

THE BRIMS TIDAL ARRAY ORKNEY

Scoping Opinion (FINAL)

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**SCOPING OPINION FOR THE PROPOSED
SECTION 36 CONSENT AND ASSOCIATED MARINE LICENSE(S)
APPLICATION FOR
THE BRIMS TIDAL ARRAY ORKNEY**

1. Introduction

I refer to your letter of 23rd August 2013 requesting a scoping opinion under The Electricity Works (Environmental Impact Assessment) (Scotland) 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** within Scottish Territorial Waters 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 natural beauty, of conserving flora, fauna and geological or physiographical 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) 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 Environmental Impact Assessment (EIA) process is vital in generating an understanding of the biological and physical processes that operate in the area and those that may be impacted by the proposed tidal array. 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 collated from expert consultees selected by the Scottish Government. It provides clear advice enabling developers to address issues identified with the proposed project. The advice steers the developer as to the content required in the EIA and the ES associated with the application for section 36 consent.

Description of development

In November 2008, the crown estate opened up the Pentland Firth and Orkney waters leasing round (PFOW) to marine energy developers by inviting bids for exclusive site development rights. On the 16th march 2010, the crown estate awarded an agreement for lease (AfL) for a tidal energy array up to 200mw in capacity, located off the south coast of South Walls, to Cantick Head Tidal Development Ltd (CHTDL), a joint venture between OpenHydro site development ltd (OpenHydro) and SSE renewables (holdings) uk ltd (SSER).

In 2013 a revision was made to the boundary of the AfL area, whereby 80% of the original AfL area was relocated to the west, with the remaining 20% overlapping with the original site. as a result of this boundary change and in order to ensure a name relevant to the project location, the site name has been revised from Cantick head tidal development to Brims Tidal Array, with the joint venture partnership now called Brims Tidal Array Limited (BTAL).

The Brims Tidal Array is situated off the south coast of South Walls in Orkney.

The proposed tidal project will be a phased development consisting of phase 1 and then followed by by phase 2 to give a total output of 200 megawatts; This phasing will allow BTAL to gain experience of deploying devices in an array of reasonable scale and then evaluating its performance, both technically and environmentally before completing the full build-out.

The OpenHydro Open-Centre Turbine (OCT) is the preferred technology for this Project but alternative technology concepts are being considered.

Phase 1

This will consist of up to 60 tidal conversion units of 1 megawatt each. The scoping opinion presented is for phase one of the project.

Phase 2

Will consist of a further 140 tidal conversion units of 1 megawatt which will be subject to a separate application process. The consent application will not include the onshore substation or connection to the grid, which is the responsibility of SHE-T and will be subject to its own application. Therefore, there is no request for scoping opinion on the onshore substation as part of this report.

1.3 Project Phases

- This Scoping Report is designed to support the application for both phases of the 200MW Project with the applications submitted in two phases. Phase I consists of up to 60MW with construction expected to begin in 2019. Phase 2, planned delivery of the fully commissioned 200MW Project in 2023.

The ES should encompass associated works, (Directive 85/337/EEC) and are considered prior to Phase 1 and 2, such that any evolutionary changes after phase 1 are taken into account before implementation of Phase 2. In particular: the impact of the receptors by phase 1, any decommissioning of Phase 1 and scaling up construction to Phase 2.

3. Marine 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 2/2011: Archaeology–Planning Process and Scheduled Monument Procedures.
- PAN 50: Controlling the Environmental Effects of Surface Mineral Workings
- PAN 51: Planning, Environmental Protection and Regulation
- PAN 1/2011: 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 Orkney Islands structural plan

4. 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

5. 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.

6. Contents of the Environmental Statement

Guidance can be found in The Marine Works (Environmental Impact Assessment) Regulations 2007, Schedule 3

Format

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

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

Non Technical Summary

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

- clearly stated;
- fully described with accuracy;
- assessed for their environmental effects;
- assessed for their effectiveness;
- their implementation should be fully described;
- how commitments will be monitored; and
- if necessary, how they relate to any consents or conditions

Given that the layout and design are still developing and evolving, the exact nature of the work that is needed to inform the EIA may vary depending on the design choices. The EIA must address this uncertainty so that there is a clear explanation of the potential impact of each of the different scenarios. It should be noted that any 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 both the marine historic environment and the potential for the onshore impacts of terrestrial elements of the development. It should also 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.

Codes of practice relating to heritage and seabed development;

- JNAPC Code of Practice for seabed development
http://www.jnipc.org.uk/jnipc_brochure_may_2006.pdf
- COWRIE guidelines for offshore renewables and the historic environment
http://www.offshorewind.co.uk/Assets/archaeo_guidance.pdf
- COWRIE guidelines on cumulative assessment of offshore renewables and the historic environment
http://www.offshorewind.co.uk/Assets/cowrie_ciarch%20web.pdf
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector, January 2011
<http://www.offshorewindfarms.co.uk/Assets/Offshore%20Geotech%20Guidance%20web.pdf>
- Model Clauses for Archaeological Written Schemes of Investigation: Offshore Renewables Projects
http://www.wessexarch.co.uk/system/files/WSI%20Renewables_low%20res.pdf
- British Marine Aggregates Producers Association protocols for archaeological discoveries
<http://www.wessexarch.co.uk/files/projects/BMAPA-Protocol/BMAPA-EH-Guidance-Note-April-2003.pdf>
- Protocol for Archaeological Discoveries: Offshore Renewables Projects
http://www.wessexarch.co.uk/files/The%20Crown%20Estate_Offshore%20Renewables-PAD.pdf

National policy and advice for the historic environment is set out in:

- Scottish Planning Policy (SPP) <http://www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Policy/newSPP>
- The Scottish Historic Environment Policy (SHEP) <http://www.historic-scotland.gov.uk/shep-dec2011.pdf>
- Planning Advice Note 02/2011 Planning and Archaeology (PAN 02/2011)
<http://www.scotland.gov.uk/Resource/Doc/355385/0120020.pdf>
- <http://www.historic-scotland.gov.uk/wave-tidal-energy-guidance-nov-13.pdf>

The Scottish Minister's policies for the historic environment are set out in paragraphs 110 – 124 of SPP. Amongst other things, SPP 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. Further information on setting can be found in the following document: Managing Change in the Historic Environment <http://www.historic-scotland.gov.uk/setting-2.pdf>. Impacts on undesignated aspects of the historic environment should also be taken into account as part of any EIA.

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, Inventory gardens and designed landscapes, historic battlefields and properties in the care of Scottish Ministers can also be downloaded from Historic Scotland's Data Services website <http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2000:10:3234826639166657>.

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
- Visual intrusion and noise
- 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.

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

- Marine (Scotland) Act 2010

- 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
- Wildlife and Natural Environment (Scotland) Act 2011
- 1994 Conservation Regulations
- Conservation of Habitats and Species Regulations 2010
- Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007
- Scottish Government 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 Scottish Government 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 European Commission. 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

The Scottish Environment Protection Agency (SEPA) encourages pre-application engagement to help the development process and to minimise risk of modifications later in the application process and avoidable delays or objections.

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.

Information on energy proposals and issues that should be addressed in the ES can be found on the energy section of SEPA's website at www.sepa.org.uk/planning/energy.aspx. The webpage also contains a link to the [marine environment](#) section of SEPA's website which provides more specific guidance.

If the proposal includes both onshore and offshore components the applicant should be aware that the development may be subject to a range of different [consenting regimes](#). SEPA is the regulatory body responsible for the implementation of [The Controlled Activities Regulations \(CAR\)](#). Further information specifically in relation to the water environment and SEPA's water related regulations can be found at;

www.sepa.org.uk/water/water_publications.aspx

and

www.sepa.org.uk/water/water_regulation.aspx.

Developers are strongly advised at an early stage to consult with SEPA to identify 1) if a CAR licence is necessary and 2) clarify the extent of the information required by SEPA to assess fully any licence application.

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 Construction Industry Research and Information (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 (The Scottish Executive consultation paper, 2000) at 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 The Scottish Government website. Developers are asked to issue ES directly to consultees. Consultee address lists can be obtained from Marine Scotland. Marine Scotland also requires 5 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 IV of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 and The Marine Works (Environmental Impact Assessment) Regulations 2007 as amended The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011. Licensing information and guidance, including the specific details of the adverts to be placed in the press, can be obtained from Marine Scotland.

New requirement for Public Pre-Application Consultation

From 6 April 2014, certain activities will be subject to a public pre-application consultation requirement. Activities affected will be large projects with the potential for significant impacts on the environment, local communities and other legitimate uses of the sea. The new requirement will allow those local communities, environmental groups and other interested parties to comment on a proposed development in its early stages – before an application for a marine licence is submitted. Information on public pre-application consultation can be found at the following: <http://www.scotland.gov.uk/Resource/0043/00439649.pdf>

Gaelic Language

Where Section 36 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.

