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MORAY OFFSHORE RENEWABLES LTD: EASTERN DEVELOPMENT AREA

Scoping Opinion

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THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2000.

SCOPING OPINION FOR THE PROPOSED SECTION 36 APPLICATION FOR THE MORAY OFFSHORE RENEWABLES LTD: EASTERN DEVELOPMENT AREA

1. Introduction

I refer to your letter of requesting a scoping opinion under the Electricity Works (Environmental Impact Assessment) (Scotland) (EIA) Regulations 2000 enclosing a scoping report.

Any proposal to construct or operate an offshore power generation scheme with a capacity in **excess of 1 megawatt** requires Scottish Ministers' consent under section 36 of the Electricity Act 1989.

Schedule 9 of the Act places on the developer a duty to "have regard to the desirability of preserving the natural beauty of the countryside, of conserving flora, fauna and geological and physiological features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest". In addition, the developer is required to give consideration to the Scottish Planning Policy on Renewable Energy other relevant Policy and National Policy Planning Guidance, Planning Advice Notes, the relevant planning authority's Development Plans and any relevant supplementary guidance.

Under the Electricity Works (Environmental Impact Assessment)(Scotland)(EIA) Regulations 2000, Scottish Ministers are required to consider whether any proposal for an offshore device is likely to have a significant effect on the environment. Scottish Ministers have considered your request for an opinion on the proposed content of the ES in accordance with regulations and in formulating this opinion; Scottish Ministers have consulted with the relevant organisations.

Please note that the EIA process is vital in generating an understanding of the biological and physical processes that operate in the area and may be impacted by the proposed offshore wind farm. We would however state that references made within the scoping document with regard to the significance of impacts should not prejudice the outcome of the EIA process.

It is important that any development of renewable energy sources should be accompanied by a robust assessment of its environmental impacts. The assessment should also consider how any negative environmental impacts could be avoided or minimised, through the use of mitigating technologies or regulatory safeguards, so that the quality and diversity of Scotland's wildlife and natural features are maintained and enhanced. Scottish Ministers welcome the commitment given in the report that the EIA process will identify mitigation

measures in order to avoid, minimise or reduce any adverse impacts. We would suggest that the range of options considered should be informed by the EIA process in order that these objectives can be achieved. Consultation with the relevant nature conservation agencies is essential and it is advised that this is undertaken as appropriate.

2. Aim of this Scoping Opinion

Scottish Ministers are obliged under the EIA regulations to respond to requests from developers for a scoping opinion on outline design proposals.

The purpose of this document is to provide advice and guidance to developers which have been collated from expert consultees whom the Scottish Government has consulted. It should provide clear advice from consultees and enable developers to address the issues they have identified and address these in the EIA process and the Environmental Statement associated with the application for section 36 consent.

3. Description of your development

Moray Offshore Renewables Limited (MORL) is proposing to construct and operate an offshore windfarm in the outer Moray Firth. MORL was awarded zone 1 of the nine UK Offshore Round 3 zones, due to the size of the site, MORL has identified two potential development areas - Eastern development area & Western development area. The Eastern development area is considered to have the higher potential for development and will be progressed first. The site is located to the east of the Scottish coast and covers an area of approximately 296 km^2. The current assumption is that the area will have approximately 200 wind turbines of 5-8 MW with a potential generation capacity of 1-1.14GW.

4. Land Use Planning

The Scottish Government's planning policies are set out in the National Planning Framework, Scottish Planning Policy, Designing Places and Circulars.

The National Planning Framework is the Scottish Government's Strategy for Scotland's long term spatial development.

Scottish Planning Policy (SPP) is a statement of Scottish Government policy on land use planning and contains:

• The Scottish Government's view of the purpose of planning,
• The core principles for the operation of the system and the objectives for key parts of the system,
• Statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006,
• Concise subject planning policies, including the implications for development planning and development management, and
• The Scottish Government's expectations of the intended outcomes of the planning system.

Other land use planning documents which may be relevant to this proposal include:

- PAN 42: Archaeology–Planning Process and Scheduled Monument Procedures
- PAN 45: 2002 Renewable Energy Technologies
- PAN 50: Controlling the Environmental Effects of Surface Mineral Workings
- PAN 51: Planning, Environmental Protection and Regulation
- PAN 56: Planning and Noise
- PAN 58: Environmental Impact Assessment
- PAN 60: Planning for Natural Heritage
- PAN 62: Radio Telecommunications
- PAN 68: Design Statements
- PAN 69: Planning and Building Standards Advice on Flooding
- PAN 75: Planning for Transport
- PAN 79: Water and Drainage
- Marine Guidance Note 371 (M)
- The Highland Structure Plan
- West Highland and Islands Local Plan (WHILP).

5. Natural Heritage

Scottish Natural Heritage (SNH) has produced a service level statement (SLS) for renewable energy consultation. This statement provides information regarding the level of input that can be expected from SNH at various stages of the EIA process. Annex A of the SLS details a list of references, which should be fully considered as part of the EIA process. A copy of the SLS and other vital information can be found on the renewable energy section of their website – www.snh.org.uk

6. General Issues

Economic Benefit

The concept of economic benefit as a material consideration is explicitly confirmed in the consolidated SPP. This fits with the priority of the Scottish Government to grow the Scottish economy and, more particularly, with our published policy statement "Securing a Renewable Future: Scotland's Renewable Energy", and the subsequent reports from the Forum for Renewables Development Scotland (FREDS), all of which highlight the manufacturing potential of the renewables sector. The application should include relevant economic information connected with the project, including the potential number of jobs, and economic activity associated with the procurement, construction operation and decommissioning of the development.

7. Contents of the Environmental Statement (ES)

Format

Developers should be aware that the ES should also be submitted in a user-friendly PDF format which can be placed on the Scottish Government website. A description of the methodology used in assessing all impacts should be included.

It is considered good practice to set out within the ES the qualifications and experience of all those involved in collating, assessing or presenting technical information.

Non Technical Summary.

This should be written in simple non-technical terms to describe the various options for the proposed development and the mitigation measures against the potential adverse impacts which could result. Within an ES it is important that all mitigating measures should be:

- Clearly stated;
- Fully described with accuracy;
- assessed for their environmental effects;
- assessed for their effectiveness;
- Their implementation should be fully described;
- How commitments will be monitored; and
- If necessary, how they relate to any consents or conditions.

Given that the layout and design are still developing and evolving, the exact nature of the work that is needed to inform the EIA may vary depending on the design choices. The EIA must address this uncertainty so that there is a clear explanation of the potential impact of each of the different scenarios. It should be noted that any subsequent components/scenario's procured after the ES is submitted would be subject to further environmental assessment and public consultations period if deemed to be significant.

Baseline Assessment and Mitigation

Refer to Annex 1 for consultee comments on specific baseline assessment and mitigation.

8. Archaeology and Cultural Heritage

General Principles

The ES should address the predicted impacts on the historic environment and describe the mitigation proposed to avoid or reduce impacts to a level where they are not significant. Historic environment issues should be taken into consideration from the start of the site selection process and as part of the alternatives considered.

National policy for the historic environment is set out in:

- Scottish Planning Policy *Planning and the Historic Environment at:* http://www.scotland.gov.uk/topics/built-environment/planning/National-planning-policy/themes/historic
- The Scottish Historic Environment Policy (SHEP) sets out Scottish Ministers strategic policies for the historic environment and can be found at: http://www.historic-scotland.gov.uk/index/heritage/policy/shep.htm

Amongst other things, SPP paragraph 110–112, Historic Environment, stresses that scheduled monuments should be preserved *in situ* and within an appropriate setting and confirms that developments must be managed carefully to preserve listed buildings and their settings to retain and enhance any features of special architectural or historic interest which they possess. Consequently, both direct impacts on the resource itself and indirect impact on its setting must be addressed in any Environmental Impact Assessment (EIA) undertaken for this proposed development. Further information on setting can be found in the following document: Managing Change in the Historic Environment http://www.historic-scotland.gov.uk/managing-change-consultation-setting.pdf.

Historic Scotland recommend that you engage a suitably qualified archaeological/historic environment consultants to advise on, and undertake the detailed assessment of impacts on the historic environment and advise on appropriate mitigation strategies.

Baseline Information

Information on the location of all archaeological/historic sites held in the National Monuments Record of Scotland, including the locations and, where appropriate, the extent of scheduled monuments, listed buildings and gardens and designed landscapes can be obtained from www.PASTMAP.org.uk

Data on scheduled monuments, listed buildings and properties in the care of Scottish Ministers can also be downloaded from Historic Scotland's Spatial Data Warehouse at
http://hsewsf.sedsh.gov.uk/pls/htmldb/f?p=500:1:8448412299472048421::NO
For any further information on those data sets and for spatial information on gardens and designed landscapes and World Heritage Sites which are not currently included in Historic Scotland's Spatial Data Warehouse please contact hsgimanager@scotland.gsi.gov.uk. Historic Scotland would also be happy to provide any further information on all such sites.

9. Navigation

The Environmental Statement should supply detail on the possible the impact on navigational issues for both Commercial and Recreational craft, viz.

Collision Risk
Navigational Safety
Risk Management and Emergency response
Marking and lighting of Tidal Site and information to mariners
Effect on small craft navigational and communication equipment
Weather and risk to recreational craft which lose power and are drifting
In adverse conditions
Evaluation of likely squeeze of small craft into routes of larger
Commercial vessels.
Visual intrusion and noise

10. Ecology, Biodiversity and Nature Conservation

Refer to Annex 1 for consultee comments on ecology, biodiversity and nature conservation.

Species

The ES needs to show that the applicants have taken account of the relevant wildlife legislation and guidance namely, Coast Protection Act 1949 section 34, Council Directives on The Conservation of Natural Habitats and of Wild Flora and Fauna, and on Conservation of Wild Birds (commonly known as the Habitats and Birds Directives), the Wildlife & Countryside Act 1981, the Nature Conservation (Scotland) Act 2004, the Protection of Badgers Act 1992, the 1994 Conservation Regulations, Scottish Executive Interim Guidance on European Protected Species, Development Sites and the Planning System and the Scottish Biodiversity Strategy and associated Implementation Plans. In terms of the SG Interim Guidance, applicants must give serious consideration to/recognition of meeting the three fundamental tests set out in this Guidance. **It may be worthwhile for applicants to give consideration to this immediately after the completion of the scoping exercise.**

It needs to be categorically established which species are present on the site, and where, before the application is considered for consent. The presence of protected species such as Schedule 1 Birds or European Protected Species must be included and considered as part of the application process, not as an issue which can be considered at a later stage. Any consent given without due consideration to these species may breach European Directives with the possibility of consequential delays or the project being halted by the EC. Likewise the presence of species on Schedules 5 (animals) and 8 (plants) of the Wildlife & Countryside Act 1981 should be considered where there is a potential need for a licence under Section 16 of that Act.

11. Water Environment

Developers are strongly advised at an early stage to consult with SEPA as the regulatory body responsible for the implementation of the Controlled Activities Regulations (CAR), to identify 1) if a CAR license is necessary and 2) clarify the extent of the information required by SEPA to fully assess any license application.

All applications (including those made prior to 1 April 2006) made to Scottish Ministers for consent under section 36 of the Electricity Act 1989 to construct and operate a electricity generating scheme will require to comply with new legislation. In this regard we will be advised by the Scottish Environment Protection Agency (SEPA) as the regulatory body responsible for the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations 2005, and will have regard to this advice in considering any consent under section 36 of the Electricity Act 1989.

SEPA produces a series of Pollution Prevention Guidelines, several of which should be usefully utilised in preparation of an ES and during development. These include SEPA's guidance note PPG6: Working at Construction and Demolition Sites, PPG5: Works in, near or liable to affect Watercourses, PPG2 Above ground storage tanks, and others, all of which are available on SEPA's website at http://www.sepa.org.uk/guidance/ppg/index.htm. SEPA would look to see specific principles contained within PPG notes to be incorporated within mitigation measures identified within the ES rather than general reference to adherence to the notes.

Prevention and clean-up measures should also be considered for each of the following stages of the development;

- Construction.
- Operational.
- Decommissioning.

Construction contractors are often unaware of the potential for impacts such as these but, when proper consultation with the local fishery board is encouraged at an early stage, many of these problems can be averted or overcome.

- Increases in silt and sediment loads resulting from construction works.
- Point source pollution incidents during construction.
- Obstruction to upstream and downstream migration both during and after construction.
- Disturbance of spawning beds during construction - timing of works is critical.
- Drainage issues.
- Sea Bed and Land Contamination

The ES should identify location of and protective/mitigation measures in relation to all private water supplies within the catchments impacted by the scheme, including modifications to site design and layout.

Developers should also be aware of available CIRIA guidance on the control of water pollution from construction sites and environmental good practice (www.ciria.org). Design guidance is also available on river crossings and migratory fish (SE consultation paper, 2000) at http://www.scotland.gov.uk/consultations/transport/rcmf-00.asp.

12. Other Material Issues

Traffic Management

The Environmental Statement should provide information relating to the preferred route options for delivering equipment etc. via the trunk road network. The Environmental Impact Assessment should also address access issues, particularly those impacting upon the trunk road network; in particular, potential stress points at junctions, approach roads, borrow pits, bridges, site compound and batching areas etc.

Where potential environmental impacts have been fully investigated but found to be of little or no significance, it is sufficient to validate that part of the assessment by stating in the report:

- the work has been undertaken, e.g. transport assessment;
- what this has shown i.e. what impact if any has been identified, and
- Why it is not significant.

13. General ES Issues

In the application for consent the applicant should confirm whether any proposals made within the Environmental Statement, e.g. for construction methods, mitigation, or decommissioning, form part of the application for consent.

Consultation

Developers should be aware that the ES should also be submitted in a user-friendly PDF format which can be placed on the Scottish Government website. Developers are asked to issue ESs directly to consultees. Consultee address lists can be obtained from the Energy Consents Unit. The Energy Consents Unit also requires 8 hardcopies to be issued internally to Scottish Government consultees.

Where the developer has provided Scottish Ministers with an environmental statement, the developer must publish their proposals in accordance with part 4 of the Environmental Impact Assessment (Scotland) Regulations 2000. Energy

consents information and guidance, including the specific details of the adverts to be placed in the press can be obtained from the Energy Consents website; http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-Consents

Gaelic Language

Where s36 applications are located in areas where Gaelic is spoken, developers are encouraged to adopt best practice by publicising the project details in both English and Gaelic (see also Energy consents website above).

OS Mapping Records

Developers are requested at application stage to submit a detailed Ordinance Survey plan showing the site boundary and all turbines, access tracks and onshore supporting infrastructure in a format compatible with the Scottish Government's Spatial Data Management Environment (SDME), along with appropriate metadata. The SDME is based around Oracle RDBMS and ESRI ArcSDE and all incoming data should be supplied in ESRI shape file format. The SDME also contains a metadata recording system based on the ISO template within ESRI ArcCatalog (agreed standard used by the Scottish Government); all metadata should be provided in this format.

Difficulties in Compiling Additional Information

Developers are encouraged to outline their experiences or practical difficulties encountered when collating/recording additional information supporting the application. An explanation of any necessary information not included in the Environmental Statement should be provided, complete with an indication of when an addendum will be submitted.

Application and Environmental Statement

A developer checklist is enclosed with this report to help developers fully consider and collate the relevant ES information to support their application. In advance of publicising the application, developers should be aware this checklist will be used by government officials when considering acceptance of formal applications.

Consent Timescale and Application Quality

In December 2007, Scottish Ministers announced an aspirational target to process new section 36 applications within a 9 month period, provided a PLI is not held. This scoping opinion is specifically designed to improve the quality of advice provided to developers and thus reduce the risk of additional information being requested and subject to further publicity and consultation cycles.

Developers are advised to consider all aspects of this scoping opinion when preparing a formal application, to reduce the need to submit information in support of your application. The consultee comments presented in this opinion are designed to offer an opportunity to consider all material issues relating to the development proposals.

In assessing the quality and suitability of applications, Government officials will use the enclosed checklist and scoping opinion to scrutinise the application. Developers are encouraged to seek advice on the contents of ESs prior to applications being submitted, although this process does not involve a full analysis of the proposals. In the event of an application being void of essential information, officials reserve the right not to accept the application. Developers are advised not to publicise applications in the local or national press, until their application has been checked and accepted by SG officials.

Judicial review

All cases may be subject to judicial review. A judicial review statement should be made available to the public.

[redacted]

Signed
Fiona Thompson

Authorised by the Scottish Ministers to sign in that behalf

Enclosed - Developer Application Checklist

14. Annex 1

Consultee Comments Relating To MORL Offshore Windfarm, Aberdeen

The following organisations provided a scoping opinion in relation to the MORL Offshore windfarm, outer Moray Firth

Statutory Consultees

SNH & JNCC
The Highland Council
Aberdeenshire Council
SEPA

Non Statutory Consultees

RSPB
Civil Aviation Authority
NERL Safeguarding
Maritime & Coastguard Agency
Northern Lighthouse Board
RYA Scotland
Ports and Harbours
Marine Scotland
The Joint Radio Company Ltd
Historic Scotland
Transport Scotland
Ministry of Defence
Scottish Canoe Association
Health and Safety Executive

SNH & JNCC Comments

We strongly recommend that MORL discusses their approach with Marine Scotland who will be acting as the consent authority for Section 36 applications, and also as the competent authority in respect of Habitats Regulations Appraisal (HRA; on which we provide advice below). In order to consider the environmental impacts of this project in its entirety, through EIA and HRA, we highlight that information on onshore and offshore elements is required. The developer identifies that they intend to include within the offshore wind farm EIA, any in-combination effects resulting from the onshore and offshore activities, and we support the collation of information within a single Environmental Statement and HRA report to be submitted in support of the Section 36 application, even if separate application(s) are then also made for the grid connection and onshore works.

General Approach to EIA

EIA is a statutory process which should highlight the potential positive and negative impacts of a project, and identify how effects can be prevented, offset or reduced through mitigation, enabling the regulator to make a decision on whether to consent. Overall, MORL have undertaken a useful scoping exercise and present a comprehensive understanding of the EIA process. The key objectives of scoping are well presented, including recognition of the need to determine the range of factors that need to be considered within the EIA, and also ensuring that environmental studies are planned appropriately to gather sufficient environmental information.

For complex and large-scale development proposals, the EIA process is not straightforward, and we highlight that there may be opportunities to improve its practice as knowledge is improved. In respect of offshore wind development, it is important to highlight the much larger scale and geographic spread of Round 3 compared to Rounds 1 and 2. Therefore, while lessons are being learned from Rounds 1 and 2 sites, there is the potential for a different range and / or a greater level of impacts to arise from Round 3 development. Consequently, there is a need to work more confidently with the levels of uncertainty apparent in the EIA process and we advise that EIA is undertaken in the context of risk management; and identify the need to consider what level of confidence in the data it will be realistically possible to achieve, and how this will be presented to enable conclusions to be reached.

