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The Scottish Government

Inch Cape Offshore Wind Farm, Outer Firth of Tay

Scoping Opinion

Contents

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

SCOPING OPINION FOR THE PROPOSED SECTION 36 APPLICATION FOR THE INCH CAPE OFFSHORE WINDFARM, OUTER FIRTH OF TAY

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 Environmental Statement (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 that 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 devices to exploit 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 or 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. Marine Scotland Licensing Operations Team (MS-LOT) 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 ES associated with the application for section 36 consent.

3. Description of your development

SeaEnergy Renewables Limited (SERL) proposes to develop the Inch Cape Offshore Wind Farm in the outer Firth of Tay region within Scottish Territorial Waters (STW). The proposed site is located off the Angus coastline and will consist of approximately 180 turbines with an estimated installed capacity of 1,000 MW.

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 (SG) 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 changes produced after the ES is submitted may result in the requirement of further environmental assessment and public consultation if deemed to be significant by the licensing authority.

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 states that developments must be managed carefully to preserve listed buildings and their settings to retain and enhance any special architectural or historic features of interest. Consequently, both direct impacts on the resource itself and indirect impact on its setting must be addressed in any 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 are also available to provide any further information on all such sites.

9. Navigation

The ES should include the following details on the possible impact on navigation for both commercial and recreational craft.

- 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 comments from advisors on ecology, biodiversity and nature conservation.

Species

The ES should 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
- Conservation of Wild Birds (commonly known as the Habitats and Birds Directives)
- Wildlife & Countryside Act 1981
- Nature Conservation (Scotland) Act 2004
- Protection of Badgers Act 1992
- 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 and near 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 to consult with the Scottish Environment Protection Agency (SEPA), at an early stage. SEPA are the regulatory body responsible for the implementation of the Controlled Activities Regulations (CAR), to identify if a CAR licence is necessary and clarify the extent of the information required by SEPA to fully assess any licence 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 station are required to comply with new legislation. In this regard MS-LOT will be advised by SEPA 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 (PPG), several of which should be fully utilised in preparation of an ES and during project 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.
- Operation.
- Decommissioning.

Construction contractors may be unaware of the potential for impacts such as those listed below but, when proper consultation with the local fishery board is encouraged at an early stage, many of these issues 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 ES should provide information relating to the preferred route options for delivering equipment etc. via the trunk road network. The EIA 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 ES, 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 SG website. Developers are asked to issue ES directly to consultees. Consultee address lists can be obtained from the Energy Consents Unit. The Energy Consents Unit also requires 8 hardcopies to be submitted for onward distribution.

Where the developer has provided Scottish Ministers with an ES, 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 as above).

Ordinance Survey (OS) Mapping Records

Developers are requested at application stage to submit a detailed OS plan showing the site boundary and all turbines, access tracks and onshore supporting infrastructure in a format compatible with the SG'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 SG); 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 ES should be provided, complete with an indication of when an addendum will be submitted.

Application and ES

A developer checklist is enclosed with this opinion to assist developers in consideration and collation of the relevant ES information to support their application. In advance of publicising the application, developers should be aware this checklist will be used by the licensing authority in consideration 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 Public Local Inquiry (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 further 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, the licensing authority will use the enclosed checklist and scoping opinion in assessment of the application. Developers are encouraged to seek advice on the contents of ES 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, the licensing authority 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 accepted by the licensing authority.

Judicial review

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

Redacted

Signed
Redacted

Authorised by the Scottish Ministers to sign in that behalf

Enclosed - Developer Application Checklist

14. Annex 1

Consultee Comments Relating To Inch Cape Offshore Windfarm, Outer Firth of Tay

The following organisations provided a scoping opinion in relation to the Inch Cape Offshore Windfarm, Outer Firth of Tay

Statutory Consultees

Scottish Natural Heritage (SNH)
SEPA

Non Statutory Consultees

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

SNH Comments

NATURAL HERITAGE INTERESTS TO BE CONSIDERED

In principle, we support the development of marine renewable energy devices where sensitively designed and sited – as set out in SNH Policy Statement 04/01. For this offshore windfarm proposal, we highlight the key natural heritage interests which we consider should be scoped into the Environmental Impact Assessment (EIA). We provide our full advice on these interests in Appendix A, organised into those aspects which we consider apply to the development in general; those relevant to its offshore elements; and those relevant to the onshore works (although please see our further comment on this latter aspect below).

As part of our scoping advice we include the range of interests and potential impacts that may need to be considered in relation to regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 as amended – now commonly referred to as Habitats Regulations Appraisal (HRA). We provide more detail on the legislative requirements for European sites in Appendix B.

And we provide our advice on HRA tailored to the potential impacts of the Kintyre windfarm proposal in Appendix D for Special Protection Areas and Appendix E for Special Areas of Conservation.

ONSHORE WORKS & GRID CONNECTION

The scoping report does not make it clear who will be consulted over this proposal, although this information may be contained in the separate Stakeholder Engagement Strategy. We therefore assume that the applicant will liaise closely with Marine Scotland, Angus Council and any other relevant local authorities regarding their proposed onshore works, including the cable landfall and grid connection. These elements of infrastructure are outlined in the scoping report in Sections 2.5.4 (Offshore Transmission Infrastructure) and 2.5.5 (Cable Landfall) but are not discussed in detail – potential locations and options have not yet been appraised.

We **strongly recommend** that the applicant discusses this aspect of their proposal with Marine Scotland who will be acting as consent authority for the Section 36 application, and also as the competent authority in respect of Habitats Regulations Appraisal (HRA; on which we provide advice in Appendix B). In order to consider the overall environmental impacts of this proposal, and to be able to provide advice on HRA to the competent authority, **we highlight** that we would need to see information on the onshore and offshore elements together. We recommend that this information is collated into 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.

APPENDIX A

ADVICE ON NATURAL HERITAGE INTERESTS TO BE SCOPED INTO ENVIRONMENTAL IMPACT ASSESSMENT

Our scoping advice is organised into those aspects we consider apply to the development in general; those relevant to offshore elements; and those relevant to the onshore works.

GENERAL ADVICE

ai. Project Planning and Phases of Development
aii. Landscape & Visual
aiii. Fish of conservation Concern & Fisheries
aiv. Designated Sites & Species Protection
avi. Cumulative Impacts

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ai. Project Planning & Phases of Development

Project planning

We recommend that the applicant's Environmental Statement (ES) contains an outline of the main alternatives they studied with an explanation of the reasons for their final choice of site, taking into account environmental effects. Further advice is provided in PAN 58 – *Environmental Impact Assessment* and in SNH's *Environmental Assessment Handbook*.

Project details

Section 2.5 of the scoping report discusses the range of options being considered in respect of turbine and foundation choice, along with scour protection and associated / ancillary development related to the electrical infrastructure. As options are currently being kept open with regard to project design, so our scoping advice has to be generalised. We would welcome ongoing dialogue with the applicant and the consenting authority as this project progresses in order to discuss how they are addressing environmental interests, and to provide more focused advice with regard to the finalised project details.

Phases of development

In their Environmental Impact Assessment for this proposal (to be reported in the ES), the applicant should address the following phases of windfarm development:

Construction

The ES should include details on proposed construction methods including information on project management – contractor arrangements, 'chain of command', roles and responsibilities of key staff – and timetabling – the phasing / sequencing of proposed works – especially if this has been identified as a mitigation measure for environmental, navigational or other effects. Information should also be included on the proposed construction equipment, and intended delivery routes and port facilities.

Operation & maintenance (O&M)

The ES should include details on operation and maintenance activities (as discussed under Sections 2.8 and 2.9 in the scoping report, p19-21) and an assessment of any impacts that could arise – considering any potential environmental, navigational and/or other effects. We note that disturbance (to environmental and/or other interests) from O&M boat and/or

helicopter traffic may be reduced if remote condition monitoring is used to inform the maintenance schedules of turbines.

Repowering

The applicant will need to consider all aspects of repowering and address this issue in their ES. It is important to be clear what repowering entails and whether there is to be any relocation of subsea infrastructure or alteration of the windfarm layout. This includes whether further scour protection is required for foundations in the same, or in new, locations across the windfarm 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.

Decommissioning

The process and methods of decommissioning should also be considered, and reviewed, at this (pre-application) stage, with an options appraisal presented in the ES.

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aii. Landscape & Visual

SNH is in the process of reviewing both our own guidance and that commissioned by others 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, we provide the following advice on the scoping report: Section 5.3.10 – Landscape, Seascape & Visual Resources.

General description

The site lies in a prominent location off the Fife and Angus coasts, at the mouth of the outer Tay. It lies on a major North Sea coastal shipping route into the Firth of Forth – the sea 'gateway' into the central belt, leading into the heart of Scotland and its capital.

Extent of landscape study area

The applicant has examined the patterns of likely visibility, drawn from an initial ZTV (Fig.5-12) but does not indicate the diameter of the ZTV, nor how/whether this will determine the extent of the landscape study area. We therefore recommend an initial ZTV of 45km is used from which to establish a finalised study area, for the following reasons:

- Local landscape designations cover coastal areas in Aberdeenshire (Areas of Landscape Significance) and in Fife (Areas of Great Landscape Value) at 30km and 27km respectively. The extent of visibility inland within these areas in unclear in Fig 5.12. An initial wider ZTV of 45km would allow this to be reviewed.
- Our good practice guidance recommends 35km as a minimum ZTV radius for 130m high turbines; the proposed turbines for the Inch Cape are up to 182m high.

This initial, wider ZTV would allow visibility issues to be reviewed. The study area could then be refined to take in more localised landscape character and visibility.

Character assessment

Although the techniques and methods developed to evaluate seascapes are helpful, (such as SNH's seascapes work and the GSA commissioned by CCW) they need to be appraised before they are generally applied in Scotland. This is because of Scotland's specific coastal conditions and qualities, and also because offshore windfarms are new to our shores. Our knowledge of their likely impacts is limited under Scottish conditions. As noted above, we are

currently reviewing all available guidance on this matter and we hope to draw up a list of recommendations for seascape, landscape and visual impact assessment (SLVIA) in Scotland.

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 SLVIA. 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.

The Landscape Character Assessments (LCAs) for Aberdeenshire, Tayside and Fife are relevant and are available from SNH's publications page. The LCAs will help to characterise the study area, but may need further consideration in respect of coastlines and seascapes. We recommend that the applicant checks relevant sections of *The Beaches of Scotland* (SNH 1969-84) which may also be helpful – it is again available from SNH publications.

Designated landscapes

Historic Scotland maintains the Inventory of Gardens and Designed Landscapes across Scotland – a range of nationally important sites which may be listed for a variety of reasons including their artistic merit, their historical importance, their rare plant collections and/or their value for wildlife. Some of these may have coastal, seaward views that are part of the reason for their listing. We recommend that these sites are considered in the LVIA for which the applicant will need to contact Historic Scotland for further advice.

