Atlantic salmon and FWPM sites are included as having LSE, as we cannot currently apportion impacts correctly to individual SACs, further discussion will be required to agree how this will be assessed in the next stage of the HRA process.

Further consideration is required for in-combination impacts as the 100 km approach is not appropriate for migratory fish.

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<sup>29</sup> <https://atlanticsalmontrust.org/our-work/morayfirthtrackingproject/>

## NATURESCOT ADVICE ON THE SCOPING REPORT AND HRA SCREENING REPORT FOR THE CALEDONIA OFFSHORE WIND FARM

### APPENDIX F – MARINE AND COASTAL PROCESSES

Marine and coastal processes are considered in *Chapter 6* of the scoping report and we have responded to the scoping questions raised within our advice below.

#### Study areas

We are content with the study areas proposed.

#### Baseline information

We agree that the relevant data sources have been included in *Table 6.1 (Section 2.1.3)*.

#### Potential impacts

The operational effect *Modifications to the wave and tidal regime, & associated impacts to morphological features* is scoped out “due to generally low tidal currents, as well as distance offshore”. However no detail is provided to justify this. We advise that this effect should be scoped in. Alternatively the developer may wish to submit, for our consideration, further justification in terms of the significance of low tidal currents, any relevant evidence (observations or modelling results) from nearby and/or analogous offshore wind farms, and which if any receptors are being taken into account (w.r.t. paras 6.5.1.2 and 6.5.1.4).

The operational effect *Impacts to seabed morphology* is scoped in only for the export corridor, for potential impacts on the Southern Trench MPA. We advise that this effect should also be assessed for the other ‘aspects’ of the development (Table 6.2), in keeping with an approach of assessing effects as pathways. Alternatively the developer may wish to submit, for our consideration, further justification in terms of potential receptors (across all EIA topics).

The operational effect *Cumulative modifications to the wave and tidal regime, & associated impacts to sediment transport* is scoped out because there is “no likelihood of local or regional changes in sediment transport regime”. However no detail is provided to justify this. We advise that this effect should be scoped in. Alternatively the developer may wish to submit, for our consideration, further justification in terms of any relevant evidence (observations or modelling results) from nearby and/or analogous offshore wind farms.

#### Cumulative impacts

It’s unclear why the above cumulative effect is identified within the main scoping table (Table 6.2) rather than planned to be addressed through CIA (6.6). Regardless, section 4.3.1.6 is ambiguous, stating that existing operational projects nearby “will constitute part of the existing baseline conditions”, but noting that some “ongoing effects ... will need to be incorporated within the CIA”. We advise that operational effects of existing projects on the wave, tide and sediment transport regime should be explicitly included within the CIA. Baseline conditions for Caledonia should be informed by the EIAs of those existing projects, i.e. by conditions before any of the Moray Firth OWFs were constructed.

**Approach to assessment**

It's welcome that further consultation is proposed during the EIA process (section 6.8.3.4). We advise there should be further consultation on methods for numerical modelling (sections 6.5.1.4, 6.6.1.2, 6.8.1.3), especially considering the points above, in advance of the application submission. This should also cover the definition of the Zone of Influence, proposed at section 6.2.

**Mitigation and monitoring**

Where impact pathways have been identified and are scoped in, we advise that the full range of mitigation techniques and published guidance is considered and discussed in the EIA Report.

**Transboundary impacts**

We advise that there are unlikely to be any transboundary impacts.

# Northern Lighthouse Board



# Northern Lighthouse Board

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Your Ref: Caledonia OWF – Scoping Consultation  
Our Ref: AL/OPS/ML/O6\_27\_753

Mr Marc MacFarlane  
Marine Licensing Casework Officer  
Marine Scotland – Marine Planning and Policy  
Marine Laboratory  
375 Victoria Road  
Aberdeen  
AB11 9DB

11 October 2022

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017; REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2007; REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017 (collectively referred to as the “EIA Regulations”).**

**Caledonia Offshore Wind Farm Limited – Caledonia Offshore Wind Farm – ScotWind NE4 Site, Moray Firth – Scoping Consultation**

Thank you for your e-mail correspondence dated 30<sup>th</sup> September 2022 relating to the Scoping Report submitted by **Caledonia Offshore Wind Farm Limited** for the proposed development of the Caledonia Offshore Wind Farm, at the ScotWind NE4 lease site, outer Moray Firth.

Northern Lighthouse Board have no objection to the content of the Scoping Report, and are satisfied with the elements to be included within the Shipping and Navigation section of the Environmental Impact Assessment.

It should be noted that within Section 13.4.1.2 – M-30, the latest IALA guidelines for the lighting and marking of offshore structures is no longer contained within IALA document O-139. This guidance is now found within IALA document G-1162.

Yours sincerely  
[Redacted]

Navigation Manager

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To find out more, please see our Privacy Notice at [www.nlb.org.uk/legal-notices/](http://www.nlb.org.uk/legal-notices/)

Oil and Gas UK

**From:**  
**To:** [MS Marine Renewables](#)  
**Subject:** Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 28 October 2022 16:56:39  
**Attachments:** [image001.png](#)

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Dear Sir/Madam,

Thank you for sharing the Scoping Report for the Caledonia Offshore Wind Farm in the ScotWind NE4 Site. The North Sea Transition Authority has no immediate comments for what should be included and excluded in the EIA at this stage though there are a few aspects to note for Ocean Winds awareness.

- We are already in discussion with Ocean Winds about the requirements for cables crossing pipelines as part of the Moray West OWF, it does not appear that there are any cable crossings for the proposed array and cable location of the Caledonia Offshore Wind Farm but if these change and there are crossings (with active or decommissioned pipelines) then Ocean Winds will need to speak to the pipeline owners and the NSTA and OPRED to discuss any requirements for PWA Variations or updates to Decommissioning Plans
- It appears there are some plugged and abandoned wells in blocks 12/23, 12/29 and 12/28 which Ocean Winds should be aware of, a more comprehensive list of the plugged and abandoned wells are below:
  - 12/23-1, 12/23-3, 12/23-3A
  - 12/29-1
  - 12/28-1
- Though there are no current carbon storage licences or areas offered in the carbon storage licensing round which interact with the application area we have mapped carbon storage potential across offshore UK and the area of the Caledonia Offshore Wind Farm has medium – high carbon storage potential and so there could have future carbon storage licences and operations near to the location (though likely not until the 2030s or later).
- It is also worth noting that we hold a lot of offshore spatial data and this can be viewed via our website, the scoping report suggested the data DECC held has now been transferred to BEIS but the oil and gas spatial elements including licences, fields, wells, pipelines and other infrastructure were actually transferred over to us at the NSTA.

Best,

 <b>North Sea Transition Authority</b>	<b>Senior Policy Manager – Energy Transition Strategy Directorate</b> ✉ NSTA, Lower Ground Floor, Sanctuary Buildings, 20 Great Smith Street, London, SW1P 3BT 💻 — ☎ <a href="http://www.nstauthority.co.uk">www.nstauthority.co.uk</a> Follow us on Twitter <a href="https://twitter.com/NSTAuthority">@NSTAuthority</a>
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North Sea Transition Authority is a business name of the Oil and Gas Authority. Oil and Gas Authority is a limited company registered in England and Wales with registered number 09666504 and VAT registered number 249433979. Our registered office is at 21 Bloomsbury Street, London, WC1B 3HF. For information about how we process data and monitor communications please see our Privacy Statement and for terms of use please see our Terms and Conditions, both available on our website.

## ORE Catapult

**From:** [Info](#)  
**To:** [MS Marine Renewables](#)  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 04 November 2022 18:30:02  
**Attachments:** [image001.png](#)

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Hi Marc,

No response from us but thank you anyway.

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**From:** MS.MarineRenewables@gov.scot <MS.MarineRenewables@gov.scot>  
**Sent:** 04 November 2022 09:23  
**To:**  
**Cc:**  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022

Good morning

I can confirm that [info@ore.catapult.org.uk](mailto:info@ore.catapult.org.uk) was included in the original email contact list.  
Do ORE Catapult intend to submit a response?

Kind regards,  
Marc

Royal Society for the Protection of Birds ("RSPB")  
Response 1

Marc MacFarlane  
Casework Officer - Consenting  
Marine Scotland  
Marine Planning & Policy



By email: [ms.marinerenewables@gov.scot](mailto:ms.marinerenewables@gov.scot)

2<sup>nd</sup> November 2022

Dear Marc,

**Environmental Impact Assessment (“EIA”) Scoping Report in respect to proposed Section 36 consent (under the Electricity Act 1989) and Marine Licences (under the Marine (Scotland) Act 2010) and the Marine and Coastal Access Act 2009) for the Caledonia Offshore Wind Farm**

Thank you for consulting RSPB Scotland on the above scoping report. Our comments focus on Chapter 10 (Offshore Ornithology) of the Offshore Scoping Report produced by GoBe (Code: UKCAL1-ARP-GEN-ENV-RPT-00001, Rev: 005, Dated: September 14, 2022) and the questions contained in Table 10.6.

