Association of Shetland Community Councils

Association of Shetland Islands Councils

From: ASCC@shetland.gov.uk
Sent: 22 July 2024 11:31
To: Judith Horrill
Cc: Toni-marie Mcginn
Subject: RE: SCOP-0048- Arven Offshore Wind Farm Limited- Arven Offshore Wind Farm- Scoping Consultation- Response required by 29 June 2024

Objective: -1

Dear Sir/Madam

SCOP-0048 – Arven Offshore Wind Farm Limited – Arven Offshore Wind Farm – Approximately 30 km East of Mainland, Shetland – Scoping Consultation.

This consultation was discussed at a recent meeting of the Association of Shetland Community Councils (ASCC) and I can now provide you with the following response from ASCC Chairman, Ian Walterson.

Community Council Members expressed concerns regarding the Scoping Report and the Habitats Regulations Appraisal Screening Report and request that the Scottish Government Marine Directorate and Scottish Ministers ensure that the applicant, Arven Offshore Wind Farm Limited, continue to liaise very closely with all consultees listed below regarding the proposed development of the project regarding its potential impact on important fishing grounds, spawning grounds , seabird populations and the environment.

- Shetland Fishermen's Association
- Scottish Fishermen's Federation
- Shetland Shellfish Management Organisation (for any proposed developments within 6 nautical miles from the Shetland shoreline)
- SalmonScotland
- Seafood Shetland
- NatureScot
- Northern Lighthouse Board
- RSPB
- UHI Shetland
- Shetland Oil Terminal Environmental Advisory Group.

If the Scottish Government Marine Directorate are seeking confirmation that the European sites of conservation importance identified in the HRA Screening Report are complete and accurate, we suggest they contact UHI Shetland, NatureScot and RSPB for advice on this.

The Association of Shetland Community Councils wish to be kept fully informed on any further developments regarding the plans for this offshore wind farm.

Yours sincerely,

Ian Walterson
Chairman
Association of Shetland Community Councils

Michael Duncan

External Funding Officer / Community Council Liaison Officer

Shetland Islands Council
Community Planning & Development
Solarhus
3 North Ness
Lerwick
Shetland
ZE1 0LZ

Tel: [redacted]
Email:

Facebook: www.facebook.com/shetland.community.hub

British Telecom - Radio Protection Network ("BT")

Radio Network Protection

From: radionetworkprotection@bt.com
Sent: 27 June 2024 16:36
To: MD Marine Renewables
Cc: radionetworkprotection@bt.com
Subject: FW: WID13448 - SCOP-0048- Arven Offshore Wind Farm Limited- Arven Offshore Wind Farm- Scoping Consultation- Response required by 29 June 2024

Categories: Saved in eRDM
Objective: -1

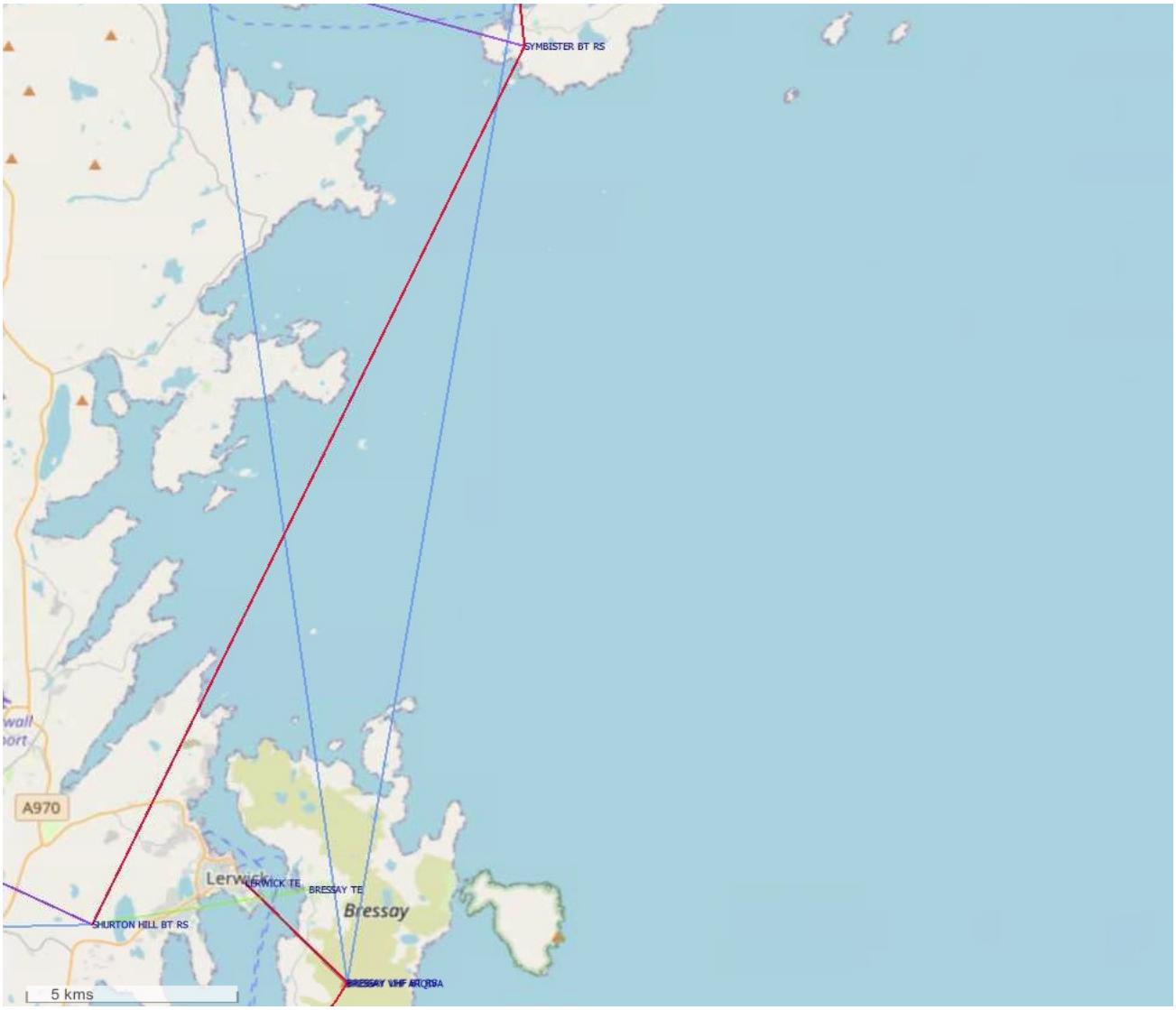
BT Group

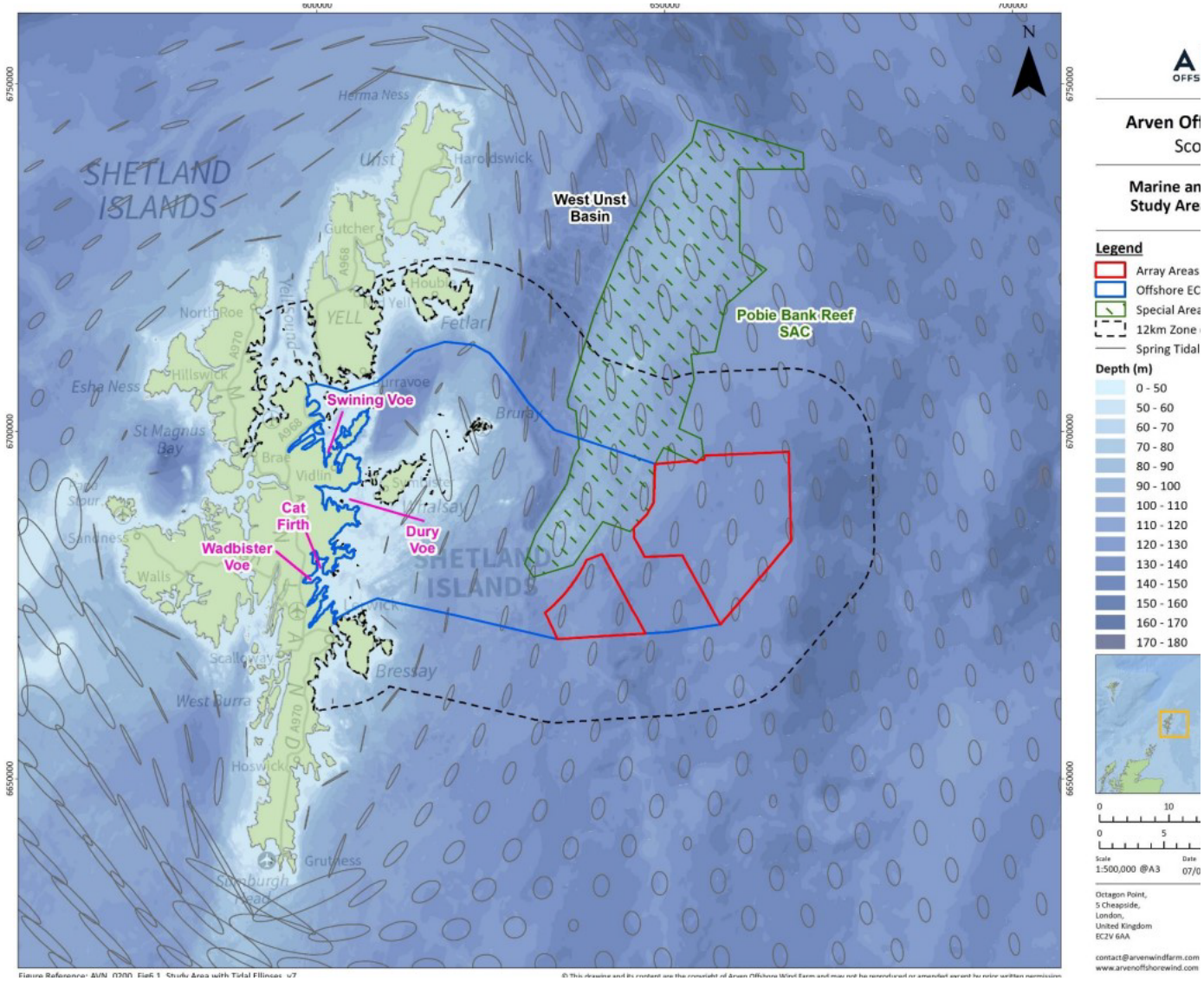
OUR REF; WID13448

Thank you for your email dated 30/05/2024.

We have studied this Arven Offshore Wind Farm scoping proposal with respect to EMC and related problems to BT point-to-point microwave radio links.

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


SYMBISTER BT RS
A970
Lerwick
BRESSAY TE
Bressay
SHURTON HILL BT RS
5 kms



For your awareness I have attached a snapshot showing BTs current links in the vicinity of this project. BT requires 100m minimum clearance from any structure to the radio link path. If the proposed locations change, please let us know and we can reassess this for you.

Please note this refers to BT Radio Links only, you will need to contact other providers separately for information relating to other supplier links / equipment.

Please direct all queries to radionetworkprotection@bt.com

Kind regards

Laura Taylor
National Radio Planner
Network Planning

E: radionetworkprotection@bt.com

BT Group

Historic Environment Scotland ("HES")

HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

By email: MD.MarineRenewables@gov.scot

Judith Horrill
Marine Licensing Casework Officer
Marine Directorate (Aberdeen Office)

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

Enquiry Line: 0131-668-8716
HMConsultations@hes.scot

Our case ID: 300073499
Your ref: SCOP-0048

24 July 2024

Dear Judith Horrill

The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2007
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
Arven Offshore Wind Farm Limited - Arven Offshore Wind Farm - Approximately 30 km East of Mainland, Shetland
Section 36 application and marine licence application
Scoping Opinion

Thank you for you consulting us on this Environmental Impact Assessment (EIA) scoping report, which we received on 30 May 2024. 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.

The relevant local authority archaeological and cultural heritage advisors (The Shetland Amenity Trust: contact Val Turner at Val.Turner@shetlandamenity.org) will also be able to offer advice on the scope of the cultural heritage assessment. This may include topics covered by our advice-giving role, and also other topics such as unscheduled archaeology, category B and C listed buildings, and conservation areas.

Proposed development

We understand that the proposed development comprises:

- A maximum of 161 wind turbine generators standing up to 359.1m above sea level arranged in two array areas and anchored using floating foundations.
- Offshore Substation Platforms; the nature, design and number of these substations is yet to be determined
- Associated works such as scour protection.
- Associated cabling works.

Scope of assessment

We have significant concerns about the scope of assessment presented in the Scoping Report as it does not consider the impact of the proposed development on the settings of

cultural heritage assets on land. EIA Regulations require requests for scoping opinions to provide a description of the project's effects on the environment, including cultural heritage. As the offshore elements of the proposed development have the potential to impact on the settings of terrestrial cultural heritage assets, the effect of those impacts must be considered in the Scoping Report and, if appropriate, the Environmental Impact Assessment Report for the offshore development.

Our detailed comments on this matter are provided in the annex to this covering letter. This also includes our requirements for information to be included in the EIA Report.

Further information

Decisions that affect the historic environment should take the Historic Environment Policy for Scotland (HEPS) into account as a material consideration. HEPS is supported by our Managing Change guidance series. We also recommend that the applicant refers to the EIA Handbook for best practice advice on assessing cultural heritage impacts.

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

Yours sincerely

Historic Environment Scotland

ANNEX: Our detailed comments

Scoping Report

Although we note that the applicant intends to undertake a separate EIA for terrestrial elements of the proposed development, we are concerned that there is a significant omission in the scope of the proposed assessment of effects from the offshore wind turbines. This is likely to lead to a lack of clarity in the environmental effects of the proposed development in the final EIA Report if this is not addressed. We have set out our detailed comments on these matters below.

Marine Archaeology and Cultural Heritage matters are considered in Chapter 16 of the scoping report. We have comments on the following matters relating to that chapter -

Setting impacts and effects

While impacts and effects on cultural heritage interests within the marine environment (below MHWS) are considered in detail, the scoping report does not address the potential impact and effect of the development on the settings of cultural heritage assets on land. By not considering that impact, the scoping report does not provide an adequate description of its possible significant effects on the historic environment. No explanation is provided for this omission.

This matter must be addressed before the applicants proceed to the production of their EIA report. In doing so, the applicants should ensure that all relevant sections of the scoping report, including the Commitments Register (Appendix A), Impacts Register (Appendix B), and the summary of scoping provided in Chapter 20 are amended to take account of the requirement to consider cultural heritage setting impacts in the scoping process.

Section 16.1 of the cultural heritage chapter notes that Chapter 12: Seascape, Landscape and Visual Impact Assessment is particularly relevant to cultural heritage interests. Whilst we broadly agree with this conclusion and expect information from this chapter to inform the cultural heritage chapter of the EIA report we have some concerns about how impacts on setting will be assessed. The reference to the usefulness of SLVIA information in considering setting impacts on cultural heritage assets could be misread as an indication that this topic will be addressed in the SLVIA. This is not the case and it would not be appropriate to do so. Although the two disciplines share common elements, assessment of landscape/seascape impacts and assessment of setting impacts on cultural heritage assets require very different background knowledge and skill sets. Impacts on setting should be assessed by a suitably experienced historic environment consultant.

We also note that section 16.1 refers to setting as an indirect impact. The Environmental Impact Assessment Handbook (Appendix 1, 44.c) makes it clear that setting impacts are generally direct impacts and we therefore expect them to be treated as such in the EIA process.

Study Areas

As a result of the omission of setting impacts from the report, the study area proposed for cultural heritage interests is not adequate.

We are content with the proposed study area for physical impacts on marine heritage assets; the development boundary area plus a 1km area around that boundary (stopping at the MHWS level on shore)

For setting impacts, a study area should be identified and implemented using Zone of Theoretical Visibility mapping as a basis for assessment.

Data Sources

The baseline data sources listed in section 16.3 and Table 16.1 are appropriate, but the list does not include Historic Environment Scotland's database of designated assets available via our Historic Environment Portal. This information is essential to ensure the adequate assessment of setting impacts on terrestrial cultural heritage assets and physical and setting impacts on any designated assets within the intertidal zone. It must be added to the list of sources and used during the EIA process.

Baseline Environment

This section of the report presents an appropriate overview of cultural heritage interests within the marine environment, but in keeping with the rest of the report it does not consider terrestrial sites that could experience setting impacts. This must be addressed before the EIA Report is submitted.

Embedded Mitigation

While we are content with the basic mitigation principles outlined in the report, there is a lack of detail which we would wish to see addressed in the final EIA report. The outline mitigation measures outlined at 16.5 are appropriate for physical impacts on underwater archaeology and cultural heritage assets but we consider there to be additional mitigation commitments relevant to cultural heritage interests –

- C-1 Cable Plan – should address the potential for physical impacts on cultural heritage interests
- C-2 Development specification and layout plan - should address the potential for physical and setting impacts on cultural heritage interests
- C-5 Design statement - should address the potential for physical and setting impacts on cultural heritage interests
- C-6 Environmental Management Plan – this should run in tandem with or incorporate the Written Scheme of Archaeological Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) described at C-19. This would ensure that the management of cultural heritage impacts is integrated with the main mitigation programme

- C-8 Environmental Clerk of Works – the ECoW will have ultimate responsibility for ensuring the mitigation measures in the WSI and PAD are carried out to an appropriate standard.
- C-12 Project Environmental Monitoring Programme – this should include the provisions of the WSI and PAD
- C-17 Operation and Maintenance Programme - should address the potential for physical impacts on cultural heritage interests
- C- 20 Scour protection - should address the potential for physical impacts on cultural heritage interests

While we welcome commitments C-19 and C-37 which relate directly to cultural heritage interests, we recommend that cultural heritage mitigation measures should be explicitly addressed across the full range of mitigation commitments. We recommend Appendix 1 should be updated to reflect this.

No mitigation is offered for setting impacts. This must be addressed or the EIA process will not be compliant with the relevant Regulations.

Scoping of Impacts

We note and welcome that physical impacts to marine archaeology are scoped in to the EIA process.

Setting impacts on terrestrial assets must be scoped in to future assessment.

We are content with the proposal to scope out trans-boundary effects.

Proposed approach to EIA

The EIA Report will be developed using a “design envelope” approach where a worst case scenario will be considered; further studies and surveys leading to a finalised design for the scheme will only be undertaken if consent is granted. This approach makes it difficult to assess the physical and setting impacts of the development on cultural heritage interests.

While we would prefer to see relevant survey work undertaken before the production of the EIA Report, we accept that it should be possible to gather and use further information to finalise the scheme post-consent provided the EIA Report puts forward suitably robust processes to ensure that any significant effects on cultural heritage interests which are identified are mitigated. Our acceptance of this approach should not be taken as our agreement to, or approval of, any future scheme proposed.

Additional comments on the Scoping Report and scope of assessment

The Cultural Heritage chapter does not contain a section outlining the legislation, policy and guidance that should inform the assessment. While much of this is covered in Chapter 2 of the scoping report, the following documents of particular relevance to cultural heritage interests are not mentioned in Chapter 2 -

- The Ancient Monuments and Archaeological Areas Act 1979
- The Protection of Military Remains Act 1986
- Historic Environment Policy for Scotland (HEPS)
- Managing Change in the Historic Environment: Setting

We recommend that these should be explicitly highlighted in the EIA Report and used to inform the consideration of cultural heritage interests in the assessment process.

Historic Environment Scotland's interest

The scoping report (16.4.5) has identified two designated assets within the cable corridor study area; the wrecks of the Kennemerland and the Wrangels Palais which together form the Out Skerries Historic Marine Protected Area (HMPA5). We would expect any potential impacts from the development on these assets to be mitigated through design.

The proposals have the potential to generate impacts on the setting of scheduled monuments, Category A listed buildings and Gardens and Designed Landscapes on Shetland, primarily those along the eastern coasts of the archipelago. The applicant should undertake an appropriate assessment of the impact of the proposed turbines on the setting of terrestrial designated assets and produce visualisations as appropriate. We recommend the applicant use a ZTV at a scale suitable for identifying what, if any, designated assets might be affected. This will help them to identify any monuments likely to be affected and to assess the likely impact of the turbines on their setting.

Due to the limited information currently available we have not been able to identify any specific scheduled monuments or listed buildings that should be included for assessment. However, there are several sites along the east coast of Shetland, such as Mousa Broch, that would be likely to experience impacts. Any assessment of such assets should consider key views towards the assets as well as views from them, including any visual relationship with the sea and maritime routeways.

We note that the SLVIA chapter has identified four gardens and designed landscapes within its study area –

- (GDL00054) Belmont House
- (GDL00074) Brough Lodge
- (GDL00271) Lunna House
- (GDL00186) Gardie House

Belmont House and Gardie House do not lie within the ZTV for the development and have been scoped out of further consideration for SLVIA interests. We recommend that this information is checked for cultural heritage interests and that views towards these assets are considered as part of that process. We also wish to repeat our earlier advice that SLVIA and cultural heritage assessments are different disciplines and that the conclusions of one assessment cannot be taken as a proxy for the other.

We would be happy to offer further advice and information to the applicants and their agents to help them address the issues identified in this response.

Historic Environment Scotland
24 July 2024

Marine Directorate Science, Environment, Digital and Data ("MD-SEDD")

25 June 2024

Scottish Government
Riaghaltas na h-Alba

Arven Offshore Wind Farm

Marine Analytical Unit ("MAU") Response
Marine Directorate

The Arven Wind Farm Development scoping report includes descriptions of a range of potential impacts. This response focuses only on the assessment of social and economic impacts.

We recommend that a full Socio-Economic Impact Assessment be carried out. We provide general advice on how to deliver this in Annex 1.

1. Overview

1.1. Study areas

We noted that Shetland has been identified as a local study area, and economic effects will be assessed at the level of the Scottish and UK economies.

Although at this stage port location and supply chain hubs have not been defined, the assessment of socio-economic impacts would benefit from the inclusions of a short list of potential epicentres of impact. This can help to define the affected communities, and aid stakeholder engagement and research with local communities.