Viewpoint selection and assessment

The Angus coast varies with dramatic cliffs offering high level coastal views, as well as fine beaches. Thus the coastline is frequently viewed from large-scale, elevated stretches of land and the focus of views lie along and across it. Many such views are experienced from the east coast railway line, with the journey through rolling farmland punctuated by seaward views.

There are a number of important settlements along the east coast, many with a strong fisheries heritage, such as Montrose, Arbroath, St Andrews, Anstruther. It is an accessible coastline by road (A917, A92), rail, foot and sea. The Angus and Fife coasts attract many visitors and they are important areas for recreation with sandy beaches, cliff top walks, golf links, holiday parks and wildlife-watching opportunities. While some parts of this coast can become quite busy, there are stretches which retain a sense of remoteness.

The horizontal extent of the sea is a strong compositional attribute in views from this coastline – due to the relative lack of landfall/opposing shores. This lends a special quality to the experience of 'darkness' at night, with no lights out on the sea, except for shipping. We therefore recommend that the applicant's visual assessment considers the impact of windfarm lighting requirements on this experience.

Viewpoints should be selected in consultation with Angus Council, Dundee City Council, Fife Council and SNH. Viewpoint selection should be 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.

Viewpoints should be selected in order to show:

- Areas of high landscape or scenic value; both designated and non designated;
- Representation of views from a range of distances, aspects, landscape character types and visual receptors (to enable assessment under a range of light conditions);
- Visual composition of focussed or panoramic views, simple or complex landscape pattern;
- A range of distances and a range of elevations;
- Sequential effects along specific routes;
- The full range of different types of views, for example from popular 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, individual houses in close proximity, settlements, cultural and recreational foci, and so on;
- Views of other windfarms to inform the cumulative impact assessment.

Once this full, initial list has been determined it may then be shortened, focusing on the viewpoints which best illustrate the most significant impacts, or which best aid windfarm design.

We note that the scoping report considers how significant the development's visual impact is, based on distance ranges and the sensitivities arising from a theoretical scenario (as presented in the SNH seascapes report, see reference 5 above). However, such an approach pre-determines the outcome of assessing the development's effects on the baseline (comprising seascape, landscape and visual receptors, and their sensitivities). We therefore recommend that the coastal landscape, seascape character and visual environment – the 'baseline' – be defined, and the relative sensitivities established prior to determining the significance of the development's impacts (which follows the approach set out in the GLVIA, Landscape Institute and Institute of Environmental Management and Assessment Guidelines (2002), cited in the scoping report).

Our seascapes report (see reference 5) highlights the limitations in applying significance to visibility ranges in Scottish conditions, outlining supplementary information on visibility in Scotland. We recommend that the applicant makes a specific assessment of visibility ranges in the Forth, rather than relying on generic information which may not be applicable.

Cumulative impacts

Cumulative SLVIA should be carried out with reference to the current SNH guidance on cumulative effects (2005), though please be aware that it is currently being updated. We welcome the collaborative approach that is being undertaken by the Forth and Tay Offshore Wind Developers Group (FTOWDG) on cumulative effects, as per the report '*East Coast Discussion Document – Cumulative Impacts'* (Royal Haskoning, September 2009).

We consider that the cumulative SLVIA is best undertaken collaboratively with the Forth and Tay offshore windfarm developers all working together. We continue to recommend that cumulative SLVIA is discussed at a liaison meeting with FTOWDG, and in advance of any work being commissioned. We have provided FTOWDG, with initial advice on cumulative SLVIA in a note dated 27 May 2010.

Potential mitigation

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. 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 note that the SLVIA will have links to other issues including tourism, recreation, cultural heritage, and transportation. We recommend that there is clear cross-reference in the ES between these various aspects.

Of paramount importance is for the applicant to consider, and design, their windfarm in the context of the other FTOWDG proposals. The windfarms need to relate to one another in respect of their overall configuration and with a clear relationship between each design / layout. This is a very important aspect of the cumulative SLVIA (see above), and the FTOWDG developers need to discuss it and share good practice.

aiii. Fish of Conservation Concern & Fisheries

We have reviewed Sections 5.2.2 – Fish and Shellfish Ecology, 5.2.6 – Underwater Noise and 5.3.1 – Commercial Fisheries of the applicant's scoping report and have the following comments:

Fish species to consider

Appendix E provides our advice on the migratory fish species – Atlantic salmon, sea lamprey and river lamprey – which are listed as qualifying interests of a range of freshwater Special Areas of Conservation (SACs) along the east coast. This Appendix also includes our advice on freshwater pearl mussel which are a qualifying interest of the River South Esk SAC in Angus.

Other fish species of conservation concern which should be considered under EIA are as follows:

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 behaviour.

Allis and Twaite shad which are listed on Annex II of the Habitats Directive and on the UKBAP Priority List. They 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 (ref.11) reviews the data available in relation to sea trout migration routes and behaviour.

Sparling which are included in the UK Biodiversity Action Plan Priority Species list. They are found in coastal waters and estuaries and migrate into large clean rivers to spawn. Sparling were previously known to occur in a number of Scottish rivers, including the Rivers Forth and Tay. However, they have now disappeared from almost all of these rivers, with a small number of rivers, including the Forth and Tay, being notable exceptions.

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.
In respect of the information presented in Table 5-5 of the scoping report (p49) we advise that it would be helpful to clearly label the table and to reference the data source(s).

Fishing industry liaison / consultation

In addition to the Scottish Fishermen's Federation, major fishing associations, the Association of Salmon Fishery Boards and the relevant government departments, we recommend consultation with the relevant **Inshore Fisheries Group** (IFG). IFGs are currently being established around Scotland and, while they do not function as fishermens' associations in representing fishing interests *per se*, they endeavour to comprise representation from all vessels fishing in the inshore area, including those that are not part of a major association (small independent fishers) and those that are not based locally (i.e. east coast vessels that also operate on the west coast, and vice versa). As such, they can act as a useful contact point for consultations.

We note that geo-referenced data on inshore fishing activity and catch is very limited because (a) shellfish fisheries are largely unregulated and require very little catch reporting, and (b) many of the vessels in the inshore area are <15m long so are not required to have satellite vessel monitoring systems (VMS). Therefore, consultation with the IFGs is likely to be helpful in establishing the importance of the fishery resources within an area and the likely extent of displacement of fishing activity. As part of EIA, the applicant should consider the environmental effects of displacing (and potentially concentrating) fishing effort to other areas.

Data sources & survey design for fish and shellfish

Marine Scotland Science is the primary source for information on commercial fish and shellfish in Scottish waters. They should be able to advise on the most appropriate data sources relating to spawning and nursery grounds, and whether any additional surveys are required. They should also be able to advise on appropriate survey methods and any mitigation measures.

The data used in the scoping report to present maps of spawning and nursery grounds is taken from Coull et al 1998 (see Section 5.2.2 of the report, and Figures 5-3 and 5-4). We highlight that the Defra Data Layers project will update this information and should be publicly available soon. The scoping report correctly recognises that there is temporal and spatial variation in spawning activity. We advise that the EIA could usefully attempt to identify the average peak spawning periods for various species as this may help inform potential mitigation options.

Potential impacts that need to be considered

EIA may need to consider the following impacts in respect of fish and fisheries:

Construction / decommissioning impacts: the scoping report provides very little discussion of the impacts of underwater noise on fish, especially during spawning. The EIA should consider this aspect in respect of construction and decommissioning work, based on existing knowledge.

Noise (including underwater noise and vibration) will be produced from various sources, including ships' engines, piling hammers and augering operations during the construction of turbine foundations. 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 movements and behaviour should be considered. The recent review (in draft) commissioned by SNH may be helpful: it considers the current state of knowledge with regard to the potential impacts of noise, associated with marine renewable energy, on Atlantic salmon, sea trout and European eel.

Operational noise: once the turbines are installed and operational, there is the potential for the development to generate noise over the longer term. 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. Again, the SNH draft report (ref. 13) may be helpful.

Rock armouring: as discussed in the Site-specific Impact Assessment Methodology in Section 5.2.2 of the scoping report, the ecological impact of rock armouring (or other materials around the base of turbines) should be considered. It can provide habitat for various organisms that either attach to hard surfaces or live within the gaps such structures provide. The use of rocks of a variety of sizes and irregular shapes results in greater variation in the micro-habitats that form, thus optimising the diversity of flora and fauna that such structures could support. However, the scoping report correctly states that, while likely to act as a fish aggregation device, such structures do not necessarily boost productivity (see p56).

Electromagnetic fields (EMF): some fish species, including Atlantic salmon and European eels, can use the earth's magnetic field for orientation during migrations. EIA wil need to address the potential for these (and other) species to be affected by EMFs emitted by subsea cables. The SNH draft report (ref. 13) may be helpful in this regard.

With regard to the above issues, and noise impacts in particular, we welcome the collaborative approach to **cumulative impacts** being taken by FTOWDG (the Forth and Tay Offshore Wind Developers' Group). As part of our ongoing liaison with the group, we would welcome the opportunity to comment on the proposed methodologies for cumulative impact assessment in respect of fish (see p93 of the scoping report).

aiv). Designated Sites & Species Protection

Marine Protected Areas

The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 include new powers and duties to designate Marine Protected Areas (MPAs) as part of a range of measures to manage and protect our seas for current and future generations.

Recently published guidance from Scottish Government includes a draft list of Priority Marine Features 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. The applicant should liaise with Marine Scotland over this aspect and we will seek to keep them informed as to our own input to the progress of MPAs, where this is relevant.

Natura sites

Appendix B provides advice on the legislative requirements for these sites; please see Appendix D and Appendix E respectively for advice with regard to the proposal's potential impacts on Special Protection Areas and Special Areas of Conservation.

Sites of Special Scientific Interest (SSSIs)

As discussed in the covering letter and above in section ai, the location and extent of onshore infrastructure is currently unconfirmed. There may be SSSIs that will require consideration in this regard, but we cannot yet be definitive. We note that further information on SSSIs is available from our website with information on particular sites being available on our Sitelink.

av). Cumulative Impacts

We welcome the collaborative work between the Forth and Tay Offshore Windfarm developers which is being fostered by Crown Estate via the developers' group (FTOWDG). Please see our response letters of 26 October 2009 and 11 December 2009 for our comments on the '*East Coast Discussion Document - Cumulative Impacts'* (Royal Haskoning, September 2009) and associated bird reports produced on behalf of FTOWDG.

We are keen to maintain dialogue with FTWODG over cumulative impacts – in relation to the following interests in particular (and see each named section for further discussion):

Section aii – Landscape & Visual Amenity – we include a paragraph on potential cumulative landscape and visual effects.