Faced with the threats of climate change to the natural world the RSPB considers that a low-carbon energy transition to reach net zero is essential to safeguard biodiversity. Inappropriately designed and/or sited developments can however cause serious and irreparable harm to biodiversity and must be avoided.

RSPB recognise the needs to have flexibility in the design of developments and accept the Rochdale envelope approach as a way this can be dealt with through the consenting process. We do however encourage applicants to refine the parameters of their proposed development as far as possible. We welcome that a minimum blade clearance (at least 35 metres above Mean Sea Level) for Caledonia Offshore Wind Farm has already been specified.

**Scoping of impacts**

Having reviewed Table 10.4 (EIA Scoping assessment for Offshore Ornithology) we are satisfied that the main impact pathways have been scoped in.

We do not however consider there is sufficient information to scope out displacement impacts from wet storage for floating wind turbine generators at therefore consider they should be included within the EIA.

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We also note that barrier effects during operation have been scoped out on the basis that is usually not possible to distinguish between displacement and barrier effects. This is correct but rather than scoping out barrier effects, we suggest it is made clear that they are scoped in alongside displacement effects.

We consider it is premature to conclude there will be no significant transboundary effects on birds in the breeding season before data has been collected and analysed. We do however agree that due to the location of the proposed development, the proportion of birds likely to be apportioned to transboundary designated seabird features during the breeding season are likely to be relatively low.

We agree that transboundary impacts the non-breeding season should be addressed within the environmental impact assessment report.

### **Important Ornithology Features**

We agree that the species taken forward to the EIA should be identified through analysing the site-specific surveys and or features of overlapping SPAs. We do not agree that at this stage Sooty shearwater, Manx shearwater, European storm petrel and Leach's storm petrel can be ruled out as Important Ornithological Features. While we agree that low numbers of these species have been recorded in historical surveys, it may be that these low number arise through biases inherent in the survey methods (such as timing of surveys and low visibility of birds on the water) rather than low numbers on site

RSPB encourage the adoption of a precautionary approach to the identification of relevant protected sites for seabirds with clear methodology on the exclusion of sites and species.

We welcome using foraging ranges as published in Woodward et al. (2019)<sup>1</sup> to derive connectivity with SPA colonies during the breeding season. We would also recommend that site specific data are examined and where the maximum foraging range from the colony exceeds the generic value, that the site-specific value is used.

The exceptions to this are for common guillemot and razorbill. Tracking on Fair Isle showed foraging for both common guillemot and razorbill distances are greater than those of all other colonies. This may relate to poor prey availability during the study. However, trends for seabirds in the Northern Isles indicate this may be becoming a more frequent occurrence. For all designated sites south of the Pentland Firth (i.e. excluding the Northern Isles), we advise use of mean max +1SD discounting Fair Isle

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<sup>1</sup> Woodward, I., Thaxter, C.B., Owen, E. and Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. BTO Research Report No. 724, British Trust for Ornithology, Thetford. ISBN 978-1-912642-12-0.

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values. For clarity, North Caithness Cliffs SPA is considered to lie south of the Pentland Firth.

	All Northern Isle SPAs	All sites south of Pentland Firth
Common guillemot	153.7 mm +SD	95.2 mm +SD
Razorbill	164.6 mm +SD	122.2 mm +SD

In the non-breeding season, seabirds are not constrained by colony location and can, depending on individual species, range widely within UK seas and beyond.

In regard to seasons, the RSPB supports the definitions produced by Nature Scot (2020)<sup>2</sup>

### Baseline data

Due to the location of the proposed Caledonia OWF there is already a considerable amount of data sources that may be drawn from. We welcome the approach set out in the scoping report to supplement this by digital aerial survey (DAS) data. We support this being undertaken for a period of 24 months covering the Array Area plus a 4 km buffer with flight lines approximately 2.6 km apart to result in approximately 15% coverage.

We appreciate there are constraints on when DAS can be carried out (for example due to weather and daylight hours) but welcome surveys being carried out at different tidal states and different times of day to capture maximum variability in use of the site.

We agree with the parameters that will be provided from the aerial surveys as set out in paragraph 10.8.1.3. As part of identifying the activities of the birds recorded, we would be grateful if any deceased birds could be also recorded. This is to help better understand the impacts of the highly pathogenic avian influenza (HPAI) outbreak.

### Data Analysis

For calculating density across the site, the RSPB consider Marine Renewables Strategic Environmental Assessment (MRSea) is a robust method if used correctly and transparently. The results of MRSea must be checked and validated and justification of decision making is crucial. Bootstrapped confidence intervals should be presented alongside model results

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<sup>2</sup> NatureScot (2020). Seasonal Periods for Birds in the Scottish Marine Environment. Short Guidance Note Version 2. October 2020.

## Collision Risk Models

We agree with the use of the stochastic Band Collision Risk Model (sCRM)<sup>3,4</sup> We recommend presentation of full model outputs from the Band model Option 2 (Basic) and Option 3 (Extended). For both these options, flight height distribution from Johnson et al. (2014)<sup>5</sup> with corrigendum should be used.

The collision risk input parameters include a parameter known as the "Avoidance Rate". This is defined by Band (2012)<sup>6</sup> as the inverse of the ratio of the number of actual collisions to number of predicted collisions". As such, it is a catch all term for the inconsistency between predicted and actual mortalities. These inconsistencies may result from variety of sources, including survey error and model mis-parameterisation as well as avoidance behaviour. Currently there only Avoidance Rates available for use with deterministic formulations of the Band model.

RSPB agree with the avoidance rates recommended by the Statutory Nature Conservation Bodies (SNCBs 2014<sup>7</sup>) with the exception of breeding gannets where a 98% avoidance rate is more appropriate. This is because the figures used for the calculation of avoidance rates advocated by the SNCBs are largely derived from the non-breeding season for gannet<sup>8,9</sup> and there is evidence that the foraging movements and behaviour of gannets will vary in relation to stage of the breeding season<sup>10</sup> and between the breeding and non-breeding season<sup>11</sup>.

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- <sup>3</sup> Band, B. 2012. Using a Collision Risk Model to Assess Bird Collision Risks for Offshore Wind Farms. Report by British Trust for Ornithology (BTO). Report for The Crown Estate
- <sup>4</sup> McGregor, R.M., King, S., Donovan, C.R., Caneco, B. and Webb, A. (2018) A Stochastic Collision Risk Model for Seabirds in Flight. Report to Marine Scotland Science
- <sup>5</sup> Johnston, A., Cook, A., Wright, L., Humphreys, E. and Burton, N. (2014). Modelling flight heights of marine birds to more accurately assess collision risk with offshore wind turbines. *Journal of Applied Ecology*. 51. 10.1111/1365- 2664.12191
- <sup>6</sup> Band, B. 2012. Using a Collision Risk Model to Assess Bird Collision Risks for Offshore Wind Farms. Report by British Trust for Ornithology (BTO). Report for The Crown Estate
- <sup>7</sup> SNCBs. 2014. Joint Response from the Statutory Nature Conservation Bodies to the Marine Scotland Science Avoidance Rate Review. <https://www.nature.scot/sites/default/files/2018-02/SNCB%20Position%20Note%20on%20avoidance%20rates%20for%20use%20in%20collision%20risk%20modelling.pdf>
- <sup>8</sup> Cook, A S C P, Humphreys, E. M., Masden, E. A., & Burton, N. H. K. 2014. The Avoidance Rates of Collision Between Birds and Offshore Turbines. Edinburgh.
- <sup>9</sup> Cook, A.S.C.P., Humphreys, E.M., Bennet, F., Masden, E.A., Burton, N.H.K. 2018 Quantifying avian avoidance of offshore wind turbines: Current evidence and key knowledge gaps. *Marine Environmental Research*, 140, 278-288.
- <sup>10</sup> Lane, J.V., Jeavons, R., Deakin, Z., Sherley, R.B., Pollock, C.J., Wanless, R.J., Hamer, K. C., 2020. Vulnerability of northern gannets to offshore wind farms; seasonal and sex specific collision risk and demographic consequences. *Marine Environmental Research*. 162.
- <sup>11</sup> Cook, A.S.C.P., Humphreys, E.M., Bennet, F., Masden, E.A., Burton, N.H.K. 2018 Quantifying avian avoidance of offshore wind turbines: Current evidence and key knowledge gaps. *Marine Environmental Research*, 140, 278-288

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In the absence of suitable avoidance rates to use with the full stochastic model, we agree the sCRM should be run deterministically. If avoidance rates become available, the model should be run stochastically.?????