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 Scottish Governments Spatial Data Management Environment (SDME), along with appropriate metadata. The SDME is based around Oracle RDBMS and ESRI ArcSDE and all incoming data should be supplied in ESRI shape file format. The SDME also contains a metadata recording system based on the ISO template within ESRI ArcCatalog (agreed standard used by The Scottish Government); all metadata should be provided in this format.

Difficulties in Compiling Additional Information

Developers are encouraged to outline their experiences or practical difficulties encountered when collating/recording additional information supporting the application. An explanation of any necessary information not included in the 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

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 ES, in accordance with 13 (3) of the EIA Regulations, must ensure that the ES contains all of the information specified in the scoping opinion unless otherwise agreed with Marine Scotland. The consultee comments presented in this opinion are designed to offer an opportunity to consider all material issues relating to the development proposals.

Upon receipt the quality and suitability of applications, the licensing authority will use the enclosed checklist and scoping opinion in assessment of the application in the gate check process. 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 reserves 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.

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.

Signed

David J Bova

17/04/2014

Authorised by the Scottish Ministers to sign in that behalf

Enclosed - Developer Application Checklist

Annex 1

Consultee Comments Relating to The Brims Tidal Array

The following organisations provided a scoping opinion in relation to The Brims Tidal Array Orkney

Marine Scotland

Statutory Consultees

Local Authority (Orkney Islands Council)
Scottish Environmental Protection Agency (SEPA)
Scottish Natural Heritage (SNH)

Non Statutory Consultees

Association of Salmon Fishery Boards (ASFB)
British Telecom (Radio Network Protection Team)
Chamber of Shipping (COS)
Civil Aviation Authority (CAA)
Crown Estate (CE)
Health and Safety Executive (HSE)
Historic Scotland (HS)
Inshore Fisheries Group (IFG)
Joint Radio Company (JRC)
Marine Safety Forum (MSF)
Marine Scotland Compliance (MSC)
Maritime & Coastguard Agency (MCA)
Ministry of Defence (MOD)
Moray Firth Sea Trout Project (MFSTP)
NERL Safeguarding (NATS)
Northern Lighthouse Board (NLB)
Ports and Harbours (PH)
Royal Society for the Protection of Birds (RSPB)
Royal Yachting Association (RYA) Scotland
Scottish Canoe Association (SCA)
Scottish Fishermans Federation (SFF)
Scottish Fishermans Organisation (SFO)
Scottish Government Planning (SGP)
Scottish Wildlife Trust (SWT)
Surfers Against Sewage (SAS)
Transport Scotland (TS)
Whale and Dolphin Conservation Society (WDCCS)

Marine Scotland

Marine Scotland Licensing Operations Team

Marine Scotland Licensing Operations Team (MS-LOT) has reviewed the Scoping request document and has the following to offer.

MS-LOT advises and recommends that Brims Tidal Array Limited (BTAL) submit a single Environmental Statement (ES) to cover both the marine and terrestrial aspect of the Brims Tidal Array. The ES should state all licences and consents being sought. MS-LOT recommends, the ES should contain maps giving detailed information on the site layout, including details of all onshore (including improvements to public road) and offshore components. This will allow consultees and stakeholders to be fully aware of the extent of development that is proposed.

MS-LOT advises BTAL to discuss the structure and content of the ES and other relevant documents with Marine Scotland at an early stage. The following are a number of points to aid early consideration of content and is it important they are included for each topic.

- Methodology – some information to be provided on assessment methodologies.
- Baseline – description of baseline environmental position.
- Impacts/effects – assessment of effects at each stage of development.
- Cumulative and in combination impacts/effects – assessment of these effects.
- Mitigation – measures proposed.
- Residual impacts/effects – description of impacts/effects after mitigation.
- Monitoring – an indication of the proposed monitoring.

MS-LOT strongly advises BTAL to apply for planning permission through Orkney Islands Council for all onshore works under the appropriate Town and Country Planning legislation. It will be beneficial to provide in the ES as much detail as possible on the site preparation and construction works, including location and programme of works for the various build out stages. Where possible, a more detailed description of where the tidal turbines will be placed is required for the ES.

It is anticipated that in total two Marine Licences and one S36 consent will be required for the Brims Tidal Array. Only the tidal turbines, cabling to Mean High Water Spring (MHWS) mark, can be granted consent under Section 36 of The Electricity Act 1989 at this time. It is anticipated that two Marine Licences will be required – one for the generating station and one for the cable route. MS-LOT seeks clarification of the duration of the consent and licences being sought, this should be made clear in the ES.

MS-LOT recommends that BTAL apply for European Protected Species (EPS) and basking shark licenses in their application package. These may be required to allow possible disturbance to marine mammals and basking sharks during construction and operation.

MS-LOT would comment on the use of a design envelope (sometimes referred to as a Rochdale Envelope) for flexibility in both the EIA process and the final ES. It is the developers responsibility to give due consideration to what changes might be necessary and to provide details as to what might be required. If flexibility is required the developer should define either the alternatives or ranges within which parameters might fall. In the ES the various effects should be quantified and consideration given to effects on potential receptors.

The ES should clearly state the reasoning for requiring such flexibility, the criteria for selecting the "worst case scenario" and the impacts which would arise from such a scenario. Failure to give such consideration or a major change to a parameter outside those considered may invalidate the ES submitted requiring the consent process to be repeated. **MS-LOT recommends that details of the proposed design envelope are fully outlined within the ES.** It is expected that the EIA process will reduce the degree of design flexibility required and that the ES provided for consent will be further refined in a Construction Method Statement (CMS).

MS-LOT requires BTAL to submit a CMS at least three months before construction of the proposal begins. Information regarding the impacts from construction of the infrastructure and the types of machinery/equipment to be used will be required in the CMS. The CMS provided will freeze the design of the project and this will be reassessed by MS-LOT, Local Authority, SNH, NLB and MCA to ensure that parameters fall within the range granted at consent.

A comprehensive draft Environmental Management Plan (EMP) and Project Environmental Monitoring Programme (PEMP) should be sent prior to, or with the submission of, the S36 and Marine Licence application for comment by MS-LOT and SNH. The EMP and PEMP will be working documents that allow adaptive management of the site and proposed mitigation and environmental monitoring that will take place. As recommended by SNH, MS-LOT require that a Species Management Plan (SMP) for otters is included as part of the EMP. A schedule of commitments should also be included as part of the PEMP in relation to monitoring.

MS-LOT recommends that the potential impacts on marine mammals from noise are carefully assessed in the ES. Mitigation for this impact may well be required and measures to reduce the effects of noise should also be set out in the ES. MS-LOT may require that JNCC accredited Marine Mammal Observers (MMOs) are present during noisy construction activities for, particularly during potentially noisy activities such as piling.

MS-LOT, in line with SNH recommendations, advise that the potential impacts on birds from collision are carefully assessed and monitored as indicated in the Table 7.4. Summary of Potential Impacts on Birds from the Proposed Tidal Array.

Baseline data for a previous year has already been completed and is referenced, throughout section 7.1 to 7.1.8. It is possible that additional survey data may alert the regulator that further data collection is required and this is the case with Brims Tidal Array in order to ensure that detailed site characterisation takes place. To ensure surveys follow approved methodologies and are gathering useful information. An interim report is to be submitted after the further year's data which will allow MS-LOT, in consultation with stakeholders, to decide whether further surveying for bird and mammal species is required.

MS-LOT recommends that the potential impacts on marine mammals from collision as indicated in the Table 7.9 Potential Impacts are carefully assessed and monitored as part of the ES. Any collision risk modelling presented by the developer must undergo a review by Marine Science Scotland and SNH.

MS-LOT notes that the potential impacts on Migratory Fish and specifically Salmonids are not identified in table 7.14. MS LOT would advise that this omission is addressed.

MS LOT as advised by SNH that, marine mammal and basking shark survey results for the area surrounding the proposed development location should be sought from the adjacent site developer, Meygen, to inform the ES with an assessment for marine mammals and basking sharks.

As part of the Habitats Regulations Appraisal (HRA) process an Appropriate Assessment (AA) will be required for this development because it has the potential to affect site integrity and/or the qualifying features of surrounding Natura sites (SAC, designated for Grey and Harbour seals also Otters, has been identified by SNH in their comments).

MS-LOT and SNH strongly advise BTAL to submit an HRA screening report so further guidance can be provided on this iterative process. MS-LOT advise BTAL to take into account RSPB comments below when compiling the HRA screening report. As stated by SNH, more comprehensive information and assessment on Natura sites and their qualifying features is necessary to ensure the complete and appropriate suite of Natura sites/features are considered in the ES and HRA.

It is essential that this proposal is assessed alone and in combination with other plans and projects (renewable developments and other types of industry and activities). This applies not only to marine wildlife and birds but also marine navigation, shipping and location for maintenance and operations. The complete list of sites and developments to be considered cumulatively in the EIA process will be decided upon in conjunction with MS-LOT and SNH. Further discussion on cumulative effects will take place throughout the EIA process. As always cumulative and in combination effects/impacts need careful assessment. The noise, visual impacts and under keel clearance associated with construction and operation will be important impacts requiring detailed assessment within the ES.