Section aiii – Fish of Conservation Concern & Fisheries – we include a paragraph on potential cumulative impacts.

Section bi – Benthic Ecology – we recognise that impacts from the Inch Cape proposal alone on benthic ecology are unlikely to be significant, but note that cumulative impacts could be a concern.

Section bii – Ornithology – we highlight that cumulative impacts to SPA bird species will need to be considered.

Section biii – Marine Mammals – we indicate the value in co-ordinating various pieces of proposed survey work between developers, as well as co-ordinating any necessary licence applications, to more effectively address marine mammal impact assessment.

ADVICE IN RESPECT OF OFFSHORE ELEMENTS

We provide our advice below relating to the potential impacts from the offshore elements of windfarm infrastructure on various natural heritage interests:

bi. Benthic Ecology
bii. Ornithology
biii. Marine Mammals
biv. Hydrodynamic processes & Coastal geomorphology

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bi. Benthic Ecology

Studies, methods and assessment

We consider that the applicant's proposed surveys for benthic ecology are adequate, although we would wish to see more detail on their finalised methodologies prior to work starting. We advise that they should check for BAP habitats and species, and/or Marine Priority Features during survey work as well as any Annex I habitats. We also note that they may find it helpful to undertake 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 (SNH and JNCC) and Marine Scotland with a summary, or report, of their geophysical survey data prior to commencement of their geotechnical surveys. In respect of survey work where dynamic positioning vessels may be used, there has been a recent report issued by the Sea Mammal Research Unit investigating instances of injury to marine mammals (seals). Consideration should be given to this aspect where dynamic positioning vessels are sued during survey work.

We recommend that the ES presents clear information on, and identification of, the main biotopes found on-site. The biotopes/habitat map should be used by the applicant to inform their finalised windfarm layout, taking account of likely impacts from scour protection on benthic ecology. Scour protection will need to be considered as part of the selection process for turbines / foundation choice (see Section 2.5.3) and in respect of potential impacts to benthic ecology. The latter aspect requires more explicit consideration than that currently presented in Section 5.2.1.

We welcome the proposed collaborative approach to the assessment of cumulative impacts on benthic ecology which is outlined in Section 5.2.1 (p47 of the scoping report). We will maintain ongoing liaison with FTOWDG and hope to further discuss their proposals in this regard.

Cable landfall

We would support a co-ordinated approach between developers on this aspect, and hope that it will be addressed in the further reports being commissioned by FTOWDG on cumulative impacts. We recommend that expert advice is obtained from an experienced coastal geomorphologist at the earliest opportunity (please see section **bv** for our more detailed comment).

bii. Ornithology

As well as the comments we make below with regard to EIA, we provide further advice on Habitats Regulations Appraisal (HRA) in the accompanying appendices. In Appendix B we provide overall advice on the legislation applying to Special Protection Areas (SPA) and that underpins HRA, and in Appendix D we provide tailored advice addressing the potential

impacts of the proposed Inch Cape windfarm on SPA bird species which may be affected by this development.

In Appendix D, we are only able to provide advice on HRA in respect of existing SPAs. We note that there is work underway across the UK to designate marine SPAs. This is to ensure a comprehensive network of SPAs across Europe, which will provide protection for all bird species across their life cycle stages. Further information on this programme of work, and on the four types of marine SPAs which will be designated, is provided on JNCC's website.

The Firth of Forth supports nationally and internationally important bird species, and it is included as an area of search for various marine SPAs. The extensions to existing seabird SPAs – including the Firth of Forth SPA and the Forth Islands SPA – are one of the types of marine SPAs being designated. While this designation has now concluded for a range of seabirds – common guillemot, razorbill, Atlantic puffin, northern gannet and northern fulmar – there is ongoing work in respect of breeding terns.

The other two key types of marine SPAs will be designated for:

- Inshore aggregations of non-breeding waterbirds; and
- Offshore aggregations of seabirds.

In respect of the former interest, please refer to JNCC report no. 402 which analyses data from surveys of inshore waterbirds outside the breeding season. The Firth of Forth is one of the areas of search for which data is being collated. It is important to emphasise that this report is solely a collation and analysis of the available data in order to inform the process of designation, which is at a very early stage. Further assessment will be required before any final recommendations are made for the proposed list of sites that Scottish Government will submit to the European Commission for their consideration.

JNCC report no 431 will address the latter interest – offshore aggregations of seabirds – collating and analysing the available data. The Firth of Forth is an area of search in respect of these interests as well, therefore the above provisos apply with regard to this report and how it relates to the designation process.

Bird species to consider

With reference to the comments in the introduction to section 5.2.4 of the scoping report (p67-68), we recommend that the region to be considered should be based upon the known foraging range of species that are likely to occur around the proposed development site. And please see Appendix D for further discussion of SPA qualifying interests.

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). The sensitivity ratings have been based on seabirds occurring in the southern portion of the North Sea and may not be directly comparable to UK populations. Although many of the species that occur in each area will be the same, it is important to consider the differences between their breeding and wintering behaviours.

Bird behaviour can be dependent on the season / lifecycle stage and there may be differences in sensitivity to windfarm development dependent on whether the breeding or wintering population is being considered. We highlight that the breeding seabird populations found on the east coast of Scotland are likely to have a differing sensitivity to offshore windfarm development compared to the wintering populations that occur in the southern North Sea (even if some of the species are the same).

We recognise the importance of this issue and of reviewing and updating the available information on seabird sensitivities so that it is relevant to UK waters. We emphasise that this will require collaboration between ourselves (JNCC and SNH), other nature conservation agencies and other seabird experts (including the RSPB).

Survey methods

We make the following recommendations in respect of the applicant's proposed bird survey work as discussed in Section 5.2.4 of the scoping report.

General comments

We would welcome further details on how the applicant proposes to integrate the datasets obtained from boat-based and aerial survey work. This issue may best be discussed as part of a review of the first year of survey work (and see also our comments made under 'Analysis' below).

Boat-based survey work

As set out in Camphuysen et. al. (2004) and Maclean et. al. (2009) we recommend a minimum of three bird surveyors who are suitably trained and experienced (at least one ESAS trained observer with at least 50 hours, preferably more, of survey experience). We recommend that observers are rotated at regular, predefined intervals in order to prevent fatigue.

As recommended in the guidance, it is very important for one of the observers to be forward-scanning – surveying ahead of the ship – during each survey. If distance survey methods are to be employed then it is important that the assumption of 100% detectability at 0m from the transect is met (as closely as possible). Failing to meet this assumption can result in significant errors in density estimates.

It is also important to note that bird observers should not alert marine mammal observers to animals detected until they pass beam and vice versa. Animals detected by another observer after it has passed beam should be noted as being missed by the primary observer. This is to prevent variable detectability during surveys that may have an influence on the detectability function used to estimate density using distance software.

In addition, we strongly recommend that bird surveyors are not used as marine mammal observers. The two roles require different skills and mixing these roles can result in serious methodological problems, particularly with detectability functions used to estimate animal densities using distance software.

As recommended in the above guidance, survey work should record bird behaviour (for example, foraging, roosting, moulting, preening) and observations should be collected in perpendicular distance bands (which provides robust data to estimate bird densities while compensating for detectability). We also recommend following the procedure outlined in Camphuysen et. al. (2004) for snapshot counts of flying birds. It is also considered acceptable to use the adjustment recommended by Maclean et. al. (2009) to use a GPS to measure the actual distance between snapshot counts rather than using time as a proxy for this.

We welcome the applicant's proposals to collect oceanographic data during boat-based seabird surveys as this may allow some interpretation of the bird data collected (see further discussion in the 'Analysis' section below). We also note that it will be important to collect flight height information for the seabirds observed as this will be used in any collision risk modelling that is required. We note, however, that the information collected by boat-based survey work does not address migratory species and / or bird movements at night.

We recommend that the applicant undertakes an early analysis of their seabird survey data in order to check whether their current survey protocol (intensity and duration) is likely to provide sufficient data to answer the questions being posed by the proposed baseline survey (and see further discussion under the 'Analysis' section below).

Analysis

We strongly recommend that the data collection (i.e. survey methodologies) is driven by the data analysis techniques needed to answer the questions being posed (i.e. how many birds, which species, where and why are they using the site?) How will the baseline survey data be analysed with future monitoring data and how will the power of these data to detect a change be assessed? Will DISTANCE software be used in analysing the survey results? If so, we recommend that staff are either experienced in its use or receive appropriate training.

Power Analysis

We advise that, at the earliest opportunity, a power analysis is conducted on the collated data from boat-based surveys. This will help determine whether the chosen survey methods and analyses will actually be able to measure any effects on bird populations. This will require consultation between the developer(s) and Marine Scotland and ourselves in order to agree the required magnitude of effect to detect (for example, % change in bird numbers). The reports below are a useful reference in respect of applying power analyses.

Habitat Modelling

Camphuysen et. al. (2005) and Maclean et. al. (2009) (see references 23 & 24 above) recommend that oceanographic and fish data is collected during boat-based seabird surveys as this may allow habitat modelling to be undertaken. Therefore we welcome the applicant's intention to collect such data. Habitat modelling may help us to better understand the reasons for bird numbers at Inch Cape – their spatial distribution and use of the site. We recommend that this issue is carefully considered; such habitat modelling could benefit from a collaborative approach by FTOWDG.

Waders and wildfowl – hard weather movements

Wader and wildfowl movements across the proposed development site will not just be associated with migration, and can also occur during winter. We recommend that the applicant undertakes an analysis of the birds' hard weather movements during average and extreme winter conditions. (In extreme winter conditions, hard weather movements become more likely / frequent.) The analysis should also try and take into account the effects of climate change, if possible.

Potential impacts to birds

We recommend that the applicant considers the following matters:

Noise disturbance

We recommend that the applicant makes a desk-based assessment of the impacts of construction noise on the prey species of seabirds. The assessment, and any mitigation, should address key periods of the birds' lifecycle: breeding, moult, wintering.

As well as potential direct disturbance to seabirds from operation and maintenance activities (as discussed below), operational noise may indirectly impact seabirds though damage / disturbance to their prey species, and we recommend that this issue is also considered.

Disturbance from windfarm operation and maintenance (O&M) activities

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.

Collision risk

We note that the Crown Estate Strategic Ornithological Support Services (SOSS) will be reviewing existing knowledge on collision risk and avoidance rates for offshore windfarms. We recommend that this work is referred to once published, as it will likely provide a peer reviewed reference.

We also recommend that an assessment is made of the potential impacts of turbine **lighting**. Lighting can attract birds (both nocturnally migrating birds and nocturnally active birds) and may therefore increase the risk of birds colliding with turbines. This matter should be considered through EIA, including possible mitigation options.

We also note that **foundation designs** with a lattice type construction exposed *above* the water may attract birds seeking to use it as a perch for roosting or maintenance behaviours. The applicant needs to be aware of this and assess potential impacts to birds. They may need to consider mitigation solutions and/or or other foundation designs.