We also disagree with the omission of Sooty shearwater, Manx shearwater, European storm petrel and Leach's storm petrel as species with potential to be at risk of collision. Fundamental to the consideration of collision risk 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 increase collision risk, for example if birds fly higher when attracted to lights. As such, consideration of the potential of collision for these species should be included.

For migratory non-seabird species, species likely to migrate across the Array Area will be identified and will be assessed using the Marine Scotland commissioned strategic level report (Marine Scotland, 2014a).

### **Disturbance and Displacement**

It is not clear for which species it is proposed to use the SeabORD displacement assessment tool<sup>12</sup> and for which is proposed to use the matrix approach. At this point in time, we consider premature to use the matrix approach without investigation of the SeabORD tool. As per the advice given to others developing windfarms at greater distances from the coast, where there is concern using GPS tracking data, RSPB support the use of SeabORD in its simplest form – i.e. based on distance decay. Like all models, SeabORD has its limitations, and it is up to the applicant to validate the results, and if necessary, revert to a different method. Justification of decision making is a crucial part of analysis.

The RSPB would also want to see displacement analysis for kittiwake.

In regard to suitable displacement and mortality rates, we are happy to discuss these with the applicant and Statutory Nature Conservation Bodies.

### **Population Viability Analysis**

RSPB consider that it likely that population models will be required to establish whether or not there could be long-term impacts on population viability for impacted colonies.

As per the results of work commissioned by JNCC<sup>13</sup>, we agree with use of the two-ratio metrics generally termed 'Counterfactual of population size' (CPS) and 'Counterfactual

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<sup>12</sup> Searle, K.J., Mobs, D.C., Butler, A., Furness, R.W., Trinder, M.N. and Daunt. F. (2018). Finding out the Fate of Displaced Birds. Scottish Marine and Freshwater Science Vol 9 No 8, 149pp

<sup>13</sup> Cook A.S.C.P., and Robinson R.A. (2016) Testing sensitivity of metrics of seabird population response to offshore wind farm effects. JNCC report no. 553

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of population growth-rate' (CPGR) are presented. The CPS is especially important to aid understanding of impacts for a non-specialist whereas the numbers given by the CPGR are less understandable beyond a population modelling context.

Initial population sizes inputted into all the PVAs for the biogeographical scale should be based on the latest published data from the Seabird Monitoring Programme (SMP) online database (BTO, 2021) with non-breeding seabird populations derived from the zones determined by the BDMPS report (Furness, 2015<sup>14</sup>)

## Cumulative Impacts

As per the EIA Regulations, the Environmental Statement will need to address the cumulation of impacts with other existing and/or approved works. In the approach to the cumulative assessment and identification of other built and/or approved projects, it is suggested (paragraph 4.3.1.6) that some projects may not be taken forward and built as currently described and, as such, there is a level of uncertainty over the level of impacts which may arise. It is therefore proposed that the phase of the project will be considered when drawing conclusions on cumulative effects and the certainty of those.

RSPB agree that a project may not be constructed as per the worst case (Rochdale envelope) scenario. We do not however consider it is appropriate to make a case to 'use' the difference in predicted bird mortality from a worst-case scenario when development is consented and the predicted bird mortality from the as-built development.

## Non-technical summary

It is necessary that the Environmental Statement will be complex and contain data, specialist models, and detailed analysis. Nevertheless, we welcome this being set out in a clearly logical way so the process, if not the details of the process, can be followed by the lay-person (and decision-maker) and easily scrutinised by technical experts. RSPB take a dim view of prejudicial use of language and selective reporting of results. There is already a huge amount of uncertainty inherent in the offshore wind assessment process and it is unhelpful to all parties for this made worse.

It is a requirement of EIA legislation that the main findings must be set out in accessible, plain English, in a non-technical summary (NTS). This is so they can readily be disseminated to the general public, and easily understood by non-experts as well as decision-makers. As such, alongside statements of significance, we consider the NTS ornithology section, should (as a minimum) contain the following information:

- o An explanation of the 'worst case' scenario

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<sup>14</sup> Furness, R.W. (2015). Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Reports, Number 164.

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- A table of 'worst case' annual mortality for relevant species using the methods set out in the screening opinion for the development in isolation
- A table of 'worst case' annual mortality for relevant species using the methods set out in the screening opinion for the development in combination with impacts arising from any existing or approved development.
- Counterfactual of population size for impacted colonies (presented as a percentage) with explanation
- Counterfactual of population growth-rate for impacted colonies with explanation
- Measures taken to avoid and/or reduce the annual mortality to the levels presented

We would be grateful if these requirements for a non-technical summary could be specified in the scoping opinion.

Should you wish to discuss any of the above please do not hesitate to contact me.

Yours sincerely,

[Redacted]

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RSPB  
Response 2

Rebecca Ross  
Casework Officer - Consenting  
Marine Scotland  
Marine Planning & Policy



By email: [ms.marinerenewables@gov.scot](mailto:ms.marinerenewables@gov.scot)

2<sup>nd</sup> November 2022

Dear Rebecca,

**Habitats Regulations Appraisal ("HRA") Screening Report in respect to proposed Section 36 consent (under the Electricity Act 1989) and Marine Licences (under the Marine (Scotland) Act 2010) and the Marine and Coastal Access Act 2009) for the Caledonian Offshore Wind Farm**

Thank you for consulting RSPB Scotland on the above screening report. We understand it relates to the offshore components only and that these would consist of between 84 and 150 wind turbine generators (a mixture of fixed and floating) with maximum blade height of 350 meters above mean seal level (MSL) and minimum blade clearance 35 meters above MSL; up to six offshore substation platforms; up to 720 km of inter-array cables; and up to six offshore export cables to landfall(s) at Caithness. We also understand that the wind turbine array area would be located approximately 22 km from Wick, Caithness and 38 km from Banff, Aberdeenshire in the Crown Estate Scotland lease area 'NE4'.

Faced with the threats of climate change to the natural world, RSPB considers that a low-carbon energy transition to reach net zero is essential to safeguard biodiversity. Inappropriately designed and/or sited developments can however cause serious and irreparable harm to biodiversity and must be avoided.

We have reviewed the screening report (UKCAL1-ARP-GEN-ENV-RPT-00003, Rev 005, 30.09.2022). In general, caution must be taken not to anticipate a conclusion of no adverse effect on site integrity by prematurely removing sites and features from initial assessment.

We disagree with the omission of Sooty shearwater, Manx shearwater, European storm petrel and Leach's storm petrel. While we agree 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 timing of surveys and low visibility of birds on the water) rather than low numbers on site. Furthermore an additional

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[rspb.org.uk](http://rspb.org.uk)



The RSPB is part of BirdLife International, a Partnership of conservation organisations working to give nature a home around the world.

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 increase collision risk, for example if birds fly higher when attracted to lights.

Based on there being breeding seabird colonies with a foraging range that extends through the proposed development and an impact pathway for these species, we agree with the overall conclusion that it is not possible to rule out the potential risk of significant effects on a European site either alone or in-combination with other projects. As likely significant effects (LSE) cannot be ruled out we agree that an appropriate assessment must be undertaken by the competent authority before a consent could be granted.

We would welcome the use of matrix tables with evidence supporting conclusions within HRA screening assessments. This would make it clear for each protected site, exactly which species is being screening in or out (and whether they are breeding wintering), for what phase of development (e.g., construction, operation and maintenance, and decommissioning) that is, and what the impact mechanism being considered is (e.g. disturbance, displacement, collision, barrier to movement, habitat loss, prey availability). The evidence supporting conclusions should provide species- and site-specific narrative to adequately justify the decisions made.

Should you wish to discuss of any of the above please do not hesitate to contact me.

Yours sincerely,

[Redacted]

Senior Marine Conservation Planner

---

**RSPB Scotland Headquarters**  
2 Lochside View  
Edinburgh Park  
Edinburgh  
EH12 9DH

Tel: 0131 317 4100  
Facebook: @RSPBScotland  
Twitter: @RSPBScotland  
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The RSPB is part of BirdLife International, a Partnership of conservation organisations working to give nature a home around the world.

# Royal Yachting Association

Royal Yachting Association Scotland

Caledonia House  
1 Redheughs Rigg  
South Gyle  
Edinburgh  
EH12 9DQ

T +44 (0)131 317 7388  
E [admin@ryascotland.org.uk](mailto:admin@ryascotland.org.uk)  
W [www.ryascotland.org.uk](http://www.ryascotland.org.uk)

24 October 2022

Marc MacFarlane,  
Marine Scotland – Marine Planning and Policy  
Scottish Government  
Marine Laboratory,  
375 Victoria Road,  
Aberdeen,  
AB11 9DB  
[ms.marinerenewables@gov.scot](mailto:ms.marinerenewables@gov.scot)

Dear Marc,

### **Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth**

I have read the relevant parts of the scoping report on behalf of RYA Scotland. I agree that Shipping and Navigation should be scoped in and would wish to be involved with the Navigational Risk Assessment. I make the following comments about the questions posed at the end of section 13.