MS-LOT require the developer to be aware of any proposed new Marine Protected Areas (MPAs) located within the proposed development area and take account of possible impacts on these within the EIA process and ES itself. The developer should note the nearest search location, as stated by Marine Scotland and SNH. This information can be found in the report to the Scottish Parliament on Progress to Identify a Scottish Network of Marine Protected Areas 2012.

As recommended by the Maritime and Coastguard Agency (MCA) a full Navigational Risk Assessment (NRA) will be required for this proposal. MS-LOT refers BTAL to the MCA's comments and advises that MGN 371, MGN 372 and the DTI/DfT/MCA Methodology for Assessing Wind Farms are used to inform the ES.

As recommended by Orkney Islands Marine Services, MS-LOT agrees that establishing an open working dialogue with them, in order to keep them fully informed with regards site selection and deployment, is essential.

MS-LOT highlights the risk of vessels introducing marine non-native species into the environment. If vessels are going to be used in this proposal at any stage, vessel protocols must be provided to ensure best practice guidance (<http://www.mardep.gov.hk/en/msnote/pdf/msin1136anx1.pdf>) is followed to reduce the risk of introducing marine non-natives into the environment. This applies to the developmental, operational and decommissioning phases of this proposal.

BTALs application for S36 consent and Marine Licence (Pre application consultation will be in place by 6th April 2014) see link <http://www.legislation.gov.uk/ssi/2013/286/made> will need to be advertised in the press, MS-LOT will send a template for advertisement to the developer nearer to the time of submission. Prior to public release, these draft press notices should be sent back to MS-LOT for review.

MS-LOT offers a gate check prior to formal submission of S36 consent applications and advises BTAL to take full advantage of this service. The gate check is not designed as an in depth evaluation of the content of an ES. It will however allow MS-LOT the confidence that minimum legislative requirements have been met prior to formal submission of the ES. This

includes consideration of all points raised by consultees. In order to aid in the gatecheck process, MS-LOT requests that BTAL provide documentation of how and where each point is considered and addressed this may take the format of a separate document although inclusion of a table within the start of each chapter of the ES would be advantageous. It should be noted that Gate Check will only take place if a final draft of the ES is submitted. This process takes up to three weeks to complete.

MS-Lot also wishes to make the following recommendation to the developer:

- That all methodologies are reviewed, after evolution of Phase 1 such that they are still fit for purpose while moving forward to monitor environmental aspect of any changes in design, maintenance, operation and at decommissioning in Phase 2 lifespan.
- That the ES encompass associated works, (Directive 85/337/EEC) and are considered prior to Phase 1 and 2, such that any evolutionary changes after phase 1 are taken into account before implementation of Phase 2. In particular: the impact of the receptors by phase 1, any decommissioning of Phase 1 and scaling up construction to Phase 2. The scoping opinion presented is for phase one of the project.
- That potential cumulative effects are identified and investigated prior to Phase 1.
- That potential cumulative effects are fully identified and investigated prior to scaling up to Phase 2, and in particular, displacement effect of final site layout on all environmental receptors as outline in the scoping report.

MS LOT notes the following subjects that require Brims project leader to provide more detailed information.

Section 2 INTRODUCTION

Reference to surface piercing structures on page 22 in Bathymetry required further explanation, with respect to purpose, position, lighting and navigation.

Section 3.3 APPROACH TO EIA

Where BTAL wishes to seek consent for a design envelope sufficiently broad to potentially include surface piercing as indicated structures on page 22. By the completion of Phase 1 MS LOT would be expect BTAL to provide a more concise design envelope going forward into phase 2 of the project.

Section 4.1 PROJECT DESCRIPTION

Can BTAL confirm with MS LOT, that no other device will be deployed other than that of OPEN HYDRO OPEN-CENTRE turbine design.

MS LOT seek further clarification on the unpinned subsea gravity base, with respect to what is the mechanism to be employed in order to anchor the subsea gravity base feet to the seabed.

MS LOT will require third party certification of the overall design and to include the subsea gravity base.

MS LOT notes the bullet points under the heading 'From an environmental perspective a number of key design features minimise the risk to the marine life.' and have the following request that BTAL present clear evidence that demonstrate

- Low levels of underwater sound production and low rotational speeds
- High degree of solidity and closed geometry, reducing the likelihood of impacts

- Open Centre which provides a passage for marine life.

Section 4.4 Overview of Technology Independent Infrastructure

4.4.2.1 Subsea Cables (Inter Array)

Can BTAL confirm that the inter array cables will be protected where safe burial depth may not be achieved? And what from will the protection comprise of?

4.4.3 Subsea Cables (Export from Array to Shore)

MS LOT advise that BTAL should protect any and all cables exported from array to shore. Where safe burial depth may not be achieved, then the mechanism for providing cable protection must be identified and reported to MS LOT.

4.4.5 Offshore Hub or Substation

MS LOT note the lack of detail on the use of both subsea hubs and surface piercing structures at this point in the project, and advise further clarification is required to be provided in the ES of what type of substation will be implemented in Phase 1.

4.5.5 Onshore Substation

The on shore substation is inextricably linked to Phase 1 of the project and should be considered in the Orkney Islands Councils planning remit. MS LOT refers the BTAL to the note issued by the EC on 'Interpretation Line suggested by the Commission as regards the application of Directive 85/337/EEC to associated/ancillary works.'

4.5.6 Access Roads

MS LOT directs BTAL to Transport Scotland's comments with respect to access roads.

4.5.7 Operation and Maintenance of Technology Independent Infrastructure

MS LOT expects that in the event of any routine and or major maintenance during the lifetime of the project to be covered in a detailed Operation and Maintenance plan. This plan should evolve as the project moves forward from phase 1 to phase 2.

4.5.8 Decommissioning Technology Independent Support Structures.

In the event of any structure being removed at decommissioning, any and all debris, after removal, remaining proud of the seabed. MS LOT expects BTAL to take the necessary action to prevent the remaining debris becoming a hazard to other marine users.

6 POSSIBLE IMPACTS ON THE HUMAN ENVIRONMENT

In order to protect occupants of nearby premises from nuisance caused by noise there will be restrictions placed on the working hours of certain construction activities and noise levels recorded at premises during construction. These will include the establishment of thresholds

that if exceeded will halt works and measures to reduce noise levels to agreed tolerances. MS-LOT requires best practice guidelines in relation to construction and operation noise to be followed at all times for this proposed development.

A Seascape, Landscape and Visual Impact Assessment (SLVIA) will be required as part of the EIA and will need to include the cumulative visual impacts of current and proposed developments in the area. Recommendations from SNH must be taken into account and attention paid to their guidelines, suggestions and viewpoints. The visual impact assessment of the proposal must be carried out in close co-operation with MS-LOT, Orkney Islands Council and SNH in particular when deciding photo-montage viewpoints. A list of viewpoints agreed with Orkney Islands Council and SNH should be submitted to MS-LOT when identified. MS-LOT encourages BTAL to carry out SLVIA in accordance with the Institute of Environmental Management and Assessment Guidelines for Landscape and Visual Impact Assessment

Socio-Economic Effects

MS LOT has provided comment via the MSS Marine Analytical Unit on the chapter 6.

1. Scoping Report (SR) seems to scope out positive socio-economic effects. It would give a more holistic picture to assess and present these.
2. The listed 'Potential Impacts' (p67-68) are useful but slightly contextual. Greater priority should be allocated and more explicit reference made, to: i) the gross direct **and** net additional employment, gross direct **and** net additional GVA. Both of these should be presented separately for the construction, O&M and decommissioning phases. They should also be reported at a range of appropriate geographic scales.
3. To assist with the above, it would be helpful to see a clear definition of the labour market catchment area.
4. Background info on the industry structure and employment structure would be useful.
5. Clear consideration and use of the concepts of additionally, displacement and leakage should also be demonstrated. Ditto regarding economic multipliers.
6. Other benefits might include: possible carbon savings; benefits to other marine users and interests; increased knowledge; clustering benefits; and energy security.
7. Fisheries impacts might include consequential impacts to processors.

7 POSSIBLE IMPACTS ON THE ECOLOGICAL ENVIRONMENT

Marine Scotland Science has reviewed the submitted scoping opinion and provided the following comments.

Comments in relation to marine mammals

The developer will need to carry out a full encounter risk assessment for marine mammals, including as a minimum harbour and grey seals, and harbour porpoise. The design of the open hydro turbine is sufficiently different from other turbines as to potentially necessitate different modelling being undertaken than that conventionally used for open bladed turbines. Marine Scotland Science would be happy to discuss such modelling with the developer prior to ES submission. It is our understanding that collision risk may be lower for this type of device, however, the evidence is not yet sufficiently compelling as to allow the development to go ahead without an estimate of collision or encounter risk.