We recommend that the applicant makes a preliminary analysis of potential collision risk to **passerines** using existing datasets from the North Sea Bird Club, East coast Bird Observatories and locally available data. They will need to consider the variability in weather conditions (and associated visibility), which may cause variability in bird flight heights. They should consider possible mitigation methods that could reduce / avoid any collision risk to passerines. This matter is probably best considered via FTOWDG (see further discussion in 'Cumulative impacts' below).

Displacement

We note that the SOSS review discussed above will be considering displacement impacts (i.e. 100% avoidance). We recommend that this work is referred to once published, as again it is likely to provide a peer reviewed reference.

Barrier effects

There are a number of references relevant to the consideration of barrier effects to birds, which we recommend referring to.

Effects of scour protection on birds

We recommend that this impact is considered: scour protection can lead to reef affects, altering benthic communities and possibly affecting sandeels. This is an important issue to consider as sandeels are a primary prey species for many seabirds on the Scottish east coast.

Cumulative impacts

We are encouraged by the continued co-operation of the Forth and Tay developers on ornithological matters via FTOWDG. We consider the potential cumulative impacts of these offshore windfarm developments to be a key concern in respect of bird interests, especially in respect of those species which are a qualifying interest of SPAs, as discussed in Appendix D.

In this regard, and as discussed in our letters of 11 December 2009 to the FTOWDG developers, we recommend that potential collision risk to the population of bean geese (*Anser fabalis fabalis*) at the Slamannan Plateau SPA is included in any impact assessment and HRA. At present the migratory route of this population is unknown but there have been anecdotal accounts of bean geese migrating along the Forth estuary.

Also, as recognised in Table 5-7 of the scoping report (p72), we have also recommended including the Svalbard population of barnacle geese (*Branta leucopsis*) who overwinter at the Upper Solway Flats and Marshes SPA, and whose migratory flights take them over, or close to, the proposed development site. The applicant, and FATWDOG as a group, should consider how they will address these SPA interests. WWT are currently undertaking research to track barnacle geese and may be able to provide further information.

biii. Marine Mammals

Please see Appendix B for the detail of the legislative requirements that apply to SAC interests, and Appendix C for those relating to cetaceans – whales, dolphins and porpoises – which are European Protected Species (EPS). We **highlight** that Appendix C provides correct reference to the legislation that applies to EPS in Scottish territorial waters and that the Inch Cape applicant should ensure that they are familiar with this. Appendix E provides our advice on HRA, tailored to Inch Cape, for marine mammals which are an SAC qualifying interest.

Marine mammal species to consider

We would welcome further detail on, and the reference for, the information that is presented in Figure 5-5 of the scoping report (p61).

Seals in the North Sea

The applicant should be aware that the SCOS 2009 report has now been published. We highlight the sharp fall there has been in the UK population of harbour seals, and the conservation status for harbour seals at a UK level has been assessed as 'unfavourable-inadequate'. The seals are currently vulnerable to any impacts which could lead to their further population decline or prevent their recovery – an issue that the applicant needs to consider in their EIA and HRA (and see Appendix E).

Survey methods and data analysis

We would welcome further details on the survey methods proposed for marine mammals. We recommend that a minimum of one marine mammal observer is employed for boat-based survey work, and that this observer should be dedicated to the task (see our comments in the 'Survey methods' section of **bii** – Ornithology – above). The COWRIE commissioned report – Diederichs et. al (2008) – provides further information on recommended survey methodologies.

As indicated above for benthic ecology and for birds, the applicant may find it helpful to analyse their initial survey data and review their survey methodologies in light of this. SNH would welcome the opportunity to discuss this analysis and the ways to collate data and present assessments in the ES.

Potential impacts to marine mammals

We recommend that the applicant considers the following aspects in respect of potential impacts to marine mammals:

Potential noise impacts

We welcome the collaborative working of FTOWDG in respect of noise modelling and assessment for marine mammals (as discussed on p66 of the scoping report and also see Section 5.2.6 on Underwater Noise). We alert the applicant (and FTOWDG more widely) to the work being done, as part of the Marine Strategy framework, on developing indicators of ocean noise.

The cumulative impacts arising from noise during construction is likely to be a key issue due to the proximity of development along a similar timescale, and it would be useful to discuss this in the context of the proposed construction schedule of the windfarms in the Forth. This will enable potential management of impacts through the timing of activities, if this is deemed appropriate.

We recommend that the applicant assesses noise impacts in their ES using a zoned impact map for each species (illustrating the zones for injury, PTS, TTS and displacement / disturbance). They can use these maps, combined with their baseline data in order to estimate how many individuals will be at risk from disturbance and/or injury.

Use of dynamic positioning vessels

We highlight the release of a recent report by SMRU investigating injuries to seals potentially caused by the propellers / thrusters of dynamic positioning vessels (see reference 17 above). It is too early to know how much of an issue this is but we will maintain liaison with the applicant and with FTOWDG in this regard.

Effects of scour protection and rock armouring of cables

As well as the issues noted above in respect of birds, we highlight that rock dumping for scour protection may have noise impacts that need to be considered in respect of marine mammals.

Cumulative impacts

We are encouraged by the continued co-operation of the Forth and Tay developers on issues relevant to marine mammals via FTOWDG. Appendix E presents our advice on the cumulative impacts it may be relevant to consider under HRA in respect of marine mammals which are an SAC qualifying interest.

Mitigation and monitoring

The applicant indicates that they are considering a wide range of mitigation techniques for noise impacts during construction (p67), although we would recommend that this list also includes consideration of a range of installation methods. We recommend that the applicant defines the zone of potential impacts based on noise modelling for the range of construction activities, and that their choice of mitigation follows on from defining and assessing these impacts.

The applicant doesn't discuss post-construction monitoring and it would be useful to know a bit more about what they are considering. This issue may be best addressed via the FTOWDG.

biv. Hydrodynamic Processes & Coastal Geomorphology

Physical Environment

The scoping report indicates that while FTOWDG have commissioned a report which provides a broad overview of the region, the bathymetry, sediment type and seabed features

for each site requires more focused study and survey work. We consider that the proposed EIA and supporting survey work for Inch Cape, as set out in Section 5.1.5 of the scoping report (p33 – p37), should provide an adequate understanding of the existing conditions on this site, and the windfarm's potential impacts on this baseline.

Cumulative Impacts

We would welcome further dialogue with FTOWDG with regard to potential cumulative impacts on the physical environment.

Cabling

We advise that for cable routes and cable landings, an experienced coastal geomorphologist is employed to assess the various options at multiple scales from the macro (regional) level down to detailed micro-siting. It is important that the route of the cable through the 'wave base' (the region where waves actively affect the seabed – from the shoreline to about 15m water depth) is carefully chosen, as is the landing point itself. Considered appropriately, the geomorphology of an area can often be used as protection for a cable. The applicant should consider the full lifespan required for the cable landfall and make sure that coastal erosion, slope failure, flooding and other climate change considerations have been accounted for in a robust future-proofed design.

We would welcome further dialogue with FTOWDG in respect of cabling and grid, and we note that it may be particularly beneficial for ICOWL (the Inch Cape applicant) to liaise with Seagreen on this matter (the applicant for the Round 3 zone). SNH can provide further advice in respect of designated sites and other natural heritage interests onshore, once we have further details on what is proposed with regard to onshore infrastructure.

ADVICE IN RESPECT OF ONSHORE ELEMENTS

We provide our advice below relating to the potential impacts from the onshore elements of windfarm infrastructure on various natural heritage interests:

ci. Habitats
cii. Ornithology
ciii. Mammals
civ. Reptiles & Amphibians
cv. Hydrology & Hydrogeology

As discussed in the covering letter, **we highlight** that project details are not yet finalised and therefore there is a lack of information regarding the onshore elements of this proposal. Once the proposal is further progressed and these details are available, then we will be able to refine and focus our general advice below.

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ci. Habitats

Habitat survey work will be required in respect of cable landfalls and grid connection routes, as well as for construction of any onshore substation and other infrastructure.

Further information on designated sites are available from SNH's sitelink. Appendix B provides an overview of the legislative requirements relating to SPAs and SACs, while further information on SSSIs can be obtained from our website.

cii. Ornithology

The location of all elements of onshore infrastructure will need to be considered in respect of potential impacts to bird species, including species which are a qualifying interest of SPAs.

ciii. Mammals

The location of all elements of onshore infrastructure will need to be considered in respect of potential impacts to mammals. Survey work will be required for any mammal species likely to occur in locations where onshore works are proposed. Appendix C provides advice on the legislation that relates to otters and bats, both of which are European protected species (EPS).

civ. Reptiles & Amphibians

The location of all elements of onshore infrastructure will need to be considered in respect of potential impacts to reptiles and amphibians.

cv. Hydrology & Hydrogeology

The applicant should contact SEPA in the first instance for advice on hydrological and hydrogeological aspects. If any freshwater SACs require consideration – which depends upon the proposed location of onshore infrastructure – then we can provide further advice.

APPENDIX B

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 Appendix C 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 SNH, 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

In this scoping response we provide tailored advice for HRA in respect of birds that are qualifying interests of SPAs, and for the various qualifying interests of freshwater and marine SACs in the area.

- Appendix D – SNH Advice on Habitats Regulations Appraisal for SPAs
- Appendix E – SNH Advice on Habitats Regulations Appraisal for SACs

In respect of this, further information on the ***qualifying interests*** and the ***conservation objectives*** for each relevant Natura site is available from SNH's Sitelink database.

For further advice on the HRA process please see SNH's website, including the leaflet on "Natura sites and the Habitats Regulations" which 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 6/1995 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.

APPENDIX C

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'.

SNH is the statutory nature conservation body who provides advice on EPS in respect of the Habitats Regulations in Scotland, including Scottish Territorial Waters. A summary of the legal requirements for EPS is as follows:

The Conservation (Natural Habitats, &c.) Regulations 1994 as amended. (Known as the 'Habitats Regulations'.)

Protection of certain wild animals

39. (1) It is an offence –

(a) deliberately or recklessly to capture, injure or kill a wild animal of a European protected species;

(b) deliberately or recklessly –

i. to harass a wild animal or group of wild animals of a European protected species;

ii. to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;

iii. to disturb such an animal while it is rearing or otherwise caring for its young;

iv. to obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place;

v. to disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs;

vi. disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; or

vii. to disturb such an animal while it is migrating or hibernating;

(c) deliberately or recklessly to take or destroy the eggs of such an animal; or

(d) to damage or destroy a breeding site or resting place of such an animal.

(2) Subject to the provisions of this Part, it is an offence to deliberately or recklessly disturb any dolphin, porpoise or whale (cetacean).