*Do you agree with the data sources, including project specific surveys, to be used to characterise the Shipping and Navigation baseline within the NRA and the Offshore EIA? The coverage of the UK Coastal Atlas of Recreational Boating is incomplete in the area of the proposed wind farm and it is quite possible that the two 14 day survey periods may not capture any recreational vessels as I expect most recreational traffic to take place near the beginning and end of the sailing season. I estimate that about a quarter of recreational vessels in these waters transmit an AIS signal. Nevertheless I do not feel that additional data need to be collected beyond that planned. I expect that some vessels pass through the wind farm site *en route* from Rattray Head to Wick or the Northern Isles and *vice versa*. It is not yet clear what the impact of the Beatrice and Moray East wind farms has been on the routing of recreational craft on passage.*

*Do you agree that all potential impacts (hazards and associated risks) have been identified for Shipping and Navigation? Yes.*

*Do you agree with the project impacts (hazards and associated risks) which have been scoped out of the EIA for Shipping and Navigation? None appear to have been scoped out, see 13.5.1.1.*



**RYA Scotland**

**Royal Yachting Association Scotland**

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*Do you agree that cumulative impacts and transboundary impacts (hazards and associated risks) for Shipping and Navigation may be scoped out of the Offshore EIA? The cumulative impacts with other OWF, particularly Beatrice and Moray East must be scoped in. Transboundary impacts for recreational boating can be scoped out. Recreational vessels from continental Europe may pass through the wind farm site but there are unlikely to be any additional impacts.*

*Do you agree with the proposed approach to assessment? Yes.*

*Do you agree on the suitability of proposed embedded mitigation of relevance to Shipping and Navigation that have been identified for the Proposed Development? Yes.*

Yours sincerely,

[Redacted]

Planning and Environment Officer, RYA Scotland

## Scottish and Southern Electricity Networks

Marine Consents and Environment Manager  
Scottish Hydro Electric Transmission Plc  
10 Henderson Road  
Inverness  
IV1 1SN

03/11/2022 - OPHVDC-LET-0003

**Consultation response of proposed Caledonia Offshore Wind Farm found in document UKCAL1-ARP-GEN-ENV-RPT-00001 (005)**

Dear Sir/Madam,

Thank you for your invitation to consult on the proposed development.

We note the inclusion of the Scottish Hydro-Electric Transmissions (SHET) Caithness – Moray HVDC link within the proposed development site. As noted, the Caithness – Moray HVDC link is currently operational and as such we would require that SHET is engaged to ensure that sufficient space for the safe operation and repair of the Caithness – Moray HVDC link is maintained.

As found within the ICPC recommendations, referenced in section 19.8.2.1 of the scoping document, we would also like to encourage future engagement with SHET such that both parties can exist within a shared marine space and where necessary can develop crossing and proximity agreements within the proposed development site and cable export corridor.

We agree with the scoping questions outlined in table 19.4 regarding Other Human Activities and would also like to suggest consideration is given to the cable landfall selection so as not to unnecessarily exclude future potential cable landfalls within the proposed cable export corridor.

Yours Sincerely

Marine Consents and Environment Manager

Scottish Environment Protection Agency

**From:** [Planning.North](#)  
**To:** [MS Marine Renewables](#)  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 30 September 2022 15:15:04  
**Attachments:** [image001.png](#)

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OFFICIAL

Thank you for the email below.

Hope you are well. Unfortunately, this type of development falls below our consultation thresholds. Instead please refer to Table 1 of our standing advice which are available on our website - [SEPA standing advice for the Department for Business, Energy and Industrial Strategy and Marine Scotland on marine consultations](#)

If you are seeking advice on something specific then please re-consult us specifying what advice you require.

Many thanks

Planning Officer  
SEPA - Planning Service North  
Email: [planning.north@sepa.org.uk](mailto:planning.north@sepa.org.uk)  
Mobile:

[Who's whom in Water and Planning?](#)

Please note I usually work Wednesday-Friday most weeks.

*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](mailto:postmaster@sepa.org.uk). Registered office: Strathallan House, Castle Business Park, Stirling FK9 4TZ. Under the Regulation of Investigatory Powers Act 2000, the email system at SEPA may be subject to monitoring from time to time.*

*Dh'fhaodadh gum bi*

*am fiosrachadh sa phost 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](mailto:postmaster@sepa.org.uk).*

# Scottish Fishermen's Federation



Our Ref: MM/30/10

Your Ref:

30 October 2022

E-mail:

Scottish Fishermen's Federation  
24 Rubislaw Terrace  
Aberdeen, AB10 1XE  
Scotland UK

T: +44 (0) 1224 646944  
E: [sff@sff.co.uk](mailto:sff@sff.co.uk)

[www.sff.co.uk](http://www.sff.co.uk)

### **Caledonia Scoping Response**

This response to the scoping request is presented by the Scottish Fishermen's Federation 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.

In Chapter 2, ref the Marine Planning Framework, it is important for the development to pay attention to the General Policies and the Fisheries Policies in the plan, in order to deliver an holistic approach to the EIA. The statements in 2.3.2.4 would seem to be presuming Ornithological interests are more constraining than Socio-economic impacts on Commercial Fisheries, before doing the actual studies. Finally, in Table 2.2, the SFF would expect the assessments to be based on topic-specific policy, not guidance.

Chapter 3, on the design proposals, should assess the lifetime impacts of the rotor blades (if material used is not recyclable). There should be an assessment of the effects of the Foundations and any Scour protection and the alteration of the seabed caused, including the ability to remove for decommissioning.

The SFF remains to be convinced that in operation the turbines will not be creating thrumming through the seabed, and any impact that may have.

Since there are potentially at least 1465km of cables, each of the 3 categories (Inter-array, Inter connector & Export) needs to be assessed for their impacts such as Trenching, Ploughing, Non burial, Added protection, EMF etc.

Finally, as there may be an element of Floating production included, the SFF would expect to see an assessment of the loss to fishing of these areas and an assessment of the long term damage to

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 seabed of Anchors, ropes, chains and scour protection, up to and including decommissioning. All of this contributes to a lack of evidence on suspended sediments, and impacts on spawning.

In Chapter 4, the SFF is particularly keen to see the project adopt a much more comprehensive approach to the Cumulative Impact Assessment. It can be seen by the use of studies on the 3 existing windfarms that there is significant infrastructure already in the Moray Firth, and more developments will increase the spatial squeeze on fishing. It is no longer feasible to simply analyse the ICES square, it needs to take into account the impact on a whole national fishery.

Furthermore the development needs to consider the 4 métiers operating regularly in the area ( Whitefish, Nephrops, Scallops & Squid) and the reality of displacement on each acknowledging that it may account for much more than moving a few metres, it could mean large distances.

This will also refer to Chapters 8 & 12, where the development is seeking to only assess impacts in the close vicinity which is not good enough. Nor is the dismissal of Trans-Boundary Impacts, as the fish and shellfish being affected do not recognise these “boundaries” care must be taken to ensure proper limits are identified.

Moving on to Chapter 9, table 9.1, whilst comprehensive, includes much that would be considered scientifically outdated, i.e. more than 10 years old, not least of which is Scotmap, which would be better replaced with the report produced for the East coast IFG on fishing activity in their area, which will be particularly relevant for the export cable.

On spawning grounds, ICES advice for zero interference with Herring spawning should be respected. The King Scallop assessments need to be at least 7 years, if not 10, in order to get a full oversight of the fishery

In 9.7 on Trans-Boundary Impacts, the SFF would reiterate, Fish and Shellfish don't recognise these human concepts, and don't carry passports, so any claim to ignore must be backed by science.

In 9.8.1 , the approach to the EIA, the SFF would insist that site specific surveys are conducted, it is impossible to extrapolate data for the other sites surveyed to depict the ecology of the Caledonia site. At the very least this is needed in order to develop the baseline for the site to ensure that monitoring is possible going forward. Furthermore if these are not carried out, the description of the existing populations, in 9.8.3.1 will not be relevant.