We note that to overcome the difficulty of identifying potential local study areas, it is suggested in section 18.6 to discuss hypothetical areas of impact and undertake scenario planning for impact at potential locations for the construction base and O&M base. We welcome this suggestion, as it might provide information on the nature and scale of impacts that might affect communities. Scenario mapping, however, should not be viewed as a replacement of primary research with stakeholders, including local communities.

1.2. Consultation, stakeholder engagement, and primary data collection

We noted that a desk-based approach is suggested for the assessment (pages 423-426 of the scoping report).

We noted the suggestion to limit the consultation to key stakeholders, such as local authorities (page 431 of the scoping report).

It is noted in section 18.6.2. that the assessment of socio-cultural impacts would require primary social research with impacted communities that cannot be identified at the time of the assessment because of the lack of clarity surrounding the future construction and operation ports.

Academic research (e.g. Aitken et al 2016; Devine-Wright 2011; Firestone et al 2012; Howell 2018; Jijelava and Vanclay 2028; Langbroek and Vanclay 2012; Vanclay 2020) shows that it is important to involve local communities in social impact assessments and address any concerns communities might have. This decreases the delivery risks for projects. Following this research, we believe that the engagement of stakeholders (including local communities) is very important for the assessment of socio-economic impacts, as these communities might be directly impacted by the development. As described in the Annex 1, we recommend conducting a stakeholder mapping exercise to identify all potential stakeholders who might be affected by the development. These stakeholders need to be engaged for identification and assessment of potential impacts (e.g. creation of a working group with local community councils where magnitude and sensitivity of socio-economic impacts is discussed).

It is important not only to inform members of the general public about the development but also gather their views of how they might be affected (primary data collection). Please note that this approach is important not only for the assessment of socio-cultural impacts, but also other social and economic impacts (e.g. communities' views on potential impacts on employment, housing, local services). We recommend that potential socio-economic impacts are discussed with members of the general public and their assessment is fed into the report.

We believe that engagement and research with communities is proportionate to large infrastructure projects, such as offshore wind farms. Moreover, there are examples[1] of how social research has been implemented in practice by some OWFs.

We encourage the developer to engage trained social researchers with experience in qualitative methods to conduct research and primary data collection with communities to ensure that the social science research methods are designed and executed correctly so that the engagement is delivered in as ethical and meaningful way as possible.

1.3. Data sources

Please use the most up-to-date data sources.

With regards to Diffley Partnership research mentioned in section 18.6.2., we would like to discourage the use of external literature instead of primary social research, as this might result in poorer quality assessment. Robust evidence produced specifically for the SEIA is required to deliver a good quality assessment.

2. Scoping of impacts

2.1. Social impacts

[1] Environmental Impact Assessment Report - Volume 1 - West of Orkney Windfarm - West of Hoy, Orkney | Marine Scotland Information

We disagree with the scoping out of socio-cultural impacts. We do not accept the statement that 'sociocultural effects are generally neither adverse nor significant' (page 428 of the scoping report) as a rationale for scoping out these impacts.

The MAU would like to encourage developers to collaborate for the assessment of socio-economic impacts to mitigate the issue of stakeholder fatigue. This can be achieved through the upcoming SOWEC collaborative project. The MAU would like to note that it is the responsibility of developers to ensure that the SEIA includes the results of such analyses, as the MAU will not support signposting to participation in the project as sufficient for the assessment.

2.2. Economic impacts

We broadly agree with the scoping report's proposed approach for assessing economic impacts, in particular that the assessment will include direct, indirect and induced impacts for all phases of the project. It's also pleasing that the assessment will take into account deadweight, leakage, displacement and substitution, and that sensitivity analysis will be performed to account for risk, uncertainty and optimism bias. Please refer to our guidance shown in Annex 1 for further information.

The scoping report outlines that employment impacts will be assessed at each phase of the project in terms of years of employment and jobs. If it is possible to supply additional information about the types of jobs that are expected to be created (e.g. part-time, full-time, skilled, unskilled etc) and how these compare to the existing jobs in the study area, this will add further depth to the analysis.

We expect to see a detailed description of the methodology used to assess economic impacts in the assessment, including specific details about the methodological approach taken and any key assumptions that underpin any estimates. This may be supplied in a technical annex if necessary.

3. Conclusions

We broadly agree with the scoping report's proposed approach for assessing economic and social impacts. However, we disagree with the scoping out of socio-cultural impacts. We would like to encourage the developer to conduct more engagement and social research with local communities. We recommend that you employ a social researcher with qualitative research expertise to collect primary data from communities to understand their responses to potential socio-economic changes resulting from the development.

References

Aitken, M., Haggett, C. and Rudolph, D. (2016) Practices and rationales of community engagement with wind farms: awareness raising, consultation, empowerment. Planning Theory & Practice, 17(4): 557-576. https://doi.org/10.1080/14649357.2016.1218919

Devine-Wright, P. (2011) Enhancing local distinctiveness fosters public acceptance of tidal energy: A UK case study. Energy Policy, 39(1): 83-93. https://doi.org/10.1016/j.enpol.2010.09.012

Firestone, J., Kempton, W., Blaydes Lilley, M. and Samoteskul, K. (2012) Public acceptance of offshore wind power: does perceived fairness of process matter?, Journal of Environmental Planning and Management, 55(10): 1387-1402. https://doi.org/10.1080/09640568.2012.688658

Howell, R. (2018) PhD Thesis "In sight and in mind: Social implications of marine renewable energy". University of Edinburgh. Available at In sight and in mind: social implications of marine renewable energy (ed.ac.uk) (accessed 10/03/2023).

Jijelava, D. and Vanclay, F. (2018) How a large project was halted by the lack of a social Licence to operate: Testing the applicability of the Thomson and Boutilier model, in Environmental Impact Assessment Review 73: 31-40. https://doi.org/10.1016/j.eiar.2018.07.001

Langbroek, M. and Vanclay, F. (2012) Learning from the social impacts associated with initiating a windfarm near the former island of Urk, The Netherlands, Impact Assessment and Project Appraisal 30(3): 167-178. https://doi.org/10.1080/14615517.2012.706943

Vanclay, F. (2020) Reflections on Social Impact Assessment in the 21st century, Impact Assessment and Project Appraisal 38(2): 126-131. https://doi.org/10.1080/14615517.2019.1685807

Annex 1: General Advice for Socio-Economic Impact Assessment
Marine Analytical Unit (MAU)
Marine Directorate
December 2023

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

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 the 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 (see Methods Toolkit referenced at the end of this Annex) 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 Directorate 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[2]

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;

[2] 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

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

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.	statistics.gov.scot
Marine Economic Statistics	Annual economic statistics publication including GVA and employment data for marine economy sectors.	Marine economic statistics - gov.scot (www.gov.scot)

Scottish Sea Fisheries Statistics	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 fishing fleet and employment on Scottish vessels.	Sea fisheries statistics - gov.scot (www.gov.scot)
Scottish Shellfish Farm Production Survey 2022	Statistics on employment, production and value of shellfish from Scottish shellfish farms.	Scottish Shellfish Farm Production Survey 2022 - gov.scot (www.gov.scot)
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.	Scottish Annual Business Statistics 2020 - gov.scot (www.gov.scot)
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.	Sub-Scotland Economic Statistics Database - gov.scot (www.gov.scot)
Nomis Official Labour Market Statistics	Labour market statistics including data on employment, unemployment, qualifications, earnings etc.	Nomis - Official Labour Market Statistics (nomisweb.co.uk)
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.	Economics of the UK Fishing Fleet 2020 — Seafish
Scotland's Census, National Records of Scotland	Census data that provides information about the characteristics of people and households in the country.	Scotland's Census | National Records of Scotland (nrscotland.gov.uk)

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.	Scottish Index of Multiple Deprivation 2020 - gov.scot (www.gov.scot)
The Green Book	HM Treasury guidance on how to appraise and evaluation policies, projects and programmes.	The Green Book: appraisal and evaluation in central government - GOV.UK (www.gov.uk)
The Magenta Book	HM Treasury guidance on evaluation. Chapter 4 provides specific guidance on data collection, data access and data linking.	The Magenta Book - GOV.UK (www.gov.uk)
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.	Enabling a Natural Capital Approach (ENCA) - GOV.UK (www.gov.uk)

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

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

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

Best practice guidance for assessing the socio-economic impacts of OWF developments: Guidance on assessing the socio-economic impacts of offshore wind farms (OWFs)

A toolkit of methods available to assist developers, consultants, and researchers carrying out socio-economic impact assessments: Methods Toolkit for Participatory Engagement and Social Research - gov.scot (www.gov.scot)

Marine Directorate- Science, Environment, Digital and Data

16 July 2024

Scottish Government
Riaghaltas na h-Alba
gov.scot

E: [redacted]

Judith Horill

Marine Directorate Licensing Operations Team

Marine Laboratory

375 Victoria Road

Aberdeen

AB11 9DB

16 JULY 2024

ARVEN OFFSHORE WIND FARM

Marine Directorate advisers have reviewed the request from MD-LOT and provide the following advice.

Commercial fisheries

MD-SEDD agree that all potential relevant fisheries impacts have been identified and scoped in. MD-SEDD note the overlap of the proposed windfarm footprint with fishing grounds for multiple fleets, in particular the demersal and pelagic fleet, and MD-SEDD advise that this is taken into account within a fisheries displacement assessment.

MD-SEDD advise that the cumulative effects assessment takes into account any nearby Marine Protected Areas and other fisheries management areas with restricted fishing activity as potential projects that could cause cumulative effects for commercial fisheries.

Data:

MD-SEDD advise that applicants include AIS data provided by EMODNet which gives the amount of time spent by fishing vessels in a location. These can be found via emodnet.ec.europa.eu under “vessel density”. These provide a better indication of fishing activity than the AIS route density data presented in the scoping report, as they weight the movement through a grid quare with how long the vessel has stayed in that square and how much of the square it has covered. The route density data presented in the scoping report is more useful for visualising transiting routes for assessing impacts to steaming routes.

MD-SEDD note that the Scotmap data from 2014 has been mentioned and advise that this data should not be relied upon to provide information on the commercial fisheries baseline for the inshore fleet as it is out of date. MD-SEDD advise that this dataset should be used only to

validate information gathered through consultation with local fishers and stakeholders. The heat maps for <12m vessels (2017-2021) available on NMPi are a more up to date source of spatial activity, and MD-SEDD note these have been utilised.

MD-SEDD advise that the title of figure 13.15 is incorrect as this is not Vessel Monitoring System (VMS) data for vessels under 12m in length. These spatial data have been generated from the location and catch value recorded in ships' logbooks. A description of the method can be read

Physical environment / coastal processes

MD-SEDD Oceanography advisers have reviewed Chapter 6 (Marine Geology, Oceanography and Physical Process) of the Arven Offshore Wind Farm (OWF) offshore Environmental Impact Assessment (EIA) scoping report, mainly focusing on tidal and water column processes.

The proposed windfarm is in a region of shelf sea that experiences seasonal stratification, and the potential changes to water column structure including magnitude, timing and extent of seasonal stratification should be assessed in the EIA.

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

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

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

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

MD-SEDD recognise there is no clear methodology or guidance available on how to assess the impact of wind farm structures or wind deficit on stratification. The use of a 1D vertical model, such as the General Ocean Turbulence Model (GOTM), could be a pragmatic way to model the potential impact of the wind farm structures on mixing. A 1D vertical model would require boundary conditions, and these could be supplied from existing 3D hydrodynamic

model data (temperature, salinity, velocities), or potentially from any other hydrodynamic model being used as part of the EIA.

Another assessment approach is to investigate how turbine structures could change turbulent kinetic energy (TKE) (e.g. Carpenter et al. 2016) and comparing this with background/baseline TKE values. The potential impact of these changes in TKE on the timing of stratification should be included, and whether fronts are likely to be effected.

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

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

Below are comments in response to the questions posed in the scoping report.

Do you agree with the use of those existing and additional data sources listed in Sections 6.3 and 6.10.2, being used to inform the Offshore EIA?
Yes, the data sources are relevant. Regarding the Scottish Shelf Model (SSM). Please be aware there is a 27 year reanalysis available at https://tinyurl.com/SSW-Reanalysis and can be cited as Barton, B., De Dominicis, M., O'Hara Murray, R., Campbell, L. 2022. Scottish Shelf Model 3.02 - 27 Year Reanalysis. doi: https://doi.org/10.7489/12423-1. The SSM Shetland domain is due to be refined and have a long reanalysis performed as part of an approx. 1.5 year project starting in Sep 2024. These output will become available. See https://marine.gov.scot/information/shetland-model for information on this model.

Do you agree with the proposed marine geology, oceanography and physical processes study area?
Yes

Do you agree that all the marine geology, oceanography and physical processes pathways and receptors have been identified?
Yes

Do you agree with the scoping in and out of impacts related to marine geology, oceanography and physical processes?
No, MD-SEDD advise the potential impact on stratification should be scoped in. The scoping report justifies it being scoped out as “summer stratification occurs to the west of the Array Areas” and yet earlier in the report it is acknowledged that “vertical density stratification occurs across the study area during the summer months due to solar heat input at the surface”. The report indicates that fronts form to the west of the array areas which means the areas offshore to this, including the array areas, will seasonally stratify.

Do you agree on the suitability of the embedded mitigation measures proposed for marine geology, oceanography and physical processes?
Yes

Do you agree with the proposed assessment methodology, related to marine geology, oceanography and physical processes?
Yes, but a methodology for the assessment of stratification and frontal positions should be developed. MD-SEDD have outlined these potential methodologies above.

Do you agree that, as stated in Table 6.3, numerical modelling will only be applied to assess seabed sediment disturbance from construction activities?
The proposed assessment methodologies are considered to be proportionate, and MD-SEDD agree that the plume modelling should be used for construction. MD-SEDD recommend the use of models for the assessment of stratification.

Do you agree that the assessment can be undertaken without a requirement for site-specific geophysical survey data?
No comment, as NatureScot are better placed to comment on this.

Do you agree to the scoping out of the assessment of transboundary effects related to marine geology, oceanography and physical processes?
Yes

Do you agree with the proposed approach to assessment of cumulative effects related to marine geology, oceanography and physical processes?
Yes, although MD-SEDD recommend the assessment of cumulative impacts on stratification, and include all NE1 plan option developments within that assessment.

References
Christiansen, N., Daewel, U., Djath, B., & Schrum, C. (2022). Emergence of Large-Scale Hydrodynamic Structures Due to Atmospheric Offshore Wind Farm Wakes. Frontiers in Marine Science, 9. https://doi.org/10.3389/fmars.2022.818501
Dorrell, R. M., Lloyd, C. J., Lincoln, B. J., Rippeth, T. P., Taylor, J. R., Caulfield, C. P., Sharples, J., Polton, J. A., Scannell, B. D., Greaves, D. M., Hall, R. A., & Simpson, J. H. (2022). Anthropogenic Mixing in Seasonally Stratified Shelf Seas by Offshore Wind Farm Infrastructure. Frontiers in Marine Science, 9. https://doi.org/10.3389/fmars.2022.830927

Yours sincerely,

Renewables and Ecology Team

Marine Directorate – Science, Evidence, Data and Digital

Maritime and Coastguard Agency ("MCA")

Nick Salter
Maritime and Coastguard Agency
UK Technical Services – Navigation
105 Commercial Road
Southampton
SO15 1EG
www.gov.uk/mca

14 June 2024

Judith Horrill
Marine Licensing Casework Officer,
Licensing Operations Team, Marine Directorate
Scottish Government, Marine Laboratory,
Aberdeen, AB11 9DB
By email to: MD.MarineRenewables@gov.scot

Dear Ms Horrill

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").

Arven Offshore Wind Farm – Scoping Consultation

Thank you for your email dated 30 May 2024 requesting comments on the scoping report provided by Arven Offshore Windfarm Limited. The MCA welcomes the opportunity to provide comments under the above Environmental Impact Assessment Regulations, and we would comment as follows:

The Environmental Impact Report 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.

A Navigational Risk Assessment (NRA) will need to be submitted in accordance with MGN 654 (and MGN 372 Amendment 1) and the MCA's 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 downloaded from the MCA website at https://www.gov.uk/guidance/offshore-renewable-energy-installations-impact-on-shipping. A vessel traffic survey must be undertaken to the standard of MGN 654 Section 4.6. The survey must consist of a minimum of 28 days of seasonal data (two x 14-day surveys) using AIS, radar and visual observations to capture all vessels navigating in the study area. Other sources of data and

stakeholder consultation will ensure the NRA captures vessels that are not required to carry and operate AIS such as for fishing and recreation.

Attention needs to be paid to traffic 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 be considered which will be an important issue to assess for this project. It should take into account the proximity to other windfarm developments, other infrastructure and the impact on safe navigable sea room.

The proximity to other offshore windfarms will need to be fully considered, with an appropriate assessment of the distances between OREI boundaries and shipping routes as per MGN 654. The cumulative impacts of other windfarms in close proximity will change routing. Attention must be paid for ensuring the established shipping routes can continue safely without unacceptable deviations.

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.

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.

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). The report must recognise 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, as per MGN 654 Annex 5 SAR requirements.

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.

On the understanding that the Shipping and Navigation aspects are undertaken in accordance with MGN 654 and its annexes, along with a completed MGN checklist, MCA is likely to be content with the approach for assessing the navigational and emergency response risks.

Scoping Questions

Do you agree with the study area (s) defined for Shipping and Navigation?

- Yes

Do you agree with the use of those data listed in Section 15.3, and any additional anticipated data listed in Section 15.9, being used to inform the Offshore EIA?

- Yes. Other sources of data will ensure the NRA captures vessels that are not required to carry and operate AIS such as VMS and RYA Coastal Atlas for fishing and recreation.

Are there any additional data sources or guidance documents that should be considered?

- Yes. PIANC and Nautical Institute guidance may be relevant.

Do you agree that all receptors related to Shipping and Navigation have been identified?

- Additional receptors may be identified during the NRA process.

Do you agree with the proposed study areas identified for the Shipping and Navigation receptors?

- As above.

Do you agree with the impacts scoped for Shipping and Navigation and in particular those relating to the use of floating technology?

- Yes, however allision risk must be included for the construction and decommissioning phases.

Do you agree the embedded mitigation is appropriate, or are there other measures that should be included?

- While measures listed in section 15.5 are relevant, the full list of appropriate embedded risk controls will be determined during the NRA process.

Do you agree with the proposed assessment methodology related to Shipping and Navigation?

- Yes

Are there any additional shipping and navigation organisations that you would recommend be consulted?

- The stakeholders listed in 15.9.2 may recommend additional consultees during the NRA process, if required.

Yours sincerely,

Nick Salter
Offshore Renewables Lead
UK Technical Services - Navigation

Defence Infrastructure Organisation ("MOD")

Defence Infrastructure Organisation

Stefany Alves Veronese
Assistant Safeguarding Manager
Ministry of Defence
Safeguarding Department
Kingston Road
Sutton Coldfield
West Midlands B75 7RL
United Kingdom

Telephone [MOD]:

E-mail:

Your Reference: SCOP-0048

Our Reference: DIO10060062

Judith Horrill
Marine Licensing Casework Officer
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

11 July 2024

Dear Judith,

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").

SCOP-0048 - Arven Offshore Wind Farm Limited – Arven Offshore Wind Farm – Approximately 30 km East of Mainland, Shetland

Thank you for consulting the Ministry of Defence (MOD) on the above Scoping Opinion request in respect of the Arven Offshore Windfarm Wind development received by this office on 30 May 2024.

I write to confirm the safeguarding position of the MOD on the information that should be provided in the Environmental Statement to support any application.

The applicant has prepared an Offshore EIA Scoping Report of the proposed development. This recognises some of the principal defence issues that will be of relevance to the progression of the proposed development.

It is acknowledged that, at this time, details of the precise location, dimensions, and configuration of the turbines and associated infrastructure is not available and that a Design Envelope Approach has been adopted for this array. The components of the project subject to this scoping opinion request will include the following:

- WTGs, including associated infrastructure (nacelle and blades) and Floating Foundations;
- OSPs and Bottom-fixed Foundations or subsea substations;
- Scour protection for WTG and OSP foundations;

- Inter-array Cables between WTGs and between WTGs and OSPs or subsea substations;
- Interconnector Cables between OSPs or subsea substations (if required);
- Offshore Export Cables connecting the OSP(s) or subsea substations to Landfall; and
- Cable protection where required.

The maximum blade tip height of the wind turbines (metres (m) above Lowest Astronomical Tide (Lat)) is expected to be no greater than 359.1m, with a maximum rotor diameter of 310m.

Air Defence Radar

Chapter 14 Aviation and Radar covers Military Aviation. Paragraphs 14.2.3 and 14.4.6 references the MOD's Air Defence (AD) Radars.

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

Within paragraph 14.4.6 of Chapter 14 it is stated that the nearest military air defence radar is located at RRH Saxa Vord which is approximately 58.9km from the closest point of the scoping array and RRH Buchan which is approximately 307.8km from the closest point on the south of the scoping array.

The MOD has undertaken an assessment based on 161 wind turbines at 359.1m to tip height using the Design Envelope boundary co-ordinates. Turbines within the array area will be detectable to the AD Radar at RRH Saxa Vord, but not detectable to RRH Buchan. The impact of the turbines on the AD radar at RRH Saxa Vord will therefore need to be addressed through a suitable technical mitigation solution. It is the applicant's responsibility to provide a suitable technical mitigation solution to the MOD.

Air Traffic Control

Chapter 14 Aviation and Radar covers Military Aviation. Paragraph 14.4.6 references the MOD's Air Traffic Control (ATC) Radars.

This paragraph acknowledges the closest radar equipped military airfield at RAF Lossiemouth (313.8km). A preliminary RLoS Analysis acknowledges that the array will not be visible to RAF Lossiemouth. After carrying out assessments, the MOD agrees with this conclusion.

Military Low Flying

The potential for the development to create physical obstructions to military low flying activities is acknowledged within Chapter 14 Aviation and Radar. Paragraph 14.4.5 identifies military low flying activities occur in uncontrolled airspace below 2,000ft, offshore, above mean sea level (amsl) within defined Low Flying Areas (LFA). To mitigate any potential impact, it is common practice that the MOD will request that a Requirement is added to any Development Consent Order that might be issued requiring the submission of information such as commencement dates, maximum turbine heights and the longitude and latitude of each wind turbine. This information is required to allow accurate charting of the development.