In order to adequately assess the number of animals that may encounter and/or collide with the devices, it will be necessary for the developer to use absolute density estimates of the species of interest. This requires accounting for availability bias of marine mammals under the water and is not a straightforward task. Marine Scotland Science would encourage the developer to engage in discussions with us and SNH regarding appropriate methods for collecting such data, or for the use of other data sources.

Data other than those collected during visual surveys may be useful in the preparation of the application. For example, information on the swimming depths of marine mammals and the types of dive performed in the development area and information on use of the site at different states of the tide may reduce the uncertainty in encounter risk models and may allow for a less precautionary assessment.

The developer should be aware of the low PBR for harbour seals in the Orkney and Pentland Firth area, which any potential collisions would need to be assessed against.

Depending upon the selected methods for installation of the devices, it may be necessary to assess the impact of construction noise on marine mammals. We would consider this necessary for pile driving and potentially for drilling. Potential impacts related to fatal interactions between seals and ducted propellers on construction and maintenance vessels should be assessed in the application. An updated report on this matter is available here: <http://www.smru.st-and.ac.uk/documents/1282.pdf> and the developer should refer to the SNCB guidance note on the matter.

Marine Scotland Science is in the process of commissioning a study of the noise produced by operational tidal turbines and its potential impacts on marine mammals, which the developer may wish to refer to if it is available in a suitable time frame (anticipated Q2/Q3 2014).

Comments in relation to ornithology

In terms of ornithology our only comment would be that consideration should be given to the comments previously provided by MSS on the NRP reports on the Marwick Head project that are cited in the Brims Tidal Array Environmental Scoping Report, August 2013 as well as discussions at the meeting held on 28 February 2013.

Comments in relation to benthic ecology

The following comments on the scoping report can be addressed within the EIA process in the ES. They relate principally to the presentation of information within the assessment, rather than the scope of the assessment.

Array Scoping Report

Section 7, Impacts on Ecological Environment & Section 7.5, Subtidal Seabed Communities.

Page 219, 7.5.1 Baseline (Paragraph 2) - A map to show where the underwater transects are in relation to the development would be useful.

Page 220, 7.5.1 (Paragraph 3) - Same here, a figure showing of Foster-Smith's GIS products would be useful.

Page 225, Table 7.29 - To what does the statement "placement of test structures" refer? Are these structures turbines or something else?

Section 8.1.1.1, Geological Overview of Seabed - Could the authors supply details or references for the "publically available data sets and ROV footage" mentioned here.

Section 9.4, Anticipated Key Issues - Seabed ecology should also be included here.

Seabed Survey

What geological data set are the survey team using to assess the seabed and so inform the positioning of their ROV transects?

Will there be any attempts to collect sediments for PSA and infaunal analysis if they encounter sands and gravels?

Comments in relation to physical environment

8.1.2 Potential Impacts - One potential impact not explicitly listed in table 8.2 is the possible change in coastal process and beach morphology due to changes in tidal, and wave, dynamics.

Waves are also not mentioned in table 8.2. It is acknowledged that this is a tidal site, but it is still possible that the presence of structures may change wave propagation through the site and wave current interactions. This is likely to be small, but should at least be considered in the ES.

8.1.3 Baseline Characterisation Strategy - The use of a hydrodynamic tidal model (as proposed in table 8.3) is strongly encouraged to understand the physical processes. It is suggested that some consideration be given to also using a wave model to better understand the wave-current interactions within the site. This could be done conceptually, but a model may provide more robust results and an enhanced understanding. There should at least be research into the wave climate at the site.

The location of sediment patches within the study area and close proximity should be identified with a survey. Beaches and other potentially vulnerable receptors should be identified.

8.1.4 Impact Assessment Strategy - Table 8.4 mainly suggests using expert geological assessments (EGA) of the suspended sediment and bed morphology assessments. This may be acceptable, depending on the results of the baseline characterisation. If there are important beaches/receptors that may be changed due to changes in sediment transport forcing then some degree of modelling is recommended. There are a number of ways of doing this from a simplistic shear stress analysis (using model output) to using complex (coupled) sediment transport modules within the modelling software. A robust shear stress analysis of using sediment transport modules in an offline/decoupled mode are thought to be a good pragmatic way forward.

Models should be run to characterise the baseline conditions and then rerun with tidal energy extraction implemented within the model. A comparison should then be made between any assessments made with the model output, i.e. changes to tidal currents, wave heights and sediment concentrations should be assessed.

Comments in relation to diadromous fish

The main diadromous fish species of concern and the potential impacts of the development on these were identified in Iain Malcolm's pre-scoping response in June 2012 and they are included in 7.3.1.2 in the scoping report. They will need to be fully explored in the Environmental Statement.

The developer should consider the site location (including proximity to sensitive areas), type of device, and the design of any array in addition to construction and installation methodology. The developer should include information for the following topics:

1. Identify use / likely use of the proposed development area by diadromous fish (salmon, sea trout and eels)
 - a. Which species use or are likely to use the area? Is this for feeding or migration?
 - b. At what times of year is the area used or likely to be used?
 - c. Will salmon and sea trout be only of local origin or will significant numbers from further afield be expected to be present?
2. Identify the behaviour / likely behaviour of fish in the area
 - a. swimming depths
 - b. tendency to swim on or offshore

In relation to 1 and 2, a few years ago Marine Scotland Science carried out a review of migratory routes and behaviour for Atlantic salmon, sea trout and eels relevant to Scotland, which may be useful. <http://www.scotland.gov.uk/Resource/Doc/295194/0111162.pdf>. If there are insufficient site specific data, the developer will need to consider whether these can be obtained, possibly as part of collaborative initiatives and / or whether expert judgement based on published information can be used.

3. Assess the potential impacts of deployed devices on diadromous fish during deployment, operation and decommissioning phases. Potential impacts could include those resulting from:
 - a. Strike. This is a very important consideration which will require detailed assessment. The risk may depend partly on the details of the turbine design and operation.
 - b. EMF associated with the operation of generators and inter-array and export cables.
 - c. Noise during construction, operation and decommissioning
 - d. Effects on habitat
 - e. Effects of construction on water quality

Which could cause

4.
 - a. Death, injury or disturbance
 - b. Disorientation that could potentially affect behaviour, susceptibility to predation or by-catch, or ability to locate normal feeding grounds or river of origin
 - c. Avoidance
 - d. Delayed migration

For example

With respect to impacts of noise and EMF SNH commissioned a review of the potential impacts of EMF and noise on migratory fish which is available at: www.snh.org.uk/pdfs/publications/commissioned_reports/401.pdf which may be useful. We would also draw the attention of the developer to Gill A. B., Bartlett M. and Thomsen F. (2012) Potential interactions between diadromous fishes of U.K. conservation importance and the electromagnetic fields and subsea noise from marine renewable energy. *Journal of Fish Biology* 81, 664–695 doi:10.1111/j.1095-8649.2012.03374.x, with Corrigendum in *Journal of Fish Biology* (2012) 81, 1791 doi:10.1111/j.1095-8649.2012.03450.x, available online at www.wileyonlinelibrary.com

5. The developer will need to pull 1-4 together with any other relevant available information to determine likely risk and consider

- a) Both direct and indirect effects.
- b) Likely impact on diadromous fish fisheries. The developer should both whether there are any local fisheries which may be directly affected and impacts on more distant fisheries which would be affected through impacts say on numbers of fish.
- c) Mitigation measures and what monitoring is required to assess impacts either on stocks of diadromous fish as a whole, or on particular rivers as necessary. This is a relatively large development and consideration of appropriate staging within Phase 1 of the development would be useful so that later so that later stages can be risk assessed with the benefit of additional information prior to any approval.
- d) The potential for cumulative impacts both from other local deployments and those further afield.
- e) In the case of Atlantic salmon information will be required to assess whether there is likely to be any significant effect of developments on any rivers which are classified as Special Areas of Conservation (SACs) 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 a Habitats Regulations Appraisal (HRA) including Appropriate Assessment as necessary (see comments on Appendix B of the scoping report below).

Chapter 9 considers cumulative and in-combination effects. There is both a clear need to consider fully the combined impact of the proposed development along with other proposed tidal developments in the same area of Scotland and consider more widely in combination effects with various other types of development which could be much further from the development site.

Chapter 12 gives summary conclusions regarding what is required in the ES. Although consideration of strike in relation to migratory fish is mentioned, this is a major consideration and may require more emphasis.

Appendix A lists what stakeholders have to date been contacted and whether responses were received. It is disappointing no response was received from the Association of Salmon Fishery Boards (ASFB). Although the Orkney District has no Board in place, as well as potentially having its own useful comment, the ASFB should be able to advise which of the mainland Boards should be consulted. We didn't notice the Rivers and Fisheries Trusts of Scotland (RAFTS) on the list as having been contacted, despite Iain Malcolm's request that it should be. Again, as well as potentially having its own useful comment, it should be able to advise which Fisheries Trusts should be consulted. It is good that the Orkney Trout Fishing Association was contacted, but again disappointing that no response was received. It has a significant interest in, and knowledge about, Orkney sea trout.