We particularly welcome the proposal by MORL to consider ecological links and assess the projects holistically (p.23), as although adding complexity to the EIA process, this is likely to improve the ability to reach conclusions regarding the effects of the development, and can be built on through the assessment of subsequent development plans.

Zonal Assessment

We note for Marine Scotland that MORL have not presented this scoping report within the wider context of zonal characterisation and assessment (other than the siting of development within the Eastern area). The Scoping Report adequately addresses the issues to be considered and we consider it to be sufficient for the purpose of scoping for the EIA for the Eastern Development Area, however it may be relevant to discuss data gathered at a zonal level for better understanding of individual receptors, e.g. birds. It would be key to identify how zonal assessment will be managed to inform later development, as it is planned.

Habitats Regulations Appraisal

As part of our scoping advice we include the range of interests and potential impacts that may need to be considered in relation to the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (applying to the offshore zone beyond 12 nautical miles) and to the Conservation (Natural Habitats, &c.) Regulations 1994 as amended (applying to Scottish territorial waters). These regulations protect Natura (European) sites – a network of designated sites across Europe which are internationally important for threatened habitats and species – encompassing Special Protection Areas (SPAs) designated for a range of important bird species, and Special Areas of Conservation (SACs) which include a variety of sensitive or rare marine habitats.

Under the above regulations, Habitats Regulations Appraisal (HRA) is the process whereby potential impacts to Natura sites – SPAs and SACs – are considered. We provide more detail on the process of HRA in Annex E. We provide our advice on HRA tailored to the potential impacts of the Eastern Development Area in Annex C for SPAs and Annex D for SACs.

Further Liaison and Advice

This Round 3 zone lies close to the Beatrice Offshore Wind Farm proposal within Scottish territorial waters of the Moray Firth, and we welcome and encourage collaborative working between the developers in the area, through the Moray Firth Offshore Wind Developer's Group. This will be of particular use in the assessment of cumulative impacts and we will continue to liaise with the group over collaborative work. It may also be appropriate to collaborate at a wider level, i.e. with developers in the Forth and Tay regions for certain aspects.

ANNEX A – ADVICE RELATING TO THE DEVELOPMENT IN GENERAL

Site selection within Zone

1.1 MORL have produced a zone development strategy determining the phasing by which the zone will be developed, which has resulted in prioritisation of the eastern section for development. We recognise the value of constraints mapping in the planning of development, however from an environmental perspective, we note that there are limitations in the ability to map environmental risks with sufficient confidence to influence decisions on the location of development (as apparent from p.11 of the scoping report, where environmental considerations have not resulted in preference of east over west development areas). We encourage on-going communication on the approach taken and how this might be further refined and reflected within the EIA process.

1.2 In particular, it is relevant to consider:

- How environmental data is expressed within the mapping tool in GIS; e.g. has aerial survey data been incorporated into the tool?
- How has uncertainty / lack of data been incorporated into decision making?
- How has weighting been applied to each layer, including environmental information? It would be extremely useful to see a map of the environmental constraints only, and presentation of a range of outputs would help to understand how the changing of „weightings. and other scoring can affect the range of outcomes.

1.3 We note that the applicant states that scoping will assist in identifying wind farm sites within the development area – how influential will the process be, and what is the flexibility within the plans to accommodate new recommendations following scoping? While we welcome MORL.s proposal to amend site selection based on the results of scoping, we highlight that it is unlikely to be possible to understand in sufficient detail at the scoping stage (i.e. prior to survey results being analysed), the potential environmental constraints. It is therefore important to acknowledge that constraints mapping at this stage is likely to be focussed on those constraints which are more easily mapped (e.g. navigation).

Approach to EIA

1.4 We note that MORL intend to use „standard EIA methodologies. for the assessment of significance of impacts. It is important to note that there is a need to discuss and agree what this approach will be for each receptor. As far as possible, impacts should be quantified and assessed against relevant thresholds; however there is currently uncertainty in defining thresholds of significance for some sensitive receptors which will necessitate a qualitative appraisal of results in these cases. Guidance applied in wind farm development thus far has been weak and sometimes arbitrary, and as the information base is lacking to enable a statement of quantified thresholds, we strongly encourage appropriate consideration of the information collected pertaining to this specific area and development, and close consultation with relevant experts to ensure that there is on-going agreement between the developer, SNCAs and Marine Scotland as to what is deemed to be significant, in proportion to the anticipated effects.

1.5 We note that MORL recognise the importance of developing understanding of the ecological links between different receptors, in order to better assess the impacts on different receptors, including the potential for indirect impacts. It may be useful to consider whether there is a way to „map. effects? This would be complex but could

highlight where the EIA effectively overlaps (e.g. effects on fish on their own merit, as prey species for marine mammals and birds).

1.6 The developer intends to follow the „Rochdale envelope. principle for the turbine parameters (p.13) which is necessary in order to assess the possible impacts of the range of various design options, include the worst-case scenarios (which may be different for individual receptors). We recognise that this will be complex for developments such as these which are developed over a number of years, and which therefore need to remain flexible to enable amendments in response to particular investigations. It would be useful if the potential for mitigation is considered during the early stages of design consideration, e.g. the selection of turbine installation technique to minimise the risk of impacts of noise on marine wildlife.

1.7 We note that jacket structures are being considered (p.13), including braced monopods, tripod structures and four legged jacket structures. An important aspect of EIA will be modelling of noise emitted during the installation of these structures, in order to assess which is the best option. How will this be undertaken – are there existing studies of the noise from different installation methods? Beatrice demonstrator experience with jacket installation – are there sound studies from this and monitoring undertaken during construction?

1.8 We note the proposal to assess rock dumping and mattresses and emphasise that this in itself, will exert an effect on the benthic habitat (i.e. altering the substrate and therefore the communities which live therein), and we therefore advocate minimisation of stabilisation material (within the limits of safe installation) and consideration of using mattresses instead of rock as this offers the possibility of removal during decommissioning.

1.9 Regarding the transmission plans – is there a possibility that the project will connect with other planned connections e.g. the Moray Firth Hub? From an environmental perspective, strategic planning will overall reduce impact, and potentially consenting risk.

1.10 Regarding the phases of development, we welcome the proposal to detail the decommissioning phase within the ES. We also request that MORL clarify whether there is any „repowering. planned for the development during the lifetime of the project, to ensure that the effects of this are also considered and do not hinder operations through consenting at a later stage. It is important to be clear on what repowering entails and whether there is likely to be any relocation of subsea infrastructure or alteration of the wind farm layout. This includes whether further scour protection is required for foundations in the same, or in new, locations across the wind farm site. Any alterations to the locations of offshore elements for repowering may require an update to the benthic survey work and assessments that have previously been carried out.

Baseline Data

1.11 JNCC and SNH have thus far had useful engagement with MORL regarding data collection, however it is important to note that at this stage it is not currently possible to conclude whether the data being gathered will be sufficient to answer all of the consenting questions identified. It is therefore appropriate to discuss the outputs of surveys at relevant intervals (e.g. 1 year), evaluate the occurrence of receptors and then to adapt / improve assessment strategies as appropriate.

1.12 As identified, it would be relevant to refer to the SEA for Offshore Wind in STW, and the on-going Offshore Energy 2 SEA which will cover the area of proposed development. Both will be informative for the project and should be used in analyses of baseline and cumulative impact assessment.

1.13 We note that MORL recognise the potential impacts of climate change on certain receptors which may act in-combination with the wind farm, and we also highlight the need to consider the impacts on environmental baselines, and how this should be accounted for in the prediction of effects on certain parameters.

Cumulative Impact Assessment

1.14 We note the definitions here are not in line with those used in Habitats Regulations Appraisal, where in-combination is used to refer to the potential effects of multiple projects of the same type, in this case multiple wind farm projects. We are aware that these terms are used interchangeably and are content that MORL understand the need to present the effects of both multiple wind projects, as well as with other types of activities and environmental pressures.

1.15 In particular we note and welcome the approach of forming the Moray Firth Offshore Wind Developer's Group (MFOWDG), in line with those being undertaken within the Firth of Forth (and also that there will be discussion between these groups). Could we request that the planned activities of this group be clearly outlined, so that JNCC and SNH understand when it is appropriate to feed into the discussions. Has a cumulative impact document been produced, in which the activities of both BOWL and MORL are identified, showing how they are consistent and outlining what can be undertaken strategically to inform the consenting of both projects?

ANNEX B – RECEPTOR-SPECIFIC ADVICE FOR EIA

This Appendix provides our advice on the environmental interests which need to be considered for the Eastern Development Area of the Moray Firth Zone. This will cover the topics below, with reference to the scoping report and zonal appraisal and planning document:

1. Ornithology
2. Marine Mammals
3. Hydrodynamics and Coastal Geomorphology
4. Marine Ecology
5. Fish
6. Seascape, Landscape and Visual Impact Assessment

1 ORNITHOLOGY

In Annex C we provide overall advice on the Habitats & Birds Directives and Special Protection Areas (SPA) for birds, and the process of Habitats Regulations Appraisal (HRA) that considers impacts to these interests. In Annex D we provide advice on HRA, tailored to consider the potential impacts of the proposal on those bird species which are qualifying interests of SPAs, and which may be affected by the development of offshore wind in the Moray Firth Round 3 zone.

Species to Consider

Table 5.5 (p.72) provides a useful overview, however we advise caution in the general statement that the majority of seabirds are in coastal areas (Table 5-5; p.72), which may not be borne out by the survey data. We recommend that the EIA fully discusses (with references) similar statements (such as “most breeding guillemots do not feed further than 30km from their breeding site”). It is also important to consider seasonal changes in foraging distances; a range of studies have shown that many breeding seabirds will forage further and further from the colony as the breeding season progresses due to prey depletion in closer areas. This effect on seabird distribution (Ashmole’s Halo.) is greater for larger colonies and is also likely to be variable from year to year. References are also requested for the review of the distribution of seaducks and diving ducks within the Moray Firth.

Survey Work

In respect of the boat-based survey methodology (as discussed in section 5.2.5.5) we seek to clarify whether both sides of the ship are to be surveyed simultaneously or only one side? Regarding survey methodology, the developer should justify that the survey particulars are sufficient to adequately gather information at the development area. We recommend that there is a minimum of three bird surveyors and one marine mammal observer (dedicated to that task) and that observers are suitably trained and experienced (at least one ESAS trained observer with at least 50 hours, preferably more, of survey experience). It may be appropriate to use a higher number of observers, for example if there are high densities of birds being encountered. It is important that observers are rotated at regular, predefined intervals in order to prevent fatigue.

In regards to the number of observers, if distance analysis techniques are to be employed (please see Analysis below), we note that the precision and robustness of the estimates derived will be greatly improved by ensuring that the assumption of 100% detectability at 0m from the transect is met. One method of achieving this is to employ a forward-scanning observer (in addition to the recorder surveying the 90o arc, and the

scribe). It is also beneficial when conducting one-sided surveys (i.e. 90o arc), to include an „out-of-transect. band adjacent to Band A (this decreases the tendency for inclusion of birds in the A band that are, in reality, just out of transect).

In respect of our ongoing liaison with MORL, we support the approach to discuss interim outputs of on-going survey work, to inform discussion as to whether methodologies are suitably informative.

Regarding data gaps (section 5.2.5.2), we understand that in addition to the listed methods, radar is also under consideration to assess the frequency and height of migratory flights through the development area. (We also note that PVA is not a method for further data collection, but agree that it may be appropriate for assessing the long term effects on populations).

Habitat Modelling

Camphuysen et. al. (2005) and Maclean et. al. (2009)2 recommend that oceanographic and fish data is collected during boat-based seabird surveys as this may allow habitat modelling to be undertaken. Such modelling will help us to better understand the reasons for bird numbers in the Round 3 zone – their spatial distribution and use of the site. We recommend that this issue is carefully considered; such habitat modelling is likely to benefit from a collaborative approach with the Beatrice developer (BOWL).

Species Sensitivity

We urge caution in applying the species sensitivity ratings described in Garthe and Hüppop (2004) and in COWRIE guidance (King et al. 2009), which were based on seabirds occurring in the southern portion of the North Sea, as this may not always be applicable for other areas (even if the species are the same). Bird behaviour is dependent on the season / lifecycle stage and thus there will be differences in sensitivity to windfarm development between breeding and wintering populations. The breeding seabird populations found in the Moray Firth are therefore likely to have a differing sensitivity to offshore windfarm development, compared to the over-wintering populations that occur in the southern North Sea.

We encourage collaboration between ourselves (JNCC and SNH), other nature conservation agencies and other seabird experts (including the RSPB) in determining the appropriate sensitivity of species assessed through this EIA.

Analysis

We strongly recommend that the data collection (i.e. survey methodologies) is driven by the data needed to answer the questions being posed through EIA and HRA (i.e. how many birds, which species, where and why are they using the site?). If DISTANCE software is to be used in analysing the survey results then we recommend that staff are either experienced in its use or receive appropriate training.

We emphasise the importance of reporting associated confidence intervals with any density and abundance estimates calculated using distance sampling techniques. It may be appropriate to utilise confidence intervals in the assessment of sensitive species (i.e. calculating the range of impacted population, as opposed to a mean %).

Additionally, it is necessary to consider how the baseline survey data will be used in future monitoring, as this will require an increased power to detect change. In this regard, it is advisable that a power analysis is conducted on the collated data from boat-based surveys – ideally from the Round 3 zone and Beatrice combined. This will help

determine whether the chosen survey methods and analyses will be able to measure any effects on bird populations. This will require consultation between the developer(s) and ourselves (SNH & JNCC) in order to agree the required magnitude of effect to detect (for example, % change in bird numbers). In respect of this issue, we note that the reports below are helpful.

Impacts (Section 5.2.5.3)

It should be recognised that the assessment of impacts needs to framed within the context of the consequence to the relevant (e.g. SPA, regional etc) population, and not simply the number of individuals affected.

Displacement - Disturbance leading to displacement of birds can and may occur during the operational period of the wind farm (in addition to construction and decommissioning)

Collision Risk - We highlight that flight height (and therefore survey techniques capable of gathering this information) is a key requirement to calculate collision risk (not explicitly stated in the scoping report).

With respect to avoidance rates, a critical parameter in assessing the risk of mortality to birds through collision, it is imperative that further research is undertaken to produce evidence-based values. At present there is insufficient evidence available for the confident recommendation of avoidance rates, hence a precautionary approach will be advised until better evidence has been provided.

We highlight that the Crown Estate Strategic Ornithological Support Services (SOSS) will be reviewing the existing knowledge on collision risk and avoidance rates for offshore windfarms and we recommend that this work is referred to once published as it will likely provide a peer reviewed reference. Where suggestions are to change current methodologies, then it will be important to ensure that this is carried out consistently at the various wind farm development sites, and collaboration with for example, the Forth and Tay Offshore Wind Development Group is encouraged in this regard.

Barrier Effects - The description of „Method of Impact Assessment. is unclear for this impact. We recommend considering the energetic impacts of barrier effects on migratory birds (particularly waterfowl and waders) and breeding seabirds. The references listed in the footnote may be helpful in this regard.

We caution that assessment of collision risk and barrier effect impacts to migratory species may not be possible using the proposed survey methodologies (but we note that the developer is open to additional complementary methodologies to ensure sufficient data collection).

Operational Impacts - We recommend that an assessment is made of the potential for O&M boat and/or helicopter traffic to cause disturbance to birds using the site and their possible displacement as a result. Remote condition monitoring systems may help to reduce the number of turbine visits and could therefore help to mitigate the impacts of this type of disturbance.

Cumulative Impacts

Cumulative impacts on bird species are a key issue for EIA and HRA in respect of this Round 3 windfarm proposal together with Beatrice, and it would therefore be helpful for MORL and BOWL to collaborate in respect of their bird survey work and its analysis. The scope of cumulative impact assessment should be based on a consideration of the

range of bird species that may be affected, their ecology and the types of impacts which may affect them. We support the use of the King, et al (2009) framework, and highlight that this should be used fully (i.e. to include the tables clarifying the audit trail of discussions with key stakeholders). Further, as the use of these tables is still in their infancy, the approach may require adaptation as work progresses on EIA and HRA.

In preparation of the EIA, we would welcome further discussion with the developer over which other projects / industries may need to be considered in relation to cumulative and in-combination effects on bird interests. We advise that not all cumulative / in-combination impacts are unique to wind farms, (i.e. disturbance / displacement and indirect effects) and as such it is necessary to include other industries (e.g. aggregates, shipping traffic) in this assessment.

We consider it would be beneficial to arrange a joint meeting between the applicants, Marine Scotland and ourselves (JNCC and SNH) in order to discuss and agree the scope of HRA for these proposals.

Favourable Conservation Status (FCS) – we note that there are references to the evaluation of effects on FCS (e.g. p.78) and clarify that the developer should assess the effects of their activities in the context of potential adverse effects on the site integrity of identified SPAs (i.e. using the conservation objectives). As a network, site integrity will contribute to the FCS of individual species or habitats, but the assessment of effects on FCS is the responsibility of the regulator/s at a national level and is a separate assessment from that to be undertaken at the project stage.

2 MARINE MAMMALS

Please see Annex C for the detail of the legislative requirements that apply to SAC interests, and those relating to cetaceans – whales, dolphins and porpoises – which are European Protected Species (EPS). Annex E provides our advice on HRA, tailored to the Moray Firth Round 3 zone, for marine mammals which are an SAC qualifying interest. The Regulation 33 package and management scheme for the Moray Firth SAC may be a helpful reference in this regard.7 We highlight that cumulative impacts to marine mammals are a key concern, in particular the impacts of windfarm development in the Round 3 zone in combination with the Beatrice proposal.

Survey Methods and Data Analysis

We support the proposal to build on the regional approach to understanding marine mammal distribution in the Moray Firth which is underway in that area, to facilitate better understanding of potential effects. While we welcome the range of survey methods that MORL are considering with regard to marine mammals, we seek further information on how they will collaborate with BOWL to address potential cumulative impacts.

We also recommend that the developer also considers their surveys in relation to the Joint Cetacean Protocol (JCP) work. The Joint Cetacean Protocol (JCP; http://www.seawatch foundation.org.uk/sightings.php?uid=245) holds data at a UK level, and can therefore provide improved measures of cetacean abundance and distribution at a regional level. It is largely based on SCANS and other wide scale data, and also supplemented with finer scale data. It would therefore be useful for MORL (and BOWL) to consider their data collection methodologies in light of the JCP methods, both to evaluate data which is already present, and to ascertain whether it is appropriate to enter their data into the JCP database to enable analysis of data at a more appropriate population-level scale. JNCC are happy to discuss this in more detail.