Paragraph 14.4.5 acknowledges the MOD's request for the turbines to be fitted with MOD accredited visible and/or infra-red safety lighting in combination with the ANO's lighting requirement. The MOD will request that the aviation warning lighting requirements is added as a Requirement to any Development Consent Order that might be issued.

Practice and Exercise Areas (PEXA)

Practice and Exercise Areas also known as PEXA, are designated areas of the sea where military exercises can be undertaken. Chapter 14 Aviation and Radar. Paragraph 14.4.5 states that the scoping array project is not contained within the vertical limits of any military PEXA and, therefore military PEXA is scoped out of the EIA. The MOD agrees with this statement in relation to PEXA.

Unexploded Ordnance (UXO)

The potential for unexploded ordnance (UXO) to be present within the development area and the necessity for clearance should be considered. The potential presence of UXO and disposal sites should be a consideration during the installation and decommissioning of turbines, cables, and any other infrastructure, or where other intrusive works are necessary.

I trust this is clear however should you have any questions please do not hesitate to contact me.

Yours sincerely,

Stefany Alves Veronese
Assistant Safeguarding Manager

NATS

NATS

From: NATS Safeguarding <NATSSafeguarding@nats.co.uk>
Sent: 30 May 2024 15:42
To: MD Marine Renewables
Cc: NATS Safeguarding
Subject: RE: [SG36514] SCOP-0048- Arven Offshore Wind Farm Limited- Arven Offshore Wind Farm- Scoping Consultation- Response required by 29 June 2024

NATS is pleased to note that aviation is scoped in and the developer proposes "*Consultation with the MOD, NATS and HIAL*" in order to explore mitigation options for the problems that were highlighted during their pre-submission consultation with ourselves, we look forward to working with them towards this goal.

Regards,

Alasdair

NATS Safeguarding

Natural England

Date: 21 June 2024
Our ref: 479287
Your ref: SCOP-0048

Licensing Operations Team,
Marine Directorate
Scottish Government,
5 Atlantic Quay,
150 Broomielaw,
Glasgow, G2 8LU

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

T [redacted]

BY EMAIL ONLY

Dear Judith

- Electricity Act 1989
- Marine and Coastal Access Act 2009
- The Conservation Of Offshore Marine Habitats And Species Regulations 2017
- The Conservation Of Habitats And Species Regulations 2017

Location: 50km East of Shetland

Documents reviewed:
arven_offshore_wind_farm- hra_screening_report ARVN_GOB_DEV_OFCO_REP_007_F1

Thank you for seeking our advice on the Environmental Impact Assessment and Habitats Regulations Appraisal (HRA) in your consultation which we received on 01 April 2024.

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

The advice contained within this letter is provided by Natural England, which is the statutory nature conservation body within English territorial waters (0-12 nautical miles). As the application is located in Scottish waters the advice from NatureScot, the statutory nature conservation body in Scotland should be sought.

We have *not* reviewed the EIA scoping report and defer to NatureScot to provide advice on that due to the location of the project.

The Conservation of Habitats and Species Regulations 2017 (as amended) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)

Appropriate assessment
We note that the applicant has provided a Habitats Regulations Appraisal Screening Report.

Natural England is a statutory consultee on the Appropriate Assessment stage of the Habitats Regulations Assessment process.

The report has not scoped in any English Special Protection Areas (SPAs) for Likely Significant Effect. The report has scoped in the Southern North Sea Special Area of Conservation (SAC). Having considered the scale and location of the project, Natural England agrees with the conclusions of the HRA screening report.

We do not expect to provide further comments or advice on receptors other than Southern North Sea SAC porpoises unless the project changes substantially.

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

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

Yours sincerely

Ruth Cantrell
Marine Senior Officer, Northumbria

E-mail:
Telephone:

NatureScot

NatureScot
Scotland's Nature Agency
Buidheann Nàdair na h-Alba

Judith Horrill
Marine Licensing Casework Officer
Marine Directorate - Licensing Operations Team
Scottish Government - Marine Laboratory
Aberdeen
AB11 9DB

27 June 2024

Our ref: CNS / REN / OSWF / NE1 – Central – Arven – Pre-application

By email only: ms.marinerenewables@gov.scot

Dear Judith,

Arven Offshore Wind Farm – ScotWind NE1

NatureScot advice on the Environmental Impact Assessment (EIA) Scoping Report and Habitats Regulations Appraisal (HRA) Screening Report

Thank you for consulting NatureScot on the EIA Scoping Report and HRA Screening Report for the Arven Offshore Wind Farm array area and Export Cable Corridor (ECC).

Our advice on the natural heritage interests to be addressed within the Environmental Impact Assessment Report (EIA Report) and the Report to Inform Appropriate Assessment (RIAA) is outlined below.

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. We recognise that this proposal is a lease awarded through the ScotWind process in an area identified through the Sectoral Marine Plan process for Offshore Wind.

Proposal

The Arven Offshore Wind Farm is sited approximately 30km offshore from the Shetland Mainland, covering a seabed area of approximately 460km^2. The proposed development includes two Option Agreement (OA) areas within the ScotWind NE1 area.

The proposal uses a project design envelope approach[1] and comprises of:

- Up to 161 wind turbine generators (WTGs) with an unstated generating capacity.
- WTGs will use floating foundations, with spar, tension-leg platform, semi-submersible or barge being considered. Anchoring systems considered include drag embedment, suction caissons, grouted piles and gravity-based anchors.
- A maximum blade tip height of 359.1m (above Lowest Astronomical Tide, LAT) and a maximum rotor blade diameter of 310m.
- Up to seven Offshore Substation Platforms (OSPs) with fixed foundations – suction caisson and pin piles considered.
- Up to nine subsea substations.
- Inter-array cabling total length of 650km with a burial depth of 0-3m.
- Dynamic inter-array cabling may be required where floating foundations are used.
- Up to six interconnector cables, with a maximum total length of 80km.
- Up to eight offshore export cables with a total cable length of 750km, 5km wide trench and a target cable burial depth to 1m.
- Cable protection to include concrete mattresses, rock placement, cast iron shells or grout bags. Bend stiffeners may also be required.
- Multiple landfall locations are currently considered along the east coast of Mainland Shetland.
- Cables installed at landfall using open cut trenching installation or trenchless techniques (e.g. horizontal directional drilling or direct pipe).

Offshore Export Cable Corridor (ECC)

The offshore ECC study area is very broad and overlaps with several designated sites and sensitive areas, including Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), Marine Protected Areas (MPAs) and seal haul-out sites. Following refinement of the ECC, we recommend further consultation to enable the provision of detailed and robust advice regarding all relevant sites.

For instance, there is considerable overlap with Pobie Bank Reef SAC and we (JNCC and NatureScot) recommend the applicant avoids routing through the SAC as far as practicable. Further advice from JNCC regarding this designated site is provided in Appendix C.

Furthermore, we note that the Application and EIA Report will proceed without a site-specific geophysical survey campaign, which will be conducted post-consent to inform final design instead. This is highly unusual and will presumably limit refinement of the ECC. Additionally, a full characterisation of the seabed habitat would not be possible, resulting in a highly uncertain assessment, with important habitats, including Priority Marine Features (PMFs), potentially missed. As such, we recommend that a site-specific geophysical survey across the array area and ECC is conducted, to enable accurate assessment of impacts to important benthic features and habitats, prior to the consent application being submitted. Further advice regarding benthic ecology is provided in Appendix B. This is in line with JNCC advice, whereby if routing through Pobie Bank Reef SAC is unavoidable, high resolution geophysical data would be required along the

[1] https://www.gov.scot/publications/guidance-applicants-using-design-envelope-applications-under-section-36-electricity-act-1989/

ECC to allow for accurate assessment of impacts to this protected site and the Annex I Reef feature.

PMFs are present within the search area, including maerl habitat. There is overlap with the Lunning Sound potential PMF management area and the Wadbister Voe and Cat Firth potential PMF management area, which have been identified for fishery management measures due to the presence of maerl, highlighting the importance of the area.

We will continue to engage on this proposed development as it goes through the application process, but we request detailed consideration of designated sites and PMFs. Further information will be required in the EIA Report, including area of disturbance, spatial overlap with features and more detail around cable/scour protection, i.e. estimated extent, location, etc.

Content of the EIA Scoping Report and HRA Screening Report

The current lack of refinement has restricted our ability to provide detailed advice particularly on impact pathways and assessment methods. The Scoping Report, as well as the HRA Screening Report is also only informed by six months of digital aerial survey data.

A large part of delivering a proportionate EIA Report, taking account of Scottish Government guidance on use of design envelopes, is to ensure that the project components are refined sufficiently to aid assessment and not result in overly complex scenarios requiring multiple assessments to identify the worst-case and most likely scenarios between and across receptors. Further refinement prior to submission of the EIA Report will be required to avoid the EIA process becoming unmanageable.

However, we note that refinement of the ECC will commence following determination by Scottish and Southern Electricity Networks Transmission (SSENT) of the more precise location of the connection to the National Electricity Transmission System (NETS) on Mainland Shetland, with this information presented in the EIA Report.

As the project envelope is refined and the full two years of survey data analysed, we strongly recommend that the validity of the Scoping Opinion is reviewed, discussed and agreed with all parties during the pre-application period to ensure that data sources, sites/qualifying features, impact pathways and assessment processes are fit for purpose.

The EIA Scoping Report and HRA Screening Report are well laid out, easy to navigate and read. The use of hyperlinks between sections of the Scoping Report was particularly useful.

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. We recommend that the following aspects are considered further and included in the EIA Report.

Baseline characterisation

We recommend submission of the baseline characterisation Digital Aerial Survey (DAS) report during the pre-application stage rather than waiting until the application. This will enable any issues to be discussed and resolved in a timely manner.

Ecosystem assessment

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 predator prey interactions. 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 bird and mammal (and other top predator) interests and what influence this may have on population level impacts.

Climate change and carbon costs

The impact of climate change effects should be considered, both in futureproofing 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. We recognise that some aspects of this are addressed in Section 19 (Climate Change and Greenhouse Gas).

Blue carbon

In addition to the climate change assessments outlined in Section 19 of the EIA Scoping Report, we recommend that consideration is given to impacts on blue carbon and whether or not an assessment can be 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 and coastal habitats. We recognise that some aspects of this are addressed in Section 7.4.3.5.

Cumulative impact assessment

We are concerned with the likelihood of multiple offshore export cables routing through designated sites and making landfall around Mainland Shetland and the potential for cumulative impacts arising from construction and associated geophysical, geotechnical and environmental survey programmes. Therefore, we recommend that this is considered further. In particular, we would welcome any collaboration with the proposed Stoura Offshore Wind Farm to the north of the Arven Offshore Wind Farm. We have previously raised the need for strategic consideration by both Scottish Government (Offshore Wind and Marine Directorates) and the Electricity System Operator (ESO) for the consideration of interconnector management in Scottish waters to avoid marine and coastal spatial squeeze.

Wet storage

Appendix B (Impacts Register) refers to the disturbance and displacement from wet storage. However, this is not discussed in Section 11 (Offshore Ornithology) of the main Scoping Report and specific requirements and potential wet storage locations are not provided.

Wet storage could represent a significant impact, therefore consideration of the potential impacts on all receptors needs to be addressed, including cumulative impacts. However, it is unclear whether this should form part of the EIA Report for this application or should be considered as an aspect related to the relevant port and harbour expansion considerations. We are aware that Marine Directorate are currently considering consenting routes and processes around the activities associated with both the construction and maintenance phases and requirements to assemble, maintain and store components away from the array area. We would welcome further

discussion on this as and when further details are available, to help inform our advice going forward.

Mitigation

We welcome the identification of "embedded mitigation measures" described as outlined in Section 4.3.2 as well as in each of the relevant receptor chapters of the EIA Scoping Report and summarised in Appendix A (Commitments Register).

However, much of the embedded mitigation detailed throughout includes the development and adherence to post-consent plans/programmes. Plans do not strictly constitute mitigation – it is the measures contained within the plan that will mitigate impacts. The EIA Report must clearly articulate those mitigation measures that are informed by the EIA (or HRA) and are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development. We advise that the full range of mitigation and monitoring measures, and published guidance, are considered and discussed in the EIA Report.

Environmental Impact Assessment Report (EIA Report)

The EIA Report provides the assessment to support the application and should be suitability structured, with appropriate formatting, sufficient information with limited repetition to ensure it can be reviewed efficiently and effectively. Consideration should therefore be given to the following aspects:

- It should clearly follow the direction provided in the Scoping Opinion, or where specific agreement was later reached during the pre-application process. Any divergence from this needs to be laid out separately and must be fully justified.
- Consideration should be given to the volume and flow of information within and across each receptor chapter and associated technical appendices. The flow of information relating to impact pathway, assessment and conclusions should be concise, but not omit key information on steps taken. Repeated duplication of text should be avoided through appropriate structuring.
- In electronic versions of the EIA Report, navigational aids including use of hyperlinks etc. are required, particularly where there are supporting technical appendices to any chapters.
- Each stage of the assessment process should be sufficiently transparent to allow the assessments to be repeated. Where specific tools have been used, details of which version and when the assessment was carried out is required.

Habitats Regulations Appraisal (HRA)

We provide advice to help inform HRA requirements for marine ornithology, marine mammals, benthic subtidal ecology, and diadromous fish in each of the relevant appendices below, noting this is based on six months of DAS data as discussed above.

Further discussion and agreement will be needed to ensure that all relevant impact pathways are addressed and that the assessments and conclusions presented in the HRA are appropriate once the full two years of DAS data is available.

Positive Effects for Biodiversity / Biodiversity Net Gain

We recommend early consideration of potential inclusion of positive effects for biodiversity as well as nature inclusive design. Whilst it is not a policy requirement, as part of the need to address both the climate and biodiversity crises, we encourage developers to consider this as part of their application.

Natural Heritage interests to be considered

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

- Advice on physical processes is provided in **Appendix A**.
- Advice on benthic ecology is provided in **Appendix B**.
- JNCC advice on offshore designated sites is provided in **Appendix C**. (This includes Pobie Bank Reef SAC and Southern North Sea SAC).
- Advice on fish ecology is provided in **Appendix D**. (Noting that for diadromous fish we have limited our advice to the requirements for these to be considered as part of the EIA Report only – further advice is contained within the appendix).
- Advice on marine mammals is provided in **Appendix E**.
- Advice on ornithology is provided in **Appendix F**.

For the following receptor, we advise:

- Seascape, Landscape Character and Visual Impact assessment (SLVIA) – having reviewed the supporting information for the proposed development, we do not consider that it would raise issues of National Interest in relation to its landscape, visual or cumulative effects. This is not to say that the development would not result in significant landscape or visual effects, rather that NatureScot does not judge these effects to meet our threshold in respect of our national remit for landscapes.

Further information and advice

We hope this advice is of assistance to help inform the Scoping Opinion, noting that there may be aspects where some further engagement is required to assist in preparing the EIA Report and RIAA.

Please contact me in the first instance for any further advice, using the contact details below, copying to our marine energy mailbox – marineenergy@nature.scot.

Yours sincerely,

Caitlin Cunningham

Marine Sustainability Adviser – Sustainable Coasts and Seas

NatureScot advice on EIA Scoping Report for the Arven Offshore Wind Farm

Appendix A – Physical Processes

Physical processes are considered in Section 6 of the EIA Scoping Report. We have addressed the Scoping questions from Section 6.11 in our advice below.

Study area

The study area is defined as the array area and Export Cable Corridor (ECC) area of search, plus a buffer, which represents a Zone of Influence (ZoI) of approximately 12 km. This is precautionary and is based on the tidal excursion distances that range from 4 to 8 km. We are content with what is proposed.

Baseline characterisation

Key data sources are provided in Table 6.1 and we are content with those listed. Additionally, we are broadly content that all receptors and designated sites have been identified. We welcome the fact that Hawks Ness Geological Conservation Review (GCR) site is listed; it has not been designated a SSSI but is nationally important.

New geophysical survey is not planned until after consent is granted as per Section 6.10.2. We would welcome further confirmation of whether the existing bathymetry data (EMODnet) is of sufficient resolution to detect sand wave or mega ripple bedforms. This is important for the assessment of "Potential impacts to seabed morphology".

Impact pathways

The potential impacts proposed to be scoped in and scoped out for physical processes are summarised in Table 6.3 and 6.4 respectively.

Table 6.3 includes the impact "Modifications to the tidal regime, and associated impacts to morphological features" to be scoped in, as per NatureScot advice (dated 11/01/2024) following the Scoping Workshop.

The ECC area of search overlaps with Pobie Bank Reef SAC and is close to Fetlar to Haroldswick ncMPA, which is within the associated study area. In particular, the Offshore Reefs feature of the SAC may be sensitive to changes in near-bed tidal currents (and/or any resulting changes to seabed morphology).

Additionally, it appears the ECC may overlap with the Easter Rova Head SSSI , Hawks Nest GCR site and/or The Ayres of Swinister SSSI, depending on the location of the landfall(s). If so, and if landfall is to be by direct burial and/or by HDD that exits within the intertidal zone, there could be significant adverse impacts on the geodiversity interests of these sites. This should be explicitly scoped in as a potential construction-phase impact, ideally separate from "Potential impacts to seabed morphology" and "Modifications to littoral transport [etc]". Expert geoconservation judgement will be a key part of the assessment method.

In addition to seabed scouring being scoped in for the potential settings mentioned, the assessment should also consider potential secondary scour from scour protection itself.

Assuming landfall could be at a soft-sediment coast, the potential re-exposure of a trenched cable(s) should be assessed as an additional operational impact, especially given the anticipated increases in rates and extent of erosional retreat at the coast due to accelerating sea-level rise.

This is to reduce any potential need for future hard engineering, which could in turn disrupt coastal processes. As other landfalls are likely to be in the same general area, it may also be relevant to the cumulative impact assessment considerations.

Approach to assessment

Numerical modelling is proposed in Table 6.3 for seabed sediment disturbance from construction activities. We are content with this approach and welcome the proposal to consult further regarding this modelling. We highlight that to be effective, this should be done well before the detailed assessment is undertaken, and it should clarify the intended use of the modelling in the EIA Report.

The Proposed Assessment Approach for "Modifications to the tidal regime [etc]" is unclear. We suggest that combining the use of spreadsheet-based equations with consideration of findings for sufficiently analogous OWFs may be adequate.

Cumulative assessment

At this Scoping stage, we would expect to see a list of impacts to be scoped in/out for consideration. However, this has not been presented. We would welcome further consultation on the cumulative assessment approach, including impacts to be scoped in/out.

We also note that the proposed Stoura Offshore Wind Farm is likely to make landfall in the same general area and may have a similar ECC route. As such, there is potential for cumulative impacts arising from construction and associated geophysical, geotechnical and environmental survey programmes. Therefore, we recommend that this is considered further, with any potential for collaboration welcomed.

Mitigation and monitoring

We welcome the identification of embedded mitigation described in Section 6.6 and summarised in Appendix A (Commitments Register).

Much of the embedded mitigation detailed includes the development and adherence to post-consent plans/programmes. Plans do not strictly constitute mitigation; as it's the measures contained within the plan that will mitigate impacts. The EIA Report must clearly articulate those mitigation measures that are informed by the EIA and are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development. We advise that the full range of mitigation and monitoring measures, and published guidance, are considered and discussed in the EIA Report.

Transboundary impacts

We agree that transboundary impacts can be scoped out from further consideration.

NatureScot advice on EIA Scoping Report for the Arven Offshore Wind Farm

Appendix B – Benthic Ecology

Benthic ecology interests are considered in Section 8 of the EIA Scoping Report and throughout the HRA Screening Report.

Section 8.11 of the Scoping Report includes some direct requests for consultee feedback, we have responded to these within our advice below. In addition, our advice with respect to the HRA Screening Report is also provided below.

Study area

The study area is defined as the array area and Export Cable Corridor (ECC) area of search, plus a buffer, which represents a Zone of Influence (ZoI) of approximately 12 km. This is precautionary and is based on the tidal excursion distances that range from 4 to 8 km. We are content with what is proposed.

Baseline characterisation

We are content with the proposed data sources and guidance documents, as per Section 8.3. Under Relevant Guidance (Section 8.10.1), the MarESA sensitivity assessment is listed. As such, the Feature Activity Sensitivity Tool (FeAST)[2] should also be included.

New geophysical survey is not planned until after consent is granted, which is highly unusual. Presumably this means that refinement of design options (e.g. anchoring options) would not occur in time for the EIA Report, thus leaving a very wide project design envelope. Additionally, a full characterisation of the seabed habitat would not be possible, resulting in a highly uncertain assessment for benthic ecology, with important habitats (including PMFs) potentially missed.

As such, we recommend that a site-specific geophysical survey is conducted across the array area and ECC, to enable accurate assessment of impacts to important benthic features and habitats, prior to the consent application being submitted. This is in line with JNCC advice for Pobie Bank Reef SAC (Appendix C), whereby if routing through the SAC is unavoidable, high resolution geophysical data would be required along the ECC to allow for accurate assessment of impacts to this protected site and the Annex I Reef feature.

Without a site-specific geophysical survey, resulting uncertainty would need to be acknowledged and reflected in the assessment and narrative of the EIA Report. If other recent data can be sourced for the proposed development area (e.g. from oil and gas geophysical surveys), this may be enough to assess impacts to important benthic features and habitats. Further engagement regarding detailed scope and spatial extent of any proposed data would be required prior to application submission. Noting however, that this is independent of the JNCC advice for Pobie Bank Reef SAC.

Potential impacts

Scoping of impacts are discussed in Section 8.7 and this is in accordance with our advice at the Scoping Workshop (held on the 29th November 2023). Thus, we are content with what is proposed.