Appendix B gives the developer's view on Habitats Regulations Appraisal. Regarding salmon SACs, a wide potential for connectivity is noted (3.2.2-3.2.4 / Table 7) and all SACs from the Little Gruinard and Langavat around the coast to the River Dee are identified for consideration. Adult salmon returning to any of the Scottish east coast rivers, and not just those south to the River Dee would be likely to pass in the vicinity of this development. We would therefore suggest that the other Scottish east coast salmon SACs are added to this list – South Esk, Tay, Teith and Tweed.

We would be happy to be contacted at any stage in the process by any of the parties involved.

Comments in relation to sandeel and herring spawning ground survey

In the scoping document there is mention of undertaking herring/sandeel spawning ground surveys yet there is no detail as to what data will be collected, how the data will be analysed etc? As there are recognised methods available for undertaking such surveys it should have been possible for these to be referred to in the scoping report and more detail provided on how the sampling/analysis will be done.

Comments in relation to fish and shellfish ecology

We have reviewed the submitted documents and note that the developer has identified the main issues for commercial fisheries and have used the most up to date information available (e.g. SCOTMAP and local fishermen). We would recommend that this engagement with the fishing industry is maintained as suggested in the scoping report.

In terms of fish and shellfish ecology, again the developer has picked up the likely significant effects. In the absence of dedicated fish surveys we would recommend some analysis of the habitat maps to determine suitable areas of sediment for both herring and sandeels and for this analysis to be ground truthed with some of the underwater TV work/sediment analysis where possible. It should also be noted that it is possible that the landings figures for monk may be skewed in earlier figures as the ICES rectangles either side of the 4 degree line were notorious for alleged misreporting of fish, of which monk constituted the largest proportion

Marine Scotland Compliance

Kirkwall FO:

With respect to the Brims Tidal Array, 003/TIDE/SSERCH1-6; Any fisheries concerns would be covered by Fiona Matheson, Secretary, OFA.

Navigational warnings should be issued in the appropriate manner and the device should remain within the co-ordinates designated for the site, in order to prevent any navigational or fisheries issues.

Marine Scotland Science Advice

Marine Scotland Science has reviewed the submitted scoping opinion and provided the following comments.

Comments in relation to marine mammals

The developer will need to carry out a full encounter risk assessment for marine mammals, including as a minimum harbour and grey seals, and harbour porpoise. The design of the open hydro turbine is sufficiently different from other turbines as to potentially necessitate different modelling being undertaken than that conventionally used for open bladed turbines. Marine Scotland Science would be happy to discuss such modelling with the developer prior to ES submission. It is our understanding that collision risk may be lower for this type of device, however, the evidence is not yet sufficiently compelling as to allow the development to go ahead without an estimate of collision or encounter risk.

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Models should be run to characterise the baseline conditions and then rerun with tidal energy extraction implemented within the model. A comparison should then be made between any assessments made with the model output, i.e. changes to tidal currents, wave heights and sediment concentrations should be assessed.

13 Scoping Questions

Q11. Are the studies proposed for assessment of effects on the physical environment appropriate and complete for a) the preferred technology and b) the alternative technologies?

A11. The proposed methodology in section 8.1, with the suggested amendments above, is considered to be robust enough to cover most horizontal axis tidal turbines. It is noted however that sediment and water quality is proposed to be scoped out in section 8.3. Whilst section 8.3 is not reviewed in full here, this scoping out may not be appropriate for other technologies, such as ones requiring oil based lubrication.

Comments in relation to diadromous fish

The main diadromous fish species of concern and the potential impacts of the development on these were identified in Iain Malcolm's pre-scoping response in June 2012 and they are included in 7.3.1.2 in the scoping report. They will need to be fully explored in the Environmental Statement.

The developer should consider the site location (including proximity to sensitive areas), type of device, and the design of any array in addition to construction and installation methodology. The developer should include information for the following topics:

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For example

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- d. The potential for cumulative impacts both from other local deployments and those further afield
- e. In the case of Atlantic salmon information will be required to assess whether there is likely to be any significant effect of developments on any rivers which are classified as Special Areas of Conservation (SACs) 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 a Habitats Regulations Appraisal (HRA) including Appropriate Assessment as necessary (see comments on Appendix B of the scoping report below).

Chapter 9 considers cumulative and in-combination effects. There is both a clear need to consider fully the combined impact of the proposed development along with other proposed tidal developments in the same area of Scotland and consider more widely in combination

effects with various other types of development which could be much further from the development site.

Chapter 12 gives summary conclusions regarding what is required in the ES. Although consideration of strike in relation to migratory fish is mentioned, this is a major consideration and may require more emphasis.

Appendix A lists what stakeholders have to date been contacted and whether responses were received. It is disappointing no response was received from the Association of Salmon Fishery Boards (ASFB). Although the Orkney District has no Board in place, as well as potentially having its own useful comment, the ASFB should be able to advise which of the mainland Boards should be consulted. We didn't notice the Rivers and Fisheries Trusts of Scotland (RAFTS) on the list as having been contacted, despite Iain Malcolm's request that it should be. Again, as well as potentially having its own useful comment, it should be able to advise which Fisheries Trusts should be consulted. It is good that the Orkney Trout Fishing Association was contacted, but again disappointing that no response was received. It has a significant interest in, and knowledge about, Orkney sea trout.

Appendix B gives the developer's view on Habitats Regulations Appraisal. Regarding salmon SACs, a wide potential for connectivity is noted (3.2.2-3.2.4 / Table 7) and all SACs from the Little Gruinard and Langavat around the coast to the River Dee are identified for consideration. Adult salmon returning to any of the Scottish east coast rivers, and not just those south to the River Dee would be likely to pass in the vicinity of this development. We would therefore suggest that the other Scottish east coast salmon SACs are added to this list – South Esk, Tay, Teith and Tweed.

We would be happy to be contacted at any stage in the process by any of the parties involved.

Comments in relation to sandeel and herring spawning ground survey

In the scoping document there is mention of undertaking herring/sandeel spawning ground surveys yet there is no detail as to what data will be collected, how the data will be analysed etc? As there are recognised methods available for undertaking such surveys it should have been possible for these to be referred to in the scoping report and more detail provided on how the sampling/analysis will be done.

Comments in relation to fish and shellfish ecology

We have reviewed the submitted documents and note that the developer has identified the main issues for commercial fisheries and have used the most up to date information available (e.g. SCOTMAP and local fishermen). We would recommend that this engagement with the fishing industry is maintained as suggested in the scoping report.

In terms of fish and shellfish ecology, again the developer has picked up the likely significant effects. In the absence of dedicated fish surveys we would recommend some analysis of the habitat maps to determine suitable areas of sediment for both herring and sandeels and for this analysis to be ground truthed with some of the underwater TV work/sediment analysis where possible. It should also be noted that it is possible that the landings figures for monk may be skewed in earlier figures as the ICES rectangles either side of the 4 degree line were notorious for alleged misreporting of fish, of which monk constituted the largest proportion.

Local Authority

Orkney Islands Council

The scoping response has been separated into 3 sections:

- Section 1 – Sets out Structure Plan policies, Development plan policies, Supplementary guidance and Marine spatial Plan to be considered in preparation of EIA
- Section 2 – Sets out the issues to be considered under each of the environmental considerations
- Section 3 – Sets out the details required under development criteria and considerations

SECTION 1

Orkney Islands Council as Planning Authority provide the following information to advise on the important matters and issue which require to be assessed along with the relevant policy considerations that require to be taken account of in the preparation of the EIA for the above development.

The relevant development plan documents include -Orkney Structure Plan, 2001; the Orkney Local Plan, 2004; and the Orkney Local Development Plan, Modified Proposed Plan, which became a material consideration in May 2012 and which was subject to further minor amendments December 2012. The developer should consider the following policies in the preparation of the Environmental Impact Assessment (EIA): It should be noted that the Development Plan policies and the supplementary guidance given below covers development onshore, offshore and within the intertidal area.