Regarding cumulative impact assessment, the King, et al (2009) framework was developed for ornithology, but it is reasonable to utilise a similar auditable framework for other mobile species (although noting that cetaceans are protected whether they are associated with a protected site or not).

We welcome ongoing liaison with the developer with regard to marine mammal surveys, the applicability of the data gathered and the subsequent approach to EIA.

Potential Impacts to Marine Mammals

The potential impacts are well outlined in the document, along with the data gathering which will inform impact assessment. Through the EIA it would be appropriate to define more clearly how the information gathered will enable conclusions on the identified impacts to be reached, and additionally how they will be evaluated through monitoring (if deemed necessary).

The applicant plans to undertake a background noise assessment and then apply modelling to assess impacts (as indicated in section 5.2.4.4 of the scoping report). We consider it would be helpful if we could see an early version of this proposal and if the predicted noise impact could be estimated soon. Doing so may allow species monitoring to be adapted to reflect the likely zone of impacts, for example, making sure C-Pods are in the right place to pick up any changes in porpoise numbers/behaviour.

We note that p.65 refers to the „regional marine mammal community;. it would be appropriate to consider the effects at population levels of marine mammal species (which is the approach necessary through EPS), as these will vary in extent and therefore require individual consideration of the range of activities to be included in cumulative impact assessment.

Regarding the guidance produced by JNCC, this is still being amended by Defra, and we will make Marine Scotland and the Applicant aware when this has been finalised. Please refer to Annex C for detail on the approach to EPS assessment and licensing.

Potential Mitigation and Monitoring

Recognising the clear risks to marine mammals from construction activities in this area, it is advisable that the applicant proactively ensures that the early stages of project design are influenced to minimise the risk to marine mammals; this will likely to reduce the need for management strategies which could affect construction programmes.

Within the EIA, we recommend that the applicant considers and discusses the full range of mitigation techniques for noise impacts during construction; including alternative installation methods, seasonal restrictions, bubble curtains, jackets and vibro-piling. The choice of mitigation should be determined by review of the zone of potential impacts based on noise modelling for the range of construction activities, and evidence gathered in support of the EIA. If sufficient evidence is not forthcoming, then it is necessary to use appropriate precaution, to ensure that the predicted risk to marine mammals is at an acceptable level.

It would be helpful for MORL and BOWL to collaborate on this issue in order to address strategically, e.g. co-ordinate their construction time-tabling (if appropriate) and other proposed mitigation.

We also consider it would be beneficial to arrange a joint meeting between the applicants, Marine Scotland and ourselves (JNCC and SNH) in order to discuss and agree the scope of HRA in respect of SAC interests.

3 HYDRODYNAMIC PROCESSES AND COASTAL GEOMORPHOLOGY

The Moray Round 3 zone and the Beatrice offshore windfarm proposal together cover a substantial proportion of the Smith Bank, and may potentially lead to effects on hydrodynamic processes. We agree with the outlined potential impacts (p.33-34), and with the scoping out of effects on geology and the tidal regime. We strongly recommend that MORL and BOWL collaborate on their coastal processes modelling in order to consider these aspects. We are uncertain of the scale of potential effects, but there could be implications for the marine and coastal habitats that are supported by these hydrodynamic processes. We discuss this issue further in Annex E where we present advice in respect of the Moray Firth SAC and others in the area.

Cabling

The scoping report does not provide details on the cable routes and potential landfall points being considered – or indeed, whether an onshore or offshore grid connection point is being considered. While we recognise that a large amount of oil and gas infrastructure has been built in this area, we do still recommend that an experienced coastal geomorphologist is employed to assess cabling options if an onshore connection is being considered. It is important that any cable route through the „wave base. (the region where waves actively affect the seabed) is carefully chosen, as well as the landing point itself. Considered appropriately, the geomorphology of an area can often be used as protection for a cable.

4 BENTHIC ECOLOGY

General Points

The outlined impacts to the benthic ecology are largely conclusive, although we recommend that when considering loss of habitat due to infrastructure, the applicant will also need to consider the extent of stabilisation materials, e.g. rock dumping and concrete mattressing which could change the local habitat in a permanent way (e.g. if soft to hard substrate).

We do not consider that there is a risk to the benthos from the accidental release of pollutants (p.45), if the applicant considers the characteristics of the materials which could be released, the maximum volume of a possible release, along with the hydrodynamic movement within the area, and would therefore recommend that this is described briefly as such within the ES, or scoped out.

Baseline Data

We consider that the applicant.s proposed surveys for benthic ecology are well thought out and we welcome the intended liaison with ourselves (JNCC and SNH) and Marine Scotland. We note, however, that it may be still be beneficial for the applicant to undertake an early analysis of their survey data in case this indicates that survey methods need to be revised and / or that further detailed surveys are required.

As development progresses we consider it would be helpful if applicants provided ourselves and Marine Scotland with a summary, or report, of their geophysical survey data prior to commencement of their geotechnical surveys. We would also welcome further co-ordination of benthic survey work and consent submissions between MORL (for the Round 3 zone) and BOWL (for Beatrice).

Finally, we note that any submitted ES will need to present clear information on, and identification of, the main biotopes found on-site. It will be helpful for this

biotopes/habitat map to also be marked with the finalised windfarm layout (i.e. to display how the finalised layout has accounted for benthic interests).

Marine Protected Areas (MPAs) and Priority Marine Features (PMFs)

With reference to Marine Protected Areas (see section 5.2.6 of the scoping report, p83), please note that Scottish Government have published guidance that includes a draft list of Priority Marine Features within territorial waters for which MPAs may be an appropriate mechanism. SNH and JNCC are currently reviewing the lists of marine biodiversity and geodiversity features in order to help identify habitats and species for which MPAs could make a contribution to their conservation.

The MPA process is likely to be running on a parallel timescale to the applicant.s project development and its formal consenting. We will seek to keep them updated on our input to the progress of MPAs, where relevant, and we also welcome their intention to engage in this process.

Cumulative Impacts

We highlight cumulative impacts between the Round 3 zone and the Beatrice proposal as a key concern with regard to benthic ecology. We hope that MORL and BOWL will co-ordinate over their survey work, analysis and proposed locations for infrastructure including cabling and grid.

5 FISH OF CONSERVATION CONCERN & FISHERIES

We have reviewed sections 5.2.3 and 5.3.2 of the applicant.s scoping report and have the following comments to make about fish of conservation concern and fisheries. We note that Marine Scotland Science are the primary source for information on commercial fish and shellfish in Scottish waters, and the applicant should contact them directly for information on all aspects associated with commercial fisheries.

Species to Consider

In Annex E we provide our advice on migratory fish species which are a qualifying interest of freshwater Special Areas of Conservation (SACs) – Atlantic salmon, sea lamprey and river lamprey. The Appendix also includes consideration of freshwater pearl mussel.

In respect of section 5.2.3.1 of the scoping report, we note that other elasmobranchs may need consideration including those listed by OSPAR and under the Wildlife & Countryside Act.

Skates and rays are often associated with sandier substrates and may need to be considered. We recommend that impact assessment for elasmobranchs includes consideration of the impacts of electro-magnetic fields (EMF) – see further discussion of EMF below.

European eel which is a conservation priority due to a 95% drop in its population over the last 20 years; it is considered by ICES to merit emergency action and is listed as critically endangered. on the IUCN Red list. Very little is known about their migration pathways – either as juveniles or adults. A draft report from Marine Scotland Science reviews the data available in relation to European eel migration routes and behaviour9.

Allis and Twaite shad which are listed on Annex II of the Habitats Directive and on the UKBAP Priority List. Allis shad are also protected under Schedule 5 of the Wildlife &

Countryside Act. Shad are found in shallow coastal waters and estuaries, although they migrate up rivers to spawn. In Scotland, they are found all around the coast, although the only known (Scottish) spawning site is located in the River Cree, which flows into the Solway Firth.

Sea trout which support a number of fisheries in Scotland. Many of these fisheries have undergone significant declines in the last 25 years and this was a primary reason for the addition of the species to the UKBAP priority list. The draft report from Marine Scotland Science reviews the data available in relation to sea trout migration routes and behaviour.

In respect of fisheries the following information may be helpful. We note that it does not cover all commercial species but it may help to focus liaison with the fishing industry:

Muddy sediments are the favoured habitat of Scottish langoustine (Nephrops norvegicus), also known as prawns or Norway lobster, inhabiting burrows in the mud. The Nephrops fishery is the most valuable inshore fishery in Scotland being exploited using trawlers (all coasts) and static gear (mostly west coast).

Sand and gravel substrates are often fished for scallops (Pecten maximus and Aquepecten opercularis). Other commercial bivalves such as cockles, razors (Ensis spp.) and surf clams also favour sandy substrates, but are mostly exploited very close to shore. Skates and rays are also often associated with sandier substrates and some are of conservation concern (see above).

Sandeel populations also occur in the sandier substrates of the Moray Firth, such as Smith Bank, and may potentially be impacted by windfarm development (with resulting effects on trophic links to seabirds, mammals and other fish). We strongly recommend that advice is sought from Peter Wright and Simon Greenstreet at Marine Scotland Science who are amongst the most knowledgeable on sandeel stocks and dynamics in this area.

Fishing industry liaison / consultation

In respect of consultation (see section 5.3.2.6 of the scoping report), we note that the Round 3 zone is technically beyond the geographical remit of the local Moray Firth Inshore Fisheries Group (IFG). However, the development and its associated fisheries impacts will be relevant to some of the IFG members who should be kept informed/consulted accordingly. It is not the role of the IFG to represent fishermen, however, this body can be used as means of communicating information to the various groups that are not represented though the Fishermens. Associations.

Data sources & survey design for fish and shellfish

The data used in the scoping report to describe the baseline for spawning and nursery grounds is from Coull et al 1998 (see section 5.2.3.1 of the report). We highlight that the Defra Data Layers project will update this information and should be publicly available soon. Marine Scotland Science are also updating the information on fishery sensitivities and should be contacted for further information.

In section 5.2.3.1, we note that the grouped UKBAP plan for commercial species is dated and we advise that it will be more relevant to refer to current fisheries management measures.

Fishing effort

In respect of the discussion and baseline description in section 5.3.2.1 of the report, we note that fishing statistics may not show activity from <10m vessels as the requirements for submitting data are limited for this size class are limited. Nevertheless, we would agree that <10 m vessels and indeed <15m vessels are unlikely to frequently operate this far offshore.

Impacts

Construction / decommissioning impacts: The EIA should include discussion of the impacts of underwater noise on fish (produced from various sources, including ships. engines, piling hammers and augering operations), especially during spawning, in respect of construction and decommissioning work. The levels of noise production that can be expected should be set-out and, using published literature, the impact, if any, this will have on fish life stages, movements and behaviour should be considered.

Operational noise: The levels of noise that are expected to be generated should be set-out, and the impact this may have on fish should be considered. The recent review10 commissioned by SNH may be helpful in assessing the impacts of construction and operational noise.

Rock Armouring: as discussed in sections 5.2.3.3 and 5.2.3.4, the ecological impact of rock armouring (or other materials around the base of turbines) should be considered. We note that the scoping report correctly states that, while likely to act as a fish aggregation device, such structures do not necessarily boost productivity (see p.59).

Electromagnetic fields (EMF): The potential for some fish species, including Atlantic salmon and European eels to be affected by EMFs emitted by subsea cables should be considered. The EIA should review the current state of knowledge, what the specific risks are in the Moray Firth, what the uncertainties are, how this proposed development will learn from current studies elsewhere and whether there are any opportunities to contribute to a wider understanding of EMF impacts.

6 SEASCAPE, LANDSCAPE AND VISUAL IMPACT ASSESSMENT

SNH are reviewing existing guidance in order to draw up a list of recommendations for carrying out seascape, landscape and visual assessment in Scotland, in relation to marine renewables. In advance of the finalisation of this work (which will be discussed with MORL when available), SNH provide the following advice on section 5.3.10 of the scoping report.

Method of Assessment

The approach described in the „Guidelines for Landscape and Visual Impact Assessment' (LI-IEMA, 2002) should be used. The assessment process for coastline, landscape and seascape is essentially the same, although each area has its own specific characteristics, as well as other shared characteristics. It is important to consider the key elements that are specific to each environment, whether land-based or marine. It is these that differ, not the method of character assessment.

Although the techniques and methods developed to evaluate seascapes are helpful, (such as SNH.s seascapes work11 and the GSA12 commissioned by CCW) they need to be critically assessed before they are generally applied in Scotland. This is due to Scotland.s specific coastal conditions and qualities, and the limited installation of offshore windfarms in Scotland, therefore knowledge of their likely impacts is limited.

Essentially, what is required is a coastal landscape assessment, clearly related both „seawards. and „landwards.. Once the baseline is established, judgements on sensitivity and impacts can then be made. Duplication of assessment, potential confusion and complexity must be avoided by recognising that landscape character contributes to seascape character and vice versa. Hence, establishing how these relationships are to be addressed is fundamental to the assessment. Important elements to consider include the contrast of form, pattern, texture and colours between the landscape and sea. In particular, the horizontal extent of the sea is a strong compositional attribute in views looking out offshore, from land.

We note that SNH guidance on Siting and Designing Windfarms in the Landscape has recently been published and some aspects may be relevant to consider in respect of offshore proposals.

Baseline

Within the study area, the seascape character types applied are as identified in the SNH „Seascapes. report (as cited above, reference 4). This study is a strategic assessment, a „nationwide. look at the coast, with general descriptions of seascape character types. These were tested against a specific, set theoretical windfarm scenario (not the current proposal) to explore issues of sensitivity and visibility. The study was limited to a strategic desk-based approach where fieldwork was not a major part of the assessment process. Thus, these seascape units are of only limited use in appraising real development proposals, and can only be applied to proposals at the strategic level.

The seascape character areas at the strategic scale (as defined in the Seascapes report) need refinement in order to examine the impacts of specific windfarm proposals. Field work is required to do so, and we recommend that the applicant uses the coastal character methodology developed for aquaculture capacity studies. This approach identifies areas of consistent seascape character with strong integrity, like a specific bay or stretch of coast. We recommend that these local coastal character areas are defined at a scale comparable to the existing Landscape Character Assessments. The Beaches of Scotland series may also be helpful in this work – these regional reports offer a quantified description of many aspects of Scotland.s coastline and are available from SNH publications.

Visibility and Zones of Theoretical Visibility

We recommend that, in assessing visibility, reference is made to SNH.s good practice guidance on visual representation of windfarms16 which includes practical guidelines on the preparation, presentation and application of visibility maps, viewpoints and visualisations. While the principles of this guidance hold, they need to be tailored for offshore windfarms due to their larger scale (numbers of turbines and turbine size) and the wider spacing between turbines. Please also be aware that the visualisations and other illustrative material should be viewed in hard copy only.

A large windfarm is more noticeable than a single turbine, as the eye is attracted to groups or patterns. Correspondingly, as the eye picks out patterns and groups, this highlights the importance of compatibility between adjacent windfarm designs within a „wider view, or panorama (see the section below on Cumulative Impacts).

We recommend an initial study area for the Round 3 zone based on a 60km radius ZTV, as the applicant for Beatrice (Beatrice Offshore Windfarm Limited: BOWL) indicated they would be this using for cumulative study, and also to encompass the range of turbine heights that MORL is intending to consider using a „Rochdale envelope. approach; from 158.5 m to an upper limit of 182 m (see Section 2.5.2 of the

scoping report, p13). This initial study area can be refined as the development progresses and the applicant identifies the key issues for LVIA.

In respect of this, we highlight the current pressure for further onshore windfarm development in both Caithness and East Highland. The study area should be of an appropriate extent to allow adequate assessment of development in the Round 3 zone including its cumulative impact.

Viewpoint Selection and Assessment

Viewpoints should be selected in consultation with statutory consultees – for the Moray Round 3 zone this includes the Highland Council, Moray Council and SNH – and we recommend that a public consultation is also held.

Viewpoint selection is based on the identification of potentially sensitive receptors (people, places and activities) and potentially significant views, locations or landscapes, taking into account the likely impacts of the windfarm. Initially lengthy, the viewpoint list should shorten as visual impact assessment (VIA) progresses, focusing on the viewpoints which best illustrate the most significant impacts, or which best aid windfarm design. However, the applicant should remain aware that further or alternative viewpoints may need to be considered throughout the assessment process.

The choice of all viewpoints should be informed by the cumulative ZTV. Although it is possible to add supplementary viewpoints as part of a cumulative VIA, it is preferable to use all or some of the same viewpoints for both the individual and cumulative VIA.

Viewpoints should be selected in order to show:

- A full representation of views from a range of distances, elevations, aspects, landscape character types and visual receptors; to include coastal views looking out to the coast and back, as well as across water to opposing shores.
- All aspects of the proposed development, to illustrate it “in the round” and help with design and assessment processes, including assessment of the proposal in a range of light conditions (such as side-lit, back-lit and front-lit).
- Visual composition; for example, focussed or panoramic views, simple or complex.
- The variety of images that the windfarm will present from coastal areas as well as important coastal hilltops and, in the case of firths and straits, landmarks including, for example, where all the turbines are visible as well as places where partial views of turbines occur.
- Sequential views along specific routes.
- The full range of different types of views, for example from popular hilltops, footpaths and other recreational routes, key transport routes (on and offshore where relevant), minor roads where the windfarm will be the focus of the view, settlements, cultural and recreational foci, and so on.
- Views of other windfarms in respect of cumulative impacts.

Viewer Type: Viewpoints will need to address:

- The full range of receptor groups; for example, residential, work, road users and other travellers, walkers and other recreational users.
- Various modes of movement. For example, those moving through the landscape, across ferry and popular recreational sailing routes, or stationary.

All viewpoint information should be presented in a table and cross-referred to a ZTV map on which all of the numbered viewpoints are plotted. We recommend that the following details are included in the ES to be able to reference each visualisation: the

precise location of the viewpoint (including 12 figure OS grid reference and a brief description), its orientation to and distance from the proposed development, the viewpoint height, nature of view (width of view in degrees and bearing of key foci within view) and conditions of assessment – including date, time of day, weather conditions and visual range. It is helpful if this information is presented alongside each visualisation including a small insert map (based on a 1:50,000 OS base map) to show the viewpoint.s detailed location and direction.