[2] Feature Activity Sensitivity Tool (FeAST)

Approach to assessment

Sensitivity and magnitude

We are broadly content with the approach to assessment for benthic ecology. However, Section 4.3.5 states that negligible magnitude impacts will not be considered within the EIA Report and receptors of negligible sensitivity will not be considered further for the same reason. This may be pre-empting findings of the individual assessment, which should determine the sensitivity and magnitude of impacts. We advise that all impacts, regardless of sensitivity or magnitude, should be included in the EIA Report, to demonstrate that those impacts have been fully assessed and to show how the conclusions have been reached.

Designated sites

For designated sites, we highlight that any assessment needed should formally use the relevant site Conservation Objectives with regard to each feature separately (but also taking account of relevant functional links between them) and involve expert assessment.

Sediment eDNA

Regarding the query around sediment eDNA, we reiterate our advice from the Scoping Workshop (held on the 29th November 2023) whereby we welcome collaboration with the POSEIDON project. Given eDNA is a novel technology, we have no specific feedback for the use of sediment eDNA at this time.

Cumulative impacts

It is proposed that only "temporary increase in SSC and sediment deposition" is scoped into the cumulative assessment, which may be pre-empting findings of the individual assessment.

We advise that the cumulative assessment should include all impacts which may arise from the development, and not be limited to only "temporary increase in SSC and sediment deposition". Furthermore, it should also include any impacts which could be identified as minimal for the individual development but may have impacts when considered cumulatively (such as EMF).

Regarding EMF, we have observed a tendency for wind farm projects to reach a no LSE conclusion for impacts from a cumulative perspective. However, noting the proposed number of offshore wind developments in Scottish waters, we are concerned that the spatial and temporal scale is not being sufficiently considered cumulatively across the network of cables, including those outwith of the proposed development. Thus, we advise that EMF impacts are considered in the cumulative assessment.

Additionally, some impacts may affect Pobie Bank Reef SAC and may need further consideration. Please see JNCC advice in Appendix C for further information.

Transboundary impacts

We agree that transboundary impacts can be scoped out for benthic ecology interests.

Mitigation and monitoring

We welcome the identification of embedded mitigation described in Section 8.6 and summarised in Appendix A (Commitments Register).

Much of the embedded mitigation detailed includes the development and adherence to post-consent plans/programmes. Plans do not strictly constitute mitigation; as it's the measures contained within the plan that will mitigate impacts. The EIA Report must clearly articulate those mitigation measures that are informed by the EIA and are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development. We advise that the full range of mitigation and monitoring measures, and published guidance, are considered and discussed in the EIA Report.

Habitats Regulations Appraisal (HRA) Screening Report

For sites with Annex I habitat features, the HRA Screening Report has concluded likely significant effect for:

- The Vadills SAC;
- Hascosay SAC
- Sullom Voe SAC
- Pobie Bank Reef SAC

The Vadills SAC lies 14 km from the proposed development, outside the ZoI. It is also on the other side of Mainland Shetland. Therefore, we advise screening out this site as there is no connectivity or likely impact pathway.

Hascosay SAC lies 9.4 km from the proposed development, however, the feature of the site is blanket bog (a terrestrial habitat). As such, there is no direct impact pathway and we advise screening out this site.

Sullom Voe SAC lies next to the proposed development (specifically the ECC search area) and there are various possible impact pathways. Thus, we agree that this site should be screened in, noting however that once the ECC is refined further, it may be possible to screen this site out.

We agree that Pobie Bank Reef SAC should be screened in. However, Table 6.1 states that "changes in physical processes" during the operation phase is "not applicable as there is no pathway", despite Table 5.3 including "changes to physical processes" as a potential impact pathway for all phases. Given that the proposed development may include seabed structures that are installed adjoining the SAC, changes to physical processes (including tidal flow) could affect the SAC and we advise that this impact pathway is included across all phases to reflect this. Further advice on Pobie Bank Reef SAC is provided from JNCC in Appendix C.

JNCC advice on EIA Scoping Report for the Arven Offshore Wind Farm

Appendix C – Offshore designated sites – Pobie Bank Reef SAC and Southern North Sea SAC

JNCC's role in relation to offshore renewables has been delegated to NatureScot. NatureScot is now authorised to exercise JNCC's functions as a statutory consultee in respect of certain applications for offshore renewable energy installations in inshore and offshore waters (0-200 nm) adjacent to Scotland.

JNCC however, maintains responsibility for offshore Marine Protected Areas (MPAs). As such, JNCC have provided the following advice in relation to the Arven Offshore Wind Farm Environmental Impact Assessment (EIA) scoping and Habitats Regulations Assessment (HRA) screening requests to provide a view on nature conservation matters related to the Pobie Bank Reef Special Area of Conservation (SAC) and the Southern North Sea SAC. JNCC have not reviewed other parts of this application and will not be providing comment on parts other than those relevant to the SACs.

The following documents were reviewed in providing this response:

- Arven Offshore Wind Farm, Offshore EIA Scoping Report (document number: ARVN_GOB_DEV_OFCO_REP_006_F1), Rev 5.0, dated 16 May 2024
- Arven Offshore Wind Farm Offshore HRA Screening Report (document number: ARVN_GOB_DEV_OFCO_REP_007_F1), Rev 4.0, dated 16 May 2024

The following chapters were reviewed in providing this response:

<u>Offshore EIA Scoping Report:</u>

- Chapter 1: Introduction
- Chapter 2: Legislative and policy context
- Chapter 3: Description of the offshore proposed development
- Chapter 4: EIA methodology
- Chapter 6: Marine geology, oceanography and physical processes
- Chapter 8: Benthic subtidal and intertidal ecology
- Chapter 20: Summary of offshore EIA scoping

<u>Offshore HRA Screening Report:</u>

- Chapter 1: Introduction
- Chapter 2: Legislative context
- Chapter 3: Description of the offshore proposed development
- Chapter 4: Methodology
- Chapter 5: Screening for No LSE Alone and In-Combination
- Chapter 6: Test for No LSE
- Chapter 7: Summary of screening for appropriate assessment

The following advice relates to Marine Protected Areas (MPAs) within the offshore environment, extending out from the 12nm limit. For all other advice, we defer to NatureScot.

Overall comments

The project is located adjacent to Pobie Bank Reef SAC with part of the Offshore Export Cable Corridor (OfECC) overlapping the protected site. The Arven Offshore Wind Farm includes two Option Agreement (OA) areas within the ScotWind NE1 area, 30km east of mainland Shetland and 23km east of Noss. Eight export cables totalling 750km in length are proposed but routes to market, and the subsequent cable routes, have not yet been finalised.

Pobie Bank Reef SAC

Pobie Bank Reef SAC is designated for the Annex I Habitat "Reefs". The current conservation objective for Pobie Bank Reef SAC is to maintain/restore the Annex I Reef at/to 'Favourable Condition'. We take this opportunity to emphasise the importance of assessing all potential operational impact-pathways in combination with the Site Information Centre documents on the JNCC website: https://jncc.gov.uk/our-work/pobie-bank-reef-mpa.

JNCC encourage the Applicant to follow the mitigation hierarchy and avoid routing export cables through Pobie Bank Reef SAC. Given the current conservation objective of the site is to maintain/restore the Annex I Reef at/to 'Favourable Condition', routing a cable through the SAC will move the SAC further away from its conservation objectives. This is consistent with advice provided by JNCC to other offshore industry sectors. We acknowledge up to eight export cables are being considered, with uncertainty around the routes, which has the potential to substantially increase the impact to the site.

If rerouting of the cable to avoid the MPA is not feasible then JNCC would prefer cables to be bundled into one trench, assuming this would have the smaller seabed impact footprint within the SAC and this would not hinder any decommissioning options for the future. If the Applicant opts to route export cables through the Pobie Bank Reef SAC, JNCC would expect high resolution geophysical data to be collected along the proposed route to allow for accurate assessment of impact to this protected site and the Annex I Reef feature prior to the consent application being submitted. We are of the opinion that, in order to robustly undertake the EIA, site-specific geophysical survey data will be required. Sufficient detail will need to be provided within the EIA to justify the route option chosen, including environmental considerations, and also the success (including throughout operation and maintenance phases) of any mitigation options proposed. A detailed and thorough cumulative impact assessment will also need to be undertaken.

On a number of occasions throughout the document, the Applicant has not referred to the Pobie Bank Reef SAC correctly. "Pobie Bank", "Pobie Bank SAC", and "Pobie Bank Reef SAC" have been used interchangeably throughout both documents. The name of the protected site is "Pobie Bank Reef SAC", and we would encourage that the correct name is used throughout all subsequent documentation.

Southern North Sea SAC

Due to the distance between the Southern North Sea SAC and the Offshore Proposed Development, JNCC are of the opinion that there is no potential for LSE.

EIA Scoping Report Chapter 6: Marine geology, oceanography and physical processes

Section 6.3; Table 6.1: More up-to-date survey information on the Pobie Bank Reef SAC has been carried out. The most recent available data on the JNCC MPA Mapper is the 2016 layer and the two latest surveys from 2021 and 2023 will be uploaded once they have been analysed. The JNCC MPA Mapper can be found at https://jncc.gov.uk/mpa-mapper.

Section 6.4, Paragraph 2: JNCC oversees the management of offshore marine protected areas, including Special Areas of Conservation (SACs), within the delegation that is in place with NatureScot. In that regard, JNCC would encourage the Applicant to engage with both NatureScot and JNCC in matters related to the potential impact of Pobie Bank Reef SAC, which is jointly managed by the two organisations.

Section 6.7, Table 6.4: JNCC believe that "Impacts on seabed morphology due to indentations on the seabed from installation vessels" during the construction and decommissioning phases should be scoped in if there is a possibility of using such vessels within the Pobie Bank Reef SAC, for example in relation to export cable trenching, remediation, repair, and decommissioning.

Section 6.10.2, Paragraph 2: JNCC would encourage the Applicant to not site a cable through Pobie Bank Reef SAC. However, if this was to be considered as an option, we would expect high resolution geophysical data to be collected along the proposed route to allow for accurate assessment of impact to this protected site and the Annex I Reef feature.

EIA Scoping Report Chapter 8: Benthic subtidal and intertidal ecology

Section 8.3, Table 8.1: The title for the conservation objectives and advice on operations document for Pobie Bank Reef SAC is incorrect and should be "Offshore and Inshore Special Area of Conservation Pobie Bank Reef Conservation Objectives and Advice on Operations".

Section 8.3, Table 8.1: In relation to the Pobie Bank Reef SAC, JNCC consider that the most up-to-date survey information is available through our Site Information Centre or, if more recent site-survey data is available, directly from JNCC, and this should be used as an evidence base layer over any broadscale distribution modelling. Directed surveys by the Applicant are welcome and will be considered. The Pobie Bank Reef SAC Site Information Centre can be found at https://jncc.gov.uk/our-work/pobie-bank-reef-mpa.

Section 8.5.4, Paragraph 4: JNCC welcome the Applicants intent to avoid interaction with the Pobie Bank Reef SAC, especially taking into account the current conservation objective of the site to maintain/restore the Annex I Reef at/to 'Favourable Condition'. Potentially routing through the SAC would take the site further away from achieving the conservation objective.

Section 8.6: JNCC have nothing further to add to the Embedded Mitigation list at this time. However, without seeing the documents that are outlined, we cannot comment on their appropriateness.

Section 8.8: JNCC do not agree with scoping out all impacts on benthic subtidal and intertidal ecology receptors in relation to potential cumulative impacts of Pobie Bank Reef SAC. JNCC encourage the Applicant to route their export cables around this protected site however, if micro siting through the Pobie Bank Reef SAC is considered, it will be necessary to consider cumulative

impacts in more detail taking into account other operations, such as Stoura Offshore Wind Farm to the north.

Section 8.10.3, Paragraph 3: JNCC would encourage the Applicant to not site a cable through Pobie Bank Reef SAC. However, if this was to be considered as an option, we would expect high resolution geophysical data to be collected along the proposed route to allow for accurate assessment of impact to this protected site and the Annex I Reef feature.

HRA Screening Report Chapter 6: Test for No LSE

Section 6, Table 6.1: JNCC do not agree with the assumption that Reefs from the Pobie Bank Reef SAC are considered "N/A" for operation and maintenance in relation with 'physical habitat loss/disturbance' and 'suspended sediment/deposition' if the export cables are routed through the SAC. The export cables will require regular maintenance for issues such as cable protection, repair, and scouring. Therefore, potential LSE cannot be ruled out for these impacts.

Section 6, Table 6.1: For the identification of protected sites to be scoped into an assessment, JNCC recommends the use of impact pathways to inform the distance at which the activities may affect the site. For noise disturbance, for example, JNCC advise a distance of 50km, which encompasses the activities with the furthest-reaching effects. Due to the distance between the Southern North Sea SAC and the Offshore Proposed Development, JNCC are of the opinion that there is no potential for LSE.

NatureScot advice on EIA Scoping Report for the Arven Offshore Wind Farm

Appendix D – Fish Ecology

Fish ecology interests are considered in Section 9 of the EIA Scoping Report and throughout the HRA Screening Report.

Section 9.11 of the Scoping Report includes some direct requests for consultee feedback, we have responded to these within our advice below. In addition, our advice with respect to the HRA Screening Report is also provided below.

Study area

The study area is defined at three spatial scales: the proposed development for primary impacts; a buffer of 12 km based on the tidal excursion distances (ranging 4-8 km) for secondary impacts, such as increased suspended sediment concentrations; and a 60 km Zone of Influence (ZoI) for underwater noise impacts. We are content with what is proposed, however, highlight that the study areas may need to be revised if modelling reveals a larger area of impact.

Baseline characterisation

We are content with the proposed data sources and guidance documents, as per Section 9.3, including the use of site-specific benthic surveys and eDNA data to inform the baseline.

To characterise fish spawning grounds, we advise using the following additional publications (and relevant data layers):

- González-Irusta J.M. and Wright P.J. (2016). Spawning grounds of Atlantic cod (*Gadus morhua*) in the North Sea. ICES Journal of Marine Science, 73(2), pp.304-3152[3].
- González-Irusta J.M. and Wright P.J. (2017). Spawning grounds of whiting (*Merlangius merlangus*). Fisheries Research, 195, pp.141-1513[4].
- González-Irusta J.M. and Wright P.J. (2016). Spawning grounds of haddock (*Melanogrammus aeglefinus*) in the North Sea and West of Scotland. Fisheries Research, 183, pp.180-1914[5].

For basking shark, we recommend including the following data sources:

- Witt, M.J., Hardy, T., Johnson, L., McClellan, C.M., Pikesley, S.K., Ranger, S., Richardson, P.B., Solandt, J.L., Speedie, C., Williams, R., Godley, B.J. (2012). Basking sharks in the northeast Atlantic: spatio-temporal trends from sightings in UK waters. Marine Ecology Progress Series 459:121-134.
- Witt, M.J., Doherty, P.D., Godley, B.J. Graham, R.T. Hawkes, L.A. & Henderson, S.M. (2014). Basking shark satellite tagging project: insights into basking shark (*Cetorhinus maximus*) movement, distribution and behaviour using satellite telemetry (Phase 1, July 2014). Scottish Natural Heritage Commissioned Report No. 752.
- Austin, R.A, Hawkes, L.A, Doherty, P.D, Henderson, S.M, Inger,R, Johnson, L, Pikesley, S.K, Solandt, J-L, Speedie, C, Witt,M.J. (2019). Predicting habitat suitability for basking sharks

[3] González-Irusta J.M. and Wright P.J. (2016). Cod – spawning grounds – North Sea
[4] González-Irusta J.M. and Wright P.J. (2017). Whiting – spawning grounds – North Sea
[5] González-Irusta J.M. and Wright P.J. (2016). Haddock – spawning grounds – North Sea

(*Cetorhinus maximus*) in UK waters using ensemble ecological niche modelling. Journal of Sea Research, Volume 153, 101767, ISSN 1385-1101.

Receptors

We are content that all receptors related to fish ecology have been identified. This includes the list of protected or threatened/declining fish in Table 9.3 (which includes basking shark) and the maps of spawning/nursery grounds for commercial fish species. Shellfish such as blue mussel, horse mussel and ocean quahog are covered in the benthic ecology chapter, which we accept.

Designated sites

Section 9.5.5 discusses designated sites and states that "no sites designated for fish and shellfish features are present". However, we highlight the Mousa to Boddam Nature Conservation Marine Protected Area (ncMPA) located approximately 18 km south of the ECC search area. This is within the 60 km ZoI for underwater noise impacts, thus consideration should be given to the sandeel feature for this site.

Potential impacts

We are content with the impacts scoped in/out as per Section 9.7.

Underwater noise should also be considered during the operational phase, as there is some evidence showing that the movement of the mooring and anchoring cables can be noisy. Results from the Hywind and Kincardine demonstrator sites[6] should be included in the desk-based study.

Approach to assessment

We are generally content with the approach to assessment for fish ecology, with further comments below.

Site-specific surveys

We note that the baseline will be further informed by site specific drop-down video, benthic grabs and eDNA sampling. To make the most of eDNA sampling, we recommend that this should be taken seasonally to capture all the fish that migrate through the development site.

Underwater noise modelling

We note that underwater noise modelling will be based on the impact thresholds reported in Popper et al. (2014). This will be conducted for fish as both stationary and fleeing receptors. If herring spawning grounds or sandeel habitat are identified nearby, we recommend that underwater noise modelling should include eggs and larvae.

Changes in prey availability

The EIA Report should clearly set out impacts to key prey species (such as sandeel, herring, mackerel and sprat) and their habitats arising from the development alone and cumulatively with other wind farms. 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

[6] Risch, et al. (2023). Characterisation of underwater operational noise of two types of floating offshore wind turbines. Scottish Association for Marine Science, Xi Engineering Consultants, University of Aberdeen.

mammal (and other top predator) interests and how this may influence population level impacts. 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.

The PrePARED (Predators and Prey Around Renewable Energy Developments) project[7] may be helpful in the understanding of predator-prey relationships in and around offshore wind farms.

Cumulative impacts

We are content with increased suspended sediment concentrations and underwater noise being considered for cumulative impacts.

With the proposed number of offshore wind developments in Scottish waters, we are noting the tendency for developers to indicate no LSE from EMF impacts from a cumulative basis. However, we are concerned that the spatial and temporal scale is not being considered cumulatively across the network of cables, including those outwith of the proposed development. Thus, we advise that EMF impacts are considered in the cumulative assessment.

Transboundary impacts

We agree that transboundary impacts can be scoped out for fish interests.

Mitigation and monitoring

We welcome the identification of embedded mitigation described in Section 9.6 and summarised in Appendix A (Commitments Register).

Much of the embedded mitigation detailed includes the development and adherence to post-consent plans/programmes. Plans do not strictly constitute mitigation; as it's the measures contained within the plan that will mitigate impacts. The EIA Report must clearly articulate those mitigation measures that are informed by the EIA and are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development. We advise that the full range of mitigation and monitoring measures, and published guidance, are considered and discussed in the EIA Report.

For basking shark – we advise that any mitigation for marine mammals should also be applied to basking sharks. Also, if Uncrewed Surface Vehicles (USVs) or Autonomous Underwater Vehicles (AUVs) are to be used, we recommend further consultation to agree on appropriate mitigation for basking sharks (and also marine mammals).

Habitats Regulations Appraisal (HRA) Screening Report

Migratory Fish

We note that for diadromous fish species there is limited knowledge of distribution and behaviour of these species in the marine environment. For example, the precise migration routes of adult or juvenile Atlantic salmon or direction taken by migrating adult European eels is not fully known. Published information indicates that European smelt and River lamprey are primarily, though

[7] https://owecprepared.org/

probably not exclusively, associated with estuarine environments. Shad might also prefer estuarine environments.

The recently updated ScotMER evidence map[8] process for diadromous fish confirms these evidence gaps, particularly with respect to spatial and temporal distribution as well as uncertainty around migration routes and connectivity to protected sites. The ScotMER process is an important vehicle for helping to address these evidence gaps and uncertainties. We specifically welcome the ScotMER project *Diadromous Fish in the Context of Offshore Wind – Review of Current Knowledge & Future Research*, due to be published soon.

This research may change conclusions on how diadromous fish are treated in both EIA and HRA going forward. However, we advise, based on evidence currently available to us, it is not possible for us to carry out an assessment of diadromous fish to the level required under HRA. We therefore advise that diadromous fish species should be assessed through EIA only and not through HRA.

[8] https://www.gov.scot/publications/diadromous-fish-specialist-receptor-group/ – published 26 January 2023

NatureScot advice on EIA Scoping Report for the Arven Offshore Wind Farm

Appendix E – Marine Mammals

Marine mammals are considered in Section 10 of the EIA Scoping Report and throughout the HRA Screening Report.

Section 10.11 of the Scoping Report includes some direct requests for consultee feedback, we have responded to these within our advice below. In addition, our advice with respect to the HRA Screening Report is also provided below.

Study area

We are content with the approach to use a regional scale study area encompassing Management Units (MUs) for each species and a local scale study area based on the DAS (6 km buffer).

For impact assessment, we advise use of population estimates for the UK portion of the IAMMWG MUs rather than the full MUs, for species with very large MUs. The reasoning for this is to try to present the most realistic assessment of numbers of animals affected by developments in Scottish waters. The MUs for most species are very large areas, and in most cases are too big for a meaningful understanding of impacts to affected populations. Although we know this is based on a non-biological delineation, we feel that using the UK portion of the MU better reflects the likely size of populations affected by the potential impact pathways. For species with smaller MUs, such as bottlenose dolphin in the Coastal East Scotland MU, and seals, the entire MU should be used in the assessment.

The use of population estimates for the full MUs are still useful for context and baseline characterisation. We advise stating the total MU population for context, and then assessing impacts against the UK portion of the MU.