Scottish Government has also provided guidance on the 2007 amendments addressing EPS – *Explanatory guidance for species related activities.*

JNCC is the statutory nature conservation body who provides advice on EPS in the offshore zone – 12 to 200 nautical miles – where the Offshore Habitats Regulations apply. Please see their website for further advice on the legal provisions which apply under these Regulations. However, please be aware that they are currently updating their EPS guidance and are able to provide the latest draft version of '*The protection of marine European Protected Species from injury and disturbance*' on request. This sets out how to assess the

likelihood of committing an offence under the Offshore Habitats Regulations and may be a useful reference source in respect of cumulative impact assessment.

EPS Licences

Licences may be given authorising activities that could affect EPS which would otherwise be illegal under the Habitats Regulations. For Scottish Territorial Waters these licences will be issued either by Scottish Government or by SNH depending on the reason for the licence request. Licences are only issued under very strict conditions as set out in regulations 44 and 45 of the Habitats Regulations.

As highlighted in Scottish Government Interim Guidance, three tests must be satisfied before the licensing authority can issue a licence under Regulation 44(2) of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) to permit otherwise prohibited acts. An application for a licence will fail unless all of the three tests are satisfied. The three tests involve the following considerations:

- **Test 1** - The licence application must demonstrably relate to one of the purposes specified in Regulation 44(2) (as amended). For development proposals, the relevant purpose is likely to be Regulation 44(2)(e) for which Scottish Government is currently the licensing authority. This regulation states that licences may be granted by Scottish Government only for the purpose of "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment."

- **Test 2** - Regulation 44(3)(a) states that a licence may not be granted unless the licensing authority (Scottish Government) is satisfied "that there is no satisfactory alternative".

- **Test 3** - Regulation 44(3)(b) states that a licence cannot be issued unless the licensing authority (Scottish Government) is satisfied that the action proposed "will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" (The licensing authority will, however, seek the expert advice of SNH on this matter).

Consideration of European protected species must 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.

APPENDIX D

INCH CAPE: HABITATS REGULATIONS APPRAISAL – 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 the proposed Inch Cape windfarm is likely to have a significant effect on the qualifying interests of SPAs, and any possible adverse impact on site integrity – Appendix B provides more detail on the legislative framework. It is the competent authority (most likely Marine Scotland) who will carry out the HRA, based on our advice and using information and data collated by the developer.

Under HRA, the potential impacts of the proposal will need to be considered alone and in combination with other plans and projects. It will need to be considered in combination with the other offshore windfarm proposals in the Outer Firths of Forth & Tay – Neart na Gaoithe and the Forth Array in Scottish territorial waters and the Round 3 zone for development beyond 12 nautical miles. It will also need to be considered in combination with other types of industry and activity that may potentially be relevant. The scope of the HRA will need to 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.

In respect of cumulative impacts, we welcome the collaborative approach being adopted by the developers in the Forth and Tay Offshore Wind Developers Group (FTOWDG) as per their '*East Coast Discussion Document: Cumulative Impacts*'. We reference this document below, along with the advice contained in our responses of 26 October 2009 and 11 December 2009.

The HRA should become more focused over time through an iterative process – we will continue to review our advice as the developer undertakes their survey work and completes its analysis.

Special Protection Areas for inclusion in HRA

The following SPAs are those we have agreed require HRA in respect of possible cumulative impacts – as listed in Table E2 in the FTOWDG bird report, and with the addition of the Upper Solway Flats and Marshes SPA and the Slamannan Plateau SPA as recommended in our response letters of 26 October 2009 and 11 December 2009.

Buchan Ness to Collieston Coast
Coquet Island
Fala Flow
Farne Islands
Firth of Forth
Firth of Tay and Eden Estuary
Forth Islands
Fowlsheugh
Gladhouse Reservoir
Imperial Dock Lock (Leith)
Lindisfarne
Loch Leven
Loch of Skene
Montrose Basin
Muir of Dinnet
Slamannan Plateau
South Tayside Goose Roosts
St Abbs to Fast Castle
Upper Solway Flats and Marshes

Ythan Estuary, Sands of Forvie and Meikle Loch

Further information on SPAs, is available from http://www.snh.org.uk/snhi/

SNH advice for HRA in respect of SPA qualifying interests

We provide advice on the legislative requirement for HRA in Appendix B. The steps of the process are as follows; our advice is tailored to the consideration of the Inch Cape windfarm proposal.

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.

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 – such as that set out in the FTOWDG bird report, and in the scoping report for this proposal. We advise that such desk-based appraisal is kept broad so that potentially significant impacts are not missed out, or discounted too early, in any HRA (or EIA). Please see our letter of 11 December 2009 for further discussion.

The SPA bird interests being considered in respect of offshore windfarms are wide-ranging – many seabirds make long foraging trips, especially during the breeding season, and there are also migratory species to consider such as geese and swans. This means that offshore windfarm proposals may be 'connected to' SPAs at much greater distances than what has so far been experienced in respect of onshore development. Although connectivity is thus established the fact that the proposal is located further away from the designated sites means that direct impacts are less likely on qualifying species while they are within the SPA.

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, and with advice provided by the relevant nature conservation organisation; by SNH in respect of sites in Scottish territorial waters and by JNCC in respect of the Round 3 zones.

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 the Inch Cape offshore windfarm 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. In addition, there may be further issues to consider 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 offshore wind 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 marine habitats encompassed by the recent offshore extensions to the Forth Islands SPA and to the Firth of Forth SPA. These questions will also apply to any new marine SPAs that may be designated for inshore and / or offshore aggregations of seabirds – please see JNCC's website for potential areas of search, which include the Firth of Forth.

Ongoing Liaison

As noted above, we will continue to liaise with the applicant for Inch Cape (ICOWL), and with FTOWDG as a group, in respect of this HRA process. Agreeing the scope of, and information required for, HRA will be an iterative process.

APPENDIX E

INCH CAPE: 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 Inch Cape windfarm is likely to have a significant effect on the qualifying interests of SACs, and any possible adverse impact on site integrity – Appendix B provides more detail on the legislative framework. It is the competent authority (most likely Marine Scotland) who will carry out the HRA, based on our advice and using information and data collated by the developer.

Under HRA, the potential impacts of the proposal will need to be considered alone and in combination with other plans and projects. It will need to be considered in combination with the other offshore windfarm proposals in the Outer Firths of Forth & Tay – Neart na Gaoithe and the Forth Array in Scottish territorial waters and the Round 3 zone for development beyond 12 nautical miles. It will also need to be considered in combination with other types of industry and activity that may potentially be relevant. The scope of the HRA will need to 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.

In respect of cumulative impacts, we welcome the collaborative approach being adopted by the developers in the Forth and Tay Offshore Wind Developers Group (FTOWDG) as per their '*East Coast Discussion Document: Cumulative Impacts*'. We reference this document below, along with the advice contained in our response of 26 October 2009.

The HRA should become more focused over time through an iterative process – we will continue to review our advice as the developer undertakes their survey work and completes its analysis. For those SAC qualifying interests that are also European protected species (i.e. bottlenose dolphin and otter) please see Appendix C for our advice in respect of their EPS status and for EPS licensing arrangements. The advice that we give below solely relates to their consideration as an SAC qualifying interest and how the HRA process therefore applies.

Special Areas of Conservation for Inclusion in HRA

The following marine and freshwater SACs need to be considered:

- **Berwickshire & North Northumberland Coast SAC** – designated for its population of grey seals (*Halichoerus grypus*) and marine habitats including shallow inlets and bays; intertidal mudflats and sandflats; reefs and sea caves.
- **Firth of Tay & Eden Estuary SAC** – designated for its population of common, or harbour, seals (*Phoca vitulina*) and marine habitats and supporting processes including estuaries; intertidal mudflats and sandflats; and subtidal sandbanks.
- **Isle of May SAC** – designated for its population of grey seals and its marine reef habitat.
- **Moray Firth SAC** – designated for its population of bottlenose dolphins (*Tursiops truncatus*) and subtidal sandbank habitat.
- **River South Esk –** designated for its populations of Atlantic salmon (*Salmo salar*) and freshwater pearl mussel (*Margaritifera margaritifera*)

- **River Tay SAC** – designated for its populations of the following fish species – Atlantic salmon, brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*); and for otter (*Lutra lutra*) and clearwater lochs.
- **River Teith SAC** – designated for its populations of the following fish species – Atlantic salmon, brook lamprey, river lamprey and sea lamprey.

Further information on SACs is available from http://www.snh.org.uk/snhi/.

We have considered other SACs and included only those that we consider relevant i.e. where there may be connectivity between the windfarm proposal and the SAC. This consideration 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 on the development being proposed or finalised locations of all elements of infrastructure. Therefore, our advice focuses on turbine location / construction at the Inch Cape site.

In respect of the freshwater SACs listed above we note that the recent review undertaken by Marine Scotland (Malcolm et. al., in prep) summarises available information on the migratory routes and behaviour of Atlantic salmon, sea trout and European eel. The report indicates that on the east coast of Scotland, to the south of Aberdeenshire, the dominant direction of travel for Atlantic salmon is in a northerly direction. Therefore we identify that there could be connectivity between the Inch Cape proposal and the River South Esk SAC and the River Tay SAC.

Although the draft Marine Scotland report indicates that the dominant direction of travel of Atlantic salmon on the south-east coast is a northerly one, there is also some southerly movement. Furthermore, although there is some understanding of the timing of river and sea lamprey migration, there is little known about their behaviour and movements once in the marine environment. Therefore we are also including the River Teith SAC in the discussion below.

We advise that the migratory fish species of these SACs should therefore be considered – Atlantic salmon, sea lamprey and river lamprey. As Atlantic salmon are a host species for freshwater pearl mussel, there is therefore the potential for effects on this interest of the River South Esk SAC. The other interests of these freshwater SACs – otter, brook lamprey and habitat interests – and the habitat interests of Isle of May, Firth of Tay & Eden Estuary, Moray Firth and Berwickshire & North Northumberland Coast SACs do not need further consideration in respect of the offshore elements of this windfarm proposal i.e. there is no connectivity between them.

We also advise that we think it unlikely that there would be connectivity between this particular proposal and the River Tweed SAC.

The SAC interests which do require further consideration are discussed below. We can provide advice on HRA for the proposed cable route and associated onshore infrastructure when options have been progressed further.

SNH advice for HRA in respect of Special Areas of Conservation

We provide advice on the legislative requirement for HRA in Appendix B. The steps of the process are as follows; our advice is tailored to consideration of the Inch Cape proposal.

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.

<u>Step 2</u>: 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 – such as that in the FTOWDG cumulative issues discussion document.

While a desk-based review is helpful for this screening step, this part of the HRA will only be fully completed when the windfarm proposal has been further progressed – when survey work and analyses have been completed, and when the location of / construction methods for windfarm infrastructure, including onshore elements, has been finalised.