The characteristics visible from each viewpoint that are sensitive to windfarm development should be described and assessed, particularly in relation to the changes the development would cause. Factors such as season, weather, air clarity, movement, orientation to prevailing winds, elevation of the windfarm in relation to the viewer, and any screening elements may be relevant. The design and layout of the turbines and other components of the windfarm, as it would appear from each viewpoint, should also be described and assessed. Any lighting or other markings on the turbines (required for navigational / defence purposes) should be considered (with reference to section 2.7.2 of the scoping report).

Cumulative Impacts

We recommend that MORL collaborate with BOWL on an assessment of the cumulative landscape and visual impacts of their proposals in the Moray Firth, and refer to SNH guidance in so doing17. We would expect such assessment to include a baseline of existing and consented onshore windfarms as well as considering any proposals in planning.

Potential Mitigation and Monitoring

The applicant should clearly articulate their design process in the ES – a summary and analysis of the iterations leading to the final choice of windfarm layout, and why this is the optimal design in respect of landscape, balancing the various other constraints.

We welcome further liaison with MORL and the other Beatrice developers over SLVIA for their individual proposals, as well as in respect of a cumulative study. An important aspect that requires discussion is the viewpoint (VP) selection. We need to be clear on the reasoning behind the VPs that have so far been suggested and to make sure that these have been informed by the cumulative ZTV. As noted above, we strongly recommend that Marine Scotland and the relevant planning authorities are involved in this discussion, and in any meeting to select the VPs to be used for cumulative visual impact assessment as well as for individual proposals.

ANNEX C – LEGISLATION: EUROPEAN PROTECTED SPECIES AND HABITATS REGULATION APPRAISAL

EUROPEAN PROTECTED SPECIES

Certain species are listed on Annex IV of the Habitats Directive as species of European Community interest and in need of strict protection. The protective measures required are outlined in Articles 12 to 16 of the Directive. The species listed on Annex IV whose natural range includes any area in the UK are called „European protected species..

JNCC is the statutory nature conservation body who provides advice on EPS in respect of the Habitats Regulations for UK waters, outside of 12nm (territorial waters). A summary of the legal requirements for EPS in offshore waters (also found here) is as follows:

In England, Wales and UK offshore waters (outside 12nm), Regulations 41(1) and 39(1) of the Habitats Regulations and the Offshore Marine Regulations, respectively, provide that a person is guilty of an offence (and would therefore need to be considered for licence) if he:

(a) deliberately captures, injures, or kills any wild animal of a European protected species;
(b) deliberately disturbs wild animals of any such species

For the purposes of paragraph (1)(b), disturbance of animals includes in particular any disturbance which is likely—

(a) to impair their ability—
(i) to survive, to breed or reproduce, or to rear or nurture their young; or
(ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
(b) to affect significantly the local distribution or abundance of the species to which they belong.

JNCC (with Countryside Council for Wales and Natural England) have produced guidance (The protection of marine European Protected Species from injury and disturbance: Guidance for the marine area in England and Wales and the UK offshore marine area, JNCC, CCW and Natural England, 2010) which is currently in draft form awaiting approval, and outlines how developers, regulators and courts assess: a) the likelihood of an offence being committed; b) how this can be avoided; and c) if it can't be avoided, the conditions under which the activity could go ahead under licence.

SNH is the statutory nature conservation body who provides advice on EPS in respect of the Habitats Regulations in Scotland, including Scottish Territorial Waters.

Within 12nm there is a different interpretation of an offence under the Regulations, the applicant should ensure that they are also aware of the definition of disturbance and the legal provisions for EPS that are set out in The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland). Please see their website19 for advice on the legal provisions which apply under the Regulations. The text below refers to the approach to EPS licensing for waters outside 12nm and further discussions are needed with Marine Scotland and the developer on how to address activities which could affect territorial waters.

EPS Licences outside of 12nm

If there is a risk of injury or disturbance of EPS that cannot be removed or sufficiently reduced by using alternatives and/or mitigation measures, then the activity may still be able to go ahead under licence, but this should be a last resort. A licence should only be granted if the activity fits certain purposes, if there is no satisfactory alternative and where the activity will not be detrimental to the maintenance of the populations of the species concerned at a FCS in their natural range.

The likelihood of an activity resulting in injury or disturbance offence to a marine EPS will very much depend on the characteristics of the activity, of the environment and the species concerned, hence the need for a case-by-case approach when assessing the risk of it occurring. Pursuing mitigation measures, alternative methods, locations and/or times for carrying out proposed activities might in some cases be sufficient to reduce the risk of causing offence to negligible levels. This would then negate the requirement for a licence.

It is expected that many activities at sea will not require a licence to exempt them from regulations 41(1)(a) and (b) and 39(1)(a) and (b) of the HR and OMR, respectively, since their potential for injury and/or disturbance can be effectively mitigated or because the characteristics of the disturbance will fall below the threshold of an offence.

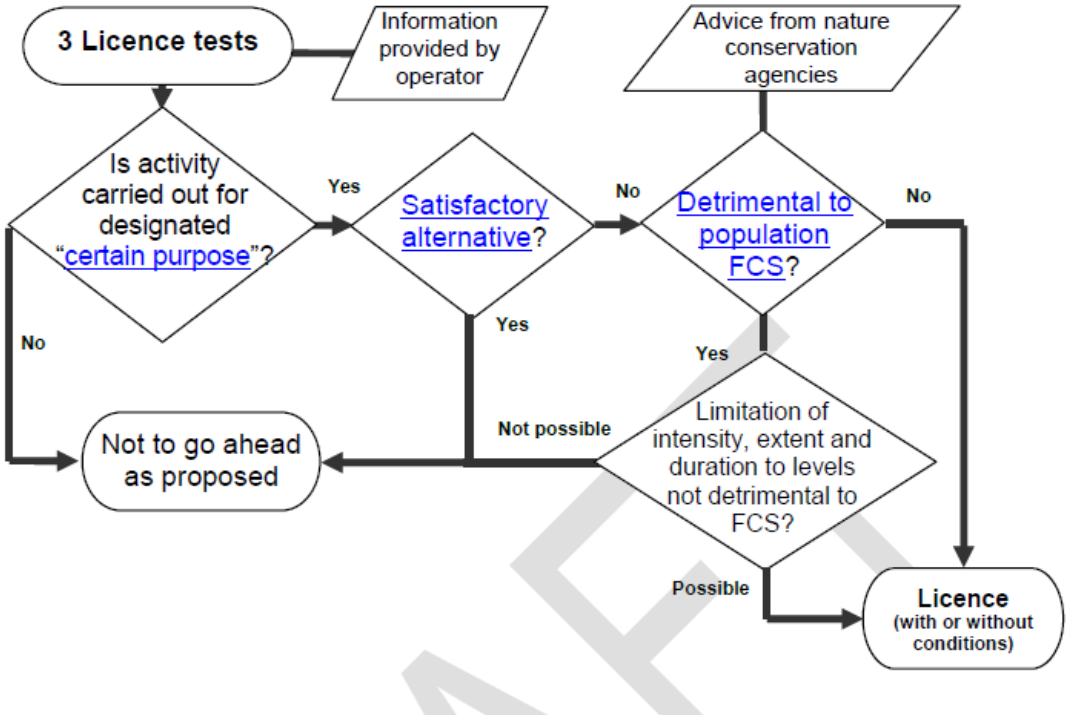
Any licence application (under regulation 53(1) of the HR and 49(6) of the OMR) will necessitate a detailed assessment of whether the licence should be granted. The licence assessment will be comprised of three tests to ascertain:

1) whether the activity fits one of the purposes specified in the Regulations;

2) whether there are no satisfactory alternatives to the activity proposed (that would not incur the risk of offence); and

3) that the licensing of the activity will not result in a negative impact on the species„/population„s Favourable Conservation Status. The licence assessment will be carried out by the appropriate authority with the information provided by the developer and advice from nature conservation agencies.

A flowchart is included below describing the process which the licensing authority will undertake for areas outside 12nm:



Consideration of European Protected Species should be included as part of the application process, not as an issue to be dealt with at a later stage. Any consent given without due consideration to these species is likely to breach European Directives with the possibility of consequential delays or the project being halted by the EC.

HABITATS & BIRDS DIRECTIVES, & HABITATS REGULATIONS

The two most influential pieces of European legislation relating to nature conservation are the Habitats and Birds Directives. The „Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. was adopted in 1992 and is commonly known as the Habitats Directive. It complements and amends (for classified SPAs) Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended), commonly known as the Birds Directive.

The Birds Directive protects all wild birds, their nests, eggs and habitats within the European Community. It gives EU member states the power and responsibility to classify Special Protection Areas (SPAs) to protect birds which are rare or vulnerable in Europe as well as all migratory birds which are regular visitors.

The Habitats Directive builds on the Birds Directive by protecting natural habitats and other species of wild plants and animals. Together with the Birds Directive, it underpins a European network of protected areas known as Natura 2000 comprising SPAs classified under the Birds Directive and Special Areas of Conservation (SACs) designated under the Habitats Directive.

The Habitats Directive is transposed into domestic law in Scotland by the „Conservation (Natural Habitats, &c.) Regulations 1994. which came into force on 30 October 1994 – usually called simply the **Habitats Regulations**. Several amendments have been made to the Habitats Regulations since they came into force.

The Habitats Regulations apply to the Scottish territorial waters, and the rules for the protection of marine Natura sites and marine European protected species (EPS) apply here exactly as they do on land. Beyond inshore waters, between 12 and 200 nautical miles, the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 as amended apply (the Offshore Habitats Regulations). These differ from the Habitats Regulations mainly in respect of the provisions for EPS – please see above for further discussion.

Habitats Regulations Appraisal

Where a plan or project could affect a Natura site, the Habitats Regulations require the competent authority – the authority with the power to undertake or grant consent, permission or other authorisation for the plan or project in question – to consider the provisions of regulation 48. This means that the competent authority has a duty to:

- determine whether the proposal is directly connected with or necessary to site management for conservation; and, if not,

- determine whether the proposal is likely to have a significant effect on the site either individually or in combination with other plans or projects; and, if so, then

- make an appropriate assessment of the implications (of the proposal) for the site in view of that site's conservation objectives.

This process is now commonly referred to as Habitats Regulations Appraisal (HRA). HRA applies to any plan or project which has the potential to affect the qualifying interests of a Natura site, even when those interests may be at some distance from that site.

The competent authority, with advice from the relevant statutory nature conservation agency, decides whether an appropriate assessment is necessary and carries it out if so. It is the applicant who is usually required to provide the information to inform the assessment. Appropriate assessment focuses exclusively on the qualifying interests of the Natura site affected and their conservation objectives. A plan or project can only be consented if it can be ascertained that it will not adversely affect the integrity of a Natura site (subject to regulation 49 considerations).

Further Information and Advice on HRA

For further advice on the HRA process the SNH leaflet on “Natura sites and the Habitats Regulations” provides a helpful summary. Some of the key concepts are explained in the European Commission's guidance on Article 6 of the Habitats Directive. Revised guidance updating the Scottish Office Circular 6/199523 on the implementation of the Habitats and

Birds Directive in Scotland was produced in June 2000. This sets out current Government policy relating to Natura sites.

Annex D provides our for tailored advice on HRA for offshore windfarm development in the eastern section of the Round 3 zone in respect of birds that are qualifying interests of SPAs. Annex E provides our tailored advice for the proposal in respect of the qualifying interests of SACs such as marine mammals and fish.

SNH.s Sitelink database provides information on the qualifying interests and the conservation objectives for each Natura site that it may be relevant to consider in respect of the Round 3 zone.

ANNEX D: MORAY FIRTH ROUND 3 ZONE: HABITATS REGULATIONS APPRAISAL FOR SPECIAL PROTECTION AREAS

In the following advice for HRA we set out the three steps that need to be considered in order to determine whether or not proposed windfarm development in the eastern section of the Round 3 zone in the Moray Firth is likely to have a significant effect on the qualifying interests of SPAs, and any possible adverse impact on site integrity. It is the competent authority (most likely Marine Scotland) who will carry out the HRA, based on advice from ourselves (JNCC and SNH) and using information and data collated by the developer (MORL). We note that the HRA should become more focused over time through an iterative process, as information arises which justifies that the risk to certain features is at an acceptable level.

Under HRA, the potential impacts of this proposal will need to be considered alone and in combination with other plans and projects. It needs to be considered in combination with the proposed Beatrice windfarm and other activities that may be relevant. We therefore recommend that MORL and BOWL (the developer for the Beatrice proposal) collaborate on the assessment of cumulative impacts. We would welcome discussion of this with, preferably, a joint meeting between the applicants, Marine Scotland and ourselves.

We also note that HRA should address all elements of the windfarm proposal – onshore works as well as offshore elements. However, at this early stage in the process we do not have full details in this regard, therefore our advice focuses on turbine location / construction within the eastern section of the Round 3 zone.

Special Protection Areas for inclusion in HRA

We recommend that the following SPAs are considered for individual and also for cumulative assessments:
Cromarty Firth SPA
Dornoch Firth SPA
East Caithness Cliffs SPA
Inner Moray Firth SPA
Loch of Strathbeg SPA
Moray and Nairn Coast SPA
Troup, Pennan and Lion.s Heads SPA

We would welcome the opportunity to discuss the scope of HRA with both windfarm developers in the Moray Firth (as noted above). There may be other SPAs that need consideration, depending on the bird species that have been recorded in the Smith Bank area, and taking account of the large foraging ranges of some SPA qualifying species such as gannet and fulmar. We note that the scope of HRA should be based on a consideration of the range of bird species that may be affected, their ecology and the types of impacts which may affect them.

Further information on SPAs, including their conservation objectives, is available from:

http://www.snh.org.uk/snhi/

We also recommend that the developer consults the current JNCC areas of search for potential inshore and offshore SPAs. Please see:

http://www.jncc.gov.uk/page-4563 and http://www.jncc.gov.uk/page-4564 respectively.

Advice for HRA in respect of SPA qualifying interests
We provide advice on the legislative requirement for HRA in Annex C. The steps of the process are as follows;

Step 1: **Is the proposal directly connected with or necessary for the conservation management of the SPAs?**

The proposal is not directly connected with or necessary for the conservation management of any of the SPAs listed above.

Step 2: Is the proposal likely to have a significant effect on the qualifying interests of the SPAs either alone or in combination with other plans or projects?

This step acts as a screening stage: it removes from the HRA those proposals (plans or projects) which clearly have no connectivity to SPA qualifying interests or where it is very obvious that the proposal will not undermine the conservation objectives for these interests, despite a connection.

Screening begins early in the development process (at scoping), at which point we advise that the scope of the HRA is kept broad so that potentially significant impacts are not missed out. The HRA will then be refined over time as further information arises, from the developer and experience elsewhere. The SPA interests listed here may therefore change as the HRA process progresses.

SPA bird interests being considered in respect of offshore windfarms are wide-ranging, considering foraging ranges and migratory species. This presents challenges in determining from which SPA species on the site have arisen, and may necessitate novel approaches in assessing effects on key populations which we are keen to discuss with Marine Scotland and the developer.

Expert agreement over species sensitivity should help to identify those SPA qualifying interests for which the conservation objectives are unlikely to be undermined by offshore windfarm development, despite any possible connection (e.g. SPA qualifiers which are recorded within a proposed windfarm site but where their flight behaviour and / or foraging ecology means that the windfarm will not have a likely significant effect).

Determination of „likely significant effect. is not just a record of presence or absence of bird species at an offshore windfarm site, but also involves a judgement as to whether any of the SPA conservation objectives might be undermined. Such judgement is based on a simple consideration of the importance of the area in question for the relevant species. Complex data analysis should not be required at this stage. For example; How many birds have been recorded? What are they using the area for? Is this the only area that they can use for this particular activity? Understanding the behavioural ecology of the species, and the characteristics and context of the proposed windfarm site, will help in determining whether there are likely significant effects. There are three possible conclusions for this step of HRA:

a) The likely impacts are such that there is clear potential for the conservation objectives to be undermined – conclude likely significant effect.
b) The likely impacts are so minimal (either because the affected area is not of sufficient value for the birds concerned or because the risk to them is so small) that the conservation objectives will not be undermined – conclude no likely significant effect.
c) There is doubt about the scale of the likely impacts in terms of the conservation objectives – conclude likely significant effect.

Step 3: Can it be ascertained that the proposal will not adversely affect the integrity of the SPA, either alone or in combination with other plans or projects?

This stage of HRA is termed appropriate assessment, and it is undertaken by the competent authority based on information supplied by the developer, with advice provided by ourselves (JNCC & SNH). Appropriate assessment considers the implications of the proposed development for the conservation objectives of the qualifying interests for which a likely significant effect has been determined. These conservation objectives follow a standard format requiring protection of the qualifying bird interests and protection of the habitat in the SPA which supports them.

Conservation objectives for SPA bird species

To ensure that site integrity is maintained by:
(i) Avoiding deterioration of the habitats of the qualifying species.
(ii) Avoiding significant disturbance to the qualifying species.
To ensure for the qualifying species that the following are maintained in the long term:
(iii) Population of the bird species as a viable component of the SPA.
(iv) Distribution of the bird species within the SPA.
(v) Distribution and extent of habitats supporting the species.
(vi) Structure, function and supporting processes of habitats supporting the species.
repeat of (ii) No significant disturbance of the species.

It is important to recognise that the conservation objectives primarily offer site-based protection and that some of them will not directly apply to species when they are outwith the boundaries of the SPA. This is particularly true of objectives **(i), (v)** and **(vi)** which relate to the supporting habitats within the SPA.

Objective **(iii)** however – maintenance of the population of the bird species as a viable component of the SPA – will be relevant in most cases because:
- It encompasses direct impacts to the species, such as significant disturbance to qualifying bird interests when they.re outwith the SPA.
- It addresses indirect impacts such as the degradation or loss of supporting habitats which are outwith the SPA but which help to maintain the population of the bird species of the SPA in the long-term.

Finally, in rare circumstances, it is possible that factors outside site boundaries may have the capacity to affect the long term distribution of bird species within the SPA – see objective **(iv).**

Issues to consider under appropriate assessment

The key question in any appropriate assessment for windfarm development in the Moray Firth Round 3 zone is whether it can be ascertained that this proposal, alone or in combination, will not adversely affect the population of any qualifying bird species as a viable component of the SPAs under consideration.

In considering this matter, we refer to the helpful summary of the main risks of offshore windfarm development to birds provided in Langston 2010.25 In addition, there may be further issues to consider – as set out below – if the proposal is likely to affect the

conservation objectives that relate to bird species while they.re in an SPA or to the habitats in the SPA that support them.

- Will the proposal(s) cause a deterioration in the habitats of any of the SPAs? *NB. This question relates specifically to the habitats in the SPAs that support the bird interests*.

.