[Redacted]

**Fisheries Policy Officer**  
**Scottish Fishermen's Federation**

Scottish Water

Wednesday, 05 October 2022



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](mailto:DevelopmentOperations@scottishwater.co.uk)  
[www.scottishwater.co.uk](http://www.scottishwater.co.uk)



Dear Customer,

**Caledonia Offshore Wind Farm, Moray**  
**Planning Ref: Caledonia Offshore Wind Farm**  
**Our Ref: DSCAS-0073905-5VG**  
**Proposal: Scoping - Caledonia Offshore Wind Farm - Moray Firth**

**Please quote our reference in all future correspondence**

## **Audit of Proposal**

Scottish Water has no objection to this planning application; however, the applicant should be aware that this does not confirm that the proposed development can currently be serviced. 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 contact Scottish Water at the earliest opportunity with strong evidence to support the intended drainage plan prior to making a connection request. We will assess this evidence in a robust manner and provide a decision that reflects the best option from environmental and customer perspectives.

### **General notes:**

- ▶ 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](mailto:sw@sisplan.co.uk)
  - ▶ [www.sisplan.co.uk](http://www.sisplan.co.uk)

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](mailto:planningconsultations@scottishwater.co.uk).

Yours sincerely,

Development Services Analyst  
[PlanningConsultations@scottishwater.co.uk](mailto: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."*

# Spey District Salmon Fishery Board

**From:**  
**To:** [MS Marine Renewables](#)  
**Subject:** Re: Response to Scoping Report  
**Date:** 27 October 2022 15:13:13

---

Dear MS Marine Renewables,

I apologize, I forgot to add to my suggestions that the potential of the wind turbines to create additional hunting grounds for piscivorous birds, seals and large predatory fish that may impose additional predation pressure on migrating salmonids in the Moray Firth should also be considered in the EIA.

Kind regards,

---

**From:**  
**Sent:** Thursday, October 27, 2022 1:39 PM  
**To:** ms.marinerenewables@gov.scot <ms.marinerenewables@gov.scot>  
**Subject:** Response to Scoping Report

Dear MS Marine Renewables,

I am the new biologist of the Spey fishery board and have recently looked through your scoping report and have a couple of points that I believe should be included into the scope of the EIA. Firstly, some of the species you list as potentially occurring within the Moray firth I know to be present, namely white skate and sea lamprey (for which the Spey is an SAC for). In addition to this, the construction of the windfarm will encompass the probable migration route of Atlantic salmon smolts towards their summer feeding grounds as well as the return path of spawning adults. As your scoping report states that these turbine will create low frequency noise they may adversely affect the migration of Atlantic salmon in the Moray Firth as salmonids are particularly susceptible to low frequency noises.

Additionally, the cable is set to go through an area of kelp forest that may be important overwintering habitat to sea trout, a species that has also rapidly declined as well as providing a predation refugia to other migratory fish.

Kind regards,

The Highland Council

By email only to:  
Marine Scotland Renewables  
[MS.MarineRenewables@gov.scot](mailto:MS.MarineRenewables@gov.scot)

Please ask for/Foighnich airson:

E-mail/Post-d:

OurRef/Ur n-àireamh-iùil:

Your Ref/Ar n-àireamh-iùil:

Date/Ceann-là:

22/04494/SCOP

22 November 2022

Dear Sir/Madam,

**Caledonia Offshore Wind Farm - Erection and Operation of an Offshore Wind Farm comprising up to 150 wind turbines of up to 350m to blade tip height, offshore substation platforms, inter-array cables, export cables and associated infrastructure.**

Thank you for consulting The Highland Council on the Scoping Request for the above development. We appreciate the extension of time to complete our response.

Please note that this response is for the offshore elements only and considers the matters which are within the remit of The Highland Council only.

Our view on the scope of the assessment may be subject to change on a number of topics within the EIAR if the scale of development, in terms of the location of proposed infrastructure within the development envelope.

Please contact me using the details at the top of this letter if you have any further questions.

Yours faithfully

Planner – Strategic Projects

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**ePlanning Centre:** The Highland Council, Glenurquhart Road, Inverness, IV3 5NX

Email/Post-d: [eplanning@highland.gov.uk](mailto:eplanning@highland.gov.uk) Web/Lion: [www.highland.gov.uk](http://www.highland.gov.uk)

**Ionad dDealbaidh:** Comhairle na Gàidhealtachd, Rathad Ghleann Urchadain, Inbhir Nis, IV3 5NX

ACKAPP

## SCOPING RESPONSE

**Applicant:** Caledonia Offshore Wind Farm  
**Project:** Erection and Operation of an Offshore Wind Farm comprising up to 150 wind turbines of up to 350m to blade tip height, offshore substation platforms, inter-array cables, export cables and associated infrastructure.  
**Project Address:** Land 50 KM SE Of Wick Harbour, Harbour Road, Wick  
**Our Reference** 22/04494/SCOP

This response is given without prejudice to the Planning Authority's right to request additional information in connection with any statement, whether Environmental Impact Assessment Report (EIAR) or not, submitted in support of any future application. These views are also given without prejudice to the future consideration of and decision on any planning application received by The Highland Council (THC).

THC request that any EIAR submitted in support of an application for the above development take the comments highlighted below into account; many of which are already acknowledged within the Scoping Report. In particular, the elements of this report as highlighted in parts 3, 4 and 5 should be presented as three distinct elements.

For the avoidance of doubt, the EIAR must include the elements required by the EIA Regulations.

Responses to the internal consultation undertaken are attached. Should any further responses be received from internal consultees, these will be forwarded on in due course.

### 1.0 Description of the Development

1.1 The description of development for an EIAR is often much more than would be set out in any planning application. An EIAR must include:

- a description of the physical characteristics of the whole development and the full land-use requirements during the operational, construction and decommissioning phases. A plan with eight figure OS Grid co-ordinates for all main elements of the proposal should be supplied;
- a description of the main characteristics of the construction processes, for instance, nature and quantity of the materials used;
- the risk of accidents, having regard in particular to substances or technologies used;
- an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the development;
- the estimated cumulative impact of the project with other consented or operation

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**Ionad dDealbaidh:** Comhairle na Gàidhealtachd, Rathad Ghleann Urchadain, Inbhir Nis, IV3 5NX

development; and

- a detailed schedule of mitigation.

## 2.0 **Alternatives**

2.1 A statement is required which outlines the main development alternatives studied by the applicant and an indication of the main reasons for the final project choice. This is expected to highlight the following:

- locational criteria and economic parameters used in the location selection;
- design and locational options for all elements of the proposed development (inclusive of consideration of base types); and
- the environmental effects of the different options examined.

Such assessment should also highlight sustainable development attributes including for example assessment of carbon emissions / carbon savings and biodiversity net gain.

## 3.0 **Environmental Elements Affected**

3.1 The EIAR must provide a description of the aspects of the environment likely to be significantly affected by the development. The following paragraphs highlight some principal considerations. There are a number of onshore and offshore wind energy developments in the area and associated grid infrastructure projects and you are encouraged to use your understanding of these in assessing your development and the potential for cumulative effects to arise. The EIAR should fully utilise this understanding to ensure that information provided is relevant and robustly grounded.

### **Land Use and Policy**

3.2 While this is an offshore wind farm, the EIAR should recognise the existing land uses affected by the development having particular regard for THC's Development Plan inclusive of all statutorily adopted Supplementary Guidance (SG). Particular attention should be paid to the provisions of the Onshore Wind Energy SG (OWESG) inclusive of any Landscape Sensitivity Appraisal. This is not instead of but in addition to the expectation of receiving a Planning Statement in support of the application itself which, in addition to exploring compliance with the Development Plan, should look at Scottish Planning Policy and Planning Advice Notes which identify the issues that should be taken into account when considering significant development. Further UK and Scottish energy policy should be considered and addressed. The purpose of this chapter is to highlight relevant policies not to assess the compatibility of the proposal with policy.

3.3 The Revised Draft National Planning Framework 4 (NPF4) was laid before parliament on 8<sup>th</sup> November 2022. The applicant should respond to this through the Planning Statement or respond to any updated NPF4 position as it relates to the application depending on the timescale for submission of the application. Similarly, the Caithness and Sutherland Local

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**Ionad dDealbhaidh:** Comhairle na Gàidhealtachd, Rathad Ghleann Urchadain, Inbhir Nis, IV3 5NX

Development Plan forms part of the approved development plan. This sets confirms the boundaries of the Special Landscape Areas and identifies settlements in the area. Other statutorily adopted supplementary guidance, as set out on the Council website, will also require to be considered.

### **Sustainability**

- 3.4 The Council's Sustainable Design Guide SG provides advice and guidance on a range of sustainability topics, including design, building materials and minimising environmental impacts of development. A Sustainable Design Statement is required. Wind farms produce a sustainable form of energy; however, the Council will need to be satisfied in reaching a conclusion on any application that the development in its entirety is in fact sustainable development. In order for us to do so we recommend that matters related to the three pillars of sustainable development are fully assessed in the information which supports the application. The developer needs to consider the impact of the of the developments onshore and offshore elements and the prospective long-term use of the energy to accommodate the requirements of a decarbonised energy provision for Scotland and the Highlands. The application should include a statement on how the development facilitates the provision of secure and clean electricity supplies in Highland.