Baseline characterisation

Data sources

We are content with the proposed data sources and guidance documents, as per section 10.3 and advise the following additional data sources should also be considered:

- Heinänen and Skov (2015)[9]
- Scottish Marine Animal Stranding Scheme (SMASS)
- MMO reports from any geophysical surveys if conducted
- Shetland Risso's dolphin photo-ID catalogue[10]
- Scottish humpback whale photo-ID catalogue
- NASS-North Atlantic Sightings Survey 2024[11]

We appreciate that not every species is covered by SCANS IV in terms of density estimates for assessment. We advise that in the absence of SCANS IV data (for example bottlenose dolphin) that SCANS III is used unless DAS were to yield a higher estimate. Our preference is to use DAS or

[9] Heinänen, S. & Skov, H. (2015). *The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area*. JNCC Report No.544 JNCC, Peterborough.
[10] Shetland Risso's Dolphin Photo-Identification Catalogue (2006-2022).
[11] https://nass.nammco.org/2024/

SCANS IV (whichever is most precautionary) and in the absence of these – the most precautionary density estimates should be used from the listed data sources for every species possible.

Receptors

We welcome the consideration of humpback whale, to be included in the assessment qualitatively. However, during the Scoping Workshop (held on the 28th November 2023), we advised that the following species should be included in the assessment quantitatively, and where density estimates are not obtainable, qualitatively:

- Bottlenose dolphin
- Fin whale
- Long-finned pilot whale
- Short-beaked common dolphin

Further to this, we do not agree with the statement "*it was agreed in the Marine Mammal Scoping Workshop on 28 November 2023 that bottlenose dolphin can be scoped out of further assessment*". The minutes issued by the applicant (received 7th December 2023) implies the opposite, as bottlenose dolphins are listed as one of the species we advised to be scoped in.

Additionally, any further species that are identified from the full two years of DAS should be included in the EIA Report.

It is proposed that basking sharks are covered in the fish chapter and we are content with this approach. Mitigation should align with marine mammals (JNCC guidelines and SMWWC[12]).

Potential impacts

We are content with the scoping of impacts as per Section 10.7 and Appendix B (Impacts Register).

Approach to assessment

We confirm that the proposed approach to assessment in Section 10.10 is as expected. This includes reference to the proposed approach to noise modelling, which will use the INSPIRE model. Further comments regarding the approach to assessment are provided below.

Piling parameters

In Table 3.5, we note that there could be up to nine moorings per turbine, however, the requirements around number of piles per turbine, pile diameter and hammer energy are unclear. This detail is provided in Table 3.6 for the OSPs, however, it would be useful to have this clearly laid out in the EIA Report for the turbines also.

Additionally, Table 3.6 presents a range for the OSPs – up to seven small OSPs or up to three large OSPs. If further refinement does not occur prior to the EIA Report, it would be useful to clearly outline the parameters (number of piles, diameter, hammer energy, etc) associated with each scenario (small or large OSPs) to avoid any confusion. This would enable us to better understand the worst-case scenario, i.e. maximum number of piles required and overall piling duration.

[12] https://www.nature.scot/professional-advice/land-and-sea-management/managing-coasts-and-seas/scottish-marine-wildlife-watching-code

At this stage, we highlight our general advice in the cover letter regarding project refinement to aid assessment and not result in overly complex scenarios requiring multiple assessments to identify the worst-case scenarios.

Sensitivity and magnitude

From experience with recent casework, we wish to highlight that we do not support the assignment of sensitivity scoring to noise related impacts as negligible or even low for marine mammals. Scoring should take their ability to tolerate, recover and adapt behaviour to maintain vital rates in response to assessed pressures into account, with an element of precaution to reflect any uncertainty. Moreover, conservation value should also be considered. Value is consistently considered within the sensitivity criteria across other ecological receptors. Not including value/importance within the sensitivity criteria disregards the inherent reason why cetaceans and seals are given a high level of legislative protection through the Habitats Regulations and fails to fully acknowledge the potential risks to individuals and populations.

For magnitude, whilst we encourage iPCoD to be used in assessing the long-term effects of an impact on a population, we do not agree that it should be used on its own to assign magnitude. We advise that a consideration of the percentage of the UK MU at risk of the impact is taken into consideration when assigning the magnitude. Context from regional or local populations should also be considered, albeit qualitatively. For example, Risso's dolphins show clear groupings around the UK. Additionally, embedded mitigation is often applied when considering magnitude. There remains a debate as to the appropriateness of this, and whether a stepwise approach presenting the magnitude first without and then with proposed mitigation is more befitting.

Further discussion and agreement around sensitivity and magnitude will likely be required prior to application submission.

Disturbance from piling

To assess population level effects, the iPCoD model is proposed. A new version of the iPCoD model will be published soon, which incorporates a Dynamic Energy Budget (DEB) for harbour porpoise. We advise that this should be used for harbour porpoise if available within the project timelines, although we are content with the use of the current model otherwise.

Cumulative impacts

Cumulative impacts are discussed in Section 10.8, with the overall process described in Section 4. We are content with what is proposed and welcome the acknowledgement that projects may have significant effects when combined (whilst alone they may not have a significant effect).

Additionally, we recommend the use of the Cumulative Effects Framework (other than for harbour porpoise where we recommend the new version of iPCoD that incorporates DEB) if available within the project timeframe, or the most up-to-date version of iPCoD if not.

Furthermore, we do not know which ports and harbours are currently being considered, therefore some cumulative assessment may be needed regarding potential impacts from vessel collision, alongside the proposed assessment for underwater noise.

Transboundary impacts

Potential transboundary impacts are discussed in Section 10.9 and we are content with the proposed approach outlined in Section 4.4. We agree that due to the wide ranging and mobile

nature of marine mammals, as well as the proximity of the proposed development to the Scotland-Norway boundary, that there is potential for transboundary impacts.

Mitigation and monitoring

We welcome the identification of embedded mitigation described in Section 8.6 and summarised in Appendix A (Commitments Register).

Much of the embedded mitigation detailed includes the development and adherence to post-consent plans/programmes. Plans do not strictly constitute mitigation; as it's the measures contained within the plan that will mitigate impacts. The EIA Report must clearly articulate those mitigation measures that are informed by the EIA and are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development. We advise that the full range of mitigation and monitoring measures, and published guidance, are considered and discussed in the EIA Report.

For instance, the list of plans/programmes should be underpinned by the most up to date guidance from JNCC in relation to minimising the risk of injury and disturbance from impulsive noise activities – geophysical surveys, UXO clearance and piling as listed in Section 10.10.1. Should uncrewed vessels be used at any stage of the proposed development, such as Autonomous Underwater Vehicles (AUVs) or Uncrewed Surface Vehicles (USVs), we would require further consultation to agree on mitigation.

As good practise measures, we recommend the Scottish Marine Wildlife Watching Code (SMWWC) is used to minimise disturbance to marine mammals, as well as the use of Passive Acoustic Monitoring (PAM) and if possible, night vision binoculars, for pre- geophysical survey/piling/UXO clearance, particularly in poor visibility or at night.

Regarding monitoring, we encourage consideration of entanglement, EMF, operational noise, eDNA, incidental sightings, DAS and telemetry projects as a large-scale offshore wind farm utilising novel technology in a data deficient region. Additionally, there are two relevant PhD studies ongoing around killer whales (University of St Andrews) and porpoise (Shetland UHI) that may provide additional information to inform the EIA Report. We welcome the recent consultation on Passive Acoustic Monitoring (PAM) and encourage the applicant to combine efforts with other offshore wind farm projects in Scotland to allow for a strategic, collaborative approach.

Habitats Regulations Appraisal (HRA) Screening Report

Harbour seal and grey seal

Due to the distances from the proposed development, we are content that only the Yell Sound Coast SAC and Mousa SAC are screened in for harbour seals, unless telemetry or other scientific data sources revealed regular use of project area from seals using other SACs. Similarly, we are content that no SACs are screened in for grey seals.

Harbour porpoise

For Harbour Porpoise, unless connectivity to SACs is shown through telemetry studies or other scientific published work, all SACs should be screened out. This applies to the Southern North Sea SAC also, based on the following:

We consider the pressure pathway when determining connectivity with a harbour porpoise site, i.e. whether an activity is capable of exerting a pressure on the feature within the SAC. Due to the distance between the proposed development and the Southern North Sea SAC, it is clear that any pressures will not impact the features within the site and the proposal will not undermine the conservation objectives for harbour porpoise within the SAC, despite being within the same Management Unit. We can therefore conclude no likely significant effect.

Bottlenose dolphin

For the EIA Report, we have advised that bottlenose dolphin are scoped in as it is likely that there are offshore bottlenose dolphins present across the proposed development. When considering the HRA Screening, it is unlikely that the Moray Firth SAC bottlenose dolphins have connectivity with the proposed development. Therefore, the Moray Firth SAC can be screened out.

Otters

Yell Sound Coast SAC is also designated for otter and there is direct overlap with this site and the ECC search area. Otters are reliant on suitable habitat in the surrounding wider countryside, including the marine environment, out to approximately 10 m depth. As such, Yell Sound Coast SAC should be screened in for otter and also included in the offshore EIA Report, incorporating the information and assessment that will be required to inform the onshore planning application for the cable. This is in addition to otter being considered in the onshore EIA Report.

Transboundary effects

Transboundary effects are discussed in Section 6.2, referencing Table 6.3. However, the information presented in the paragraph relates to marine mammal designated species, yet Table 6.3 presents only ornithological receptors. Thus, we are unable to comment on the proposed approach as it is currently unclear.

NatureScot advice on EIA Scoping Report for the Arven Offshore Wind Farm

Appendix F – Marine Ornithology

Ornithology interests are considered in Section 11 of the EIA Scoping Report and throughout the HRA Screening Report.

Section 11.11 of the Scoping Report includes some direct requests for consultee feedback, we have responded to these within our advice below. In addition, our advice with respect to the HRA Screening Report is also provided below.

Study area

The applicant is assessing a proposed 6km buffer around the array area in line with NatureScot Guidance[13]. A broad area of search for the offshore ECC is being considered and once this is refined, an adjusted study area with an appropriate displacement buffer will be selected.

At this stage, we have not been able to provide detailed advice on the ECC due to the scale of the current proposal. However, there are various sensitive areas along the coastline, and we recommend further consultation following refinement.

Baseline characterisation

Data sources

We are broadly content with the proposed data sources and guidance documents, as per Section 11.3 and 11.5.1. However, there are a few soon to be published reports that should be highlighted:

- JNCC are currently undertaking a project to update Horswill and Robinson (2015)[14] in terms of demographic rates. Once published we would anticipate that this is used. The final report is in its final stages and this should be published shortly.
- We are currently in the process of updating our Collision Risk Guidance[15] and this should be published shortly. A joint updated SNCBs collision risk guidance note will also be published shortly.

Digital Aerial Surveys (DAS)

The site-specific Digital Aerial Surveys (DAS) are discussed in Section 11.5. We have previously reviewed the six-month DAS report for Arven and provided advice (issued 20th June 2024), which should also be considered. Of note were the high numbers of fulmar. This is not surprising given the proximity of SPA breeding colonies such as Noss SPA and widespread other colonies in Shetland. Fulmar have not previously been assessed in projects due to being a lower risk for both collision and displacement. However, they have now started to be included in some assessments,

[13] NatureScot (2023). Guidance Note 2: Guidance to support Offshore Wind Applications: Advice for Marine Ornithology Baseline Characterisation Surveys and Reporting.
[14] Horswill, C. and Robinson, R.A. (2015). Review of seabird demographic rates and density dependence. Joint Nature Conservation Committee.
[15] NatureScot (2023). Guidance Note 7: Guidance to support Offshore Wind Applications: Marine Ornithology - Advice for assessing collision risk of marine birds.

particularly due to proximity to breeding colonies and concerns with barrier effects. When the full two years of survey are completed, this may need further consideration.

Section 11.5.2 states that no species are to be scoped out of EIA at this stage, and that the species taken forward will be reviewed once the full two years of DAS data has been processed – we welcome this approach. It is also stated that the list of species provided in this section are "the key species that can be identified as IOFs [Important Ornithological Feature] relevant to the Offshore Proposed Development area" however this does not cover all species that would be expected to be seen. For example, there is no mention of arctic tern, despite the early DAS results showing more arctic terns compared to common terns, which are included. We reiterate the importance that no species is excluded at this stage of the assessment process.

Additionally, we note that 30 European storm petrels were recorded during the first sixth months of DAS. Given that storm petrels are also active at night, the number of birds present in the survey area may well be higher than this. Thus, we welcome the inclusion of storm petrels as an IOF and we also welcome the recent meeting (held 13th June 2024) between Arven, Stoura, RSPB, Marine Directorate and NatureScot to discuss storm petrels, in light of their abundance in the DAS.

Other nocturnally active species are excluded from the list of IOFs as they do not appear in the DAS data. For nocturnally active species, we recommend other data sources are used to inform whether they should be screened in or not.

Receptors

The following species – red-breasted merganser, red-throated diver, Slavonian grebe and great northern diver – have been presented alongside the seabird species. Although we accept this, it would be more typical for these to be included in the migratory species section.

In terms of migratory species, those presented in Table 11.6 do not appear to match all the species that are dealt with in Woodward et al. (2023)[16] – this should be revisited.

Designated sites

The list present in Section 11.5.3 is not the long list that would be expected to be seen at this stage of the assessment. It is stated that connectivity for seabirds within the breeding season will be evaluated based upon recommended foraging ranges as presented in NatureScot guidance – we support this approach. However, the list presented does not appear to follow this as there are multiple sites missing. This will need to be reviewed and a full long list based upon the foraging ranges of seabirds shown. The reasoning presented in a footnote that "sites were excluded due to the vast range of certain species MMFR and the likelihood of impact from the Offshore Proposed Development being minimal" is not appropriate at this stage considering that only six months of DAS has been analysed, along with the wide scope of the ECC.

Potential impacts

We are content with the impacts scoped in/out as per Section 11.7, with the following advice.

[16] Woodward et al. (2023). Strategic study of collision risk for birds on migration and further development of the stochastic collision risk modelling tool. Marine Directorate.

Barrier effects

We accept the method of including displacement and barrier effect together under distributional responses. Thus, barrier effect and displacement do not need to be considered individually.

Approach to assessment

Abundance data

For density estimates, our advice is to use model-based estimates where it is possible to do so. Where this is not possible, we accept the use of design-based estimates and we advise that justification and commentary on the data should be provided.

Collision Risk Modelling (CRM)

Section 11.10.3.2 outlines the approach to collision risk assessment and we support the use of the 2022 update to the sCRM tool shiny app (Caneco, 2022). Outputs for both stochastic and deterministic CRM should be presented using this tool (with values specified to enable repeatability). Parameters to be used for undertaking CRM can be found in our Guidance Note 7. We are currently updating Guidance Note 7 in light of recent reports and we are aiming to publish this shortly. Within this update there will be new avoidance rates and we will no longer be asking for option 3 to be undertaken. To ensure that the latest version of our guidance is being referenced, please check the log of updates.

The potential collision risk to migratory species should be assessed qualitatively with reference to the survey results and the existing strategic level report recently published by Marine Directorate (Woodward et al. 2023). This work also includes development of a stochastic migration CRM tool (known as mCRM) to enable quantitative assessment of risks to migratory Special Protection Area (SPA) species including swans, geese, divers, seaduck and raptors. The updated review and its associated mCRM tool should be available imminently to then be used within the assessment.

Displacement / barrier effects

We would expect that our advice laid out in Guidance Note 8[17] is used when undertaking an assessment relating to distributional responses. This is kept up to date as new data becomes available and we are able to incorporate it. Our assessment will be based upon our guidance and deviation will need to be highlighted and clearly labelled. We would ask that if more than one approach is undertaken that our approach is the one shown in the main report and the alternative one attached as an appendix.

We consider SeabORD is a more biologically representative approach for estimating the impacts of distributional responses than the matrix approach. We advise you to contact Marine Directorate for the currently available version of SeabORD (MatLAB).

Apportioning

Apportioning during the breeding season should be undertaken following the theoretical approach, with the exception of kittiwake, guillemot, razorbill and shag species, which should use the apportioning tool (Butler et al. 2020).

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

For most species, non-breeding season impacts should be apportioned using the BDMPS approach (Furness, 2015) [18]. For species where we expect a majority of the breeding season population to be present in the surrounding region in the non-breeding season (for example guillemot and herring gull), the correct population to assess impacts for in the non-breeding season is a regional one defined by the breeding season mean-max foraging range plus 1 standard deviation distance.

For guillemot, non-breeding season impacts should be apportioned based on breeding season regional populations with reference tracking data from Buckingham et al. (2022)[19].

Apportioning may not be required for puffin in the non-breeding season depending on the results from the full two years of DAS. For herring gull during the non-breeding season, a correction factor should be applied to the breeding season regional population to account for the influx of non-UK and west coast UK birds into the North Sea BDMPS.

Population Viability Assessment (PVA)

Further to our advice in Guidance Note 11[20] on requirements for PVA, we have accepted that PVAs will be required for all sites and species where the combined breeding and non-breeding season threshold of 0.02 percentage point change for adult annual survival rate was met or exceeded for project alone or in-combination impacts.

To provide a pragmatic and proportionate approach, we advise a PVA of the in-combination effect is not required where the project alone impact is less than 0.2 birds per annum. In this instance a table should be provided that details by site and species what the point change in adult survival rate are and number of birds impacted per annum.

We support the use of the NE PVA tool (Searle et al., 2019) [21], and that the modelling of impacts will be undertaken over three time periods: 25 years, 35 years (the lease period) and 50 years.

Regional population sizes and biogeographic populations

It is unclear what detail the applicant is requesting regarding the related Scoping question in Section 11.11. However, we advise that our approach to population size and regional populations is outlined in our guidance, namely Guidance Notes 3, 4 and 5.

Cumulative impacts

Section 11.8 considers potential cumulative impacts. We do not agree that construction and decommissioning impacts can be scoped out of the cumulative impact assessment. This will depend on the construction and decommissioning timelines and interaction with other developments. Furthermore, we do not know which ports and harbours are currently being considered, therefore some cumulative assessment may be needed regarding impacts of vessel disturbance.

[18] 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*, (164).
[19] Buckingham, et al. (2022). Interspecific variation in non-breeding aggregation: a multi-colony tracking study of two sympatric seabirds. *Marine Ecology Progress Series*. 684: 181-197.
[20] NatureScot (2023). Guidance Note 11: Guidance to support Offshore Wind Applications: Marine Ornithology - Recommendations for Seabird Population Viability Analysis (PVA).
[21] Searle, et al. (2019). A Population Viability Analysis Modelling Tool for Seabird Species. Centre for Ecology & Hydrology report for Natural England. Natural England Commissioned Report NECR274.

If the Cumulative Effects Framework (CEF) is published within the project timeframe then it should be used to undertake the cumulative assessment and if not available, NatureScot are currently preparing guidance on aspects to be considered and presented in the EIA Report and RIAA.

In addition, we have advised Marine Directorate that the Berwick Bank application will have adverse effects on site integrity (AEoSI) on multiple seabird species within The UK European Site Network, some of which overlap with the species and sites assessed in other applications. Consequently, as the outcome of the Berwick Bank application is unknown at present, PVA models should be run using two scenarios: Berwick Bank consented and unconsented.

Transboundary impacts

Potential transboundary impacts are briefly described in Section 11.9. We do not agree that transboundary impacts during the breeding season can be scoped out. The proposed development is within the foraging range for various species that fall outside Scottish waters. This also does not align with what is presented in the HRA Screening Report, as several SPAs are highlighted as having connectivity with the proposed development.

For the transboundary impacts in the non-breeding season, we accept that the impacts will be accounted for by assessing against the biogeographic population and regional populations that include overseas colonies.

Mitigation and monitoring

We welcome the identification of embedded mitigation described in Section 11.6 and summarised in Appendix A (Commitments Register).

Much of the embedded mitigation detailed includes the development and adherence to post-consent plans/programmes. Plans do not strictly constitute mitigation; as it's the measures contained within the plan that will mitigate impacts. The EIA Report must clearly articulate those mitigation measures that are informed by the EIA and are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development. We advise that the full range of mitigation and monitoring measures, and published guidance, are considered and discussed in the EIA Report.

There is scope for additional embedded mitigation measures to be specified, for example:

- With respect to nocturnal species impacts of lighting could be an issue. Species such as European storm petrel, Leach's storm-petrel and Manx shearwater may be attracted to and/or disorientated by artificial light sources.
- As well as lighting on turbines and other structures, this includes lighting on servicing or construction vessels, particularly if construction will be a 24/7 operation. Such effects could impact assessment of collision and/or displacement. We recommend considering the findings from the Marine Directorate commissioned review to inform the assessment of the risk of collision and displacement in petrels and shearwaters from offshore wind developments in Scotland[22].

[22] Deakin, et al. (2022). A review to inform the assessment of the risk of collision and displacement in petrels and shearwaters from offshore wind developments in Scotland. Marine Directorate.

- In addition, we recommend that protocols are built into construction and operation phases for monitoring and handling of any birds attracted by lighting, as well as associated recording of any such incidents including context (e.g. weather).

Habitats Regulations Appraisal (HRA) Screening Report

Although what is stated in the Screening Report is logical, as it is based upon only six months of DAS, we cannot support or reject the outcomes at this time. Without the full two years of survey data, we cannot recommend screening out any sites or features. Screening sites or features out before the full set of data is available runs the risk of not fully understanding how birds are interacting with the array footprint. As DAS data becomes available, there will need to be further discussions regarding screening for designated sites and features.

Guidance

The applicant has referenced guidance developed by Natural England ("advice on operations"), we have not seen this guidance used before so will need more information to be provided and to have further discussions to see if it is appropriate for use in Scottish casework.

Impact pathways

Regarding prey availability, although this will mainly be dealt with under the fish chapter, we would expect to see conclusions from this chapter highlighted within the ornithology chapter with links directing readers to the relevant sections of the fish chapter.

In-combination effects

Table 5.4 states that in-combination will be dealt with within each section, but it is not clear what is meant by "all in-combination effects". It would be useful to have this clarified.

In Section 5.3.2, it is stated that details on an in-combination assessment will be presented at a future stage. However, we advise that this needs to be dealt with pre-application and we cannot currently comment due to the lack of detail provided.