2001 Structure Plan Policy:-

Policy SP/DS1 Sustainable Island Communities
Policy SP/DS2 Development Strategy
Policy SP/DS4 Precautionary Principles
Policy SP/DS5 Assessment of Strategic Proposals
Policy SP/DS6 Impact Assessments
Policy SP/E2 Oil and Marine Related Development
Policy SP/E4 Business Diversification
Policy SP/N1 Designated Sites -Nature Conservation
Policy SP/N2 Protection of Habitat and Species
Policy SP/N3 Local Biodiversity Action Plan
Policy SP/N4 Protection of Nature Conservation Interest
Policy SP/INS Landscape Character Assessment
Policy SP/C2 Coastal Development
Policy SP/C4 Marine SACs
Policy SP/CS Coastal Erosion
Policy SP/B1 Historic Environment, Tourism and Education
Policy SP/B3 Archaeological Sites
Policy SP/B4 Listed Building and Conservation Areas
Policy SP/US Electricity Distribution
Policy SP/U6 Renewable Energy

2004 Local Plan Policy:-

Policy LP/DC1 Criteria for Development
Policy LP/DC2 Location, Siting and Design
Policy LP/DC4 Landscape Associated with New Development
Policy LP/DC6 Development Impact assessments -c) Landscape and Visual Impact Assessments
Policy LP/N1 Designated Sites
Policy LP/N2 Protection of Species, Habitats and Features of Nature Conservation Interest
Policy LP/C1 Development within the Coastal Zone
Policy LP/C4 Coastal Erosion
Policy LP/B2 Scheduled Monuments and Sites of Archaeological Importance
Policy LP/B4 Development Affecting Listed Buildings
Policy LP/S2 Provision of Informal Rural Recreation Facilities
Policy LP/IT3 Roads
Policy LP/U4 Surface Water Disposal
Policy LP/U6 Flood Protection

Orkney Development Plan - Modified Proposed Plan (December 2012)

The policies below have become a material consideration as they are 'the settled view' of the Council; however, the plan will not become statutory until formally adopted. Therefore, the 2004 plan remains the statutory plan until the Orkney Local Development Plan is formally adopted. However, as adoption is likely within the period of the preparation of the EIA, it is recommended that account is taken in the preparation of the EIA of policies in the present modified version of the Orkney Local Development Plan. It should be noted that these may be liable to change. In accordance with the Town and Country Planning (Development Planning) (Scotland) Regulations 2013, Supplementary Guidance will provide support to policies of the plan however not all policies are expected to have supplementary guidance at the time of the Development Plan being adopted.

Policies:-

Delivering sustainable development

Policy SD1 Criteria for all new development
Policy SD2 Transport and travel
Policy SD3 Infrastructure delivery and developer contributions
Policy SD6 Renewable and low carbon energy developments
Policy SD7 Waste

Protecting and enhancing the natural environment

Policy N1 Landscape conservation
Policy N2 Natural heritage designations
Policy N3 Protected species
Policy N4 Wider biodiversity and geodiversity
Policy N5 Protection and improving of the water environment
Policy N6 Protection of soil resources
Policy N8 Informal recreation and access

Conserving and enhancing the historic environment

Policy HE1 The Heart of Neolithic Orkney World Heritage Site
Policy HE2 Terrestrial and underwater Archaeological sites and monuments
Policy HE3 Listed buildings and the Local List
Policy HE5 Designed landscapes and gardens

Siting, layout and design of new development

Policy D1 Flooding and coastal erosion
Policy D3 Waste water drainage
Policy D4 Sustainable drainage systems (SUDS)
Policy D5 Access to new development
Policy D9 Standards of design

Development within the towns

Policy S5 Piers and harbours

Development in the countryside

Policy C3 Development in the coastal zone
Policy C4 Strategic development areas
Policy C5 Aquaculture

Supplementary guidance

Developer contributions and good neighbour agreements
Natural heritage
Onshore infrastructure for marine renewable energy developments (Emerging)
The Heart of Neolithic Orkney World Heritage Site
Aquaculture Supplementary Guidance

Pilot Pentland Firth and Orkney Waters Marine Spatial Plan

The pilot marine spatial plan will seek to support the sustainable growth of key sectors including but not limited to offshore renewables, aquaculture, inshore fisheries, tourism and recreational facilities. It will provide marine users, managers and regulators in the public, private and voluntary sector with a clear strategic vision and policies to ensure that their activities contribute towards achieving sustainable development.

One of the primary purposes of the plan is to set out policies that clearly present the planning considerations that will be taken into account in the assessment of consent applications by public authorities. The plan policies will aim to balance economic growth with the sustainable management of the marine and coastal environment, ecosystems and natural resources.

The plan policies will be supported by spatial and non-spatial information to inform decision making and to help guide development to locations that will minimise adverse environmental effects and potential adverse interactions with other marine users.

The EIA and environmental statement should pay due regard to the emerging marine spatial plan and take account of the emerging policies and supporting information.

SECTION 2

The scoping report in section 3.1 indicates that the consent application “*will not include the onshore substation or connection to the grid, which is the responsibility of SHE-T and will be subject to its own application*” nevertheless the view is taken by the Orkney Islands Council that the off-shore and on-shore elements are inextricably linked, therefore the EIA should be prepared to cover all the elements of the development both on-shore and off-shore. The on-shore element should cover all works to the point of connection with the grid infrastructure which is stated as Skail Bay in Section 3.4.3.

It should be noted that legislation does not permit one of either Marine Scotland or Orkney Islands Council to take responsibility for the intertidal area, legislation requires that a Marine Licence is required to MHWS and a planning application is required covering the area to MLWS. I appreciate that this is two consents needed over the same area, however this is the requirement under different forms of legislation.

The Orkney Islands Council as Planning Authority are happy to work with the developer to advise on terrestrial planning matters in consultation with Marine Scotland to ensure that all parties are kept fully informed and to help minimise duplication of work.

The following comments and advice are offered by Orkney Islands Council as the Planning Authority, therefore will focus mainly on the issues associated with the on shore issues down to Mean Low Water Springs (MLWS). This is based on the likely requirement for the EIA to cover the whole development including the on-shore development due to the inextricable link between the off shore and onshore works.

Landscape and Seascape

Although it is appreciated that you have undertaken this scoping in respect of only the off-shore array and cable route to the substation as previously advised the view of the OIC is the EIA requires to consider the whole project.

The main elements of the installation will be located off shore however there will be a substation, cable connection/installation, access route, road upgrading along with other associated works will be onshore at one of the potential landfall sites and will require to be connect to the existing and proposed infrastructure. However lack of specifics and the levels of uncertainties for both elements of the off shore development and the onshore site selection make the views given fairly generic. In addition the 'Seascape, Landscape and Visual Impact Assessment methodology for Brims Tidal Array' has not included the substation and some of the associated on shore infrastructure works as part of the methodology this further limits our ability to provide a full response on this aspect of the proposal .

Although the tidal turbine presently being considered for the off- shore site is non-piercing there is the potential for some surface piercing elements (off-shore hub/substation). Therefore the siting and design of the development should be considered in the light of its impact upon the area and wider landscape and seascape. In terms of potential landscape and visual impact, the EIA should address the visual impact of the land-based development and the surface piercing elements of the offshore array individually and together on the landscape, coastline and seascape.

Once a preferred site has been identified for the substation(s), cabling and associated development, a full landscape and visual impact assessment of the development should be undertaken; this should identify important elements within the landscape and assess their significance. The selection of viewpoints to inform the landscape and visual assessment should be informed by a Zone of Theoretical Visual Influence (ZTVI). It is recommended that the applicant liaises with SNH and Development Management Officers of Orkney Islands Council regarding the selection of viewpoints. Each visualisation will require a photomontage and wire frame.

For example, key visual receptors are likely to include views from: Melsetter House and gardens, Longhope lifeboat Museum, the coastal footpath, beaches, public roads and other listed buildings in the area, along with distant views. Reference should be given to the Orkney landscape character assessment produced by SNH in 1998, which seeks to identify the most important elements of the landscape experience and

physical characteristics. An area of 'Core areas of wild land' on Hoy, has been identified in the draft Scottish Planning Policy, if this area becomes an area of 'core area of wild land' when the document is approved this will require to be included within the relevant assessments/ methodology and full consideration of potential significant effects on this area would need to be assessed.

Setting of the Historic Environment

Care should be taken to avoid or mitigate adverse impacts to the setting of the historic environment and in particular Melsetter House and gardens which contribute much to the character and experience of the landscape around North Bay. When locating development, attention should be paid to ensure that the location, layout, scale, design and materials are appropriate in design and sympathetic to their setting, to avoid detracting from the character of the landscape.

The wider impact of the cable route to the proposed infrastructure has the potential to run through particularly sensitive areas careful assessment would require to be undertaken of the impact on any route on the historic environment and the World Heritage Site.

Ancient Monuments and Archaeology

Given the established and potential archaeological remains in this area, a full archaeological assessment of the impact of development should be conducted as part of the EIA, encompassing the construction, operation and decommissioning of the off-shore tidal array, all cables to and from the array and on-shore infrastructure. This should take particular note of any shipwrecks in the proposed area; any submerged prehistoric landscapes around the coast. Further information is required on the geotechnical and geophysical data for the archaeological assessment advice of an appropriately experienced marine archaeologist prior to the finalisation of survey design should be gained.

It is recommended when selecting a site for cabling and on-shore development and cable corridors archaeological sensitive areas should be avoided where possible. The County Archaeologist and Historic Scotland should be consulted prior to such an assessment being undertaken, so that they can give appropriate advice and guidance for the work.