### **Seascape, Landscape and Visual**

- 3.5 The Council expects the EIAR to consider the seascape, landscape and visual impact of the development. The Council makes a distinction between the two. While not mutually exclusive, these elements require separate assessment and therefore presentation of visual material in different ways. It is the Council's position that it is not possible to use panoramic images for the purposes of visual impact assessment. The Council, while not precluding the use of panoramic images, require single frame images with different focal lengths taken with a 35mm format full frame sensor camera – not an 'equivalent.' The focal lengths required are 50mm and 75mm. The former gives an indication of field of view and the latter best represents the scale and distance in the seascape and landscape i.e. a more realistic impression of what we see from the viewpoint. These images should form part of the EIAR and not be separate from it. Photomontages should follow the Council's Visualisation Standards which is available on the Councils website.

The following are minimum requirements for the printed copies

- For hard copies - Visuals should be presented in their own bound version of the document.
- The first image should clearly set out the location of the viewpoint and directions on how to get there (as per figure 2 of the Standards)
- The second page should include a photomontage presented at A3 with a 50mm field of view for landscape assessment (as per figure 6 of the Standards)
- The third page should include a baseline photograph at 50mm field of view and

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**Ionad dDealbhaidh:** Comhairle na Gàidhealtachd, Rathad Ghleann Urchadain, Inbhir Nis, IV3 5NX

wirelines at the same scale as per Figure 7 or Figure 8 of the Standards)

- The fourth page should include a 50mm image photomontage (as per figure 10 of the Standards)
- The fifth page should include a 75mm image photomontage for assessment of visual impacts (as per figure 12 of the Standards)
- The document requires to be printed single sided with a high quality laser printer or equivalent on photo quality paper.

- 3.6 The use of monochrome for specific viewpoints is useful where there are a number of different wind farms (existing and proposed) in the view. We are happy to provide advice on this matter going forward. All existing and proposed turbines should be re-rendered even if they appear to be facing the viewer in the photograph to ensure consistency and to ensure the cumulative assessment can be considered on the worst case scenario.
- 3.7 It is considered that given the scale of the development, a study boundary of 60km should be adopted for this proposed development. For instance, this would also allow for the inclusion of an assessment from the whole of Dunnet Head (including the Special Landscape Area) and the areas around Morven and Navidale which are considered important by the Council. The assessment of seascape, landscape and visual impact should be completed in full across the entire study area. For the avoidance of doubt, THC do not consider it to be acceptable to screen out viewpoints for a full assessment based upon distance.
- 3.8 The finalised list of Viewpoints (VP) and wireframes for the assessment of effects of a proposed development must be agreed in advance of preparation of any visuals with THC and other interested parties. However, at present we can advise that we would like to see additional viewpoints.
- A viewpoint from Dunnet Head would be beneficial. This is also located within the Dunnet Head Special Landscape Area. One of the Special Qualities is the panoramic views which can be expansive.
  - In terms of the night-time assessment- in addition to VP3 the Council would also like a night-time visualisation from VP6 Lybster to be included.
- 3.9 We acknowledge that there will be some micrositing of the viewpoints to avoid intervening screening of vegetation boundary treatments etc. We would recommend that the photographer has in their mind whether the VP is representative or specific and also who the receptors are when they are taking the photos it would be helpful. We have also found that if the photographer has a 3D model on a laptop when they go out on site it helps the orientation of the photography.
- 3.10 The detailed location of viewpoints will be informed by site survey, mapping and predicted ZTVs. Failure to do this may result in abortive work, requests for additional visual material

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**ePlanning Centre:** The Highland Council, Glenurquhart Road, Inverness, IV3 5NX

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**Ionad dDealbaidh:** Comhairle na Gàidhealtachd, Rathad Ghleann Urchadain, Inbhir Nis, IV3 5NX

and delays in processing applications/consultation responses. Community Council's may request additional viewpoints and it would be recommended that any pre-application discussions with the local community, and associated reporting on consultation undertaken, take this into account.

- 3.11 The purpose of the selected and agreed viewpoints shall be clearly identified and stated in the EIAR. For example, it should be clear that the VP has been chosen for seascape assessment, landscape assessment, or visual impact assessment, or cumulative assessment, or sequential assessment, or to show a representative view or for assessment of impact on designated sites, communities or individual properties.
- 3.12 Further the SLVIA Chapter of the EIAR should clearly set out the methodology including:
- Definitions of each point on the scale of magnitude of change which is used by the applicant in reaching a conclusion on the magnitude of change;
  - Definitions of each point on the scale of sensitivity of receptor which is used by the applicant in reaching a conclusion on the sensitivity of receptor;
  - The threshold to which the applicant considers a significant effect is reached. For the avoidance of doubt the Council consider that Moderate impacts can be significant and it is recommended that the EIAR takes this approach as well;
  - A clear matrix approach supported by descriptive text setting out how the applicant reaches their conclusion of effect on landscape character, designated landscapes, visual receptors and residential amenity.
- 3.13 When assessing the impact on tourist and recreational routes please ensure that all core paths, the national cycle network, North Coast 500 and long distance trails are assessed. It should be noted that these routes are used by a range of receptors. Sequential route assessments should be included to consider the impact of the development on users of the road network, for instance the A9, A99, B876 and B870, but this is not exhaustive. Route assessments should be supported by wirelines and viewpoint assessments should be provided from these routes in the main body of the LVIA.
- 3.14 The development will further extend the number of proposals of this type in the surrounding area, necessitating appropriate cumulative impact. It is considered that cumulative impact will be a significant material consideration in the final determination of any future application. We encourage you to review the wind energy map on our website which will provide an indication of other projects in the area which may require consideration: <http://highland.gov.uk/windmap>
- 3.15 Given the potential cumulative impact of the proposal it is expected that the applicant should present images for presentation within the Panoramic Digital Viewer deployed by the Council – see visualisation standards document. To view current or determined schemes in the Council's Panoramic Viewer please see the link below:

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<http://www.highland.gov.uk/panoramicviewer>

- 3.16 We expect an assessment of the proposal against the criterion set out in the Council's OWESG to be included within the SLVIA chapter of the EIAR.
- 3.17 An assessment of the impacts of the proposal on landscape should assess the impacts on any landscapes designated at a national and local scale. As part of this the impact on the Special Landscape Areas (SLA) must be undertaken using the SLA citations available from the Council's website. It is noted that there is a request to scope out the Wild Land Areas in the assessment. It is anticipated that NatureScot will provide detailed guidance on Wild Land Areas.
- 3.18 In relation to Table 16.5 of the Scoping Report, the following elements are requested to be scoped out. THC make the following observations:
- We do not consider it appropriate to completely scope out the construction and decommissioning impacts and reference should be made to them in the EIAR.
  - We do not consider that effects beyond 50km can be scoped out, we request that given the scale of the development the study area is 60km.
  - THC agree that the effects from the offshore cable during the operation phase can be scoped out of the assessment.
  - THC agree that the lighting can be scoped out of the seascape and landscape character assessment.
  - THC do not agree that the impact of the operation and maintenance of the development experienced by offshore visual receptors can be completely scoped out of the assessment. It is noted that a VP from the ferry route is proposed.
- 3.19 It is considered that the guidance in the Onshore Wind Energy Supplementary Guidance and the Caithness Landscape Sensitivity Appraisal (both available on the Council website) should be used to inform the assessment. Further the recently published guidance from Marine Scotland and Energy Consents Unit on the use of design envelopes should be considered.
- 3.20 The consideration of the content of the Seascape, Landscape and Visual section of the EIAR has been focused on matters within the interest of Highland Council. It is anticipated that Orkney Isles Council, Moray Council and Aberdeenshire Council will provide a response to matters within their interest.

### **Cultural Heritage**

- 3.21 The EIAR needs to identify all designated sites which may be affected by the development either directly or indirectly. This will require you to identify:
- Submerged Paleolandscape Deposits, Archaeological Sites and Artefacts;

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- the architectural heritage (Conservation Areas, Listed Buildings);
- the archaeological heritage (Scheduled Monuments, Historic Battlefields, offshore wrecks, vessels and structures);
- the landscape (including designations such as National Scenic Areas, Special Landscape Areas, Gardens and Designed Landscapes, and general setting of the development; and
- the inter-relationship between the above factors.

3.22 We would expect any assessment to contain a full appreciation of the setting of these historic environment assets and the likely impact on their settings. It would be helpful if, where the assessment finds that significant impacts are likely, appropriate visualisations such as photomontage and wireframe views of the development in relation to the sites and their settings could be provided. Visualisations illustrating views both from the asset towards the proposed development and views towards the asset with the development in the background would be helpful.