Migratory birds

The methodology described within the Screening Report to show connectivity for migratory species to the proposed development differs from our advice. We have not come across the method the applicant is proposing for migratory species before, we would require that the method is checked with the Marine Directorate (2023) report to inform the biological accuracy of it. Having said this, if the mCRM tool is available from the Marine Directorate within project timescales then we would anticipate this is used instead – the applicant will need to discuss timelines for this with Marine Directorate.

It is proposed that any "non-breeding migratory waterbirds that are features of designated sites with low connectivity" have been screened out. Firstly, we do not understand what is meant by a "non-breeding migratory waterbird". Secondly, the proposed approach is unclear and we would need to be given examples of what this means in terms of actual sites and/or features that will be scoped out.

Non-breeding season

Additionally, it is unclear how marine SPAs will be dealt with in the non-breeding season.

Transboundary effects

Transboundary effects are discussed in Section 6.2, referencing Table 6.3. However, the information presented in the paragraph relates to marine mammal designated species, yet Table 6.3 presents only ornithological receptors. Thus, we are unable to comment on the proposed approach as it is currently unclear.

Northern Lighthouse Board ("NLB")

Northern Lighthouse Board

84 George Street
Edinburgh EH2 3DA

Tel: [redacted]
Fax: 0131 220 2093

Website: www.nlb.org.uk
Email: enquiries@nlb.org.uk

Your Ref: SCOP-0048 – Arven OWF – Scoping Report
Our Ref: AL/OPS/ML/WIND_041_24

Ms Judith Horrill
Licensing Operations Team – Marine Directorate
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

3 June 2024

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

SCOP-0048 – Arven Offshore Wind Farm Limited – Arven Offshore Wind Farm – Approximately 30km East of Mainland, Shetland

Thank you for your e-mail correspondence dated 30th May 2024 relating to the Scoping Report submitted by **Arven Offshore Wind Farm Ltd** for the proposed development of the Arven Offshore Windfarm, located approximately 30km east of Mainland, Shetland. NLB note that Arven Offshore Wind Farm development area consists of two array areas – Arven and Arven South, with a channel of between 2.7 and 5.3 nautical miles between the two areas.

It is noted that the project will consist of a maximum of 161 Floating Turbine Units (FTU) and between 3 and 7 fixed foundation Offshore Substation Platforms (OSP). It is also noted that the design envelope also allows for the deployment of 9 subsea substations as an alternative to conventional OSPs. Up to 8 export cables will connect the array to an unidentified landfall site on the east coast of Mainland, Shetland.

Northern Lighthouse Board acknowledge the inclusion of Chapter 15 – Shipping and Navigation within the report, and welcome the commitment to develop Post-Consent documentation including a Lighting and Marking Plan (LMP), Development Specification and Layout Plan (DSLP) and a Navigational Safety Plan (NSP) as embedded mitigations across all phases of the project. NLB will continue to engage with the developer with regard to these documents.

NLB also welcome the inclusion of Section 15.7 (Potential Cumulative Effects) and 15.8 (Potential Transboundary Effects).

NLB do request that consideration is given within the EIA to the potential impact that a wreck (either that of a vessel or WTG) could have upon navigation, both within the Arven array areas and the immediate vicinity.

The above addition aside, NLB have no objection to the content of the Scoping Report.

Yours sincerely

Peter Douglas
Navigation Manager

Royal Society for Protection of Birds Scotland ("RSPB Scotland")

Judith Horrill
Marine Licensing Casework Officer
Licensing Operations Team
Marine Directorate
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

By email: MD.MarineRenewables@gov.scot

26th July 2024

Dear Judith,

ARVEN OFFSHORE WIND FARM
APPROXIMATELY 30 KM EAST OF MAINLAND, SHETLAND
CONSULTATION ON EIA SCOPING REPORT & HRA SCREENING REPORT

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
MARINE AND COASTAL ACCESS ACT 2009

Thank you for consulting RSPB Scotland on the above Screening and Scoping Reports, and for allowing RSPB an extension of time to respond.

Unfortunately, due to ongoing capacity issues, which we very much hope to resolve shortly, we have been unable to engage as fully in this consultation as we might like to have done. However, we do have the following comments to make.

General Comments

RSPB Scotland supports the deployment of renewable energy projects, providing that they are sited in appropriate places and designed to avoid potential adverse impacts on wildlife. We advise that all assessments should follow appropriate NatureScot Guidance.

The UK is of outstanding international importance for its breeding seabirds and wintering marine birds. As with all Annex I and regularly migratory species, the UK has

a particular responsibility under the Birds Directive to secure their conservation. Their survival and productivity rates can be impacted by offshore windfarms directly (i.e. collision) and indirectly (e.g. displacement from foraging areas, additional energy expenditure, potential impacts on forage fish and wider ecosystem impacts such as changes in water column stratification).

As set out in Searle et al (2023[1]), assessing impacts of offshore windfarms and other renewables developments is inherently uncertain. This uncertainty is propagated throughout the impact assessments, as there are not only direct impacts, but ecosystem wide impacts that can change, for example, the abundance and availability of prey. Multiple data sources and modelling techniques are used to capture a simplified version of reality. They do not fully capture the complexity of seabird behavioural or demographic processes in a dynamic marine environment.

Not recognising these uncertainties risks poorly informed decisions being made. Furthermore, an underestimation of impacts will have repercussions when consenting later offshore wind development. If a precautionary approach is taken from the beginning, the likelihood of irreversible damage occurring is reduced even whilst our knowledge base is incomplete, and modelling improves.

The precautionary principle requires the Applicant to demonstrate with scientific certainty that something would not be harmful. The concept of something being overly precautionary dismisses the inherent uncertainty in modelling and overlooks the simplistic version of reality that the modelling captures.

Ecosystem Impacts

RSPB Scotland would welcome an inclusion of an explicit consideration of the potential wider ecosystem impacts that may arise through the construction and operation of the wind farm[2]. Such developments have the potential to alter local and regional shelf-sea

[1] Searle, K.R., O'Brien, S.H., Jones, E.L., Cook, A.S.C.P., Trinder, M.N., McGregor, R.M., Donovan, C., McCluskie, A., Daunt, F. and Butler, A., 2023. A framework for improving treatment of uncertainty in offshore wind assessments for protected marine birds. *ICES Journal of Marine Science*, p.fsad025.
[2] Isaksson, N., Scott, B.E., Hunt, G.L., Benninghaus, E., Declerck, M., Gormley, K., Harris, C., Sjöstrand, S., Trifonova, N.I., Waggitt, J.J. and Wihsgott, J.U., 2023. A paradigm for understanding whole ecosystem effects of offshore wind farms in shelf seas. *ICES Journal of Marine Science*, p.fsad194.

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

Tel: [redacted]
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

hydrodynamics and subsequently bio-physical processes. These could manifest, for example, through changes in water column stratification arising from the presence of the wind farm, ultimately altering the availability of prey to seabirds.

Highly Pathogenic Avian Influenza

The current H5N1 strain of Highly Pathogenic Avian Influenza (HPAI) has affected UK wild bird populations on an unprecedented scale since it was first recorded in the country in Great Skuas in summer 2021, with seabirds and waterfowl particularly affected. The extent of reported mortalities attributed to HPAI in the UK and across Europe in 2022 demonstrated that HPAI had become one of the biggest immediate conservation threats faced by multiple seabird species, including some for which the UK population is of global importance. Many species impacted by HPAI are of conservation concern in the UK, and the outbreak comes on top of widespread declines reported by the latest seabird census.

It is currently unclear what the population scale impacts of the outbreak will be, but it is likely that they will be severe. This scale of impact means that seabird populations will be much less robust to any additional mortality arising from offshore wind farm developments. It also means that there may need to be a reassessment of whether SPA populations are in Favourable Conservation Status. With such uncertainty as to the future of these populations, there is the need for a high level of precaution to be included in examination of impacts arising from the proposed development. The RSPB welcome that the Applicant has included consideration of these emerging issues in their scoping report.

Detailed Comments

Scoping Report

Noting the launch of a partnership between Great British Energy and the Crown Estate on 25th July 2024, it is anticipated that the targets referenced in chapter 2 of the Scoping Report will continue to evolve.

Paragraph 3.4.1 states that construction could potentially take place 24 hours a day over a four-year period. Table 4.2 is somewhat confusing in that it gives the impression

that only the potential effects of the topics / activities referenced on human health have been considered, when later chapters (e.g. Chapter 11, Table 11.9) confirm that the effects of airborne and underwater noise on nature are in fact scoped in.

Paragraph 11.3 and Table 11.1 reference six months of density and abundance survey data having informed the scoping exercise, although we do not believe we have seen the raw survey data. RSPB Scotland notes and welcomes the intention referenced in paragraphs 11.5.1 and 11.10.2, for example, to provide two years data in due course, and that the information in subsequent tables therefore needs to be treated with a degree of caution. RSPB Scotland agrees with the conclusion in paragraph 11.5.2 that no bird species should be scoped out of EIA at this stage.

RSPB Scotland welcome the inclusion of European Storm Petrel as an Important Ornithological Feature (IOF) in terms of both impacts arising through collision and distributional change. We would also highlight the difficulties in assessment of this species, due to issues around detectability and through light attraction and disorientation. Issues of detectability are not only whether the nocturnal and crepuscular nature of some of the at-sea behaviours means that they are not captured by the survey flights but also whether the size and flight characteristics of the species make them harder to detect. Deakin *et al.*, 2023[3] highlight a need for validation of these potential biases in aerial survey methods, including detectability, identification and diel variation.

Fundamental to the consideration of collision risk for this species is the extent to which nocturnally active seabirds, such as European Storm Petrels, 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. Furthermore, if light-induced disorientation leads to individual birds circling the navigation lights on the nacelle or tower of turbines for protracted periods (as has been reported for birds disorientated by lighthouses or gas flares) the probability of collision with turbine blades or other surfaces is vastly increased. We welcome the open discussions that

[3] Deakin, Z., Cook, A., Daunt, F., McCluskie, A., Morley, N., Witcutt, E., Wright, L. and Bolton, M., 2022. A review to inform the assessment of the risk of collision and displacement in petrels and shearwaters from offshore wind developments in Scotland.

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

Tel: [redacted]
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

NatureScot, MD-SEDD and RSPB Scotland have had with the Applicant around these issues.

RSPB Scotland welcome the inclusion of Red-throated Diver and Great Northern Diver as IOF, due to impact arising through distributional change from vessel movement during construction and decommissioning and cable laying.[4]. It is important that not only the impacts on fitness and subsequent mortality are considered, but also the importance of any distributional change in the context of the Conservation Objectives of the East Coast Mainland, Shetland SPA. Objective 2b is "*The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.*" If Red-throated and Great Northern Divers are displaced from part of the SPA which would otherwise be suitable for them, the effect is to reduce the functional size of the SPA, undermining the conservation objectives. Due to these concerns around Diver species, we also do not agree that construction and decommissioning impacts can be scoped out of the cumulative impact assessment.

As noted under in the General Comments section above, RSPB Scotland would welcome 'Ecosystems Impacts' being scoped in, and therefore reference being made to such impacts in Table 11.9 of the Scoping Report.

Under 11.10.3.5 Population Viability Analysis, there is reference to the use of density dependent population models. RSPB Scotland would prefer the use of density independent models as there remains considerable uncertainty as to the form and shape of density dependence in seabirds. However we would welcome the presentation of the outputs of density dependent models alongside those from density independent formulations.

Scoping Question Responses (in **bold**)

- Do you agree that the data sources listed in section 11.3 and 11.5.1 can be used to robustly characterise the Offshore Ornithology baseline within the EIA? If not, what additional sources of data should be used? **Yes**

[4] Mendel, B., Schwemmer, P., Peschko, V., Müller, S., Schwemmer, H., Mercker, M. and Garthe, S., 2019. Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (Gavia spp.). *Journal of environmental management*, *231*, pp.429-438.

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

Tel: [redacted]
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

- Do you agree with the initial list of IOFs? **Yes**
- Do you agree with the initial list of key designated sites? **Yes**
- Do you agree on the suitability of proposed embedded mitigation of relevance to Offshore Ornithology that have been identified for the Project? **Yes**
- Do you agree with the impacts which have been scoped out of the EIA for Offshore Ornithology? **Yes, unless otherwise noted above**
- Do you agree with the proposed study areas identified for the Offshore Ornithology receptors? **Yes**
- Do you agree that barrier effects can be Scoped Out as an impact alone, since they are already assessed within the displacement assessment as 'distributional responses' as per NatureScot guidance? **Yes**
- Do you agree that construction and decommissioning impacts can be scoped out of the cumulative impact assessment? **No, see above**
- Do you agree that transboundary impacts during the breeding season may be scoped out of the Offshore EIA? **Yes**
- Do you agree transboundary impacts in the non-breeding season will be counted for by assessing against the biogeographic population and regional populations that include overseas colonies? **Yes**
- Do you agree with the proposed approach to assessment of cumulative effects related to Offshore Ornithology? **Yes, with the exception of construction and decommissioning impacts, as above**
- The project considers the 0.02% decrease in survival rate is a very low threshold for PVA. Is there any updated guidance on this and is the same threshold considered appropriate for cumulative impacts? **RSPB Scotland consider 0.02% to be a suitably precautionary level to assess the level of impact on a population scale and that this is also appropriate for cumulative impacts**
- Can further clarity be provided on regional population sizes and biogeographical populations to assess against? **RSPB Scotland will provide this at a later date, under consultation with NatureScot**
- Do you agree with the proposed approach to assessment, related to Offshore Ornithology? **Yes, subject to caveats provided above**

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

Tel: [redacted]
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

Screening Report

It is encouraging to see multiple references, for example in Table 4.1, to the intention to follow NatureScot guidance in the application of screening ranges. RSPB Scotland has not been able to check every detail, in Table 4.2, Figure 4.2, Table 6.3, or Table 7.1 for example. RSPB Scotland is not able to check the results of calculations such as those referenced in paragraph 5.3.1.3.1.2. RSPB Scotland therefore withholds judgement on the detail of the screening for appropriate assessment which has been undertaken.

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

Yours sincerely,

Peter Hearn
Head of Planning, RSPB Scotland

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

Tel: [redacted]
Facebook: @RSPBScotland
Twitter: @RSPBScotland
rspb.org.uk

Royal Yachting Association

RYA SCOTLAND

Caledonia House
1 Redheughs Rigg
South Gyle
Edinburgh, EH12 9DQ

Tel: [redacted]
www.ryascotland.org.uk

24 June 2024

Judith Horrill, Marine licensing casework officer,
Licensing Operations Team, Marine Directorate
Scottish Government, Marine Laboratory,
375 Victoria Road, Aberdeen, AB11 9DB
MD.MarineRenewables@gov.scot

Dear Ms Horrill,

SCOP-0048 - Arven Offshore Wind Farm

I have read the relevant parts of the scoping report on behalf of RYA Scotland and make the following comments.

I agree that navigation should be scoped in and that recreational boating should be included. RYA Scotland will be happy to take part in the Navigational Risk Assessment. I have answered the questions posed in the Scoping Report below.

- *Do you agree with the study area (s) defined for Shipping and Navigation?* Yes.
- *Do you agree with the use of those data listed in Section 15.3, and any additional anticipated data listed in Section 15.9, being used to inform the Offshore EIA?* I agree with those sources but feel that the *UK Coastal Atlas of Recreational Boating* published by the RYA should have been added. Even if the coverage does not go as far as the wind farm site it should give an indication of the routes taken by recreational vessels sailing to and from Scandinavia.
- *Are there any additional data sources or guidance documents that should be considered?* The *Orkney and Shetland* volume of the Clyde Cruising Club *Sailing Directions and Anchorages* (2020) should have been added as it is the recreational equivalent of the *UKHO Admiralty Sailing Directions*. An important mitigation will be informing the Editor of the Sailing Directions about the project. There are electronic updates each May with a full revision approximately every five years.
- *Do you agree that all receptors related to Shipping and Navigation have been identified?* Yes.
- *Do you agree with the proposed study areas identified for the Shipping and Navigation receptors?* Yes.

RYA SCOTLAND

Caledonia House
1 Redheughs Rigg
South Gyle
Edinburgh, EH12 9DQ

Tel: [redacted]
www.ryascotland.org.uk

- *Do you agree with the impacts scoped for Shipping and Navigation and in particular those relating to the use of floating technology?* Yes. However, over the past few years there have been a surprisingly large number of cases where lights or signals from metocean buoys and wind farm installations have failed and it has often taken several weeks for a repair to be made due to adverse weather. Thus following NLB prescriptions for marking and lighting is necessary but not sufficient mitigation. It is important that there is a mechanism to ensure that failures are remedied quickly, perhaps by installing duplicate systems. It is often assumed in risk assessments that factors are independent. However, the same storm that damages the lights will also make repairing them quickly difficult and may also have washed away the navigational aerials on a yacht. This is particularly the case in this location where adverse conditions are the norm.
- *Do you agree the embedded mitigation is appropriate, or are there other measures that should be included?* The embedded mitigation is appropriate. However, C 22 should be expanded to ensure that recreational boaters on passage through these waters, whether from the UK or abroad, are informed about the wind farm. Issuing Notices to Mariners is important but it is necessary to ensure that recreational boaters are aware of them.
- *Do you agree with the proposed assessment methodology related to Shipping and Navigation?* Yes.
- *Are there any additional shipping and navigation organisations that you would recommend be consulted?* Vestland Seilkrets, who organise the annual Shetland race from Bergen to Lerwick and back, should be added to the list. I will work with my colleagues in the Cruising Association for the Navigational Risk Assessment.

Yours sincerely,

Dr G. Russell FCIEEM(retd) FRMetS
Planning and Environment Officer, RYA Scotland

Scottish Southern Electricity Networks - Transmission

Scottish Hydro Electric Transmission Plc.
Prime View, Prime Four Business Park
Kingswells Causeway
Aberdeen
AB15 8NY

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

Submitted via email: MD.MarineRenewables@gov.scot

28 June 2024

Dear Marine Directorate, Licensing and Operations Team,

REF: COP-0048 - Arven Offshore Wind Farm Limited

Thank-you for the invitation to provide comment on the Arven Offshore Windfarm EIA scoping report that was received 30 May 2024.

As the owner of the electricity transmission network in the North of Scotland, Scottish Hydro Electric Transmission Plc (SSEN Transmission), we welcome the inclusion of subsea cables within Chapter 17: Other Users and Infrastructure and agree with those scoped in as detailed in section 17.4.2.2 and shown in figure 17.2.

SSEN Transmission are currently progressing a £20bn investment across our network area, both onshore and offshore, enabling the connection of the renewable energy needed to meet Scottish and UK Government 2030 energy targets and beyond; providing greater home-grown energy security and supporting Scotland and the UK's pathway to Net Zero. As providers of critical national infrastructure there is also the potential for future projects beyond 2030 to be located within and adjacent to Shetland, therefore presenting the potential for future interactions within the scoping boundaries as detailed within the EIA scoping document shared.

We remain committed to working with other legitimate users of the sea in a proactive manner, enabling all parties to deliver successful projects wherever reasonably possible. We therefore welcome and encourage regular and proactive engagement as the Arven OWF project progresses. Especially where proximity and crossing agreements are to be developed, giving due consideration and provision for present and future cables to cross both export and generation sites, maintaining the freedom of the seas for both telecommunications and power cables.

Lastly we highlight and suggest the use of our 'Project map' Project Map - SSEN Transmission (ssen-transmission.co.uk) as this will provide the most up to date information regarding any developing SSEN Transmission projects.

I am happy to discuss further the comments above should you have any questions or concerns.

Yours sincerely

Tetrienne Kerswell-Box
Marine Consents Manager |

Scottish Environment Protection Agency ("SEPA")

Scottish Environment Protection Agency

From:	Planning.North <Planning.North@sepa.org.uk>
Sent:	05 June 2024 13:58
To:	MD Marine Renewables
Cc:	Judith Horrill
Subject:	PCS-20001815 SEPA Response to SCOP-0048

Dear Judith Horrill

Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017
SCOP-0048
Arven Offshore Wind Farm
Approximately 30 km East of Mainland, Shetland

Thank you for the above consultation.

SEPA understand that this consultation pertains only to the offshore elements of the proposal and as such we have no comment to make as these matters are outwith our remit.

I trust these comments are of assistance - please do not hesitate to contact me if you require any further information.

Kind regards
Nicki Dunn
Senior Planning Officer

Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba
For the future of our environment

Scottish Fishermen’s Federation ("SFF")

Our Ref: FH-Arv-WFDA/24-0001

Your Ref: SCOP-0048

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

E-mail:
MD.MarineRenewables@gov.scot

T: +[redacted]
E: sff@sff.co.uk

www.sff.co.uk

28th June 2024

Dear Judith Horrill

SFF Response to Arven Offshore Wind Farm Offshore EIA Scoping Report Consultation

This response to the above 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.

General comments

SFF note from section 3.3 (p22) of the Arven OWF Project Scoping Report (SR) that a parameter-based Project Design Envelop (PDE) approach (also known as the 'Rochdale Envelope') will be adopted for the Environmental Impact Assessment (EIA) Report. Therefore, the following comments are based on the existing details provided in this SR and further comments will be shared in due course once the Project's design is finalised.

Specific comments

Wind Turbine Generator (WTGs) foundation/spatial footprint

SFF notes from sub-section 3.5.1 'Wind Turbine Generator Substructure' (p24) of the SR that 161 floating WTGs (in water depths between 99 m and 137 m) will be utilised in the Development Array Areas (covering 460km2 seabed, which includes the Arven Array Area (360 km2) and the Arven South Array Area (100 km2). The layout of the WTGs will be developed to effectively make use of the available wind resource and suitability of seabed conditions, as well as ensuring that the

environmental effects and impacts on other marine users (e.g. fisheries and shipping routes) are kept to a minimum.

SFF's experience from other offshore windfarm (OWF) developments show that the layout of the WTGs considers factors such as use of available wind source and suitable seabed condition versus the development impact on fisheries. Considering the Development overlap with prime fishing ground, what assurances can be given to the fishing industry that the spatial footprint of the development on commercial fisheries would be avoided or reduced during the WTGs layout design/micro-siting?