- Will the offshore wind proposal(s) cause any significant disturbance to bird interests while they.re in any of the SPAs? *N.B. See the previous discussion in respect of disturbance outside an SPA.*

- Will the offshore wind proposal(s) alter the distribution of the birds within any of the SPAs?

- Will the offshore wind proposal(s) affect the distribution and extent of the habitats (that support the bird species) in any of the SPAs?

- Will the offshore wind proposal(s) in any way affect the structure, function and supporting processes of habitats in any of the SPAs? NB. Those habitats which support the bird species.

We highlight that these questions – and the underpinning conservation objectives – will be applicable to the habitats which support bird interests in any new SPAs designated for inshore and / or offshore aggregations of seabirds – please see JNCC.s website for potential areas of search, including the Moray Firth.

Ongoing Liaison

As noted above, we hope to further discuss these various aspects with MORL and BOWL both with regard to their individual sites and to cumulative impacts. Agreeing the scope of, and information required for, HRA will be an iterative process which will be refined throughout the EIA process.

ANNEX E: MORAY FIRTH ROUND 3 ZONE: HABITATS REGULATIONS APPRAISAL SPECIAL AREAS OF CONSERVATION

Introduction

In the following advice for HRA we set out the three steps that need to be considered in order to determine whether or not the proposed windfarm is likely to have a significant effect on the qualifying interests of SACs, and any possible adverse impact on site integrity. The competent authority (Marine Scotland) will carry out the HRA, based on advice from ourselves (JNCC and SNH), using information and data collated by the developer (MORL).

Under HRA, the potential impacts of this proposal will need to be considered alone and in combination with other plans and projects, including other windfarms and different activities. Collaboration between MORL and BOWL on the assessment of cumulative impacts is therefore beneficial, and we welcome discussion of this with a joint meeting between the applicants, Marine Scotland and ourselves.

We recognise that the HRA is set wide initially, but will become more focused as information is collected and we will continue to review our advice as each windfarm development progresses. We also note that HRA should address all elements of the windfarm proposal – onshore works as well as offshore elements.

Special Areas of Conservation for Inclusion in HRA

We advise that the applicant will need to consider the following SACs, initially, due to potential connectivity between the development and the site. Further information, including their conservation objectives, is available from http://www.snh.org.uk/snhi/.

SACs designated for marine mammals and for marine and coastal habitats:

- **Culbin Bar SAC** - designated for its coastal habitats including sand dunes, vegetated shingle and salt meadows.

- **Dornoch Firth & Morrich More SAC** - designated for its population of common (harbour) seals (Phoca vitulina) and for coastal and marine habitats including sand dune habitats, intertidal mudflats and sandflats; subtidal sandbanks and reefs.

- **Moray Firth SAC** - designated for bottlenose dolphin (Tursiops truncatus) and for subtidal sandbank habitat.

SACs designated for fish of conservation concern:

- **Berriedale & Langwell Waters SAC** - designated for Atlantic salmon (Salmo salar).

- **River Evelix SAC** - designated for freshwater pearl mussel (Margaritifera margaritifera).

- **River Moriston SAC** - designated for Atlantic salmon and for freshwater pearl mussel.

- **River Oykel SAC** - designated for Atlantic salmon and for freshwater pearl mussel.

- **River Spey SAC** - designated for Atlantic salmon, sea lamprey (Petromyzon marinus), freshwater pearl mussel and otter (Lutra lutra).

- **River Thurso SAC** - designated for Atlantic salmon.

We provide advice on the legislative requirement for HRA in Annex C. The steps of the process are as follows; our advice is tailored to consideration of windfarm development in the eastern section of the Moray Firth Round 3 zone.

Step 1: Is the proposal directly connected with or necessary for the conservation management of the SACs?

The proposal is not directly connected with or necessary for the conservation management of any of the SACs listed above.

Step 2: Is the proposal likely to have a significant effect on the qualifying interests of the SACs either alone or in combination with other plans or projects?

This step acts as a screening stage: it removes from the HRA those proposals which clearly have no connectivity to SAC qualifying interests or where it is very obvious that the proposal will not undermine the conservation objectives for these interests, despite a connection. When this screening step is undertaken at an early stage in the development process, it usually means that it takes the form of a desk-based appraisal.

Screening begins early in the development process (at scoping), at which point we advise that the scope of the HRA is kept broad so that potentially significant impacts are not missed out. The HRA will then be refined over time as further information arises, from the developer and experience elsewhere. The SAC interests listed here may therefore change as the HRA process progresses, and JNCC and SNH recommend early discussion, to agree which qualifying interests can be scoped out of the HRA.

There are three possible conclusions to this step of HRA:

a) The likely impacts are such that there is clear potential for the conservation objectives to be undermined – conclude likely significant effect.

b) The likely impacts are so minimal that the conservation objectives will not be undermined – conclude no likely significant effect.

c) There is doubt about the scale of the likely impacts in terms of the conservation objectives – conclude likely significant effect.

Until the proposal has been further progressed and more details are available, we will not be in a position to present definite conclusions for this step. Instead, we therefore provide a summary of our current advice for each qualifying interest.

- **Marine and coastal habitats** of the Moray Firth, the Dornoch Firth and Culbin Bar SACs.
  There are potential cumulative impacts on coastal processes arising from proposed windfarm development in the Round 3 zone in combination with the Beatrice proposal. It is possible that disruption of, or changes to, coastal processes and sediment movements may lead to significant effects on the coastal and marine habitats of these SACs.

  Therefore as a precaution, and because we are uncertain about the scale of potential impacts, we advise that this issue is scoped into HRA. We discuss below (under step 3) what we think needs to be considered. The proposed cable routes and onshore infrastructure (when detailed) could also potentially have effects on coastal and marine SACs dependant on their proposed location.

Summary of our current advice: possible likely significant effects in relation to offshore infrastructure; further discussion needed to determine whether impacts (incl. cumulative) will need to be considered in appropriate assessment (see step 3). Consideration of cable routes and onshore infrastructure may also be required.

- **Bottlenose dolphins** of the Moray Firth SAC.
  The dolphins are not confined to this SAC and will range more widely within the Firth and beyond. Construction (and other) noise arising from development in the Round 3 zone is likely to extend beyond the windfarm footprint and may overlap with dolphin use of the surrounding environment. Boat movements, cable-laying and other construction activity may give rise to disturbance. There may also be impacts to the prey species of dolphin – either from the placement of infrastructure or due to noise. We therefore advise that there is potential for the proposal to have likely significant effects on bottlenose dolphins and discuss below (under step 3) the issues that we think need to be considered.

  It would be beneficial for MORL and BOWL to collaborate on this issue as appropriate assessment of the cumulative impacts on bottlenose dolphins is likely to be required. Joint discussion and co-ordination of survey work, mitigation proposals and construction time-tabling would be helpful.

  Summary of our current advice: likely significant effect, so impacts (including cumulative) will need to be considered in appropriate assessment (see step 3).

- **Common (Harbour) seals** of the Dornoch Firth SAC.
  The seals are not confined to the SAC itself and will range more widely in the Firth. Construction (and other) noise arising from the proposal is likely to extend beyond the windfarm footprint and may overlap with seal use of the surrounding environment. Boat movements, cable-laying and other construction activity may give rise to disturbance. There may also be impacts to the prey species of seals – either from the placement of infrastructure or due to noise. We advise that there is potential for the proposal to have likely significant effects on common (harbour) seals and we discuss below (under step 3) the issues that we think need to be considered.

  We highlight that it would be beneficial for MORL and BOWL to collaborate on this issue as appropriate assessment of the cumulative impacts on common (harbour) seals is likely to be required for the two proposals in combination. Joint discussion and co-ordination of survey work, mitigation proposals and construction time-tabling would be helpful.

  Summary of our current advice: possible likely significant effect, so impacts (including cumulative) may need to be considered in appropriate assessment (see step 3).

- **Atlantic salmon** as a qualifying interest of the various freshwater SACs noted above.
  We have listed a wide range of SACs due to the current uncertainty about the migratory movements of Atlantic salmon. We recognise that there is a significant data / research gap on this issue, and that very little is known about salmon movements – adults and post-smolts – around the Scottish coastline. Marine Scotland have analysed historic tagging data and should be issuing a report soon, however, it is likely that this report will highlight further research requirements27.
  27 Malcolm, I., Godfrey, J. & Youngson, A. In prep. Review of migratory routes and behaviour of Atlantic salmon, sea trout and European eel in Scotland.s coastal

environment: implications for the development of marine renewables. Marine Scotland Science draft report.

While we know that Atlantic salmon are recorded in the Moray Firth, we understand that it will not be possible for the applicant to conclusively identify from/to which SAC watercourses any particular individuals (post smolts, or adults) are coming or going. We recommend that the applicant assumes all individuals are SAC salmon, and considers the effects on these fish from construction and operational noise / vibration, as well as any other types of disturbance. Mitigation could include timing restrictions on construction work / noisy activities in order to avoid any significant disturbance to migrating salmon, or disruption of their (as yet unknown) migratory routes.

We advise that the cumulative impacts of the Round 3 and Beatrice proposals in combination are a key concern, and would benefit from the applicants taking a joint approach to the assessment and to the co-ordination of mitigation proposals and construction time-tabling. Onshore infrastructure and / or any required upgrades to roads or bridges may need to be considered under HRA if the work is likely to affect any of these freshwater SACs.

Summary of our current advice: possible likely significant effect in relation to offshore infrastructure; impacts (including cumulative) may need to be considered in appropriate assessment (see step 3). Consideration of onshore infrastructure may also be required.

- **Sea lamprey** of the River Spey SAC.
  There is little available information on the movements of sea lamprey in general, and within the Moray Firth in particular. It appears that this species does not undertake large migrations and probably stays within coastal areas. We advise that there is potential for the proposal to have likely significant effects on this species and we request further assessment of available information to determine whether appropriate assessment is required for this feature.

  It would be beneficial for MORL and BOWL to collaborate on this issue. Joint discussion and co-ordination of mitigation proposals / construction time-tabling may be helpful. We consider that effects on sea lamprey from onshore infrastructure are unlikely, presuming this is not proposed in proximity to the River Spey SAC.

  Summary of our current advice: possible likely significant effect in relation to offshore infrastructure, so impacts (including cumulative) may need to be considered in appropriate assessment (see step 3). No likely significant effect in respect of onshore infrastructure, dependent on its location.

- **Freshwater pearl mussels** of the River Evelix SAC and other freshwater SACs as noted above.
  Atlantic salmon (and other salmonids) are integral to the life cycle of freshwater pearl mussel (FWPM), therefore any impacts to Atlantic salmon that prevent them from returning to their natal rivers may have a resulting effect on FWPM populations. While we consider this matter needs discussion in HRA we do not identify any survey or research requirements. The impacts are indirect, dependent on the impacts the proposal may have on Atlantic salmon.

  Onshore infrastructure and / or any required upgrades to roads or bridges may need consideration in respect of HRA if the work is likely to affect any of these freshwater SACs.

Summary of our current advice: possible likely significant effect, and we request further discussion of information available as to whether indirect impacts will need to be considered in appropriate assessment as part of the assessment of any direct impacts on Atlantic salmon (see step 3).

- **Otters** of the River Spey SAC.
  Effects on otters of the River Spey are unlikely, presuming that no onshore infrastructure is proposed in proximity to this SAC.

Summary of our current advice: no likely significant effect, although this may need review dependent on the proposed location of onshore infrastructure.

Step 3: Can it be ascertained that the proposal will not adversely affect the integrity of the SAC, either alone or in combination with other plans or projects?

This stage of HRA is termed **appropriate assessment**, and it is undertaken by the competent authority based on information supplied by the developer, with advice provided by ourselves (JNCC and SNH). We highlight that cumulative impacts are a key concern for many of the SAC qualifying interests discussed, and therefore the two agencies will liaise closely over the provision of advice for HRA.

Appropriate assessment considers the implications of the proposed development for the **conservation objectives** of the qualifying interests for which a likely significant effect has been determined. We discuss this below for each of the qualifying interests listed above.

We note that the scope of appropriate assessment will need to be refined and agreed following discussion of further information; when baseline data has been collected, and when construction methods, location of infrastructure, choice of port, and other aspects of the proposal have been finalised.

Advice for appropriate assessment in respect of the qualifying habitat interests of SACs

The **conservation objectives** for the habitat interests of the Moray Firth, the Dornoch Firth and Culbin Bar SACs are: **(i)** to avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features.
And to ensure for each qualifying habitat that the following are maintained in the long term:
(ii) Extent of the habitat on site.
(iii) Distribution of the habitat within site.
(iv) Structure and function of the habitat.
(v) Processes supporting the habitat.
(vi) Distribution of typical species of the habitat.
(vii) Viability of typical species as components of the habitat.
(viii) No significant disturbance of typical species of the habitat.

Based on these conservation objectives, the following questions may need to be addressed for the marine habitats in these SACs such as subtidal sandbanks and reefs; and for coastal habitats such as sand dunes, salt meadows and intertidal mudflats and sandflats.

- Will the proposal cause any deterioration to the qualifying habitats within each SAC?

- Will it affect the extent or distribution of the qualifying habitats within each SAC?

- Will it affect the structure and function of these habitats or of their supporting processes?

- Will it affect, or cause disturbance, to any of the typical species of these habitats – including their distribution and viability within each SAC?

Our concern is that any changes to wave dynamics and sediment movements in the Moray Firth may result in effects on these SAC habitats, although we are uncertain of the potential scale of such effects. We recommend that MORL and BOWL collaborate and jointly commission work on coastal processes modelling in order to assess the potential effects to SAC habitats arising from their windfarm developments in combination.

We also note that the effects of cable laying, and other impacts from onshore works may be a concern, dependent on location.

Advice for appropriate assessment in respect of bottlenose dolphin of the Moray Firth SAC

The conservation objectives for bottlenose dolphin are: **(i)** to avoid deterioration of the habitats of bottlenose dolphin or **(ii)** significant disturbance to bottlenose dolphin, thus ensuring that the integrity of the Moray Firth SAC is maintained and that the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features.

And to ensure for bottlenose dolphin that the following are established then maintained in the long term:
(iii) Population of bottlenose dolphin as a viable component of the site.
(iv) Distribution of bottlenose dolphin within site.
(v) Distribution and extent of habitats supporting bottlenose dolphin.
(vi) Structure, function and supporting processes of habitats supporting bottlenose dolphin.

repeat of (ii) No significant disturbance of bottlenose dolphin.

Based on these conservation objectives the following questions may need to be addressed:

- Will the proposal cause any deterioration to habitats within the Moray Firth SAC which support bottlenose dolphin?

- Will it affect the extent or distribution of any of these habitats in the SAC?

- Will it affect the structure and function of these habitats or of any of their supporting processes?

- Will the proposal cause significant disturbance to bottlenose dolphin while they are in the SAC, and will it cause any change to their distribution within the site?

- Will the proposal cause significant disturbance to bottlenose dolphin while they are outwith the SAC such that the viability of this SAC population is affected?

- Will the proposal in any way affect the population viability of the bottlenose dolphins of the Moray Firth SAC?

The last question encompasses the indirect impacts that a windfarm development could have – such as the degradation or loss of supporting habitats or feeding grounds which are outwith the SAC but which help to maintain the population of bottlenose dolphin in the SAC in the long-term. The risk of impacts, and how many of these questions may need answered, will become clearer when the development process is further advanced and construction methods, location of cable routes, choice of port, and other aspects are finalised. It is possible that onshore elements of infrastructure will need to be considered as well as those offshore.

We advise that noise impact assessment is likely to be an important part of assessing any direct disturbance to bottlenose dolphin, including their potential displacement from feeding grounds and other supporting habitats. While we consider that the construction phase may give rise greatest risk of disturbance, we do highlight that impacts during the operational phase also need to be considered, as well as any repowering and decommissioning work. It will also be important for the applicant to consider impacts on prey species.

We highlight that cumulative impacts are a key concern and we consider that collaboration between MORL and BOWL on noise impact assessment is likely to be helpful, along with discussion / co-ordination of mitigation proposals and construction time-tabling.

Finally, it is possible that there may be impacts to habitats within the SAC that support the dolphins, such as discussed above in the section relating to qualifying habitat interests. The potential for such impacts will become clearer once coastal processes modelling has been undertaken. Impacts from onshore works may also need consideration, dependent on location.

Advice for appropriate assessment in respect of common seals of the Dornoch Firth SAC

The conservation objectives for common (harbour) seals of the Dornoch Firth & Morrich More SAC are the same as given above for bottlenose dolphin. The same questions may need answering in respect of direct impacts to common seals and indirect impacts relating to their supporting habitats.

For common seals, conservation objective **(iii)** probably has most relevance – population of the species as a viable component of the SAC. The offshore elements of the proposed windfarm are far enough away from the SAC for there not to be direct impacts, or disturbance, to the seals within it. However, there may be occasions when the seals forage
far enough from the SAC to come into contact with the proposed windfarm. And the proposal may have impacts on the prey species of seals, an issue which will also need to be considered.

As discussed for bottlenose dolphin, noise impact assessment will be important as well as consideration of the cumulative impacts of Round 3 and Beatrice in combination.

There may also be issues to consider in respect to any impacts to habitats within the SAC that support the seals – this will become clearer once coastal processes modelling has been undertaken. The impacts of onshore works may also need consideration, dependent on location.

Advice for appropriate assessment in respect of Atlantic salmon & freshwater pearl mussel

The SAC conservation objectives for Atlantic salmon and freshwater pearl mussel (where appropriate) are: **(i)** to avoid deterioration of the habitats of the qualifying species or **(ii)** significant disturbance to them, thus ensuring that the integrity of the SACs are maintained and that they make an appropriate contribution to achieving favourable conservation status for each species.

And to ensure for each species that the following are maintained in the long term:
(iii) Population of the species, including range of genetic types for salmon, as a viable component of the SACs.
(iv) Distribution of the species within sites.
(v) Distribution and extent of habitats supporting each species.
(vi) Structure, function and supporting processes of habitats supporting each species.
repeat of **(ii)** No significant disturbance of the species.

And for freshwater pearl mussel in particular, to ensure that the following are maintained in the long term:
(vii) Distribution and viability of freshwater pearl mussel host species
(viii) Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species

In respect of the offshore elements of infrastructure, appropriate assessment will focus on conservation objective **(iii)** – the population viability of Atlantic salmon – considered across the range of SACs previously listed as it may not be possible to determine the home. river of individual fish (post smolts and adults) recorded in the Moray Firth.

There would not be any impacts to supporting habitats in any freshwater SACs arising from offshore infrastructure, however, the placement of onshore infrastructure – including any road / bridge upgrades – may need further consideration depending on proximity to the following SACs: Berriedale & Langwell Waters, the Rivers Oykel, Moriston and potentially the Spey. We will be able to give further advice when MORL presents more information on this aspect.