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.

However, we are not yet in a position to present a definite conclusion for this step, so we provide a **summary of our current advice** in respect of the qualifying interests of each SAC:

- **Common (Harbour) seals** of the Firth of Tay and Eden Estuary SAC.

  The Inch Cape proposal is within the foraging range of common (harbour) seals of the Firth of Tay and Eden Estuary SAC. The seals are not confined within the SAC itself, but will range more widely in the waters of the Firth of Forth and Tay. Construction (and other) noise arising from the windfarm proposal is likely to extend beyond the boundaries of the site 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.

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

- **Grey seals** of the Isle of May and the Berwickshire and North Northumberland Coast SACs.

  Grey seals have a wide foraging range (100+km) from their haul out sites and it is possible that individuals from the Isle of May and the Berwickshire and North Northumberland Coast SACs may at times be found within, or in proximity, to the proposedwindfarm site. As for common (harbour) seals, boat movements, cable-laying and other construction activity may also give rise to the disturbance of grey seals. And there may be impacts to their prey species – 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 grey seals and we discuss below (under step 3) the issues that we think need to be considered.

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

- **Bottlenose dolphin** of the Moray Firth SAC.

  Although the proposed Inch Cape windfarm is located over 200km from this SAC, it is well-established that bottlenose dolphins are wide-ranging and may be found in the waters of the Firths of Forth and Tay – therefore, construction activity, construction noise and noise from other activities in the windfarm site may overlap with dolphin use of the surrounding environment. As above for seal species, we consider that disturbance to dolphins may arise from boat movements, cable-laying and other construction activity. And there may be impacts to their prey species – either from the placement of infrastructure or due to noise.

  There is, therefore, potential for the proposal to have likely significant effects on bottlenose dolphin and we discuss below (under step 3) the issues that we think need to be considered.

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

- **Atlantic salmon and lamprey species** of the Rivers Tay, Teith and South Esk SACs.

  As discussed above, we have listed SACs at some distance to the proposed windfarm site because of the current uncertainty about the migratory movements of Atlantic salmon. In respect of the latter, 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 of 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 (unknown) migratory routes.

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

- **Freshwater pearl mussels** of the River South Esk SAC

  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 any appropriate assessment we do not identify any survey or research requirements. The impacts are indirect, dependent on the impacts the proposal may have on Atlantic salmon.

  Summary of our current advice: likely significant effect, so 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).

<u>Step 3</u>: 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, and with advice provided by the relevant nature conservation organisation; by SNH in respect of sites in Scottish territorial waters and by JNCC in respect of Round 3 zones.

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. SNH's Sitelink provides details on the conservation objectives for each

SAC. Based on these objectives, we discuss key questions relevant to each interest, to determine overall whether it can be ascertained that the proposal will not adversely affect the integrity of any of these SACs.

We highlight that noise impact assessment may be an important element of the HRA process in respect of grey seals, common seals, bottlenose dolphins and fish of conservation concern. HRA will address the impacts of noise in the context of the conservation objectives for each SAC qualifying species.

We note that our advice on appropriate assessment for the Inch Cape proposal will become clearer when the development process is further advanced – 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. In the meantime, please find our current advice overleaf – this draws attention to the key issues for each SAC interest that appropriate assessment may need to address.

Firth of Tay and Eden Estuary SAC: advice on common (harbour) seals

The **conservation objectives** for common seals are: **(i)** to avoid deterioration of their habitat or **(ii)** significant disturbance to them, 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 the common seals that the following are maintained in the long term:

(iii) Population of common seals as a viable component of the site.

(iv) Distribution of common seals within site.

(v) Distribution and extent of habitats supporting common seals.

(vi) Structure, function and supporting processes of habitats supporting common seals.

repeat of (ii) No significant disturbance of common seals.

Based on these conservation objectives the following questions need to be addressed in appropriate assessment of potential impacts of the proposal on the common (harbour) seal population of the Firth of Tay and Eden Estuary SAC:

- Will the proposal cause any deterioration in the SAC habitats which support common seals?
- Will it affect the extent or distribution of these habitats within 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 common seals 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 common seals while they are outwith the SAC such that the viability of this SAC population is affected?
- Will the proposal affect the viability of the SAC population of common seals in any way?

We advise that noise impact assessment is likely to be an important part of assessing any direct disturbance to common (harbour) seals, 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.

The last question encompasses any direct impacts to common (harbour) seals, for example significant disturbance. It also addresses indirect impacts such as the degradation or loss of supporting habitats which are outwith the SAC but which help to maintain the population of common (harbour) seals 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 and other aspects are finalised.

Isle of May and Berwickshire & North Northumberland Coast SACs: advice on grey seals

The conservation objectives for the grey seal populations of these SACs are the same as those we have listed above for common (harbour) seals. Those requiring consideration – objectives **(iii)** and **(ii)** – are as discussed in the previous section on the Firth of Tay & Eden Estuary SAC.

Moray Firth SAC: advice on bottlenose dolphins

The conservation objectives for bottlenose dolphins at the Moray Firth SAC incorporate an important restorative element to ensure that the population of bottlenose dolphin as a viable component of the SAC is established then maintained in the long term. This objective again applies to direct and indirect impacts to bottlenose dolphin while they are outwith the Moray Firth, and it encompasses consideration of significant disturbance in the context of population viability.

Rivers Tay, Teith and South Esk SACs: advice on Atlantic salmon, lamprey species and freshwater pearl mussel.

The SAC conservation objectives for Atlantic salmon, lamprey species 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

For Atlantic salmon, appropriate assessment will focus on conservation objective **(iii)** – population viability – considered across the range of SACs as it may not be possible to determine the 'home' river of any individual fish (post smolts and adults) which may be recorded at the Inch Cape windfarm site.

In respect of offshore infrastructure, the main potential impacts to Atlantic salmon would arise when the fish are outwith the freshwater SACs. An adverse impact could arise if individuals are significantly disturbed / displaced from their migratory routes such that it affects the population viability of the species. The applicant may also need to consider whether the proposal could in any way act as a barrier to salmon movements.

For lamprey species, conservation objective **(iii)** is also key as the main potential impacts to lamprey would also arise when the fish are outwith the freshwater SACs.

For both Atlantic salmon and lamprey species, 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 the collaborative working by FTOWDG on noise impact assessment is likely to be helpful, along with discussion / co-ordination of mitigation proposals and construction time-tabling.

As discussed above, ICOWL (the developer for Inch Cape) will 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.

Ongoing Liaison

As noted above, we will continue to liaise with ICOWL, and with FTOWDG as a group, in respect of this HRA process. Agreeing the scope of, and information required for, HRA will be an iterative process.

SEPA

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. As the current scoping opinion only covers the components of the wind farm located beyond the 3 natuical mile limit we have no comments to make on the content of the ES. There is no need to consult us on the ES for this component of the windfarm either as it falls outwith our remit. Our main concern relates to the onshore components of the works along with those offshore works within the 3 nautical mile limit.

Marine Scotland

Recently, offshore wind has focussed on large scale wind farm 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.

2.5 Proposed Scheme

The Section 36 consent application is anticipated in Q3 2012 and a phased installation process will begin in 2015 with the operational wind farm completed 2019. Once more finalised information becomes available MS-LOT would appreciate further updates on the construction and consenting timeline. 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. We note that the developer will include indicative turbine layouts within the EIA.

Offshore Wind Farm Infrastructure

The Installation methodologies for the entire infrastructure including the inter array cabling and the scour protection must be detailed within the EIA as the Marine Licence applications require a list of deposits. The methodologies will also allow MS-LOT to assess the impacts associated with installation for the appropriate assessment.

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.

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 Inch Cape development. Within the EIA all useful sources of existing surveys and studies need to be specified.

Section 5.1.3 Metocean

We note that the baseline for the wind climate data was taken from the Met Office wave hindcast model from 'a point' located to the west of the Inch Cape site, the developer is required to give the exact location and state some of the parameters associated with the model. The 'Bellrock lighthouse" is located to the south west of

the Inch Cape site again can you provide a distance from the wind farm to the lighthouse. The mean wind speed is estimated at 8.70 m/s; the standard deviation should also be presented here. Include a reference within the climate change section to support the statement “a rise in the mean sea level and an increase in average storm intensity”.

Section 5.1.4 Sediment and Coastal Processes

Within the baseline environment “Suspended Sediment” section more detail and references are required to support the statement “Due to the seasonal nature of the frequency and intensity of storm events…”

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.

We would also like to highlight that there are papers written by ‘Greenstreet *et al’* which provide further relevant data on the physical environment of the Wee Bankie and Marr Bank areas. Salinity, temperature and sediment parameters were examined as part of a sandeel monitoring project

5.2.3 Marine Mammals

Should the proposed development be determined by SNH potential to harm European Protected Species (EPS) then MS-LOT will administer the EPS licence not SNH.

Data gaps

Due to the uncertainty over the range both (temporal and spatial) and the origin of the bottlenose dolphin seen on the coast near the Inch Cape development, MS advises that the developer should assume that the dolphins originate from the Moray Firth SAC as there is no evidence to suggest other populations using the area.

The scoping report has suggested that there is a data gap surrounding the extent to which harbour seals from the Firth of Tay and Eden Estuary SAC forage over the site during different seasons; and the potential impacts this might have on disturbance or change of habitat, MS would like understand why the data already gathered on seals can not address the impact that the development might have on seals.

Within the non-site specific data gaps, the potential for cumulative effects on species whose range encompasses other potential wind farm development sites should be assumed to accumulate linearly, unless the developer has evidence to the contrary. MS notes and agrees with bullet point 2; there is an industry need for a standard

noise protocol which could be used to provide evidence on the potential response of marine mammals to noise associated with construction. In the absence of data bullet point 3 suggests that there is a need 'to test the efficacy of mitigation measures', MS are interested to know which mitigation measures would be tested. We agree with bullet point 4 and we encourage the FTOWDG cumulative assessment approach.

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 bio-fouling can be scoped out of the assessment.

5.2.4 Ornithology

Within the Environmental impact scoping 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 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 distributions.

Figure 5.6

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 FTOWDG. 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 FTOWDG on cumulative effects, as per the report 'East Coast Discussion Document – Cumulative Impacts'. Please refer to MS comments on the discussion document. The cumulative and in combination impacts, particularly if developments in the Round 3 Zone were progressed, could be considerable and not just affect fisheries - considering the ecology of the area, its size and what will be involved in construction significant impacts may affect seabirds, sandeels and seals for example. Cumulative and in combination effects should make the link between impacts on natural fish ecology and 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 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 relevant European designated sites will be an important consideration within the EIA process. 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.

Within the cumulative and in-combination section for ornithology, it states that the design of the survey was agreed between the developers and The Crown Estate. Ultimately the regulator needs to sign off the design to ensure it is fit for the consenting process.