In addition, we note from this SR that the Development use floating foundation WTGs (which is a no take zone for most of the fishing activities), and based on chapter 13 (Commercial Fisheries), the annual fishing value from the Arven OWF project study area is c. £85 million with 89% landed by Scottish vessels, **SFF would object to this project if the total impact of the development on fishing industry is not totally avoided, mitigated and/or compensated.**

SFF also note from sub-section 3.5.3 Foundations (WTGs and OSPs) that the floating foundation types that are considered feasible for the Project are barge, semi-submersible, spar and tension-leg platform (TLP). Being concerned of the spatial footprint of floating WTGs and the potential snagging hazard that their moorings system creates to fishing vessels, SFF's preferred WTG floating foundation option is TLP, since they have lesser spatial footprint on the seabed.

Offshore Substation Platforms (OSPs)
The SFF note from sub-section 3.5.2 that either 7 small and/or 3 larger OSPs (fixed foundation) will be built. It is not clear either the OSPs will be built within the Array Areas or outwith them. Considering the spatial footprint and disruption the OSPs cause to the fishing industry, SFF require to be consulted on the site selection and final design of OSPs for the Development.

Inter-Array Cable (IAC)- Dynamic section
SFF note from sub-section 3.5.4 (p31) that where Floating Foundations are used, dynamic inter-array cables may be required. Considering the footprint of the dynamic IACs sections, SFF's preferred configuration is free hanging vs lazy "S" and steep wave.

Cable footprint and Seabed Spawning Grounds Disturbance
SFF note from sub-sections 3.5.4 – 3.5.6 that a total length of c.1500km IAC, interconnector and export cables will be utilised, with a 20m maximum width of seabed disturbed by cable installation (per cable). This results to a total area of 30km2 seabed to be disturbed which will have enormous environmental impact especially destruction of spawning ground. SFF wonder how this impact is considered/calculated and addressed as the overall impact of the Development on seabed. It should be noted that similar seabed disturbance will also result from OSPs and anchor footings.

SFF furthermore note from section 9.5.3 'Spawning and Nursery Grounds' (pp147-248) that some commercially important fish species spawning and nursery ground overlap with the Development Array Areas and ECC or study area. These species include but are not limited to haddock, saithe, lemon sole, Norway pout, cod, whiting, herring, sandeel, common skate, spotted ray, nephrops, plaice and sprat. Therefore, we propose any of survey activities and other seabed disturbances should spawning and nursery periods of the above-mentioned fish species to avoid juvenile fish mortality.

In terms of herring spawning area, SFF note from sub-section 9.5.3.1 that herring does not immediately interact with the Array Areas or OfECC but fall within the study area, a statement that we cannot agree with for the following reasons.

SFF note from sub-sections 8.5.1 and 8.5.2 (pp 119 &120) that the Array Areas and ECC seabed sediment is composed of muddy sand, muddy gravel, and sand (Ocean Ecology, 2023). This shows suitability of seabed for herring spawning. In addition, section C3. Herring (*Clupea harengus*) of the "Developing Essential Fish Habitat Maps for fish and shellfish species in Scotland" report (2022) shows the existence of herring spawning ground in the Development Areas.

As the mentioned areas are suitable for herring spawning, the SFF are concerned of the Development impacts on all commercial value fish species in the area, especially the Development impacts on the herring which are also particularly sensitive to noise impacts as they have swim bladders which are involved in hearing (Popper et al., 2014)/ Sub-section 9.5.3.1 of this SR.

We are of view that any activities on herring spawning habitat are prohibited based on the 'ICES Advice on fishing opportunities, catch, and effort Greater North Sea ecoregion' published 31 May 2024. Therefore, SFF propose the above-mentioned ICES advice to be taken into account and acted upon at determination stage.

Cable Burial and Protection

SFF note from sub-sections 3.5.4 – 3.5.6 that IAC, interconnector and export cables will be trenched and buried. Cables for which optimal burial depths are not achievable may be subject to secondary protection measures such as rock placement or installation of concrete mattresses.

Being concerned for fishermen's safety, first of all, SFF would suggest to the Applicants to make all efforts to reach the required depth of cable burial and avoid using cable protection measures as much as possible since the volume of cable protection mass will disrupt the marine habitat and would create snagging hazard for fishing vessels within the array area.

In terms of using cable protections, SFF is opposed to using concrete mattresses and rock bags in open water since they create severe snagging hazards for bottom trawl fishing vessels and static gears. SFF's preferred cable protection measure is rock protection considering industry standard rock size (1"- 5") with a 1:3 profile followed by an over trawl sweep alongside a long-term monitoring programme. We do not object to use of sandbags in cable protection works as long as their size is not significant to create snagging hazards for fishing vessels.

In terms of crossing points, as they create obstacles and snagging hazard to the fishing industry, SFF would suggest that the cable crossing should be avoided as much as possible otherwise the design of cables and pipelines crossing points should be consulted with fishing industry to ensure their impacts are mitigated.

Pre-construction Works -Boulder Clearance

SFF notes from the SR the pre-construction activities result in boulder clearance. Since the relocation of boulders from their natural positions and re-positioning them on a new substrate causes snagging hazard for fishing vessels, SFF would suggest avoiding the relocation of boulders as much as possible. However, where boulders relocation is unavoidable, we recommend the new locations/coordinates of the relocated boulders should be recorded and shared with fishermen. Fishermen require

geographical readings to decimal of a minute format (3 decimal places sufficient) rather than going down to actual seconds and the datum should be WGS84 rather than ED50.

Decommissioning
SFF notes from sub-section 3.4.3 'Decommissioning' (p24) that the OWF projects are required by the Energy Act 2004 and the Scotland Act 2016, to provide a Decommissioning Programme (DP) which covers the decommissioning of OREIs. Decommissioning activities will comply with all relevant legislation at that time.

To reiterate safety concern of the fishing vessels, SFF would like to see all development related infrastructures are recovered/removed to shore followed by over-trawl sweeps (seabed sweeps using fishing gears). The seabed must be restored to its pre-development condition post-decommissioning, and ensure it is safe for fishing operations to fully resume in the area.

EIA Methodology
SFF note from sub-section 4.3.5 'Defining Evaluation of Significance' that the significance of the Development effect is determined by considering the magnitude of impact and the sensitivity of the receptor. However, there is no approved guideline to set realistic criterion to define the magnitude of impact and sensitivity of receptors for commercial fisheries. A guideline needs to be adopted in consultation with fishing industry to address this issue.

In addition, SFF would like to see that the impact of the Development is assessed on individual fishing vessels affected by the Development versus the whole fleet/fishery.

Ch. 8 Benthic Ecology
Scoping Questions

The following are the SFF's response to the relevant scoping questions:

Question: Do you agree to the scoping out of the assessment of transboundary effects related to benthic and intertidal ecology?
SFF's answer:
SFF would like to see the 'Impacts to benthic invertebrates due to thermal emissions from subsea electrical cables' to also be scoped in since any temperature change in the invertebrate's habitat would have adverse effects on their behaviour and increase their mortality rate.

Ch. 9. Fish and Shellfish Ecology
Scoping Questions

Question: Do you agree with the potential impacts scoped in and out?
SFF's response: No specific comment.

Question: Do you agree with the use of those data listed in Section 9.3, and any additional anticipated data listed in Section 9.10.2, being used to inform the Offshore EIA?
SFF's response: No specific response.

Question: Do you agree that publicly available datasets for fish and shellfish ecology combined with site-specific benthic survey data (inclusive of eDNA analysis) is considered sufficient to establish a robust baseline?

SFF's response: No specific comment.

Question: Do you agree with the proposed study areas identified for the fish and shellfish receptors?
SFF's response: Yes.

Question: Do you agree that all receptors related to Fish and Shellfish Ecology have been identified?
SFF's response: No specific comment.

Question: Do you agree with the suitability of the embedded mitigation measures we have considered and proposed for inclusion?
SFF's response: No specific comment.

Question: Do you agree with the scoping in and out of impacts related to Fish and Shellfish Ecology?
SFF's response: SFF is not content with scoping out the "Accidental release of pollutants" because if a vessel was to sink during any of the phases of the project life-span then an accidental release of pollutants would occur. Therefore, we would propose the 'accidental release of pollutants' to be scoped in.

Question: Do you agree to the scoping out of the assessment of transboundary effects in relation to Fish and Shellfish Ecology?
SFF's response: No specific comment.

Question: Do you agree with the scoping in and out of cumulative effects related to Fish and Shellfish Ecology?
SFF's response: No specific comment.

Question: Do you agree with the proposed assessment methodology related to Fish and Shellfish Ecology?
SFF's response: No specific comment.

Ch. 13. Commercial Fisheries

Scoping Questions

Question: Do you agree with the study areas defined for commercial fisheries?
SFF's response: SFF propose the ICES rectangle 50F0 to be also included in the study area due to the presence of Stoura OWF to the north of the Development that also displaces fishing.

Question: Do you agree with the data sources to be used to characterise the commercial fisheries baseline within the EIAR?
SFF's response: No. SFF want to see the pre-Brexit data also to be utilised for the EIA Report to present a realistic baseline of the fishing activities within the study area, as some types of fisheries such as small haddock have stopped post Brexit.

Question: Are there any additional data sources or guidance documents that should be considered?
SFF's response: Yes. Fishing plotter data from fishermen, fishing federation and associations should be used as AIS and VMS data cannot represent all the actual fishing activities within the study area.

In general collection of fishing plotter data from the fisheries organisations, and in specific data from smaller vessels that are not legally liable to use AIS or VMS is recommended.

Question: Do you agree that the embedded mitigation measures described provide a suitable means for managing and mitigating the potential effects of the Offshore Proposed Development on commercial fisheries receptors?

SFF's response: SFF has the following comments on the proposed embedded mitigation:

- C-3. We would appreciate 'the Fisheries Management and Mitigation Strategy (FMMS)' to be developed and adopted pre-consent in consultation with fishing industry to ensure all fishing industry's concerns are considered and addressed accordingly.
- C-22. We suggest the NtM are issued in sufficient time to avoid any disruptions to the fishing activities in the intended area. Fishermen require geographical readings to decimal of a minute format (3 decimal places sufficient) rather than going down to actual seconds and the datum should be WGS84 rather than ED50.
- C-28: "Any objects dropped on the seabed during works associated with the Offshore Proposed Development will be reported and objects will be recovered where they pose a hazard to other marine users and where recovery is possible". We propose also to add the 'dropped object' to Kingfisher Bulletin App if a potential hazard may exist to fishers.

We would propose the following mitigation measures to be considered:

- As part of the proposed commitments, there is no measure for disruption payments for the fishing vessels. No mention has been made to mitigation once operational and loss of fishing opportunities to the fishing industry within the floating section of the proposed array areas. SFF suggest that the cooperation agreement should be considered for both the static and mobile gears where they are required to be temporarily relocated. Long term compensation mechanism should be put in place for those fishermen who are excluded from fishing within the array areas.
- Utilise the services of an O.F.L.O with sufficient knowledge of fisheries and fishers that utilise the development area.

Question: Do you agree with the proposed study areas identified for the commercial fisheries receptors?
SFF's response: No specific comment.

Question: Do you agree with the scoping in and out of impact pathways in relation to commercial fisheries?
SFF's response: No specific comment.

Question: Do you agree with the proposed assessment methodology for commercial fisheries?
SFF's response: No. SFF note from sub-section 4.3.5 'Defining Evaluation of Significance' that the significance of the Development effect is determined by considering the magnitude of impact and the sensitivity of the receptor. However, there is no approved guideline to set realistic criterion to define the magnitude of impact and sensitivity of receptor for commercial fisheries. A guideline needs to be adopted in consultation with fishing industry to address this issue.

In addition, SFF would like to see the impact of the Development is assessed on individual fishing vessels affected versus the whole fleet/fishery.

Question: Do you agree with the approach for the transboundary assessment?
SFF's response: No specific comment.

Question: Do you agree with the approach for CIA?
SFF's response: No specific comment.

Question: Do you have any other matters or information sources that you wish to present?
SFF's response: No specific comment.

Ch. 15. Shipping and Navigation
Scoping Questions

Question: Do you agree with the impacts scoped for Shipping and Navigation and in particular those relating to the use of floating technology?
SFF's response:
SFF notes from Table 15.2: that "Loss of station"- should a SKS failure occur, a floating structure may lose station and become a floating hazard to passing vessels, have been scoped out for construction and decommissioning stages.

We agree that there will be no risk of loss of station pre-construction and post-decommissioning; however, when a number of WTGs have been installed or in case of decommissioning, when all WTGs and related infrastructures not yet removed, the possibility of 'loss of station' and the risks posed to other users of the sea exist/is imperative. Therefore, we propose the 'Loss of station' to be also scoped in for construction and decommissioning phases.

In conclusion, SFF stresses that our primary concern is protecting the rights of fishermen to safely undertake their trade, and this is the cornerstone of our response. Our position is that fishing activities should continue unaffected and unharmed post-development. If fishermen impacted are to be denied the right to earn their living, we could not support the development of any proposal for a windfarm.

Best regards

Mohammad Fahim Hashimi
Offshore Energy Policy Manager
Scottish Fishermen's Federation

Scottish Water

Tuesday, 04 June 2024

Marine Licensing
375 Victoria Road

Aberdeen

Development Operations
The Bridge
Buchanan Gate Business Park
Cumbernauld Road
Stepps
Glasgow
G33 6FB

Development Operations
[redacted]
E-Mail - DevelopmentOperations@scottishwater.co.uk
www.scottishwater.co.uk
Follow Us

Dear Customer,

Arven Offshore Wind Farm Ltd, Noss - 30 km East of Mainland, Shetland, ZE2 9EL
Planning Ref: SCOP-0048
Our Ref: DSCAS-0111101-CP3
Proposal: proposed section 36 application (under the Electricity Act 1989) and marine licence application under the Marine and Coastal Access Act 2009, Arven Offshore Windfarm Limited has requested the Scottish Ministers adopt a scoping opinion in relation to the above proposed works under the EIA Regulations.

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
    - 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.

Yours sincerely,

Ruth Kerr.
Development Services Analyst
developmentoperations@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."

Shetland Islands Council ("SIC")

Shetland
Islands Council

Executive Manager: Iain S McDiarmid
Director: Neil Grant

By Email:
MD.MarineRenewables@gov.scot

Planning
Development Services
8 North Ness Business Park
Lerwick
ZE1 0LZ

Telephone: [redacted]
Email: marine.planning@shetland.gov.uk
www.shetland.gov.uk

If calling please ask for:
Simon Pallant
Coastal Zone Manager

Date: 26 July 2024

Dear Sir/Madam

RESPONSE TO CONSULTATION ON SCOPING OPINION REQUEST FOR THE PROPOSED ARVEN OFFSHORE WIND FARM, MARINE WATERS EAST OF SHETLAND
(SIC Ref: 2024/009/S36MAR)

THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007
THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017
THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2017
(Collectively referred to as the "EIA Regulations")

1. Introduction

1.1 The following is Shetland Islands Council's Planning Service response to a scoping opinion consultation request received from Marine Directorate - Licensing Operations Team (MD-LOT) on 30 May 2024. The request is received in accordance with the above EIA Regulations, seeking the views of the Local Planning Authority on the scope and level of detail of information to be provided in the Environmental Impact Assessment (EIA) Report to be submitted by the applicant alongside future marine development consent applications for the proposed development.

1.2 A copy of an Offshore EIA Scoping Report, submitted directly to MD-LOT by Arven Offshore Wind Farm Ltd, was made available to the Planning Authority on 30 May 2024. The scoping report sets out the proposed

content of the Offshore EIA Report provided to MD-LOT in support of the applicant's request for a scoping opinion.

1.3 This scoping consultation response will provide comment on the Offshore Scoping Report. Please note that the response is given without sight of specialist advice or comments provided by other agencies such as NatureScot and SEPA. As such, the comments are given without prejudice to the full consideration and assessment of the EIA Report as part of any future formal consultation exercise under the appropriate regulations and taking due account of specialist advice and feedback at that time.

2. Proposal and Consenting Context

2.1 The scoping report relates to a proposed offshore wind farm to be known as Arven Offshore Wind Farm. The proposal involves:

- An anticipated maximum number of 161 floating Wind Turbine Generators (WTGs) and associated inter-array cables, interconnector cables and Offshore Substation Platforms (OSPs) or subsea substations in two array areas in area "NE1", occupying a total seabed area of 460 km² located in marine waters approximately 30 km to east of Mainland Shetland, and 23 km from Shetland at its nearest point (Noss); and
- Up to 8 subsea offshore export cables connecting the arrays to an as yet unidentified landfall location on the east Shetland mainland within an indicative Offshore Export Cable Corridor (OfECC).

2.2 Subject to achieving all necessary consents, it is anticipated that the construction of the proposed offshore development will commence in the early 2030s and take approximately four years, although this is subject to change. Construction works would be undertaken 24 hours a day, 7 days a week offshore, dependent upon weather conditions. A Decommissioning Programme supported by appropriate financial security will be required for the proposed development under the Energy Act 2004 and the Scotland Act 2016.

2.3 It is noted that the onshore aspects of the proposal, which includes the construction and installation of the landfall works, onshore export cable route, onshore substation and grid connection point, will be dealt with separately under the terrestrial planning/EIA process. Where there is overlap between the offshore and onshore consenting regimes, i.e. the intertidal area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS), it is important that this is acknowledged and considered in both the offshore and onshore EIA Reports.

2.4 It is understood that the Offshore EIA Report produced following this scoping exercise will be submitted by the applicant alongside the following future marine development consent applications which are required for the proposal:

- Section 36 consent from Scottish Ministers under the Electricity Act 1989;
- Marines Licences from Scottish Ministers under the Marine (Scotland) Act 2010 (within 12 nautical miles) and the Marine and Coastal Access Act 2009 (outwith 12 nautical miles); and
- Works Licences from Shetland Islands Council under the Zetland County Council Act 1974 (principally the submarine cables associated with the proposal that fall within 12 nautical miles of Shetland).

3. Policy Context

3.1 The scoping report sets out the key legislation and policy relevant to the proposed offshore development. In terms of Scottish marine planning policy, the following national and local plans and policies will be key in the determination of the future development consent applications required for the proposal as detailed above at paragraph 1.6:

National Level

- Scotland's National Marine Plan (2015) - covers the management of both Scottish inshore waters (out to 12 nautical miles) and offshore waters (12 to 200 nautical miles);

- National Planning Framework 4 (2023) - Scotland's national spatial strategy setting out the spatial principles, regional priorities, national developments and national planning policy (including in relation to renewable energy developments (onshore and offshore);

- Sectoral Marine Plan for Offshore Wind Energy (2020) - identifies sustainable plan options for the future development of commercial-scale offshore wind energy in Scotland (including the NE1 area which the proposed Arven Offshore wind farm sits within);

Local Level

- Shetland Local Development Plan (2014) - is the established planning policy for Shetland containing a range of policies which apply to land-based and marine developments, including Policy CST1 Coastal Development which applies to all marine developments out to 12 nautical miles;

- Shetland Islands' Marine Spatial Plan (2015) - adopted as Supplementary Guidance to the Shetland LDP, the SIMSP sets out a spatial strategy and policy framework to guide marine developments in the coastal waters around Shetland (relevant only within 12 nautical miles of Shetland);

- Shetland Islands Regional Marine Plan (2021 Draft) - currently sitting with Scottish Ministers awaiting adoption, the SIRMP, once adopted, will be the main policy and data framework to support decision-making in the Shetland Marine Region which extends out to 12 nautical miles. Until the point of adoption however, the SIMSP will remain the relevant marine plan for Shetland.

- Shetland Islands Council Works Licence Policy (2017) - sets out the policies which works licence applications under the Zetland County Council 1974 will be assessed against (relevant only within 12 nautical miles of Shetland).

- Shetland Energy Development Principles (2022) - is a set of principles promoted to all existing and prospective energy developers, UK and Scottish Governments, their agencies, relevant regulators and others, and which focuses on ensuring renewable energy is developed in an environmentally responsible manner and delivers benefits locally as well as nationally;

- Shetland Energy Strategy (2024 Draft) - provides an opportunity to put in place a framework to support decision-making on local energy transition projects for all organisations and stakeholders, and which ensures a Shetland approach that recognises legitimate local interests and concerns.

3.2 Any future marine development consent applications and related EIA Report for the proposed development should take account of and be compatible with the above national and local plans and policies. A full and comprehensive review of all relevant marine planning policies will be undertaken by Shetland Islands Council where they are a consultee on any future application submitted to Scottish Ministers for the proposal. Likewise, such an assessment will be undertaken by the Council for any works licence and planning applications submitted directly to them for any marine and onshore aspects of the proposed development.

4. Topics to be Scoped Out of the Offshore EIA Report

4.1 The scoping report proposes that the following topics be scoped out of the Offshore EIA Report for the proposed development on the basis that such matters are not likely to give rise to significant effects on the environment:

- Offshore Airborne Noise and Vibration;
- Offshore Air Quality;
- Major Accidents and Disasters; and
- Human Health.*

4.2 Shetland Islands Council Planning Authority is minded that the justification provided in the scoping report for the above topics to be scoped out of the Offshore EIA Report (EIAR) for the proposed development seems reasonable and agrees that such matters are unlikely to result in any significant environmental effects. We are therefore in agreement that the above topics can be scoped out.

4.3 * Shetland Islands Council notes that p42 of the Scoping Report states "*A standalone chapter for human health has not been provided within this Offshore Scoping Report, as potential effects on human health will be considered either within relevant technical Chapters or within a specific 'Human Health' chapter of the Onshore Scoping Report*". However, we consider that human health should be covered both within the relevant technical Chapters of the Offshore EIA Report and within a specific 'Human Health' chapter of the Onshore Scoping Report. For example, we are of the view that impacts upon human health will be a relevant consideration and require coverage in the EIAR chapter on Seascape, Landscape and Visual Impacts Assessment in particular.