Cumulative Impact Assessment (CIA)

The cumulative landscape and visual effects from the proposed tidal array and the associated onshore infrastructure (substation, compound, staff facilities, overhead cabling etc) could potentially be significant. It is noted that onshore infrastructure projects have been identified as a type of project that will be considered during the CIA scoping exercise proposed to be carried out six months in advance of the proposed application submission date. Provided that there is sufficient information available to carry out an assessment, the consideration of the cumulative effects from the onshore substation, compound, staff facilities and the upgraded electricity transmission and distribution infrastructure would be appropriate.

Intertidal and Coastal

This form of development will require assessment in view of its unique characteristics, the impacts on wave velocity as a consequence of the operation of the installed equipment should be identified along with any expected changes to coastal processes (e.g. coastal erosion, sediment flows and coastal deposits). This will also require to include any expected changes to coastal process through cumulative impacts with other arrays in the area. The impacts of development(s) on the intertidal area and its

habitats should be undertaken and the impacts on these areas should be included within the EIA. The Ayre which links South Walls to South Hoy is identified as being at significant risk of coastal erosion, an assessment should be undertaken to determine the likely effects of all aspects of the development on this area of coast. The potential impacts on the array including the deployment, maintenance, servicing and decommissioning on recreational users of the coastal area should be assessed.

Countryside Access

Orkney Islands Council's Core Paths Plan identifies a system of key routes for outdoor access in Orkney, the area of search for the landfall site include existing pathway along the coast of Hoy and stretch of coast where there is potential to extend the existing footpaths. The EIA for the proposal should take full account of any impact on these routes, during both the construction and operational phases, which shows any potential impacts to the paths or rights of way or by impacting the visual quality of the area. The continuity of these coastal routes should be maintained, addressed through development location and design considerations. Temporary alternative routes may be necessary during construction phases. Opportunities for enhancement should also be assessed, including path improvement works and visitor interpretation. Where there are opportunities to improve access, these should be identified in the Environmental Statement.

Birds

The EIA should assess the likely effects of the proposed development as a whole on bird species which use this area. The Hoy Special Protection Area (SPA) designated for its internationally important populations of breeding seabirds is partly within the proposed development area, the Hoy SSSI is close to the area of search for the on shore development, good site selection can help minimize impact. It will be important to consider the timing of each stage of the development in order to avoid disturbance to bird species during their breeding season. Potential effects of the proposed development on protected species of bird should be assessed in consultation with SNH.

Mammals

The coastal nature of area and its hinterland, along with its freshwater burns and drainage ditches, makes this area an ideal habitat for otter, a European Protected Species. Survey work has been undertaken and identifies sites within the area of search, this survey work should be widened to cover the potential impact on Otters from the whole development including works to widen, strengthen roads etc. This should be undertaken at an early stage to determine the presence of otter and any impact on their habitat. Where appropriate, mitigation measures should be identified which would avoid or minimise disturbance or harm to these mammals.

The baseline information on bat presence in the area needs to be widened to assess and address the likely effects on bat species on the whole project, including all stages of the project.

The Wider Biodiversity

The Scoping Report does not identify the most up to date information in respect of the Orkney Local Biodiversity Action Plan (LBAP). The Orkney LBAP was initially published in 2002 but has undergone 2 reviews the most recent and up to date is LBAP 2013-2016 this plan focuses on ten Habitat Action Plans from the original LBAP, introducing new objectives and targets, as well as a set of actions for each. . However the Audit and Habitat Action Plans from the Orkney LBAP 2002 continue to

be relevant and provide the context for this and future targeted revisions. The habitats addressed by this most recent Plan are:

- Lowland fens
- Basin bog
- Eutrophic standing waters
- Mesotrophic lochs
- Ponds and milldams
- Burns and canalized burns
- Coastal sand dunes and links
- Aeolianite
- Coastal vegetated shingle
- Intertidal underboulder communities

A number of the above habitats are present within the Areas of Search for the cable landfall area and onshore cable area. The EIA should take account of current LBAP objectives, targets and actions. Electronic versions of the Orkney LBAP (2002) (2008-2011) and (2013-2016) may be accessed from the OIC website at <http://www.orkney.gov.uk/Service-Directory/L/Local-Biodiversity-Plan.htm>

It should be noted that Table 7.22 *Records of BAP species within the Study Area* contains a number of errors. For example:

- Procumbent pearlwort is not on the Scottish Biodiversity List.
- Northern marsh orchid subsp. *cambrensis* is on the UK BAP and the Scottish List and has been recorded in Orkney.
- Scottish primrose is on the Scottish List and is also included in the Orkney LBAP.
- Hedgehog is a UK BAP species and a Scottish List species.
- The Dusky brocade and Ghost moth are UK BAP species, Scottish Biodiversity List species and are also included in the Orkney LBAP.
- The lichen *Toninia sedifolia* is a UK BAP species and a Scottish List species.
- A number of species of Eyebright which are included in both the UKBAP and the Scottish List are found in Orkney. These are listed in the Orkney LBAP 2013-2016 (Appendix 1).

Geology

A draft geological Local Nature Conservation Site, known as Melsetter Coast, is located on the South Hoy coast, to the west of the Area of Search for the cable landfall area. The site extends between Sheep Skerry and Sands Geo and consists of a restricted outcrop of the Hoy Lavas. The lava forms a distinctive coastal platform in front of a small dune system at Melberry. Further information on this site is available from Annex 1 Local Nature Conservation Sites which can be accessed from the Council's website at <http://www.orkney.gov.uk/Service-Directory/R/natural-heritage.htm>

Designated Sites

The proposed site area covers a geographical area which is covered by a Special Protection Area, it is likely that the cable corridor to the proposed infrastructure will run through or near number of natural heritage, landscape and conservation designations. It will be important to assess the likely effects of the proposed development and any

associated infrastructure on both the qualifying interests and the overall integrity of any designation.

Appropriate Assessment

European sites to which the Habitats Regulations apply may be affected by the proposal. The information to be submitted with the EIA should also be sufficient to enable the competent authority to make an Appropriate Assessment of the implications for the site if required by the regulations.

Harbour/ Ports

Limited detail on harbour/port facility to be used is supplied, although reference is made to working being carried out at Lyness or Scrabster or a harbour facility with 24 hr. of the site. This therefore provides a number of options for the final port/harbour facility and, to enable a full understanding of the environmental and socio-economic impacts of the proposed development, full detailed information should be provided on the facility/facilities and their likely usage during the initial stages/phase of deployment and maintenance and during operational period of the farm. This is required to form part of the EIA. Tables 6.9, 6.10 and 6.11 should refer to the need to assess potential land use requirements at ports and harbours as well as the capacity of port infrastructure i.e. piers and harbours.

Deployment/Operation and Maintenance

Details of method of deployment and deployment strategy is required to be covered by the EIA and included in the environmental statement. Full details should be given of route(s) to be used from the selected harbour/port facility to the tidal array while deployment and construction is undertaken and then during the on-going operation and maintenance of the site and full assessment and impacts from the chosen routes should be covered within the EIA. Full details of any storage and workshop facilities required for maintenance activities which are an integral part of the development should be covered by the EIA and included in the environmental statement.

Socio Economic

The consequences of this development for the area as a whole are important considerations requiring detailed assessment. The potential requirements for onshore facilities associated with deployment, installation and maintenance will be required to be fully assessed and go beyond that presently covered.

The potential impact on local transport services has been identified as 'improvements to local transport services' in Table 6.1 due to increased stimulus for improvement brought about by a potential influx of workers associated with the tidal project. The potential impact would be an increase in demand for local transport services i.e. ferries to and from Hoy. The impact assessment should consider the potential level of increased demand, whether existing services can support this potential increase and whether existing use by local people and business could potentially be displaced. Orkney Ferries should be consulted in this assessment process.

The potential impacts on local communities identified at Table 6.1 in the Scoping Report should identify pressure on education and community services as a potential impact. Any significant impacts should be assessed and addressed in consultation with OIC Education and Housing.

Table 6.1 also need to include the impacts on transports services to and from Orkney the potential for increased demand and the impacts this could potentially have on locals, tourism and business in Orkney.

Table 6.36 potential impacts on tourism, the impact assessment should consider the potential level of increased demand, whether existing internal and external transport services can support this potential increase and whether this could affect tourism both in Orkney and Hoy.

Due to Hoy being identified as 'fragile area(HIE 2008)' the different elements of the socio-economic assessments should break down the variety of benefits to, and impacts within the local economy of Hoy, as well as Orkney.

Recreation

The Shipping Study for the PFOW should be identified as a data source to support the assessment of potential significant effects on coastal and marine recreational activities:

<http://www.scotland.gov.uk/Publications/2012/12/1868/downloads>

Commercial fisheries

ScotMap provides a useful starting point for identifying the economic value of inshore fisheries in the AfL area. The Orkney Fisheries Project, delivered by Orkney Sustainable Fisheries in partnership with the Crown Estate and Marine Scotland, should be identified as a data source. This project aims to identify fishing grounds and routes taken by vessels in PFOWs, particularly in relation to AfL areas for marine renewables. The project should be identified under data sources in Table 6.6. Table 6.8 should refer to maximising potential for coexistence between the tidal array and commercial fisheries.