3.23 It is anticipated that Historic Environment Scotland (HES) will respond on heritage assets in their remit and the sites included in the assessment.

3.24 The Councils Historic Environment Team have suggested that listed buildings and conservation areas on the coastal edge, from at least Noss Point to Dunbeath Castle (as the closest section geographically) be considered and tested for impacts arising upon their seaward setting. As the scheme progresses the Councils Historic Environment Team should be consulted further on the impact on heritage assets outwith the remit of HES.

#### **Noise**

3.25 THC's Environmental Health Team have reviewed the contents of the Scoping Report and given the distance to land, noise from the wind turbines is not considered to be a significant issue and have no further comments to make at this stage.

#### **Traffic and Transport**

3.26 THC's Transport Planning Team have reviewed the contents of the Scoping Report and have no further comments to make at this stage. However, if any of the construction/supply chain components utilise ports within the Highland Council area we would expect to see an assessment of the impacts from this.

#### **Socio-Economic, Tourism and Recreation**

3.27 The EIAR should estimate who may be affected by the development, in all or in part, which may require individual households to be identified, local communities or a wider socio economic groupings such as tourists and tourist related businesses, recreational groups, economically active, etc. The application should include relevant economic information connected with the project, including the potential number of jobs, and

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economic activity associated with the procurement, construction, operation and decommissioning of the development.

- 3.28 Estimations of who may be affected by the development, in all or in part, which may required individual households to be identified, local communities or a wider socio economic groupings such as tourists and tourist related businesses, recreational groups, economically active, etc should be included. The application should include relevant economic information connected with the project, including the potential number of jobs, and economic activity associated with the procurement, construction, operation and decommissioning of the development. In this regard wind farm and transmission network development experience in this location should be used to help set the basis of likely impact. This should set out the impact on the regional and local economy, not just the national economy. Any mitigation proposed should also address impacts on the regional and local economy.

#### **Aviation, Radar and Telecoms**

- 3.29 The EIAR needs to recognise community assets that are currently in operation for example TV, radio, tele-communication links, aviation interests including radar, MOD safeguards, etc. In this regard the applicant, when submitting a future application, will need to demonstrate what interests they have identified and the outcomes of any consultations with relevant authorities such as Ofcom, NATS, BAA, CAA, MOD, Highlands and Islands Airports Ltd, etc. through the provision of written evidence of concluded discussions / agreed outcomes. We consider the results of these surveys should be contained within the EIAR to determine whether any suspensive conditions are required in relation to such issues.
- 3.30 If there are no predicted effects on communication links as a result of the development, the EIAR should still address this matter by explaining how this conclusion was reached.

#### **Ecological Impacts**

- 3.31 THC Coastal Planning Officer has provided the following comments. The proposed development is capable of generating significant ecological impacts alone or cumulatively and as such it is expected that engagement with NatureScot and Marine Scotland Science is undertaken to inform the development of further assessments.
- 3.32 Chapter 8 'Benthic Subtidal and Intertidal Ecology' and Chapter 9 'Fish and Shellfish Ecology' both propose to scope out risk of impact from Invasive Non-Native Species (INNS) on the basis that embedded mitigation (M-8, M-12) will adequately address the risk. However, I would note that the introduction of INNS can have a regional significance (thereby having potential to affect THC area) and that whilst the sourcing of vessels and equipment is unknown the risk level is also unclear. I would therefore suggest this risk/ impact be considered further either within the EIA or in updates to accompanying embedded mitigation documentation. This comment is subject to the advice provided on

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the matter by Marine Scotland Science.

- 3.33 Chapter 9 'Fish and Shellfish Ecology' proposed to scope out electromagnetic field impacts on the basis that EMF range of impact is low and cables are likely to be buried. However, I note that for floating offshore development there is likely to be a greater degree of floating or suspended inter-array cables. I am therefore uncertain as to whether the same assumptions as have been applied to fixed foundation can be applied in this case. I am also aware that Pentland Firth Floating Offshore Windfarm was required to consider this matter further within their EIA. Again, I would defer to MSS technical expertise on the appropriateness as to whether this impact is assessed further or not.
- 3.34 The proposed development is to occur within the Offshore Wind Sectoral Plan Option NE4. This is noted as 'subject to higher levels of ornithological constraint' due to foraging seabirds, some of which are likely to be designated features of sites within the THC area. The scoping report notes the potential for the HRA to conclude that an adverse effect on site integrity may occur. This could trigger a requirement for compensatory measures, potentially delivered within affected sites within the THC area. This could constitute development, noting the similar example in the East of England where kittiwake nesting towers were constructed. I would encourage the developer to engage early with the THC, if they believe it likely that they will have to undertake any additional development in support of any compensatory measures.

#### **Miscellaneous**

- 3.35 Transboundary effects should be considered where appropriate given the potential impacts on international waters through the construction process, however, we defer to Marine Scotland for their assessment on this matter.
- 3.36 Whilst it is noted that primarily the inshore and coastal elements of the development (Export cable, O&M base) are outside of the Highland Council's boundaries. It is possible that other aspects associated with the supply chain and construction may well directly utilise areas within the Highland Council area (Port of Nigg, Port of Cromarty Firth etc). Where this is subsequently confirmed to be the case relevant assessments should be updated to reflect this e.g. Navigational Risk Assessments, Impact Assessment included within Chapter/Topic 19 'Other Human Activity' etc.
- 3.37 The Council are broadly content with the scope of the proposed assessment on the following matters and our assessment of the proposal would be informed by the responses of consultees such as Marine Scotland, NatureScot and Scottish Environment Protection Agency. For the avoidance of doubt we do not offer comment on the following matters at this stage:
- Marine and Coastal Processes
  - Water and Sediment Quality
  - Marine Mammals and Mega Fauna;

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- Commercial Fisheries;
- Shipping and Navigation;
- Other Human Activities.

With that said we will likely consider these matters in reaching a view on our response to the application in due course.

#### **4.0 Significant Effects on the Environment**

4.1 Leading from the assessment of the environmental elements the EIAR needs to describe the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:

- the existence of the development;
- the use of natural resources; and
- the emission of pollutants, the creation of nuisances and the elimination of waste.

4.2 The potential significant effects of development must have regard to:

- the extent of the impact (geographical area and size of the affected population);
- the trans-frontier nature of the impact;
- the magnitude and complexity of the impact;
- the probability of the impact; and
- the duration, frequency and reversibility of the impact.

4.3 The effects of development upon baseline data should be provided in clear summary points.

4.4 The Council requests that when measuring the positive and negative effects of the development a four point scale is used advising any effect to be either strong positive, positive, negative or strong negative.

4.5 The applicant should provide a description of the forecasting methods used to assess the effects on the environment.

#### **5.0 Mitigation**

5.1 Consideration of the significance of any adverse impacts of a development will of course be balanced against the projected benefits of the proposal. Valid concerns can be overcome or minimised by mitigation by design, approach or the offer of additional features, both on and off site. A description of the measures envisaged to prevent, reducing and where possible offset any significant adverse effects on the environment must be set out within the EIAR statement and be followed through within the application

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for development.

- 5.2 The mitigation being tabled in respect of a single development proposal can be manifold. Consequently the EIAR should present a clear summary table of all mitigation measures associated with the development proposal. This table should be entitled draft Schedule of Mitigation. As the development progresses to procurement and then implementation this carries forward to a requirement for a Construction Environmental Management Document (CEMD) and then Plan (CEMP) which in turn will set the framework for individual Construction Method Statements (CMS). Further guidance can be obtained at:  
[http://www.highland.gov.uk/NR/rdonlyres/485C70FB-98A7-4F77-8D6B-ED5ACC7409C0/0/construction\\_environmental\\_management\\_22122010.pdf](http://www.highland.gov.uk/NR/rdonlyres/485C70FB-98A7-4F77-8D6B-ED5ACC7409C0/0/construction_environmental_management_22122010.pdf)  
 This is currently under review by a working party led by SEPA working through Heads of Planning Scotland but for the time being remains relevant.
- 5.3 The implementation of mitigation can often involve a number of parties other than the developer. In particular local liaison groups involving the local community are often deployed to assist with phasing of construction works. It should be made clear within the EIAR or supporting information accompanying a planning application exactly which groups are being involved in such liaison, the remit of the group and the management and resourcing of the required effort.
- 5.4 This section should also specifically highlight ongoing monitoring work which will help inform mitigation. This includes pre and post construction monitoring and any monitoring to take place during the construction of the track.