So the main impacts to Atlantic salmon would arise when the fish are outwith the freshwater SACs, on migration. An adverse impact on site integrity could arise if individuals are significantly disturbed / displaced from their migratory routes such that it affects the population viability of the species. MORL may also need to consider whether the proposal could in any way act as a barrier to salmon movements, whether it might prevent any salmon from accessing the freshwater SACs that drain into the Moray Firth, in particular, the Berriedale & Langwell Waters.

Noise impact assessment is likely to be a key part of any overall appropriate assessment, and all phases of the development should be considered – construction, operation, repowering and decommissioning. Cumulative impacts are a major concern and we consider that collaboration between MORL and BOWL on noise impact assessment is likely to be helpful, along with discussion / co-ordination of mitigation proposals and construction time-tabling.

As discussed above, MORL may also need to consider the potential (indirect) impacts to freshwater pearl mussel (FWPM) arising from offshore infrastructure. This will be a desk-based appraisal following on from the assessment of impacts to Atlantic salmon. We note that direct impacts to FWPM could arise from the placement of onshore infrastructure if this work takes place close to, or is likely to affect, freshwater SACs in the area where FWPM are a qualifying interest: the Rivers Evelix, Oykel, Moriston, and potentially the Spey.

Advice for appropriate assessment in respect of sea lamprey of the River Spey SAC

As above, appropriate assessment for sea lamprey will focus on conservation objective **(iii) -** considering whether the windfarm proposal will have any effect on the population as a viable component of the River Spey SAC. This is likely to require noise impact assessment as a key aspect – to identify whether lamprey could be significantly disturbed or displaced from the proposed windfarm site such that the SAC population is affected. It would be beneficial for the MORL and BOWL to collaborate as cumulative impacts are a key concern. Unless any onshore infrastructure is to be located in proximity to the Spey (including any necessry road / bridge upgrades) then it would not have any effects on sea lamprey.

Ongoing Liaison

As noted above, SNH and JNCC will continue to liaise with MORL and BOWL in respect of this HRA process. We consider it will be very important for the applicants to collaborate on a number of issues in order to address cumulative impacts and their mitigation. We will continue to review our advice on HRA as each proposal progresses, and as survey work, modelling and other analyses are undertaken. We will discuss any strategic research needs with Marine Scotland and the Crown Estate, particularly those in respect of Atlantic salmon.

The Highland Council

The scoping report produced for Sea Energy Renewables appears to be comprehensive. Issues of high importance to the Council and the public will be the visibility and visual impacts of the development from the coast. The Council has recently produced standards for visualisation of wind energy developments and these should be used when producing visualisations for the use of the public and decision makers.

Also of high importance to the Council will be assessment of the impacts and means of transportation/transhipment/assembly of components of the wind farm. The Council is keen to have existing port and assembly/laydown facilities in the Highlands utilised and developed for the off-shore wind energy industry and the ES should examine these options in detail. The Council would welcome early discussion with the developer to facilitate the use of existing assets in Highland.

Aberdeenshire Council

Aberdeenshire council have spoken to Mr Craig Milroy, Stakeholder Manager, and we are satisfied that the proposal for the offshore windfarm will not have any direct or indirect affects on the interests of Aberdeenshire Council.

Clearly as time progresses there may be proposals which involve "on land" development and these will have an impact on the Councils interests and Mr Milroy and I have suggested that, at that time, it will be appropriate to scope these works.

SEPA

We consider that the following key issues should be addressed in the EIA process:

- River Basin Planning
- Pollution Prevention and Environmental Management
- Coastal Processes

Please note that all of the issues below should be addressed in the Environmental Statement (ES) for the whole project, but there may be opportunities for several of these to be scoped out of detailed consideration for specific aspects or phases. The justification for this approach in relation to specific issues should be set out within the ES.

1. Scope of the ES for marine developments

1.1 This project will be developed during a period of fast development of marine policy at national and international levels and this should be addressed with respect to the Marine (Scotland) Act 2010 and Marine Strategy Framework Directive. More information can be found on the Marine Science website at http://www.scotland.gov.uk/Topics/marine/seamanagement.

1.2 From the information submitted we understand the overall project will include both onshore and offshore components including 200 turbines, foundations, cabling, substation platforms and onshore works including landfall and substation. As such, the development will be subject to a range of different consenting regimes. We would encourage you to consider producing a single ES which covers all aspects of the proposed development. This will enable a full assessment of the potential effects of the development as a whole, rather than assessing certain details of the development individually.

2. Site layout and nature of construction for marine developments

2.1 The ES should contain plans giving detailed information on the site layout, including details of all onshore and offshore components such as access tracks, buildings, cabling and marine devices. These plans should be supported by a statement detailing the development, as well as reasons for the choice of site and design of the development. Depending on the types and scale of construction the information below may be required.

2.2 Plans should be included in the ES showing the layout of the devices, cabling routes and associated onshore infrastructure.

2.3 Background information that will help inform the ES process is available from European Marine Energy Centre (EMEC). The EMEC has produced guidelines to assist developers in considering the range and scale of impacts that may result from the testing of devices. These guidelines are available at www.emec.org.uk/index.asp. Generally, if this standard industry guidance is followed for scoping, preparing and undertaking EIA for marine renewables, then we are likely to be satisfied with the standard of assessment.

2.4 There may be a need to address the cumulative effects of devices on marine processes depending upon density and location with respect to existing renewable and marine and coastal developments.

2.5 The submission should include information on likely timing and duration of the project, possible long-term locational and/or operational impacts and short-term construction impacts.

3. River Basin Management Planning

3.1 Under the Water Environment and Water Services (Scotland) Act 2003, SEPA is responsible for producing and implementing River Basin Management Plans for the Scotland and the Solway Tweed River Basin Districts. River basins comprise all surface waters (including transitional (estuaries) and coastal waters) extending to 3 nautical miles seaward from the Scottish territorial baseline. Although the turbines themselves will be located way beyond this limit, the onshore elements will fall within the river basin boundary. The windfarm development area lies close to a number of coastal and estuarine water bodies, all of which are currently at good or high ecological status. Any proposed development within these waters must have regard to the requirements of the Water Framework Directive to ensure that all surface water bodies achieve 'Good Ecological Status' and that there is no deterioration in status. The Water Framework Directive requires the consideration of chemical, ecological and hydromorpholgical status. Further information on River Basin Management planning can be found on the SEPA website at www.sepa.org.uk/water/river_basin_planning.aspx. Information on the current status of Scotland's surface waters can be found on the water body data sheets on the the River Basin Management Planning Web Mapping Application available on SEPA's website at (http://213.120.228.231/rbmp/).

3.2 The cumulative assessments should consider the proposals alongside any existing coastal development already present within the water bodies in which landfall locations are being considered. EC guidance defines cumulative impacts as "impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project" (http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf).

3.3 Maps should be included in the ES showing the areas of seabed likely to be affected by the footprint of the turbine bases and cabling, and the area of intertidal zone that is likely to be affected by shoreline infrastructure development. To allow for the RBMP classification to be updated and the assessment of cumulative impacts within these water bodies footprint data for the turbines and cabling components of the development should be provided in the ES.

4. Construction Environmental Management Document (CEMD) and pollution prevention

4.1 The main activity would be carried out off-shore and would therefore not be regulated by SEPA under The Water Environment (Controlled Activities) (Scotland) Regulations 2005 (as amended) (CAR). However, steps should be taken where applicable to minimise pollution of the shoreline and on-shore water environment to barest minimum levels. The following information may therefore be of use. One of our key interests in relation to major developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. The construction phase includes construction of access roads and any other site infrastructure.

4.2 We advise that the applicant, through the EIA process or planning submission, should systematically identify all aspects of site work that might impact upon the environment, potential pollution risks associated with the proposals and identify the

principles of preventative measures and mitigation. This will establish a robust Project Environmental Management Process (PEMP) for large scale (eg Major and Environmental Impact Assessment Projects (EIA). A draft Schedule of Mitigation should be produced as part of this process. This should cover all the mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our website.

4.3 A key issue for us is the timing of works. Therefore, the Schedule of Mitigation should include a timetable of works that takes into account all environmental sensitivities, such as fish spawning, which have been raised by SEPA, SNH or other stakeholders. Timing should also be planned to avoid construction of roads, dewatering of pits and other potentially polluting activities during periods of high rainfall. We can provide useful information such as rainfall and hydrological data through our Access to Information Team.

4.4 A Construction Environmental Management Document (CEMD) is a key management tool to implement the Schedule of Mitigation. We recommend that the principles of the CEMD are set out in the ES drawing together and outlining all the environmental constraints and commitments, proposed pollution prevention measures and mitigation as identified in the ES.

4.5 The CEMD should form the basis of more detailed site specific Construction Environmental Management Plans (CEMPs) which along with detailed method statements may be required by planning condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before development commences).

4.6 We recommend that the detailed CEMD is submitted for approval to the determining authority at least two months prior to the proposed commencement (or relevant phase) of development to order to provide consultees with sufficient time to assess the information. This document should incorporate detailed pollution prevention and mitigation measures for all construction elements potentially capable of giving rise to pollution during all phases of construction, reinstatement after construction and final site decommissioning. This document should also include any site specific CEMPs and Construction Method Statements provided by the contractor as required by the planning authority and statutory consultees. The CEMD and CEMP do not negate the need for various licences and consents, e.g. CAR, if required. The requirements from the obtained licences and consents should be included within the final CEMPs.

5. Waste management

5.1 Details of how waste will be minimised at the construction stage should be included in the ES, demonstrating that:

- Construction practices minimise the use of raw materials and maximise the use of secondary aggregates and recycled or renewable materials;
- Waste material generated by the proposal is reduced and re-used or recycled where appropriate on site

5.2 To do this effectively all waste streams and proposals for their management should be identified. Accordingly, we recommend that a site specific site waste management

plan is developed to address these points. This is in accordance with the objectives of Scottish Planning Policy and the National Waste Plan which aim to minimise waste production and reduce reliance on landfill for environmental and economic reasons.

5.3 Advice on how to prepare a site waste management plan is available on the NetRegs website and from Envirowise who also provide free advice on resource efficiency. Further advice on the reuse of demolition and excavation materials is available from the Waste and Resources Action Programme. Further guidance can also be found on our website. Information on waste prevention and waste minimisation is available on SEPA's waste minimisation webpage at www.sepa.org.uk/waste/resource_efficiency.aspx.

6. Flood risk

6.1 The onshore components of the development such as the substation may be at risk from coastal flooding. The location of the substation should therefore be assessed for flood risk from all sources in line with Scottish Planning Policy (Paragraphs 196-211). Further information and advice can be sought from the Local Authority technical or engineering services department, Scottish Water and from our website. Our Indicative River & Coastal Flood Map (Scotland) is also available to view online. If a flood risk is identified then a flood

risk assessment (FRA) should be carried out following the guidance set out in the Annex to the SEPA Planning Authority flood risk protocol. Our *Technical flood risk guidance for stakeholders* outlines the information we require to be submitted as part of a FRA, and methodologies that may be appropriate for hydrological and hydraulic modelling. Further guidance on assessing flood risk and planning advice can be found at our website.

7. Onshore drainage strategy

7.1 Proposed temporary and long-term foul drainage facilities for workers associated with the onshore component of the development must be described in the ES. Guidance and best practice advice can be found in PPG4 *Disposal of sewage where no mains drainage is available*. We also request the submission of a site drainage strategy, detailing methods for the collection and treatment of all surface water runoff from hard standing areas and roads using sustainable drainage principles, which should be shown on a site plan.

7.2 Surface water drainage arrangements associated with the new substation such as any new access roads and buildings should incorporate the attenuation (where appropriate) and treatment principles of sustainable drainage systems (SUDS). The SUDS treatment train should be followed which uses a logical sequence of SUDS facilities in series allowing run-off to pass through several different SUDS before reaching the receiving waterbody. Further guidance on the design of SUDS systems and appropriate levels of treatment can be found in CIRIA's C697 manual entitled *The SUDS Manual*. Advice can also be found in the SEPA Guidance Note *Planning advice on sustainable drainage systems (SUDS)*. Please refer to the SUDS section of our website for details of regulatory requirements for surface water and SUDS.

8. Marine ecological interests

8.1 We also recommend information be submitted detailing how the development will contribute to sustainable development. Opportunities to enhance marine habitats in line with Water Framework Directive and The Nature Conservation (Scotland) Act

2004 objectives and Scottish Planning Policy guidance should be explored. Examples may include coastal realignment, the incorporation of naturalistic features in the design of shoreline works, or planting with salt tolerant species. These could be used as examples of best practice and demonstration sites under SEPA's Habitat Enhancement Initiative (HEI).

8.2 During the construction phase, it is important that good working practice is adopted and that habitat damage is kept to a minimum and within defined acceptable parameters. These should be controlled through an environmental management plan.

8.3 Advice on designated sites and European Protected Species should be sought from SNH. For marine and transitional Special Areas of Conservation (SAC) and Special Protected Areas (SPA), these are WFD Protected Areas. Therefore, their objectives are also RBMP objectives. In this case, SNH may contact us for input on the consultation.

9. Marine Processes

9.1 Marine processes should be assessed as part of the ES. This should include a baseline assessment to identify the marine and sedimentary processes operating in the area. The baseline assessment should identify the following features and processes in the environment:

- Sediments (e.g. composition, contaminants and particle size);
- Hydrodynamics (waves and tidal flows);
- Sedimentary environment (e.g. sediment re-suspension, sediment transport pathways, patterns and rates and sediment deposition);
- Sedimentary structures (e.g. protected banks);
- Typical suspended sediment concentrations.

9.2 Developers will then be able to ascertain if they are required to supplement or quantify the available data with in-field surveys and what mitigation measures are required.

9.3 The hydrodynamic modelling should be robust and should represent reality as best as possible. Model performance should be checked in order to demonstrate accuracy and should include sensitivity analysis or estimate of errors in order to enable confidence levels to be applied to model results.

9.4 The magnitude and significance of any changes to the natural processes identified in the baseline assessment should be demonstrated in the ES. It would be helpful to see a series of contour plots showing the magnitude and spatial extent of +(ve) and –(ve) changes in current velocities between the 'pre development' and 'post development' scenarios. The assessment should also identify and quantify the relative importance of high energy low frequency events e.g. storm events, versus low energy high frequency processes. Any changes to the existing processes can then be used to infer the extent of any changes to sediment transport processes and potential impacts on the marine ecology.

10. Regulatory advice

Details of regulatory requirements and good practice advice for the applicant can be found on our website at www.sepa.org.uk/planning.aspx.

RSPB

Boat and Aerial Surveys

A comprehensive baseline data set on bird usage of the area is required and we are content that the proposed programme of boat surveys, coupled with the use of aerial survey data and existing data e.g. from Beatrice bird surveys, meets currently-accepted standards. This view is offered without prejudice to a considered opinion on the adequacy of information once we have had sight of full datasets.

We anticipate that there may be practical difficulties in recording birds by species, every minute, in five distance bands and six height bands with direction of flight and additional information, especially if significant aggregations of birds are encountered and seek reassurance either that our fears are unfounded or that contingency arrangements are in place.

For understandable reasons, no boat-based bird observations will be made in sea state five or more. There will be a requirement to assess whether bird distribution, numbers, behaviour and species present is likely to differ significantly under more extreme conditions.

Assessing Impacts on SPAs

A key test of the proposals will be whether or not they are likely to have an adverse effect on the integrity on any Special Protection Area (SPA). Simply knowing which species are present on the development site, the abundance and temporal distribution of birds and how they may be impacted by the proposals will be insufficient. It will also be necessary to determine the origin of these birds, in terms of breeding colonies, and how populations, especially SPA populations, may be impacted in terms of number and breeding success. Collaboration and data-sharing with other offshore developers will be essential if a sufficiently detailed picture of the relationships between seabirds at sea and at their breeding colonies is to be obtained.

Direct observation of the directions in which birds move to or from the development site – and to and from the nearest seabird breeding colonies on the East Caithness Cliffs SPA – will undoubtedly give relevant data although this is unlikely to be sufficient. For more distant seabird colonies, direct observation is likely to be almost worthless. It will be necessary, therefore, to obtain information by use of tracking devices attached to birds.

The use of radar should also be considered. Radar studies should be targeted and cover relevant time periods to allow assessment of impacts on passage seabirds and migratory waders, ducks and geese etc. Boat and aerial techniques do not sufficiently assess such movements on their own and radar is able to gather data in periods of darkness and poor weather. There is a potential role for Doppler radar which might possibly give an indication of size and wing beat frequency, thus perhaps enabling more specific identification to families/ even species.

Best practice is clearly that prospective developers should carry out such studies and we encourage all applicants to pool resources into a comprehensive programme involving sufficiently-large samples of birds, of all species, at the range of SPA colonies. The downside of not embarking on such a programme at an early stage is that a decision to consent development may be held up by the absence of data which would permit a conclusion of no adverse impact. As the fitting of tags and subsequent tracking of where

birds go can only be carried out at certain times of year, any delay in embarking on such work may cause proposed developments to be held up in the planning process.

Bird activity on the development site should be judged against breeding performance of the birds at the relevant colonies in the relevant year: in years of breeding seabird failure such as have been experienced recently, especially if adults do not breed at all or fail early, then feeding activity is likely to be less as they are not provisioning chicks.

We also note that there are no plans to determine the effect of the scheme on migrant birds (other than seabirds), although there will be a need to carry out a Habitats Regulations Assessment to determine the proposal's impact on SPA populations of geese and swans (and perhaps other species) which are likely to fly through the area.

Cumulative and in-combination effects

We are pleased with the commitment to consider cumulative and in-combination impacts as part of the EIA process. However, we believe that the potential for cumulative impacts also arises from other proposals - and to additional sites - not listed in the scoping report. In terms of foraging seabirds we suggest that it would be prudent to consider a much wider search area. For example, cumulative impacts could accrue from other developments, in the Moray Firth and elsewhere, for species such as Manx shearwaters from Rum SPA or gannets from Forth Islands SPA. "Disruption to habitat function" is identified as an impact on birds on the table in paragraph 5.2.5.3 but is omitted in paragraph 5.2.5.4 and we seek clarification on how this is to be considered.

Mitigation

Mitigation should be considered to reduce any significant impacts to an acceptable level: this could include design of the wind farm layout, turbine height and/or operational limitations such as shut-down periods, for example. Since many birds may transit the area during periods of reduced visibility or at night, the potential draw of any lighted structures to birds should be considered. Although these lights have relatively low intensities, their location within an area of very little light pollution means that attraction could be an issue. The EIA should consider whether turbine colouration (potentially including use of ultraviolet markings) may make the turbine structures more visible to passage bird species, especially during conditions of reduced visibility. Consideration should be given to the outputs of any research that may help to identify other suitable mitigation, which may become available during preparation of the ES.