5. Topics to be Scoped in to the Offshore EIA Report

5.1 Shetland Islands Council is minded that the remaining topics in the scoping report could give rise to significant environmental effects and should therefore be scoped in to the Offshore EIAR for the proposed development. Each topic is discussed in turn below:

6. Marine Geology, Oceanography and Physical Process

6.1 We note that p60 of the Report refers to using geophysical data to inform micro-siting if cables have to go through the Pobie Bank Reef SAC. We consider that NatureScot/JNCC is best placed to lead and advise the developer on this issue.

6.2 The proposed embedded Mitigation looks acceptable in principle and follows approaches adopted in Shetland for recent cable developments, such as the HVDC interconnector.

6.3 The impacts scoped in (p77) appear relevant and we note that this section covers the possible impacts on commercial fisheries. We also suggest that aquaculture development in the context of other marine users and infrastructure and the impact of increases in suspended sediment concentrations should also be considered too as this may be a relevant consideration depending upon the ultimate route of the cable connections.

7. Marine Water & Sediment Quality

7.1 Given the technical aspects covered in this chapter of the Report, we consider that NatureScot/JNCC and SEPA will be best placed to lead and advise on this area.

7.2 The proposed embedded mitigation, primary receptors and impacts scoped in all appear to be relevant and acceptable in principle.

7.3 We also note the following from Blue Carbon Assessment (p104):

- There is predicted to be kelp habitat in the vicinity of the Offshore Proposed Development's Landfall, which will need consideration in the EIAR.
- There are no predicted kelp habitats within the Array Areas, and no predicted saltmarsh within the Array Areas or cable corridor.
- There are no predicted seagrass habitats in the Array Areas, however there are seagrass beds 12 km north of Lerwick that may be affected by the cable corridor.

8. Benthic Subtidal and Intertidal Ecology

8.1 Given the technical aspects covered in this chapter of the Scoping Report we consider that NatureScot/JNCC will be best placed to lead and advise on this area.

8.2 The proposed embedded mitigation, primary receptors and impacts scoped in all appear to be relevant and acceptable in principle.

8.3 We note from this chapter that a refined offshore export cable corridor within the current area of search will be defined ahead of EIAR. This will seek to avoid interaction with the Pobie Bank SAC where practicable, though it is noted that the project may seek to explore potential routing

through the SAC noting that a case will need to be made to support this and potential impacts on the SAC fully considered in EIA and HRA.

9. Fish and Shellfish Ecology

9.1 We note that spawning and nursery grounds of several fish species are known to be located within, or within close proximity to the study area. Due to the significant importance that commercial and inshore fishing provides to the Shetland, its economy and communities we are of the view that this topic should be thoroughly assessed and in considerable detail within the EIAR.

9.2 We are aware that the Shetland Fisherman's Association (SFA) and Shetland Shellfish Management Organisation (SSMO) have been consulted on this Scoping Report and that they along with other fishing organisations and representatives have been engaging on the Arven development and the Stoura development as part of the NE1 Fishing Forum. Due consideration should be given to their views and opinions expressed in any responses that have been made.

9.3 Additionally, local Shetland fishing associations including the Shetland Inshore Fisheries Group, SFA and SSMO, may hold significant data to help improve the accuracy of any study into fish and shellfish. It is also noted that UHI Shetland, who would also hold data, have been consulted and this should continue throughout the EIAR drafting process.

9.4 The proposed embedded mitigation, primary receptors, impacts scoped and impacts scoped out all appear to be relevant and acceptable in principle.

10. Marine Mammals

10.1 We consider that NatureScot/JNCC is best placed to lead and advise on this area.

10.2 The list of species on p175 are cetacean and seals, but we note that otter (as another mammal that uses the marine environment in Shetland) has not been included, but in our view should be. This is also the case with the section on landfall (p189) which highlights seals. Again, this should include otters given that they are a European Protected Species. Given that this will form part of the EIAR considerations for cable routes and onshore interaction we wish to highlight that otter surveys are required to be completed within 3 months of the landside cable/cables landing applications being submitted.

10.3 The embedded migration (p195) appears to be acceptable. We do note though that bullet point 5 has Acoustic Deterrent Devices (ADD) as possible mitigation. NatureScot/Marine Scotland would be best placed to provide advice on this matter.

10.4 The primary receptors, impacts scoped and impacts scoped out all appear to be relevant and acceptable in principle.

11. Offshore Ornithology

11.1 We consider that NatureScot/JNCC is best placed to lead and advise the developer on this area.

11.2 The embedded mitigation, primary receptors, impacts scoped and impacts scoped out all appear to be relevant and acceptable in principle.

11.3 We are also aware that the RSPB have been consulted on this Scoping Report and that they have been engaging throughout the scoping process. Due consideration should therefore be given to their views and opinions expressed in any response that has been made.

12. Seascape, Landscape and Visual Impact Assessment

12.1 We consider that NatureScot/JNCC and Historic Environment Scotland will be best placed to lead and advise the developer on this area, especially with regards to impacts on the NSA and Historic Environment respectfully.

12.2 With regards to the proposed representative viewpoints we would suggest that an additional viewpoint is considered at the Noup of Noss, either from the trig point or possibly the view point at Rumble Wick. While it is accepted that this is reasonably close to the viewpoint on Bressay we would consider that as the Noup of Noss is such a significant viewing point in Shetland that it would warrant a separate viewpoint.

12.3 We agree with the statement that cumulative impacts would include onshore and offshore wind farms and that the list of cumulative developments to be considered in the SLVIA will be agreed with NatureScot and Shetland Islands Council. We shall continue to engage with the developer on this important matter, especially given the extent of consented, planned and future windfarm development and its associated

infrastructure (substations, convertor stations, transmission lines, grid connections, cables etc.) both onshore and offshore.

12.4 Subject to the views of NatureScot/JNCC and HES, we agree with the scoping questions posed in this section of the Report with regards to matters such as the proposed approach to cumulative effects related to seascape, landscape and visual amenity, the scoping in and out of impacts and the assessment methodology.

13. Commercial Fisheries

13.1 We agree that local fishermen's associations such as the Shetland Fishermen's Association and Shetland Shellfish Management Organisation should be contacted to make sure data used is as accurate as possible, as covered on p287 of the Scoping Report.

13.2 As covered above under Section 9 'Fish and Shellfish Ecology':

- We are aware that the Shetland Fisherman's Association (SFA) and Shetland Shellfish Management Organisation (SSMO) have been consulted on this Scoping Report and that they along with other fishing organisations and representatives have been engaging on the Arven development and the Stoura development as part of the NE1 Fishing Forum. Due consideration should be given to their views and opinions expressed in any responses that have been made.

- We agree that the datasets and information sources listed in the section are appropriate and relevant for the Scoping Report and for subsequent use in the EIAR assessment. However, it is crucial to ensure that these information sources are properly informed and contextualised by extensive and ongoing engagement with local industry representatives at all points during the development, with particular regard to mitigation measures when considering impacts on commercial fishing activity and knock-on economic impacts.

- Additionally, local Shetland fishing associations including the Shetland Inshore Fisheries Group, SFA and SSMO, may hold significant data to help improve the accuracy of the EIAR in relation to impacts on commercial fishing. It is also noted that UHI Shetland, who would also hold data, have been consulted and this should continue throughout the EIAR drafting process.

13.3 Impacts upon Shetland's commercial fishing industry require full and proper consideration in the EIAR. This is especially the case when taking account of the economic, social and community importance of our fishing, and also, aquaculture industries. For example:

• 34% of all the fish landed by UK fishing boats are caught within 50 miles of Shetland.

• 10% of all the fish landed by UK fishing boats are landed in Shetland.

• More fish are landed in Shetland than in all of England, Wales and Northern Ireland.

• Shetland has 40% of Scotland's pelagic fleet, 25% of Scotland's whitefish fleet and 20% of Scotland's under 10m fleet.

• All Shetland fishing vessels, bar one, are family owned and therefore represent 250+ individual businesses, owned and crewed by 450+ residents, with an annual turnover of £138.9m

• Additionally, Shetland's fishing industry plays an important role in food security for Scotland and beyond.

With regards to Shetland's aquaculture industry, we are aware that:

• Shetland salmon farms produce more than 36,000 tonnes of salmon annually, which is worth more than £190 million. The salmon sector employs 270 full-time staff and now accounts for the largest single sectoral proportion of Shetland economic output,, bigger than oil and gas and tourism.

• Shetland finfish/salmon aquaculture accounted for 20% of the total Scottish production in 2021.

• Shetland shellfish aquaculture accounts for 80% of the total Scottish production and employs 55 full-time and 46 part-time and casual workers.

14. Aviation and Radar

14.1 We note that aviation stakeholders potentially affected include the CAA, NATS, the MOD, CAA Norway, HIAL, and offshore helicopter operators such as Bristow Group, who currently delivers the UK SAR contract on behalf of His Majesty's Coastguard (HMC). These are key stakeholders for this chapter of the EIAR and due regard should be given to their views. This is especially the case with the concerns reported in the Scoping Report regarding matters of potential impact on Civil Aviation, Saxa Vord AD Radar and Aberdeen Offshore Air Traffic Control.

15. Shipping and Navigation

15.1 We note that key stakeholders for this chapter are identified on page 362 as MCA, NLB, RYA Scotland, UK Chamber of Shipping, RNLI, Cruising

Association, Local ports and harbours (e.g., Lerwick Harbour), SFF, Regular vessel operators identified from the vessel traffic data, and marinas and yacht clubs. The embedded mitigation, primary receptors, impacts scoped and impacts scoped out all appear to be relevant and acceptable in principle subject to the views of these stakeholders.

15.2 The SIC Harbour Master has noted that this section of the Scoping Repot contains no mention of Sullom Voe bound traffic (tankers) which regularly travel up the North Sea east of Shetland. While this development will cause these to have to transit further offshore and add to their steaming time his main concern is that they may be exposed to more severe weather.

15.3 Additionally he is of the view that cumulative impacts of this proposal on Sullom Voe bound tanker traffic should be included in the EIAR/Navigational Risk Assessment, to include developments such as the Saxavord Space Centre, given that there is a risk that this tanker traffic will become increasingly 'hemmed in'.

16. Marine Archaeology and Cultural Heritage

16.1 Shetland Islands Council sought the views of our Regional Archaeologist (Dr Val Turner at Shetland Amenity Trust) on this section of the Scoping Report and we wish to highlight the following points in relation to their assessment of the scoping questions at 16.10 of the Scoping Report (pg 392-393):

- I am content that the study area takes account of the arrays and also any necessary cabling and infrastructure relating to the offshore wind farm. Were this to prove not to be the case, then the area would need to be amended to take account of that.
- I agree that these are the appropriate data sets to use to inform the EIA.
- I agree that all available marine geophysical and geotechnical surveys should be used to enhance the data sets. Note that there has been some marine geophysics carried out within the study area for/by both Wessex Archaeology and also by ORCA and associated companies.
- I would like to see a little more information on assessing whether there are prehistoric marine landscapes which could potentially be at risk. This would comprise both desk-based assessment and also a sub-sea approach.
- With the addition of the above, a WSI and the provision for a PAD, the embedded mitigations provide a suitable framework for the mitigation of the potential effects on the marine environment.
- The study areas seem appropriate for the underwater aspects of this development. Obviously, there would need to be additional consideration of the land-based elements of the scheme.

- I am broadly content with the proposed methodology for assessing the maritime remains in the report, however, see comments above with reference to the prehistoric landscape, WSI and PAD.
- I am content that transboundary impacts are scoped out for the cultural heritage.
- Whilst it would be preferable to have as much site-specific data as possible before submitting the EIA, I am content that an EIA does not have include the site-specific geophysical and geo-technical data provided that there is the stated provision and intention to mitigate for it (which will include the re-siting or removing of turbines and infrastructure) in the WSI.

17. Other Marine Users and Infrastructure

17.1 We agree with the following key receptors identified on page 397 of this chapter:

- Offshore renewable energy (wind, wave and tidal marine infrastructure);
- Subsea cables and utilities (telecommunication & subsea power cables);
- Marine dredging and disposal activities;
- Oil and Gas infrastructure; and
- Aquaculture.

17.2 The Cable Plan and cable routing options for onshore grid connections on the Shetland Mainland have the potential to have significant impacts upon other marine users and infrastructure and we therefore with to continue to engage with MD-LOT and the developer as the EIAR is progressed, especially in regards to future Works Licence applications made to Shetland Islands Council under the ZCC Act 1974.

17.3 It is noted that subsea cables and interconnectors supplying electricity and digital connectivity to island communities are included within the OMUI study area. This is a critical consideration as impacts to connectivity and power supply to island communities can have major negative impacts on the health and wellbeing of residents and businesses, and these should be considered thoroughly in the design of mitigation measures.

17.4 The proposed embedded mitigation measures, potential cumulative impacts, potential transboundary impacts, primary receptors, impacts scoped in and impacts scoped out all appear to be relevant and acceptable in principle.

18. Socioeconomics, Tourism and Recreation

18.1 We are of the view that Table 18.4 '*Impacts scoped into the assessment of Socioeconomics, Tourism and Recreation'* should have included

changes to aquaculture development given that there is potential for cabling/cable routes to impact (potentially restrict) existing, existing modifications and future development. This area should be covered in the EIAR.

18.2 *18.9.3.3 Tourism and Recreation Impacts* – have the views of Visit Scotland and the Shetland Tourism Association been sought on this section and were they consulted on the Scoping Report?

18.3 We note the following statement in the Scoping Report: *As location(s) for activities associated with the Offshore Proposed Development will not have been determined at the time of drafting the EIAR, the assessment will consider the potential scale of additional housing demand that will occur during the peak periods of employment in areas identified as potential locations for activities associated with the Offshore Proposed Development.* Shetland Islands Council would wish to engage with the developer further on this matter, and also in relation to our Energy Development Principles.

18.4 18.9.3.2 Social Impact Assessment Methodology – states: "*To avoid the negative impacts of the SEIA process itself, consultation will be limited to key stakeholders (such as local authorities). The methodology aims to minimise disruption to communities through over-consultation and ultimately seeks to avoid reputational damage to the Offshore Proposed Development, its Developer, the offshore sector in general, and the Scottish Government's consenting processes*" – we consider that there will be particular communities and areas of Shetland who will be subject to greater effects and impacts than others. There is a risk that by limiting consultation to key stakeholders (such as local authorities) these views and opinions on the Arven Development may be not heard in full and that these communities are not being given the opportunity to be heard – community representative bodies including community councils and local development organisations will have a reasonable expectation of engagement during the process, and will be able to add crucial context regarding the impact of the development on specific areas and communities, including impacts on development and regeneration activity. Shetland Islands Council would therefore wish to engage further with the developer to look into this aspect in more detail and discuss how this matter should be approached as part of the ongoing pre-application process and within the EIAR and information submitted in support of the s.36, Marine Licence and Works Licence applications.

19. Climate Change and Greenhouse Gas

19.1 The proposed embedded mitigation measures, potential cumulative impacts, potential transboundary impacts, primary receptors, impacts scoped in and impacts scoped out all appear to be relevant and acceptable in principle.

Additional Comments/Observations

- Section 2 of the Scoping Report makes reference to the ZCC Act 1974 and the need for a works licence, but has omitted reference to the Council's Works Licence Policy, which requires to be considered: works-license-supplementary-guidance-2017 (shetland.gov.uk)
- We are pleased to note that Section 2 refers to Shetland Island Council's Energy Development Principles. We shall continue to engage with the developer to set out how these should be considered and addressed in next stages of the EIAR process and supporting information submitted alongside future consent applications.
- Shetland Islands Council will continue to engage with MD-LOT and the developer concerning works that come under the remit of the ZCC Act 1974 for works licencing. This is especially relevant to future cable routes/submarine cables as these develop and routes are identified as part of the EIA, Marine Licence and Works Licence processes.
- Finally, we would also welcome the opportunity to discuss the land-sea interface of this proposal, landing points for cables and the land-based infrastructure aspects as well as the onshore EIAR and cumulative impacts of this.

Yours faithfully

Simon Pallant
Coastal Zone Manager

Shetland Marine Planning Partnership

Judith Horrill

From: Marine Plan Shetland <MarinePlan.Shetland@uhi.ac.uk>
Sent: 15 July 2024 11:12
To: Judith Horrill
Subject: RE: SCOP-0048- Arven Offshore Wind Farm Limited- Arven Offshore Wind Farm- Scoping Consultation- Nil response assumed

Dear Judith,
Apologies for the late response, I believe the Shetland Islands Council responded directly to the consultation and the SMPP have no separate comments to make.
Kind regards,

Rebecca
(Sent on behalf of the Shetland Marine Planning Partnership)

Dr Rebecca Giesler
Marine Planning Research Officer
Marine Science & Technology Department

UHI | SHETLAND

[redacted]

shetland.uhi.ac.uk
Scottish charity no. SC050701

Transport Scotland

Development Management and Strategic Road Safety
Roads Directorate

George House 36 North Hanover St Glasgow G1 2AD

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

Judith Horrill
Scottish Government
Marine Laboratory
Aberdeen
AB11 9DB

MD.MarineRenewables@gov.scot

Your ref:
SCOP-0048

Our ref:
GB01T19K05

Date:
24/06/2024

Dear Sirs,

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").

SCOP-0048 - ARVEN OFFSHORE WIND FARM LIMITED – ARVEN OFFSHORE WIND FARM – APPROXIMATELY 30 KM EAST OF MAINLAND, SHETLAND

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

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

Proposed Development

The proposed development comprises an offshore windfarm with a maximum of 161 turbines and which includes the Arven Array Area (360 km^2) and the Arven South Array Area (100 km^2), located 30km east of Shetland. The maximum blade tip height above LAT is indicated to be 359.1m.

The nearest trunk road to the site is the A9(T) on the Scottish mainland, which lies approximately 230km to the south at Thurso.

Assessment of Environmental Impacts

The SR states that construction of the wind farm will involve the tow-out of pre-assembled turbines and floating foundations. It also states that the location of the primary construction port has not been identified at this stage.

In the event that the primary construction port used is on the Scottish Mainland, Transport Scotland would request that the potential impact of traffic relating to the transport of materials and the turbine components on the trunk road network be quantified, with a threshold assessment carried out.

We would request that this be carried out in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidelines, entitled Environmental Assessment of Traffic and Movement (July 2023).

These specify that road links should be taken forward for further detailed assessment of potential environmental effects where the following two rules are exceeded:

Rule 1: Include road links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)

Rule 2: Include road links of high sensitivity where traffic flows have increased by 10% or more.

Abnormal Loads Assessment

Should any turbine components require to be transported to the selected port(s) by road prior to turbine erection, Transport Scotland will require to be satisfied that the size of turbines proposed can negotiate the selected route and that their transportation will not have any detrimental effect on structures within the trunk road route path.

A full Abnormal Loads Assessment report should be provided that identifies key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes to street furniture or structures along the route.

In the event that all turbine components are all to be transported by sea, this information will not be required.

I trust that the above is satisfactory but 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 can assist on 0141 343 9636.

Yours faithfully

George Smith

Transport Scotland
Roads Directorate

cc Alan DeVenny – SYSTRA Ltd.

UK Chamber of Shipping ("UKCOS")

UK Chamber of Shipping

From: Robert Merrylees
Sent: 08 July 2024 11:49
To: Judith Horrill; Toni-marie Mcginn; MD Marine Renewables
Cc: Eleanor Norris
Subject: RE: SCOP-0048- Arven Offshore Wind Farm Limited- Arven Offshore Wind Farm- Scoping Consultation- Nil response assumed

Objective: -1

Good day Judith,

Thank you very much for granting the Chamber of Shipping an extension to provide a Scoping Report submission. We apologise for not responding within the initial timeline.

The Chamber, given its interest in Commercial Shipping and Navigation, has chosen to limit its review and response to Chapter 15 – Shipping and Navigation, and respond directly to the questions posed. Please find our response to those questions below:

- **Do you agree with the study area (s) defined for Shipping and Navigation?**

The 10nm buffer to the array area is industry standard for study area and accepted.

- **Do you agree with the use of those data listed in Section 15.3, and any additional anticipated data listed in Section 15.9, being used to inform the Offshore EIA?**

The list is broadly as expected. The Chamber would recommend the analysis of 12-months AIS only data for seasonal variation and to pick up any other unusual traffic not otherwise included in the 2 x 14 day surveys.

- **Are there any additional data sources or guidance documents that should be considered?**

The Chamber welcomes the use of 20 years of MAIB accident data at NRA analysed given its availability and the long-term development of the proposed wind farm.
The Scotland Marine Plan and Sectoral Marine Plan for Offshore Wind, in particular noted importance of lifeline ferry services.
The Chamber recommends the project to fully consider the unique risk factors of floating offshore wind projects, as detailed in the NASH Maritime report for ORE Catapult.

- **Do you agree that all receptors related to Shipping and Navigation have been identified?**

Waiting activity is identified and should be investigated in more detail.
Movement of unusual structures, e.g. towing of rigs should also be specifically considered.

- **Do you agree with the proposed study areas identified for the Shipping and Navigation receptors?**

The scoping report does not include detail on the scale of the study area for cumulative impacts. This is unusual and the Chamber hopes that the typical 50nm buffer from array areas are utilised.

- **Do you agree with the impacts scoped for Shipping and Navigation and in particular those relating to the use of floating technology?**

Yes, however in the Chamber's view loss of station and loss of connection from towing vessel is an impact needing consideration.
The Chamber also recommends that wet storage areas for floating turbines need careful examination and do not appear to have been considered.

- **Do you agree the embedded mitigation is appropriate, or are there other measures that should be included?**

As expected, however project may wish to consider emergency towing assets in proximity should there be a loss of station.

- **Do you agree with the proposed assessment methodology related to Shipping and Navigation?**

Yes industry standard.

- **Are there any additional shipping and navigation organisations that you would recommend be consulted?**

No

The Chamber trust these responses are of value to Scottish Government and the applicant, and looks forward to future engagement on the project.

Kind regards,
Robert

Robert Merrylees
Policy Manager (Safety & Nautical) & Analyst

UK Chamber of Shipping
30 Park Street, London, SE1 9EQ

[redacted]
Mob

www.ukchamberofshipping.com
[redacted]