Planner – Strategic Projects

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Transport Scotland

Marc McFarlane  
Marine Scotland - Marine Planning & Policy  
Scottish Government  
Marine Laboratory  
375 Victoria Road  
Aberdeen  
AB11 9DB

Your ref:  
22949

Our ref:  
GB01T19K05

Date:  
28/10/2022

[ms.marinerenewables@gov.scot](mailto:ms.marinerenewables@gov.scot)

Dear Sirs,

**REGULATION 14 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT)  
(SCOTLAND) REGULATIONS 2017**

**REGULATION 13 AND SCHEDULE 4 OF THE MARINE WORKS (ENVIRONMENTAL IMPACT  
ASSESSMENT) (SCOTLAND) REGULATIONS 2007**

**REGULATION 12 OF THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT  
ASSESSMENT) (SCOTLAND) REGULATIONS 2017**

**CALEDONIA OFFSHORE WIND FARM LIMITED - CALEDONIA OFFSHORE WIND FARM -  
SCOTWIND NE4 SITE, MORAY FIRTH**

With reference to your recent correspondence on the above development, we acknowledge receipt of the Scoping Report (SR) prepared by GoBe Consultants Ltd in support of the above development.

This information has been passed to SYSTRA Limited (SYSTRA) for review in their capacity as Term Consultant to Transport Scotland – Roads Directorate. Based on the review undertaken, Transport Scotland would provide the following comments.

**Proposed Development**

We understand that the applicant, Ocean Winds, is proposing to develop the Caledonia Offshore Wind Farm, an offshore wind farm (OWF) located within the Moray Firth, off the north-east coast of Scotland. The OWF would comprise 150 turbines, with capacities ranging from 14 to 25 MW. We also note that the proposed development includes Onshore Transmission Infrastructure (OnTI) to facilitate connection to the National Electricity Transmission System (NETS) at New Deer. The OnTI and grid connection will be considered separately within an Onshore Scoping Report to be submitted. The Offshore Scoping Report considers the potential impacts from the construction, operation and maintenance and decommissioning of the proposed development, up to Mean High Water Springs (MHWS).

We therefore do not envisage any significant impacts on the trunk road network as we envisage that the majority of materials for the development will be delivered by sea and the land-based activities will be dealt with via separate applications.

As such, Transport Scotland has no specific comment to make on the Offshore SR, other than to state that the proposed assessment methodology of the potential impact of the development on the road network adjacent to the landfall at New Deer will require to be included within the separate Onshore Scoping Report. Transport Scotland will be pleased to review and comment on this in due course.

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]

**Transport Scotland  
Roads Directorate**

cc

SYSTRA Ltd.

University of Aberdeen Lighthouse Field Station

## **Caledonia consultation: Marine Mammal and Other Megafauna response**

*Do you agree with the data sources, including project specific surveys, to be used to characterise the Marine Mammals and Other Megafauna baseline within the Offshore EIA?*

1. Data sources in Table 11.4 should clarify that Moray East OWF – Harbour Seal tagging – foraging ranges data (2014/2015) were collected in a collaboration between the University of St Andrews and the University of Aberdeen, or for consistency it should ‘Multiple’ authors as this dataset was gathered through a consortium of funders.
2. Similarly in Table 11.4 the author for the Moray West OWF Annual UAV surveys and boat-based photo-ID surveys should be ‘Multiple’ as again this work was funded by a consortium of different organisations.
3. We have identified some key references that we believe should be used:
  - a) In section 11.3.2.9 the sentence “This MU contains a resident population of 224 bottlenose dolphin...” should cite Arso Civil et al. 2021 (report SMRUC-VAT-2020-10) rather than (IAMMWG, 2022).
  - b) In section 11.3.2.9 the sentence “Currently, only around 50% of the population...” should cite Cheney et al. 2014 (in Global Ecology and Conservation) instead of Graham et al. 2016.
  - c) Section 11.3.2.9 should include reference to Fernandez-Betelu et al. 2021 (in Frontiers in Marine Science), regarding the impacts of offshore activities on the bottlenose dolphin population in the Moray Firth.
  - d) In section 11.3.2.17 the sentence “However, it is important to note that this assessment...” should cite Thompson et al. 2019 (Aquatic Conservation-Marine and Freshwater Ecosystems).
  - e) In section 11.6.1.3 in relation to iPCoD, Booth et al. 2017 should be cited (report N. SMRUC-NEN-2017-007).
4. We also think that the “Overview of Baseline Environment” section would benefit from distribution maps for cetacean species (like the maps presented in page 216 and 217 with the distribution of harbour and grey seals).

*Do you agree that all pathways, receptors, and potential impacts have been identified for Marine Mammals and Other Megafauna?*

- Increased vessel disturbance associated with the windfarm development (for example due to transport of equipment, materials, and personnel from sites on land to the development site during construction) should also be considered in coastal areas (other than the one highlighted in Table 11.3) – particularly where it occurs within the bottlenose dolphin SAC.
- Cumulative impact assessment should consider any coastal development activities, such as harbour expansions, that are likely to occur at the same time as the windfarm construction particularly within the bottlenose dolphin SAC.
- Section 11.3.2.17: it may not be appropriate to assess the two harbour-seal MUs separately, as telemetry data (mentioned in Table 11.4) shows movement of breeding females between the MUs (i.e. Loch Fleet and Orkney).

*Do you agree with the project impacts which have been scoped out of the EIA for Marine Mammals and Other Megafauna?*

- We agree with the impacts that have been scoped out of the EIA.

*Do you agree with the proposed approach to assessment?*

- We think that passive acoustic monitoring methods should be considered to collect data on cetacean species. These methods can provide more detailed information about area use and distribution and much more comprehensive temporal coverage, compared to only using data from digital aerial surveys.
- There was little detail on the proposed approach to the assessment therefore we can't fully assess if the approach presented is appropriate.

*Do you agree on the suitability of proposed embedded mitigation of relevance to Marine Mammals and Other Megafauna that have been identified for the Proposed Development?*

- There was not enough detail on the mitigation plans to assess whether these will be suitable to mitigate all the impacts.

We noted a few typos within the reviewed section "Marine Mammal and Other Megafauna".

UK Chamber of Shipping

**From:**  
**To:** [MS Marine Renewables](#)  
**Cc:**  
**Subject:** RE: Caledonia Offshore Wind Farm Limited - Caledonia Offshore Wind Farm - ScotWind NE4 Site, Moray Firth - Scoping Consultation - Response due by 30 October 2022  
**Date:** 17 October 2022 15:30:35  
**Attachments:** [image003.png](#)

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Dear Marine Scotland,

The UK Chamber of Shipping welcomes the opportunity to respond to the Scoping Report for the proposed Caledonia Offshore Wind Farm within the NE4 Plan Option area.

Recognising the considerable length to the Scoping Report, the Chamber has limited its consultation response to that within Project Description and Shipping and Navigation chapters of the report.

Under section 3.1.3 the approach to consider development under a wide design envelope is understood and understandable given the early stage of planning. It is however difficult for stakeholders, particularly in shipping and navigation to provide substantive feedback and input when the design envelope is so wide and so the Chamber recommends that it be narrowed and areas confirmed as early as possible so substantive feedback can be offered.

The Chamber is aware that the MAIB have spatial accident data extending back to 1992 and is of the view that for long term projects such as offshore wind farms, examining 10 years of accident data is not truly representative of trends and historic incidents. As such the Chamber recommends that 20 years of MAIB spatial accident data be included in the EIA baseline. This request the Chamber is making to all prospective developments and is being met with general agreement.

Given the large area of the proposed development the Chamber would strongly recommend at full 12 months AIS data be acquired in addition to the two – 14 days periods as required. This will fully factor in seasonal variation and occasional traffic. The Chamber would recommend either 2019 or 2021 as preferable years for this data, in recognition of the impact of Covid-19 on shipping, in particular cruise and passenger traffic.

Whilst only at the Scoping stage, the Chamber has some elevated concerns about the potential unique risk profile from a development with a mixture of fixed and floating turbines, in particular the importance of clear charting and marking and looks forward to engagement in these areas via the NRA process. The Chamber also notes with greater concern the southern extent and in particular isolated structures that may be proposed as the planning process proceeds.

The Chamber does not agree that cumulative impacts and transboundary impacts (hazards and associated risks) for Shipping and Navigation may be scoped out of the Offshore EIA and from what it has read of the Scoping Report, does not understand the rationale for its potential scoping out. Clarification accordingly would be welcomed.

The Chamber otherwise finds the Scoping Report to contain what it would hope for and expect in terms of the data and methodology employed.

The Chamber looks forward to early engagement with the development as the planning

and consenting process continues.

Should you wish for further detail or clarification on any of the above points, please do not hesitate to get in touch.

Kind regards,

Policy Manager (Safety & Nautical) & Analyst

**UK Chamber of Shipping**

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Mob

[www.ukchamberofshipping.com](http://www.ukchamberofshipping.com)



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