Carbon balance

RSPB Scotland would wish to see details of the full carbon balance budget for the proposed development detailed in the ES. This may include, for example, the amount of carbon required for equipment manufacturing and any CO2 which may leak from the seabed.

We trust you find our comments helpful and would like to refer you in the first instance to the RSPB Research Report No.39 for further information.
http://intranet.rspb.org.uk/essential/conservation_work/protecting_areas_casework/research_and_support/windfarms/offshore.asp

CIVIL AVIATION AUTHORITY (CAA)

As alluded to with the documentation provided, like any wind turbine development, the proposed subject development has the potential to impact upon aviation-related operations; the Department for Trade and Industry (DTI – now the Department for Energy and Climate Change)-sponsored document 'Wind Energy and Aviation Interests' and Civil Air Publication 764 refer1. The related need to establish the scale of the potential impact of the Moray development is evident. Having reviewed the SR and in particular the site in question, I can advise that we have previously recommended discussion with Wick airport and with helicopter operators based at Aberdeen airport (Bond Offshore Helicopters and Bristow Eastern Hemisphere).

As with all wind turbine developments of this scale, the Environmental Statement will need to detail the associated viewpoints of both NATS and Ministry of Defence (MoD). To that end, I note the SR also details the ongoing consultation with these organisations and the outcomes of these and any associated mitigations as agreed should be reported in the Environmental Statement.

With respect to Aviation Warning Lighting, the subject wind farm will fall under the requirements of Air Navigation Order 2009 Article 220 and this will need to be addressed in the Environmental Statement.

With respect to Landfall, the Environmental Statement may need to address the impact on aviation of power line routeing between Landfall and the onshore substation(s) if the power lines are a significant height above ground. However, it is acknowledged that this aspect may fall under the management of the Offshore Transmission Operator rather than the applicant.

Additionally, if more generically, all parties should be aware that:

• International aviation regulatory documentation requires that the rotor blades, nacelle and upper 2/3 of the supporting mast of wind turbines that are deemed to be an aviation obstruction should be painted white, unless otherwise indicated by an aeronautical study. It follows that the CAA advice on the colour of wind turbines would align with these international criteria.

• There is a civil aviation requirement in the UK for all structures over 300 feet high to be charted on aviation maps. Should this development progress and the 300 feet height be breached the developers will need to provide details of the development to the Defence Geographic Agency. We would also be interested in any proposed schedule of promulgation of the construction of the turbines.

• Consideration should be given to the lighting and marking of meteorological masts particularly during any survey phase as these are particularly difficult to acquire visually.

• It is possible that the proliferation of wind turbines in any particular area might potentially result in difficulties for aviation that a single development would not have generated. There is a CAA perceived requirement for a co-ordinated regional wind turbine development plan, aimed at meeting renewable energy priorities, whilst addressing aviation concerns and minimising such proliferation issues. Given the concentration of wind farm developments in the Forth and Tay area, a co-operative 'regional solution' between the developers in the area is seen as a desirable approach.

Any associated Environmental Statement should mention and, where applicable, address the issues highlighted above.

NERL SAFEGUARDING

NATS is comprised of two separate companies – NATS En-Route Plc (NERL) and NATS Services (NSL). NERL's business deals with the en-route aspect of Air Traffic Control and I am responding to the scoping report from a NERL perspective.

Wind turbines have the potential to affect NERL's Communications, Navigation and Surveillance (CNS) infrastructure. The impact on Primary Surveillance Radar (PSR) is caused by the spinning blades of a wind turbine creating false plots on the radar system which can be displayed as "clutter" on the air traffic controller's radar display. This "clutter" can appear as though it is an aircraft which has the potential of creating a serious safety occurrence. Wind turbines can also impact on voice communication and navigation aid systems. It should also be noted that voice communications systems are NERL's highest safety category system – without voice communications NERL would be unable to perform its Air Traffic Service functions.

For the development in question, and based on the information available to us, there is predicted to be an impact on our CNS infrastructure and thus our operations. NERL offer a technical and operational assessment service which could be commissioned by the developer which would explore the extent of this impact. In order to complete these assessments, NERL would require further details of the proposed development. In order for NERL to accurately calculate the potentially impact that the proposed turbines may have on our communications, navigation and surveillance (CNS) infrastructure, we would require the dimensions of the largest possible turbines which may be installed so we can calculate the worst case impact on our CNS infrastructure.

NERL wish to engage with the developer to ascertain the extent of the potential impact of the proposed wind farm. NERL are able to offer a service which can be tailored to meet the developer's needs. For example, if the developer would like NERL to assess the zone as a whole, this can be done. If the developer would like NERL to assess individual phases of development, this could also be tailored for.

NERL recently held a workshop with all Offshore Round 3 developers to explain the potential impact to our systems and operations. As a follow up to this workshop, NERL will engage with the developer to progress the assessment of potential impact that this development may have on our infrastructure and the steps which need to be taken to allow the development to coexist with our CNS infrastructure and operations.

Maritime & Coastguard Agency

The Environmental Statement should supply detail on the possible the impact on navigational issues for both Commercial and Recreational craft, viz.

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 will need to be submitted in accordance with MGN 371 (and 372) and the DTI/DfT/MCA Methodology for Assessing Windfarms.

Particular attention should be paid to cabling routes and burial depth and, subject to the traffic volumes, an anchor penetration study or burial protection index may be necessary.

Reference should be made to any Marine Environmental High Risk Areas (MEHRAS) established on adjacent coastlines.

The reference to the Marine & Coastguard Agency should be amended to Maritime & Coastguard Agency and the reference to Pilotage Association should be amended to the UK Marine Pilots Association (UKMPA)

Any application for construction safety zones will need careful consideration as will any proposal to extend their use into the operational phases.

The cumulative and in combination effects, particularly with respect to the Beatrice Offshore Wind Farm (BOWF) development, require serious consideration and we welcome the engagement of the Moray Firth Offshore Wind Developers Group to collectively address these issues.

We do not necessarily agree that the potential for impacts on oil and gas infrastructure should be scoped out of this proposal. A holistic approach, including the western area of the zone and the BOWF should be undertaken.

Given the volume of traffic accessing the Beatrice development area consideration may need to be given to proving a NW/SE route.
Consideration also needs to be taken of the arrival and departure points of the marine traffic beyond the 10 mile snapshot to ensure appropriate marine users are included in any HAZID workshops.

Casualty information from the MAIB and RNLI would also be a good data source, in establishing the risk profile for the area.

Given that the capacity of the individual wind turbine generators have not been decided the principles of the Rochdale envelope should be used in the EIA.

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) and Guard Vessel provisions.

Developers need to be aware that the radar effects of OWF on ship's radars are an important issue and subject to further discussion within the radar sub group of NOREL The radar effects will need to be assessed on a site specific basis taking into consideration previous reports on the subject available on the MCA website at:

http://www.mcga.gov.uk/c4mca/mcga07-home/shipsandcargoes/mcga-shipsregsandguidance/mcga-windfarms/offshore-renewable_energy_installations.htm

Northern Lighthouse Board

With regard to the consultation and the scope of assessment, we would only comment on that part relating to Shipping and Navigational Safety contained within several sections of the consultation document. We agree that Notice(s) to Mariners, Radio Navigation Warning and publication in appropriate bulletins will be required stating the nature and timescale of any works carried out in the marine environment relating to this project.

We would advise that any marking and lighting recommendations referred to in your section 2.7.2 will be made in a formal response through the Coast Protection Act 1949: Section 34 consultation process, and will be based on IALA Recommendation O-139. It may also be necessary to mark the landfall site of the export cable routes depending on the location chosen after the OFTO process has been completed. All navigational marking and lighting of the site or its associated marine infrastructure will require the Statutory Sanction of the Northern Lighthouse Board prior to deployment.

We would require the Navigational Risk Assessment to be in accordance with the information given at section 5.3.3, and in line with the requirement of MCA Marine Guidance Notice 371. We note that to date most of the vessel traffic analysis has been conducted through the use of AIS radar information, and that it is intended to provide further validation of statistics by gathering data regarding small craft (<15m) and leisure users at a local level, thereby enabling a more complete Navigational Risk Assessment. We would encourage the Risk Assessment to include a workshop approach to hazard identification and mitigation.

We would also welcome and encourage engagement with the Moray Firth Offshore Wind Developers Group to work together to minimise the cumulative impact of site development, including any developers within the Scottish Territorial Waters awards.

RYA Scotland

The RYA is the national body for all forms of recreational and competitive boating. It represents dinghy and yacht racing, motor and sail cruising, RIBs and sportsboats, powerboat racing, windsurfing, inland cruising and personal watercraft. The RYA manages the British sailing team and Great Britain was the top sailing nation at the 2000, 2004 and 2008 Olympic Games.

The RYA is recognised by all government offices as being the negotiating body for the activities it represents. The RYA currently has over 100,000 personal members, the majority of whom choose to go afloat for purely recreational non-competitive pleasure on coastal and inland waters. There are an estimated further 500,000 boat owners nationally who are members of over 1,500 RYA affiliated clubs and class associations.

The RYA also sets and maintains an international standard for recreational boat training through a network of over 2,200 RYA Recognised Training Centres in 20 countries. On average, approximately 160,000 people per year complete RYA training courses. RYA

training courses form the basis for the small craft training of lifeboat crews, police officers and the Royal Navy and are also adopted as a template for training in many other countries throughout the world.

Regarding the list of parameters considered within the scoping document, our interest at the RYA is obviously recreational navigation and our concern is to secure the safety of such interests. As a result, the RYA are pleased to see that recreational boating is considered under section 5.3.3, titled *'Navigation and Shipping'* as well as in section 5.3.12, titled *'Socio-Economics'* under the title *'Tourism.'* The RYA welcomes the comments made in section 5.3.12.3 which states **'In addition, the minimum safe (air) clearances between sea level conditions at mean high water springs (MHWS) and wind turbine rotors should be suitable for the vessels types identified in a traffic survey but generally should not be less than 22 metres (RYA, 2005; MGN 371),** as this rotor tip height is of great importance to the navigational safety of recreational vessels.

The RYA welcomes the inclusion of Figure 5.10 titled *'Overview of navigation related recreational activity relative to Moray Firth Round 3 Zone'* which shows a detailed picture of recreational boating throughout the Moray Firth Offshore Wind Farm area as well as the detailed description of the cruising routes that transect the wind farm area, seen under the title '*Recreational Vessels'*. The RYA is encouraged that the data from the UK Coastal Atlas of Recreational Boating is being utilised and considered at this early stage. We therefore expect this information to also be taken into account and represented within the Environmental Statement.

The RYA welcomes the statement under section 5.3.3.2, titled *'Data Gaps'* which states **that 'Additional data is being collated using radar tracking for non-AIS vessels...'.** The RYA consider this very important as recreational craft do not tend to carry AIS and therefore are not represented in such surveys and are often under represented.

The RYA welcomes the paragraph in section 5.3.3.4 titled '*Site Specific Impact Assessment Methodology' which* clearly states **'The Marine Navigational Risk Assessment which will be carried out as per the recommended methodology outlined in the DTI (now DECC) publication Guidance on the *Assessment of the Impact of Offshore Wind Farms: Methodology for Assessing the Marine Navigational Safety Risks of Offshore Wind Farms* (the 'DTI Methodology').'**

With this in mind, the RYA would expect to see that recreational craft are to be included in the Navigational Risk Assessment and that the RYA will be part of the **'consultation with key navigational stakeholders'** before the NRA is begun

In section 5.3.3.6, titled *'Cumulative and in-combination impact assessment and survey methodologies'* the RYA welcomes the comments which state **'Cumulative and in-combination issues associated with the offshore oil and gas activities as well as the adjacent offshore wind farm activities in the area will be evaluated',** but expect that the issue of commercial and recreational navigation to also be included as one of those major activities. The cumulative impact of all marine developments is becoming increasingly important, especially when considering the issue of 'squeeze' for vessels of all shapes and sizes navigating around development sites.

The RYA notes that under section 5.3.3.7, titled '*Potential Mitigation Methods'*, there is mention the use of safety zones if appropriate. The RYA would like to take this opportunity to clarify that as far as recreational vessels are concerned it is the RYA's opinion that that the creation of safety zones around the individual operational wind turbines that exclude small craft are unlikely to increase their navigational safety and would therefore be unnecessary, impracticable and disproportionate.

We recognise the increased level of risk to vessels and personnel working during the construction, major maintenance and decommissioning phases of wind farm development where jack up vessels and other engineering works and vessels are required. In these situations we do not object to a temporary safety zones being established around the turbine foundation structures while installation activities are on-going. We would expect this to be supported by regular Notices to Mariners informing all sea users of the location and type of works being undertaken.

The RYA has put together a position statement regarding the development of offshore wind farms and I have attached a copy of this for your information. All our concerns regarding recreational boating and offshore wind farm developments are included in this statement and the RYA expects these to be addressed in the future development of this project.

In summary the RYA's concerns with offshore energy developments and recreational boating relate to:

1. Navigational safety
    - Collision risk
    - Risk management and emergency response
    - Marking and lighting
    - Effect on small craft navigational and communication equipment
    - Weather
2. Location
    - Loss of cruising routes
    - Squeeze into commercial routes
    - Effect on sailing and racing areas
    - Cumulative effects
    - Visual intrusion and noise
3. End of life
    - Dereliction
    - Decommissioning
4. Consultation

Essentially with correct siting taking into account all navigational interests, both commercial and recreational, as well as the suitable design of turbine towers, there is scope for all users of the sea to be mutually compatible.

Ports and Harbours

The application must include a full Navigation Risk Assessment in line with MGN 371.

Marine Scotland

Recently, offshore wind has focussed on large scale windfarm sites leased by The Crown Estate for Round 3 and Scottish territorial waters. These will involve the installation of a large number of turbines over several years to ensure the UK and Scottish Governments meet their commitments to generating electricity from renewable sources. Issues associated with cumulative and in combination effects of these developments are currently being reviewed by Marine Scotland and we will be the subject of future correspondence.

The definition of the 'Rochdale envelope' approach described is consistent with all large offshore wind developments. This allows developers to describe their projects in a hypothetical manner by fully assessing any impacts associated with all technology that may be considered on the site.

Indicative turbine layouts should be presented within the EIA.

2.5 Construction timelines

A phased installation process will begin in 2015 and the operational wind farm is anticipated for completion in 2019. Once more finalised information becomes available MS-LOT would appreciate further updates on the construction timeline

Inter array cabling & Scour Protection

The Installation methodologies for both the inter array cabling and the scour protection must be detailed within the EIA as the Marine licence applications require a list of deposits.

2.6.1 Environmental Management

MS-LOT welcomes the developers approach to the comprehensive Environmental Management Plan (EMP). The EMP is required to be a live document that can be reviewed and updated as the project evolves.

Appropriate Assessment (AA)

In order for the AA to be carried out by the competent authority the installation technologies would have to be known in order to assess the impacts.

Marine Scotland Science (MSS)

The following comments have been received from MSS colleagues.

The Environmental Impact Assessment (EIA) must informatively and clearly identify the key impacts associated with the MORL development. Within the EIA all useful sources of existing surveys and studies need to be specified.

Section 5.1.2.4 Wind Climate

The first part of paragraph 4 should be re-written to clearly state that the summer months experience <12m/s and the winter months are from 12 to 25m/s. The paragraph is describing the most common wind speeds on an annual basis and it states wrongly "with wind speeds up to 12 m/s" but then the next two sentences contradict this "Stronger winds (12 to 25m/s)" in winter months.

Tidal Regime

Paragraph 1, 2, & 3; require references to be added for tidal range & tidal currents.

Wave Climate

Table 5-2: it should be (2) instead of (1) in the second line.

Section 5.1.3 Data Gaps

Once the metocean survey data has been analysed a report should be submitted to MS-LOT for review.

5.2 Benthic Ecology

The scoping document appears to have identified the potential key impacts with regard to the development. Useful sources of data from existing surveys and studies have been identified but these may not cover the whole area. However, the proposed combination of video survey and benthic grabs is essential to adequately determine the dominant habitat types and species present in the development area, large epifauna are generally under sampled by grab and trawl sampling. Please find below some minor points and corrections

Naming of species

A.irregularis should be presented as *Astropecten irregularis* not 'Asterias' as printed.
T. flexuosa should be presented as *Thyasira flexuosa*

Minor changes

Paragraph 3 should read that "the infaunal community is relatively uniform across the region" not "the infaunal taxa is relatively uniform across the region".

Paragraph 5 should read "whilst two stations contained a high proportion of gravel and pebbles it was dominated by epifauna" deleting "and the fauna was dominated by epifauna"

Paragraph 6 should read "to show similar benthic faunal characteristics" and "with a high species diversity dominated by polychaetes, crustaceans and echinoderms".

5.2.2.4 Impact assessment Methodology

Paragraph 2 Method of impact assessment box should read "EIA based on a review of scientific literature"

5.2.4.3 Environmental Impacts Scoping

The potential impacts described in the scoping document should not include "Barrier to movement" as a separate effect. The barrier is caused by the presence of vessels, presence of foundations etc; it is not a different effect. The study that is proposed investigates the potential longer term avoidance of the development area by marine mammals using baseline data this will be incorporated into the post construction monitoring. Potential impacts associated to disturbance and collision should be primary direct impacts and lines 5 and 6 which relate specifically to prey species will be extremely hard to assess and should be treated as secondary impacts.

The scoping document has identified a need to conduct fish surveys within the 'potential reduction of the feeding resource due to effects on prey of noise and vibration, and habitat disturbance' section, MS would recommend that the developers review existing background data surrounding fish species density and distribution rather than conducting a survey.

MS suggests that the potential for interaction between changes in commercial fishing activity and biofouling can be scoped out of the assessment.

5.2.4.5 Site specific survey methodology

MORL should consult with MS-LOT when requiring information about data collection to support an Appropriate Assessment, and not consult directly with SNH/JNCC. The reference to the impacts on SACs where salmon is a designated feature has to be removed from this section and inserted into 5.2.6.4.

When assessing the connectivity of marine mammals SAC species, MS-LOT would like to review the survey and data collection strategy.

5.2.5.2 Data Gaps

Marine Scotland should be included in the Moray Firth Offshore Wind Developers Group (MFOWDG) conversations in order to address any gaps in the ornithological data.

5.2.5.3 Environmental Impact Scoping

Within the table the impact description "Disruption to habitat function" has not been included in the subsequent tables of proposed actions. The impacts should also be arranged in order of priority. Fish surveys have been identified within the site specific impact assessment methodology 5.2.5.4 as an action, fish distribution varies from year to year, unless the fish species are closely linked to particular benthic habitats, in which case the benthic habitat map should be used to predict fish distribution.