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*), 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 with MS-LOT.

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

Tidal currents – Charlton et al. (1975) - missing from reference list
H.R. Wallingford (1998) - missing from reference list
UKHO – United Kingdom Hydrographic Office Admiralty Chart (different numbers)
Admiralty Charts
Health & Safety Executive (2002)
British Isles and Adjacent Waters Co-Tidal and Co-Range Lines Chart (1996)
Admiralty Tide Tables (2009)

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

Marine Scotland – Compliance

With regard to the application, I have spoken to David Cumming, Master/Owner of an Anstruther based Creel vessel “Boy Gary” CY37, which has gear positioned in areas around the Bell Rock. He said that he did not go as far out as the position in question and was also not aware of any of the other Anstruther District Creelers working that far east. I am also not aware of any of our Nephrop Trawlers working grounds at this position.

I do believe that a number of Scallop Dredgers, that at times work out of East Coast ports, fish near this area, and over the past couple of months there has been a successful Squid Fishery occurring to the east of the Bell Rock. It is therefore fair to anticipate that this proposed Offshore Windfarm may impact on the movement of some of these commercial fishing boats.

It does not look like the Anstruther District fleet will be particularly affected if they maintain their current level of activity, but it looks as if vessels using Ports within the Aberdeen District are the ones more likely to be impacted upon.

RSPB

Sandeel impacts
The siting of the proposed farm within the Wee Bankie Complex raises concerns about impacts on concentrations of lesser sandeel (Ammodytes marinus) in this area. Sandeel distribution in UK waters is localised with distinct spawning aggregations resulting from the availability of the correct sandy sediment habitats, and the sedentary nature of adult sandeel. Therefore the statement in the nontechnical summary that spawning and nursery grounds of many fish species using the proposed development site “represent only a small

proportion of the overall area utilised in UK waters" is not appropriate for sandeel. Sandeel is the principle prey of many top predators including many seabird species. Sandeel recruitment, abundance and size is being altered by long term changes in North Sea sea surface temperatures and plankton communities, which in turn is affecting both breeding success and recruitment of seabirds on the east coast of Scotland. RSPB and other seabird experts must be included as stakeholders in work to characterise the fish community, and investigate possible impacts on sandeel, within the Inch Cape area.

Transboundary effects
Section 3.2 acknowledges that transboundary effects may occur some distance away from the impact source. We welcome the fact that these effects are to be assessed as part of the environmental impact assessment process and consider that potential impacts on nature conservation should also be included. Certainly, some projects may affect designated sites that are a considerable distance away and will therefore require to be subject to Habitats Regulations Appraisal. For example, there may be issues related to SPA-qualifying migratory waterfowl, either moving up and down the east coast of Britain, or across the North Sea.

Cumulative impacts
With regards to section 3.1, any onshore wind farms in the vicinity, either consented or proposed, should also be included in the assessment. We would also recommend that any major projects involving changes in land use should be considered as these could affect the feeding grounds of migratory birds, thus possibly resulting in significant impacts on survival, in addition to direct and indirect impacts attributable to wind energy development.

Study area and seabird species
Section 5.2.4 outlines the area of assessment as the coastline between Montrose and St.Abbs Head. Whilst the proposed area is a pragmatic start for seabirds/marine species, given that the full range of information is not available at this point in order to define the most appropriate boundary, it is also stated in this section that birds using the nearby Wee Bankie and Marr Bank are from colonies including the Farne Islands so it would seem appropriate to include this area in the assessment.

In addition, this boundary may be less meaningful for migratory waterfowl such as waders and geese, which may pass over the proposed wind farm sites when migrating between sites well outside the proposed study area. The study area also lacks a landward boundary: as well as waterfowl, some landbirds may migrate on lines or fronts potentially bringing them into contact with the STW east coast sites. Thus, impacts are at least theoretically possible well beyond the east coast of Scotland.

Table 5-6 (Breeding seabirds). Arctic tern is an Annex 1 species. Table 5-7 (Non-breeding birds). Herring gull is on the BoCC red list.

Designated sites
Section 5.2. should also acknowledge that the EIA process will need to take account of any Marine Protected Areas (MPAs) designated under the Marine (Scotland) Act 2010.

Aerial surveys and radar
Section 5.2.4 Proposed Survey Programme states that further aerial surveys may used to support future bird and mammal studies within the STW. We consider that further aerial surveys should be considered, particularly as the use of boat-based surveys to provide baseline data for a site of this size may prove problematic.

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.

Climate and carbon emissions

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 CO_2 which may escape from the seabed.

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 refer. The related need to establish the scale of the potential impact of the Inch Cape development is evident.

Having reviewed the SR and in particular the site in question, I can advise that I do not believe the development will have any impact upon operations associated with nearby aerodromes.

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.

• 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

NERL has no safeguarding objection.

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.

It is clear from both sets of data that there may be navigational conflicts, exacerbated by the cumulative effects of the adjacent wind farm proposals. The traffic study should therefore include all vessel types and total at least 28 days to take into account seasonal variations in traffic patterns.

A Navigational Risk Assessment will need to be submitted in accordance with MGN 371 (and 372) and the DTI/DfT/MCA Methodology for Assessing Wind farms.

Particular attention should be paid to cabling routes and burial depth for which a Burial Protection Index study should be completed and, subject to the traffic volumes, an anchor penetration study may be necessary

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

The cumulative and in combination effects require serious consideration, and particulary the adjacent Windfarm proposals and we welcome the development of the Forth of Tay Offshore Wind Developers Group

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

Given that neither the capacity nor jacket structure of the individual wind turbine generators have been decided the principles of the Rochdale envelope should be used in the EIA.

Any reference to IALA recommendations on the marking of wind farms should refere to O-139 Edition 1 December 2008 which replaced all previous versions.

The MCA Shipping Route template does not recommend the development of windfarms within a distance of 5 nautical miles from the entry/exit of a Traffic Separation Scheme (TSS)

and furthermore recommends a minimum separation of 3.5 nautical miles between turbines on opposite sides of a route.

The shipping and navigation study should include radar and manual observations in addition to AIS data to ensure vessels of less than 300gt are captured. Given the potential displacement of traffic to the east of the site full consideration of the implications to all identified marine users will need to be assessed.

The offshore human environment should also include recreational and other sport activities. Any application for safety zones will need to be carefully assessed and additionally supported by experience from the development and construction stages.

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 will be 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
Extending the wind farm in the proposal will significantly increase the exposure of vessels to these effects.

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 2.4.2 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. 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 any Navigational Risk Assessment to be in accordance with the information given at section 5.3.2 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 compliment this by gathering data regarding small craft (<15m) and leisure users at a local level, thereby enabling a more accurate Navigational Risk Assessment. We would encourage the Risk Assessment to include a workshop approach to hazard identification and mitigation.

We are aware that the Crown Estate licence allows for some movement of the area of the Inchcape Wind farm and would comment that the western boundary line of turbines should be as straight a line as practical between the northwest and south west corners to preserve navigable waters (North West corner at 56 34.662N, 002 14.929W and South West corner at

56 25.380N, 002 13.808W). The Western, Northern and Southern boundaries of the marked area should be the maximum limit of development. NLB would not object to the North east cut out section to the 12 nm limit being developed.

We would oppose any further movement to the west from the present western boundary of the site.

We would also welcome and encourage engagement with the Forth and Tay Offshore Wind Developers Group to work together to minimise the cumulative impact of site development, including Round 3 developers.

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.

This is an agreed joint response from RYA and RYA Scotland. We have already responded to similar requests from two other members of the Forth and Tay Offshore Wind Developers' Group and assume that you have been sharing information. Nevertheless I have attached a copy of the '***RYA Position Statement on Offshore Renewable Energy Developments'***. The RYA's concerns regarding recreational boating and offshore energy devices are included in this statement and we would expect these to be addressed in the planning of any marine development.

We note that the scoping report includes data from the RYA UK Coastal Atlas of Recreational Boating. As you will know, the Atlas contains maps of recreational cruising routes, racing and sailing areas as well as locations of RYA affiliated clubs, training centres and also marinas (independent) around the UK. The Atlas is freely available electronically as a PDF file and is also available in GIS format for an annual £600 licence fee from the RYA. Please note that the routes given are those most commonly used and are based on information given by local experts. Passage planning depends on the expected weather, tidal flows, whether the vessel is under sail or power, and many other individual factors. As noted in the scoping report, rather few vessels are likely to cross the area of the scheme with most passing inshore. However, this does not mean that no vessels use the area nor that there may be weather conditions in which there may be traffic of vessels, particularly under sail.

RYA Scotland, through its network of local experts, will be happy to provide any additional detailed information required for Environmental Statements.

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

Navigational safety
- Collision risk, particularly in adverse weather conditions
- Risk management and emergency response
- Marking and lighting
- Weather

Location
- Loss of cruising routes and anchorages
- Squeeze into commercial routes
- Effect on sailing and racing areas
- Cumulative effects both of other similar schemes and also other developments
- Visual intrusion and noise

End of life
- Dereliction
- Decommissioning
- Consultation

These are detailed in our position statement, referenced above and attached to this letter. We recognise that not all of these are relevant in the present case. There can also be positive benefits for marine recreation from the development of marine renewables.

Ports and Harbours

This site appears to be placed in a busy shipping channel and the NRA should fully explore the impacts associated with diversion of shipping and the economic costs resulting from such diversion in particular the cumulative and in combination effects as there are several other proposed wind farm sites in this area

The Joint Radio Company Limited

Turbine 1 at NGR: NO 97206, 28442

Turbine 2 at NGR: NO 92327, 25566

Turbine 3 at NGR: NO 85901, 25660

Turbine 4 at NGR: NO 82411, 31828

Turbine 5 at NGR: NO 82483, 36804

Turbine 6 at NGR: NO 84812, 42884

Turbine 7 at NGR: NO 89722, 44750

Turbine 8 at NGR: NO 90370, 43568

Turbine 9 at NGR: NO 89829, 31682

Turbine 10 at NGR: NO 97182, 30123

Hub Height: 107m Rotor Radius: 75m

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

The comments in this letter relate to our statutory remit for scheduled monuments and their settings, category A listed buildings and their settings, gardens and designed landscapes appearing in the Inventory and designated wreck sites (Protection of Wrecks Act 1973).

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.

The scoping comments below relate to the potential impacts of the offshore wind turbines, inter-array cabling and associated offshore infrastructure. I note that a separate scoping report shall be produced for the other offshore and onshore elements.

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. I can also confirm that there are no such designations within the immediate vicinity of the proposed wind farm search area.