Figure 5.7

Illustrates the boat survey transects and buffer zone, will this design be adequate to use gradient based approaches to impact assessment.

5.3.2. Commercial Fisheries

We agree, with the conclusion presented that the development could have potentially significant effects on commercial fisheries and that these should be addressed in the EIA. Effects could arise from both direct impact on the species targeted by fishermen and restricted access to fishing grounds during construction and from restricted access to, or complete loss of fishing ground, during operation. Effects, either short or long term, could be manifest in both the development area and the export cable route.

The sources of fisheries information identified in the scoping report; combined with a consultative approach as suggested seems appropriate to the EIA. Shellfish fisheries are currently the most valuable fisheries in the area and a large proportion of the landings are taken by smaller boats.

Given the number and extent of the developments proposed to date and plans for others, cumulative and in combination effects on commercial fishing appear highly probable. We suggest that these are addressed by the MFOWDG. We suggest that this assessment

should address the extent of temporary or permanent loss of access to fishing grounds and possible effects of displaced fishing effort.

Displaced effort may have direct economic effects, associated with increased steaming time, vessel costs and reduced catches if vessels have to compete with others in limited space (although in this case it would seem alternative fishing opportunities for small, locally based boats to displace elsewhere are likely to be limited). In addition, increased fishing pressure on fish and shellfish stocks in areas which remain fishable may degrade stocks. The possible adverse effects on local and more distant stocks subject to increased fishing pressure are not generally identified in guidance documents but should form part of the EIA, particularly the assessment of cumulative and in combination effects.

Cumulative Effects

Marine Scotland welcomes the collaborative approach that is being undertaken by MFOWDG on cumulative effects, Cumulative and in combination effects should make the link between impacts on natural fish ecology and consequences for commercial fisheries. As indicated above, cumulative impacts could be considerable and the possible effects on coastal (fishing) communities should be addressed in the socio-economic section.

A cumulative and in combination impact assessment is also a requirement of the Habitats Regulations with respect to the designated SACs and SPAs which may be affected. As a result, the cumulative and in combination assessment of impacts on the marine mammals and seabirds of the European designated sites will be an important consideration within the EIA process.

As mentioned, Marine Scotland are currently considering a possible strategy for assessing cumulative and in combination effects and will return to this matter as soon as possible.

Construction

Details of any noise pollution resulting from any construction activity and any associated potential effects on cetaceans/pinnipeds/fish will be required. Noise assessments should take into consideration background noise, including vibration produced from ships' engines, piling hammers and auguring operations during the construction of turbine foundations. Considerable studies have already been conducted on cetaceans in the Moray Firth area, but the particular cause for concern is the cumulative impact from all additional wind farm sites on the North East of Scotland.

The proposed development will need to consider, in the first instance through a desk study, potential impacts on migratory fish including salmon (*Salmo salar*), sea trout (*Salmo trutta*), sea lamprey (*Petromyzon marinus*) and river lamprey (*Hyperoplus lanceolatus*) during all phases of the project. The potential for offshore renewable projects to impact on migratory fish will vary depending on the design and location of the development in relation to the migration routes of adults and juveniles. Potential impacts may include physical or avoidance reactions at both the individual and population level and there may also be avoidance due to electromagnetic sensitivity at both adult and juvenile stages.

In cases where there is uncertainty over potential impacts it may be necessary for the developer to implement a monitoring strategy to assess the influence on salmonid fish populations. The expected levels of noise production must be identified in the ES and derived by using published literature, decide what impact, if any, this will have on fish movements through the area. Will it result in avoidance of the area and, if so, what does this mean for migrating fish. Please refer to Appendix A and after consideration get in contact to MS-LOT.

Cumulative and in combination effects

A cumulative and in combination impact assessment is also a requirement of the Habitats Regulations Appraisal (HRA) with respect to the designated Special Areas of Conservation (SAC) and Special Protection Areas (SPA) which may be affected. As a result, the cumulative and in combination assessment of impacts on the marine mammals and seabirds of the Moray Firth's European designated sites will be an important consideration within the EIA process. Other cumulative effects, which consider the impacts arising from the proposed MORL wind farm in the context of other non wind farm developments (e.g. oil and gas operations) and activities (e.g. the shipping and fishing industries) will also be considered in the course of the EIA. MS-LOT awaits a document that addresses these aspects and, once it has been reviewed, may wish to update this advice.

Cable route and layout

Marine Scotland would like to emphasise that all developers are required to include maps, 'baseline' data and any details associated with the cable route within their ES as it is incorporated into the overall footprint of the works.

References

We note that these references are missing from the scoping report

<u>Wave Climate</u>

UKHO – United Kingdom Hydrographic Office
ABPmer (2004)
Admiralty Charts
Health & Safety Executive (2002)
British Isles and Adjacent Waters Co-Tidal and Co-Range Lines Chart (1996)
Admiralty Tide Tables (2009)

<u>Section Climate Change</u>

Include references in this section

<u>Section Data Gaps</u>

Include Marine Guidance Notes MGN 371 in reference list

Appendix A

Scoping comments in relation to information requirements on diadromous fish of freshwater fisheries interest

Offshore renewable developments have the potential to directly and indirectly impact diadromous fish of freshwater fisheries interest including Atlantic salmon, anadromous brown trout (sea trout) and European eel. These species use the coastal areas around Scotland for feeding and migration and are of high economic and / or conservation value. As such they should be considered during the EIA process. Developers should also note that offshore renewable projects have the potential to impact on fish populations at substantial distances from the development site.

In the case of Atlantic salmon information will be required to assess whether there is likely to be any significant effect of developments on rivers which are classified as Special Areas of Conservation (SAC's) for Atlantic salmon under the Habitats Directive. Where there is the potential for significant impact then sufficient information will be required to allow Marine Scotland to carry out an Appropriate Assessment.

In order that Marine Scotland is able to assess the potential impacts of marine renewable devices on diadromous fish and meet legislative requirements the developer should consider the site location (including proximity to sensitive areas), type of device, and the design of any array plus installation methodology. Specifically we request that developers provide information in the following areas:

1. Identify use of the proposed development area by diadromous fish (salmon, sea trout and eels)

a. Which species use the area? Is this for feeding or migration?
b. At what times of year are the areas used?
c. In the case of salmon and sea trout what is the origin / destination of fish using the area?

2. Identify the behaviour of fish in the area

a. What swimming depths do the fish utilise
b. Is there a tendency to swim on or offshore

3. Assess the potential impacts of deployed devices on diadromous fish during deployment, operation and decommissioning phases. Potential impacts could include:

a. Strike
b. Avoidance (including exclusion from particular rivers and subsequent impacts on local populations)
c. Disorientation that could potentially affect behaviour, susceptibility to predation or by-catch, or ability to locate normal feeding grounds or river of origin
d. Delayed migration

4. Consider the potential for cumulative impacts if there are multiple deployments in an area.

5. Assess 1-4 above to determine likely risk.

a. If there are insufficient data to determine use of the development area, these should be obtained
b. If there are insufficient data on the origin / destination of fish using the area then these should be obtained
c. Where it is not possible to obtain site specific data, the developer should make a convincing argument why this is the case and apply appropriate expert judgement based on published information.

6. If there is any remaining doubt as to the potential impacts of a particular development, then the developer should recommend a scientifically robust monitoring strategy to assess any impacts either on stocks as a whole, or on particular rivers as necessary.

Marine Scotland Science has just completed a review of migratory routes for Atlantic salmon, sea trout and eels relevant to Scotland, which is now available on the Marine Scotland website. This will assist the developers in identifying what pre-existing information is available and what supplementary site specific data will be required.

The Joint Radio Company Limited

JRC analyses proposals for wind farms on behalf of the UK Fuel & Power Industry. This is to assess their potential to interfere with radio systems operated by utility companies in support of their regulatory operational requirements.

In the case of this proposed wind energy development, JRC does not foresee any potential problems based on known interference scenarios and the data you have provided. However,if any details of the wind farm change, particularly the disposition or scale of any turbine(s), it will be necessary to re-evaluate the proposal.Please note that due to the large number of adjacent radio links in this vicinity, which have been taken into account, clearance is given specifically for a location within 10m of the declared grid reference (quoted above).

In making this judgement, JRC has used its best endeavours with the available data, although we recognise that there may be effects which are as yet unknown or inadequately predicted. JRC cannot therefore be held liable if subsequently problems arise that we have not predicted.

It should be noted that this clearance pertains only to the date of its issue. As the use of the spectrum is dynamic, the use of the band is changing on an ongoing basis and consequently, you are advised to seek re-coordination prior to submitting a planning application, as this will negate the possibility of an objection being raised at that time as a consequence of any links assigned between your enquiry and the finalisation of your project.

Historic Scotland

Information on the location of all scheduled monuments, listed buildings, gardens and designed landscapes and designated wreck sites can be obtained from www.PASTMAP.org.uk. This is a free, interactive website produced jointly by Historic Scotland and the Royal Commission on the Ancient and Historical Monuments of Scotland which allows anyone with internet access to display and search data on Scotland's historic environment.

Marine Assets - Potential Impacts

In relation to the submitted search area of the proposed offshore wind farm, I can confirm that there are no designations within our statutory remit located within this identified area. As indicated within the scoping report, HMS Exmouth is located to the north-east of the proposed development area, which is a controlled site under the Protection of Military Remains Act 1986.

I note that the scoping report identifies that there are certain undesignated wrecks within the north section of the proposed development site. We recommend that the potential impact on these be assessed with appropriate involvement of archaeological expertise as these could be subject to potential direct impacts, depending on the location of the sub-sea works. The relevant Council Archaeology Services may also wish to comment. In addition, indirect impacts to historic assets on the seabed within the proposed development area and possibly beyond which may be caused by alteration to tidal currents and sedimentary regimes, and by changes to the chemical balance of the water and seabed sediments, should be assessed.

As part of this assessment, I note that archaeological analysis of geophysics will be undertaken, which is consistent with guidelines set down in 'Historic Environment Guidance for the Offshore Renewable Energy Sector' (Cowrie 2007)[1]. Beyond this, I note the scoping document's reference to the low potential for submerged prehistoric remains within the study area. Flemming (2004: 35) suggests that 'prehistoric artefacts could (admittedly with low probability) be present in almost any sediment recovered form the seabed in SEA 5'. I note that, archaeological analysis of grab and core samples shall be undertaken if these are available and I would encourage this to be undertaken. It would be very helpful if the results of all archaeological assessments could be archived through the Royal Commission on the Ancient and Historical Monuments of Scotland.

Terrestrial Assets - Potential Direct Impacts

I understand that the potential direct impacts on terrestrial assets shall be addressed separately. We shall provide further comments at this stage.

Terrestrial Assets - Impact on Setting

In relation to the search area of the proposed offshore wind farm, I can confirm that there are terrestrial assets with a seascape setting, which maybe subject to an indirect impact as a result of the proposed offshore turbines. However, due to the separation distance, we consider it unlikely that the proposed development shall have a significant adverse impact on the setting of terrestrial assets within our statutory remit.

Cumulative Impact

In terms of cumulative impact on terrestrial / coastal assets, I note that the Scoping Report commits to assessing potential cumulative and / or in-combination impacts in relation to the change in the setting of terrestrial historic environment features. We welcome that potential cumulative impacts shall be assessed. The Scoping Report also makes reference to the appropriate industry guidance on this matter; Cowrie 2008, 'Guidance for assessment of Cumulative Impacts on the Historic Environment from Offshore Renewable Energy'.

Our Views on the Principle of this Proposal

On the basis of the information supplied, we are content with the principle of the proposal. In our view, it is considered unlikely that there shall be significant adverse impacts on marine assets within our statutory remit. Although it is considered that there shall likely be impacts on the setting of terrestrial assets within our statutory remit, the level of impact on the setting of these assets is also unlikely to be significantly adverse due to the separation distances involved. I look forward to providing further comments upon receipt of the full Environmental Statement (ES).

In terms of assessing marine archaeology, subject to the comments provided above, in our view the proposed methodology for baseline surveys, assessment of impacts and mitigation is considered acceptable.

In terms of assessing the impact of the offshore elements of the proposal on terrestrial assets, I acknowledge that the Scoping Report commits to undertaking an assessment of the impact on the setting of historic sites and assets.

The relevant Council archaeological and conservation service will be able to provide information and advice on unscheduled archaeology and category B and C(S) listed buildings. The relevant Council's archaeological and conservation service will also be able to advise on the historic environment and of the likely impacts for any sites of regional and local importance.

Please refer to the advice contained in our technical guidance note on setting. This documents is available at:

http://www.historic-scotland.gov.uk/managing-change-consultation-setting.pdf

Transport Scotland

The proposed development represents an intensification of the use of this site however the percentage increase in traffic on the trunk road is such that the proposed development is likely to cause minimal environmental impact on the trunk road network. On this basis TRNMD have no comment to make.

Ministry of Defence

The scheme outlined involves the construction of approximately 200 free standing wind turbines with associated infra-structure. The turbines are expected to be 182 metres to blade tip above ground level. The principal safeguarding concern of the MOD with respect to the development of wind turbines relates to their potential to create a physical obstruction to air traffic movements and cause interference to Air Traffic Control and Air Defence radar installations. Consultation by the developer at the pre-planning stage has identified the following concerns:

Air Traffic Control (ATC) radar

The turbines will be between 33.6 and 76.8 km from; in line of sight to; and will cause unacceptable interference to the ATC radar at RAF Lossiemouth. Wind Turbines have been shown to have a detrimental affect on the performance of the MOD's Air Traffic Control (ATC) Watchman radars. These affects include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns which Air Traffic Controllers must treat as real. The desensitisation of radar could result in aircraft not being detected by the radar and therefore not presented to Air Traffic Controllers.

Controllers use the radar to separate and sequence both military and civilian aircraft; in busy uncontrolled airspace radar is the only sure way to do this safely, maintaining situational awareness of all aircraft movements within the airspace is crucial in achieving a safe and efficient Air Traffic Service; and the integrity of radar data is central to this process. The creation of "false" aircraft displayed on the radar leads to increased workload for both controllers and aircrews, and may have a significant operational impact. Furthermore, real aircraft returns can be obscured by the turbine's radar returns making the tracking of conflicting unknown aircraft, the controllers own traffic, much more difficult. In considering its response to this development proposal the MOD has taken account of these issues, and has concluded that the development poses a significant risk to current ATC operations.

The MOD is willing to enter discussions with the developer with the aim of finding suitable mitigation; however, research and financial responsibility rests with the developer.

Low Flying

The turbines will be within EGD (UK Danger Area) 807 and will unacceptably affect military activities. Our advisor has stated that no low flying concerns exist for those turbines that fall outside EGD (UK Danger Area) 807.

If the developer is able to overcome the issues stated above, the MOD will request the turbines be fitted with aviation lighting.

Our assessment was based on 264 turbines at 183.71 m to blade tip that would fall within the following grid references:

1	ND	46215	08884
2	ND	51782	28146
3	ND	53687	30590
4	ND	55256	33320
5	ND	56796	37463
6	ND	66549	25737
7	ND	66549	16334
8	ND	49841	25944
9	ND	47909	24223
10	ND	45345	21027
11	ND	41961	18001
12	ND	37494	15386
13	ND	33075	13663
14	ND	30818	10145
15	ND	28205	06765
16	ND	28205	02286

Accordingly the applicant should take account of MOD aviation and radar operations in completing the EIA particularly in identifying a suitable site for development and the dimensions of the turbines that are to be installed.

It should be noted that this response is based on current levels of wind farm development in the area. additional wind farms are consented or built prior to this development being submitted for planning consent, our position may change.

Defence Estates Safeguarding wishes to be consulted and notified of the progression of planning applications and submissions relating to this proposal to verify that it will not adversely affect defence interests.

Scottish Canoe Association

We do not have any concerns with this proposal. From our point of view this is a good location for such a large scale renewable energy development, in that it is off the east coast & a good distance out to sea.

Given the distance out to sea this is not an area where sea kayakers would venture into & the development should not have any significant impact on tidal flows & sediment deposition close to shore where small recreational boats such as kayaks could be affected by any potential changes to tidal flows & sandbanks.

Health and Safety Executive

HSE

Health and Safety Executive

Hazardous Installations Directorate

Kirsten Laidlaw

Chemical Industries
Belford House
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HM Principal Inspector of Health & Safety
Dr G. A. Cook

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

Date: 22 September 2010

Our ref: GC/SO/Moray Firth/4.2.1.405

Dear Sirs

ENVIRONMENTAL ASSESSMENT FOR THE MORAY FIRTH ROUND 3 OFFSHORE WIND FARM, EASTERN DEVELOPMENT AREA.

Thank you for your email of 21 September 2010 asking what information should be provided in the environmental statement for the proposed development at The Moray Firth.

Environmental Impact Assessments are concerned with projects which are likely to have significant effects on the environment. HSE's principal concerns are the health and safety of people affected by work activities. HSE cannot usefully comment on what information should be included in the environmental statement of the proposed development. However, the environmental statements should not include measures which would conflict with the requirements of the Health and Safety at Work etc Act 1974 and its relevant statutory provisions.

Yours faithfully

[redacted]

Kirsten Laidlaw
Admin Support

Annex 2.

DEVELOPER APPLICATION AND ENVIRONMENTAL STATEMENT CHECKLIST

	Enclosed
1. Developer cover letter and fee cheque	□
2. Copies of ES and associated OS maps	□
3. Copies of Non Technical Summary	□
4. Confidential Bird Annexes	□
5. Draft Adverts	□
6. E Data – CDs, PDFs and SHAPE files	□

Environmental Statement	Enclosed	ES Reference (Section & Page No.)
7. Development Description	□	
8. Planning Policies, Guidance and Agreements	□	
9. Economic Benefits	□	
10. Site Selection and Alternatives	□	
11. Baseline Assessment data – air emissions	□	
12. Design, Landscape and Visual Amenity	□	
13. Construction and Operations (outline methods)	□	
14. Archaeology	□	
15. Designated Sites	□	
16. Habitat Management	□	
17. Species, Plants and Animals	□	
18. Water Environment	□	
19. Sub-tidal benthic ecology	□	
20. Hydrology	□	
21. Waste	□	
22. Noise	□	
23. Traffic Management	□	
24. Navigation	□	
25. Cumulative Impacts	□	
26. Other Issues	□	

N.B. Developers are encouraged to use this checklist when progressing towards application stage and formulating their Environmental Statements. The checklist will also be used by officials when considering acceptance of formal applications. Developers should not publicise applications in the local or national press, until their application has been checked and accepted by officials.