I note that the scoping report identifies that there are various undesignated wrecks both within and in the vicinity of the proposed wind farm. 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 specific location of works and inter-array cabling. 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 the proposed assessment, I note that archaeological analysis of geophysical surveys 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, we note the scoping document's reference to the low potential for submerged prehistoric remains within the study area. We would encourage archaeological analysis of the geological borehole data which we understand is to be gathered for the study area. 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 as a result of the 'onshore' works 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. These include both coastal assets and assets such as the Bell rock Lighthouse (HB no. 45197). We would recommend the production of a

sample visualisation taken for the Bell rock Lighthouse (HB no. 45197) to assist the assessment of potential impacts on its setting as a result of the proposed development.

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'. I note that the proposed Firth of Forth Round 3 site is located to the east and south east of the proposed Inch Cape site. As such, a cumulative assessment should be undertaken to assess the potential impact on the setting of the Bell Rock lighthouse.

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, at this stage we would consider there is limited potential for these impacts to be significant. Notwithstanding the above advice, we would need to see the full Environmental Statement (ES) for us to give our final view on the proposed development.

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

In terms of assessing the impact of the offshore elements of the proposal on terrestrial assets, we acknowledge that the Scoping Report commits to assessing 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 180 free standing wind turbines with associated infra-structure. The turbines are expected to be between 147 and 182 metres in height from ground level to blade tip.

The principal safeguarding concerns of the MOD with respect to the development of wind turbines relate 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-application stage has identified the following concerns:

Air Traffic Control (ATC) radar

The turbines will be 37 km from, in line of sight to, and will cause unacceptable interference to the ATC radar at RAF Leuchars.

Wind turbines have been shown to have detrimental effects on the performance of MOD ATC radars. These effects 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, and in busy uncontrolled airspace radar is the only sure way to do this safely.

Maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient air traffic service, and the integrity of radar data is central to this process. The creation of "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.

Our assessment was based on 74 turbines at 163m to blade tip at the following locations:

1		NO	88834	44312
2		NO	87954	43821
3		NO	89700	43795
4		NO	87074	43330
5		NO	88820	43304
6		NO	86194	42839
7		NO	87940	42813
8		NO	89685	42788
9		NO	85314	42347
10		NO	87060	42322
11		NO	88805	42297
12		NO	84434	41856
13		NO	86179	41831
14		NO	87925	41805
15		NO	89671	41780
16		NO	85299	41340
17		NO	87045	41314
18		NO	88790	41289

19		NO	84419	40848
20		NO	86165	40823
21		NO	87910	40798
22		NO	89656	40772
23		NO	85285	40332
24		NO	87030	40306
25		NO	88776	40281
26		NO	84405	39841
27		NO	86150	39815
28		NO	87896	39790
29		NO	89641	39764
30		NO	83525	39349
31		NO	85270	39324
32		NO	87016	39299
33		NO	88761	39273
34		NO	84390	38833
35		NO	87881	38782
36		NO	89626	38757
37		NO	86135	38807
38		NO	83510	38342
39		NO	85255	38316
40		NO	87001	38291
41		NO	88746	38265
42		NO	84375	37825
43		NO	86121	37800
44		NO	87866	37774
45		NO	89612	37749
46		NO	83495	37334
47		NO	85241	37308
48		NO	86986	37283
49		NO	88732	37258
50		NO	82615	36843
51		NO	84361	36817
52		NO	86106	36792
53		NO	87852	36766
54		NO	89597	36741
55		NO	83481	36326
56		NO	85226	36301
57		NO	86972	36275
58		NO	88717	36250
59		NO	82600	35835
60		NO	84346	35809
61		NO	86091	35784
62		NO	87837	35759
63		NO	89582	35733
64		NO	83466	35318
65		NO	85211	35293
66		NO	86957	35267
67		NO	88702	35242
68		NO	84331	34802
69		NO	86077	34776

70		NO	87822	34751
71		NO	89568	34725
72		NO	82586	34827
73		NO	83451	34311
74		NO	85197	34285
75		NO	86942	34260
76		NO	88688	34234
77		NO	82571	33819
78		NO	84317	33794
79		NO	86062	33769
80		NO	87808	33743
81		NO	89553	33718
82		NO	83436	33303
83		NO	85182	33277
84		NO	86928	33252
85		NO	88672	33227
86		NO	82556	32812
87		NO	84302	32786
88		NO	86047	32761
89		NO	87793	32735
90		NO	89538	32710
91		NO	83422	32295
92		NO	85167	32270
93		NO	86913	32244
94		NO	88658	32219
95		NO	82542	31804
96		NO	84287	31778
97		NO	86033	31753
98		NO	87778	31728
99		NO	89524	31702
100		NO	83407	31287
101		NO	85153	31262
102		NO	86898	31236
103		NO	88644	31211
104		NO	90389	31186
105		NO	92135	31160
106		NO	84273	30771
107		NO	86018	30745
108		NO	87764	30720
109		NO	89509	30694
110		NO	91255	30669
111		NO	93000	30644
112		NO	83392	30279
113		NO	85138	30254
114		NO	86884	30229
115		NO	88629	30203
116		NO	90375	30178
117		NO	92120	30152
118		NO	93866	30127
119		NO	95611	30102
120		NO	84258	29763

121		NO	86003	29737
122		NO	87749	29712
123		NO	91240	29661
124		NO	92985	29636
125		NO	94731	29610
126		NO	96476	29585
127		NO	89494	29687
128		NO	85123	29246
129		NO	86869	29221
130		NO	88614	29195
131		NO	90360	29170
132		NO	92105	29145
133		NO	93851	29119
134		NO	95596	29094
135		NO	84243	28755
136		NO	85989	28730
137		NO	87734	28704
138		NO	89480	28679
139		NO	91225	28653
140		NO	92971	28628
141		NO	94716	28603
142		NO	96462	28577
143		NO	85109	28238
144		NO	86854	28213
145		NO	88600	28188
146		NO	90345	28162
147		NO	92091	28137
148		NO	93836	28111
149		NO	95582	28086
150		NO	85974	27722
151		NO	87720	27696
152		NO	89465	27671
153		NO	91211	27646
154		NO	92956	27620
155		NO	94702	27595
156		NO	85094	27231
157		NO	86840	27205
158		NO	88585	27180
159		NO	90331	27155
160		NO	92076	27129
161		NO	93822	27104
162		NO	85959	26714
163		NO	87705	26689
164		NO	89450	26663
165		NO	91196	26638
166		NO	92941	26613
167		NO	86825	26197
168		NO	88570	26172
169		NO	90316	26147
170		NO	92061	26121
171		NO	85945	25706

172		NO	87690	25681
173		NO	89436	25656
174		NO	91181	25630

If the developer is able to overcome the issues stated above, the MOD will request that all turbines be fitted with 200 candela omni-directional red lighting.
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.

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

I hope this adequately explains our position on the matter. Further information about the effects of wind turbines on MOD interests can be obtained from the following websites:

Restats: https://restats.decc.gov.uk/cms/aviation-safeguarding-maps/
RenewableUK: http://www.bwea.com/aviation/index.html.

The Chamber of Shipping

The Chamber of shipping is a trade association of ship owners and managers and represents 140 members and associate members who collectively own around 900 ships, equivalent to 24 million gross tones and accounts for 90 percent of British shipping. This response reflects the consolidated views of our members who represent diverse range of operational and shipping interests around the UK coast including Scotland.

Referring to section 5.3.2 “Commercial Navigation” in the scoping document, we appreciate the recognition and the importance of ensuring safe access to the shipping but our concern here is that the proposed location is in direct conflict with shipping traffic/movement and any suggestion to propose a windfarm in situ poses serious threat to both safety and trade.

As the preliminary investigation report suggests that the maritime traffic is very high in that area, any development would have to ensure that no direct or indirect route is blocked as a result and if that was to be the case then we would strongly oppose the proposed windfarm development. We think it is absolutely essential to ensure that a location is only developed as an offshore windfarm, if it successfully delivers in the best interest of the nation and the regional economic prosperity. Key consideration prior to even seeking to develop a location should be that the site should be well clear of existing commercial traffic to ensure safety of both the mariner and the vessel.

However, in this case we are of the opinion that the above proposed location would not only lead to disruption of existing trade but would also to increased carbon emissions for vessels wishing to trade around Scotland and therefore the whole purpose of developing an offshore renewable energy site for environmental benefit seems to be actually lost. We therefore feel that there needs to be significant amount of work that would have to be done in order to overcome some of the key obstacles.

With this in mind we like to outline the following points that would need an in depth assessment;

1) **Navigation safety** is of paramount importance when considering the development of a wind farm. We anticipate all the guidance documents are applied carefully whilst preparing the report and in consultation with the Chamber of Shipping.

2) **Traffic survey** - The traffic survey should incorporate AIS and radar data covering at least 28 days in the 12/24 months before submission (or adjusted according to MGN371), over more than one occasion.

   This will help define:

   - Distance from shipping route as identified from the AIS data (application of MCA shipping template);
   - Type of traffic using the proposed area/surrounding area;
   - Non-transit uses of the area e.g. fishing, diving, recreation;
   - Prescribed routeing schemes or precautionary areas;
   - Proximity of the site to areas used for anchorage, safe haven, port approaches and pilot boarding or landing areas;
   - Proximity of the site to offshore firing/bombing ranges and areas used for any maritime military purposes;
   - Proximity of the site to existing or proposed OREIs, offshore oil/gas platform and marine aggregate dredging, marine archaeological sites or wrecks, or other exploration/ exploitation sites;
   - Proximity of the site relative to any designated areas for the disposal of dredging spoil;
   - Proximity of the site to aids to navigation and/or Vessel Traffic Services (VTS) in or adjacent to the area and any impacts thereon;
   - Assessment of where the existing traffic could be displaced to and whether there is potential for choke points/conflicts to be created.

3) **Effects on navigation of auxiliary OREI structures**

This will assist to describe:

- The implication of tidal regimes in and around the proposed site;
- Whether current maritime traffic flows and operations in general area are affected by the depth of water;
- The set and rate of the tidal stream, at any state of the tide;
- Whether engine failure or other circumstance could cause vessels to be set into danger by the tidal stream;
- The implication of adverse weather conditions in and around the proposed site;

- Whether the site is in bad weather restricted visibility conditions could present difficulties or dangers to craft including sailing vessels.

4) **Visual navigation and collision avoidance**

An assessment should study whether:

- Structures could block or hinder the view of other vessels under way on any route;
- Structures could block or hinder the view of the coastline.

5) **Cumulative Impacts**

The potential for cumulative impacts on shipping from both multiple windfarm sites and the Round 3 would have to be carefully assessed. Impact of this new project should consider the cumulative effect of all previous or existing projects in and around the East coast of Scotland and England.

6) **Mitigation**

Developers during course of their investigation would need to provide solution and alternatives that would have minimal impact on shipping operations and safety of mariner.

Health and Safety Executive

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.

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.

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.