Construction impacts

The report highlights the possible need for localized road modifications such as temporary off-road parking for contractors' vehicles at works compounds and at other suitable off-road sites along the route selected for the transport of large or heavy loads. These modifications would be inextricably linked to the proposed tidal energy development and, as such, they should be considered in the EIA. The Environmental Scoping Report, Section 4.5 Onshore Infrastructure gives minimal information with regard to the possible location of the sub-station, cable routes and access to the site. As a result of the insufficient information provided to date, Roads Services are unable to provide a full and comprehensive consultation response.

To enable assessment of the proposal the developer will have to address undernoted points:

- Location of substation.
- Access route to sub-station.
- Weight of all components for sub-station.
- Quantities of all materials required to construct access road and sub station.
- Maximum gross weight, length and width of all vehicles delivering materials / plant required to construct the sub station.
- Number of movements of each type of vehicle required.
- Concentration of vehicle movements.

The above list is not exhaustive it is simply an indication of the type and style of information that is required. The likely environmental effects of all ancillary road and/or drainage works should be fully assessed, allowing mitigation measures to be identified where appropriate.

It is noted that rock may be used to secure and protect some area of cable on the seabed the EIA should provide details of the source/location of any rock to be use and consider fully assess the likely environmental effects of getting this to site, mitigation measures should be identified where appropriate.

The report has scoped out any impacts from disposal at the dredge disposal sites, the EIA should identify the level of material to be deposited and the final disposal site and if necessary fully assess the likely environmental effects on the marine environment and other marine users in the area, mitigation measures should be identified where appropriate.

Alternative Sites

The Environmental Statement should address site selection in the context of alternatives and also with regard to the cumulative impact of the development with other relevant projects. In addition to the consideration of alternative locations, alternative methods should also be considered. The EIA should detail how alternatives have been considered in the development and design process and how negative environmental impacts have been avoided or minimised.

SECTION 3

The following details will be required to submit with any application:

Details of Development:

- Detailed information of the on shore site, design and size of any building/compound/substations and materials to be used on any building.
- Site layout including temporary lay down areas.
- Site lighting/security lighting (including impacts on nearby housing).
- Phasing.
- Details and location of all pipe work to and from devices to onshore substation.
- Details of method statement (trenching, directional drilling etc.).
- Method statement covering all areas of development.
- Drainage and SuDS details for building, surrounding site access and temporary compound.
- Detail of any works proposed to public roads.
- Landscape and visual (including cumulative) impacts (as discussed under Landscape and Seascape in the previous section above).
- Design solutions to ensure development contributes positively to the character of the area. A design statement should be submitted.

Soil/waste Handling:

Details should be included on:

- Soil handling and/or disposal.
- Proposal for soil storage (from lay down area etc) detailed location and its management whilst in storage.
- Restoration of land along with aftercare scheme and maintenance proposals.
- Methods and location of disposal of any waste materials.

Pollution:

- Method statements shall be included detailing the measures to be put in place to prevent any pollution from construction or operation of the development.

Noise Impact:

The supporting information should address:

- Construction noise should be identified along with likely consequences for marine life and human receptors.
- Noise from all proposed operations including construction phase, vehicle movements, directional drilling etc.
- Noise from all on shore and offshore installations.
- Noise from associated works.
- Cumulative effects from this and any other renewable energy industry activity in the area will also need to be considered.

Cable Route:

Although the exact cabling routes and number of cable routes to the array in the intertidal zone are still to be determined, as is the landfall route, full details of the route, methods and design of connections for the intertidal, onshore routes and grid connection should be provided. Dependent on the nature of the works, there is the potential for significant visual and/or environmental implications therefore assessments are likely to be required. Further details of what these assessments will be required to cover will be better assessed when more detailed information on the routes and types of cabling proposed are available.

Flooding:

The selected onshore site should be assessed for flood risk from all sources. This should be covered by the EIA and included in the environmental statement.

Traffic Management – Roads:

The majority of the public roads in the vicinity of the likely onshore works are mainly single track with passing places, and not particularly suitable for the size and number of vehicles that are likely to be required for a development of this nature. Therefore the applicant will require to provide route details along with information on the number, type and size of all vehicles and plant that will use the road network; especially for the construction phase, but also for the operational phase. Likely impacts on the current road infrastructure and visual impacts associated with any road widening should be covered by the EIA and included in the environmental statement.

A specific Traffic Impact Assessment should be prepared and should include:

- Likely impacts on carriageways, structures and verges, especially from abnormal loads, and mitigation measures to address such impacts.
- Location of substation and access route to sub-station.
- Weight of all components for sub-station.
- Quantities of all materials required to construct access road and sub station.
- Maximum gross weight, length and width of all vehicles delivering materials / plant required to construct the substation.
- Number of movements of each type of vehicle required.
- Concentration of vehicle movements.
- Impacts on other road users.
- Impacts on communities.
- The assessment of the vehicles associated with the construction of the offshore development including both delivery vehicles and personnel vehicles, and traffic associated with maintenance.

It should be noted that the developer would also be expected to fund the cost of any repairs that may be required to the public road, that may be caused by the vehicles and plant accessing the onshore work sites pursuant to Section 96 of The Roads (Scotland) Act 1984, (Extraordinary expenses in repairing roads damaged by heavy vehicles etc.).

Decommissioning, Demolition and Restoration of on shore site:

A decommissioning statement /restoration statement will be required for the on shore works. These shall include the initial construction reinstatement and the longer term reinstatement should the development be decommissioned. The following should be covered by the EIA and included in the environmental statement:

- Details of measures to reinstate temporary construction compounds, lay down areas including seeding and maintenance proposals.
- Details of measures to remove any redundant equipment, building and plant to reinstate the land to its previous use.

Note: Marine Services, Orkney Islands Council as Harbours Authority have provided a separate response on the questions directly to the developer. A copy of this is available to view at the following website address

<http://www.orkney.gov.uk/Service-Directory/O/Online-Planning-Application-Search.htm> (then enter the application number 13/363).

Orkney Islands Council Harbour Authority

General

The moving / redefinition of the AfL and / or area of search has meant that the south eastern most point is now further south than originally specified. This in turn makes this point and the southern edge of the new area closer to the shipping lanes for larger vessels and in particular only 1nm away from the main entrance for vessels entering / leaving Scapa Flow. Although mentioned in Appendix C we remind all those concerned of the details contained on UKHO Chart 2162 "Deep- Draught Vessels Recommended Tracks – the channels and deep-water tracks between the Pentland Firth and Scapa Flow are those recommended by the Orkney Harbours Navigation Service for tankers under pilotage proceeding to or from the Flotta Oil Terminal. Due to possible tidal effects, vessels may need to steer noticeably different courses from those shown in order to maintain the recommended tracks. Radar surveillance of these channels is continuously maintained." There are other relevant notes on the same Chart which refer to the particular tidal currents and eddies to be found in the Pentland Firth - which in turn are very relevant to the proposed tidal array and the operation of Scapa Flow as a Harbour.

Orkney islands council harbour authority have following comments that are specific to Orkney Harbour Authority and do not include any other replies which Orkney Islands Council may wish to make. Please see Annex 4

We would also like to take this opportunity to point out the following:-

Section 6.3 Ports and Harbours

Sub section 6.3.1 The Document states that the baseline ports are Lyness on Hoy, Stromness and Scrabster. It should be noted that Lyness and Stromness are within the Harbour limits of Scapa Flow and therefore not individual ports in their own right ie: the whole of Scapa Flow is one port / harbour. We would suggest that this is reflected in figure 6.1 ie: one Harbour Area for Scapa Flow containing, amongst others Lyness and Stromness.

Sub section 6.3.1.2 The Document states that there is 4,000m² of hard standing at Lyness, this is within the port area. There is a further substantial area available if required.

Section 10 Preliminary Hazard Analysis – Summary

This section deals with a very important part of this Document and future works required with regard to the impact on all forms of shipping and operations as a result of this proposed array. The details used in the PHA (Appendix C) are very basic and appear not to include the associated risk ie: the risk of pollution from one relatively small fishing vessel compared to that of a large cargo / tanker / container vessel transiting the Pentland Firth on a monthly cycle is completely different. The setting up and carrying out of the NRA needs very careful attention in order to ensure that the correct and proper results are obtained.

Scottish Environmental Protection Agency

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

- . Alteration to coastal processes and wave regime;
- . Introduction of Marine Non-Native Species during construction, operation and decommissioning;
- . Loss of, and disturbance to marine habitats;
- . Pollution prevention;
- . Flood risk to substation;
- . Impacts upon wetlands and peatland from onshore infrastructure.

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

1. Scope of the ES for marine developments

- 1.1 From the information submitted we understand the development will include both onshore and offshore components. As such, the development will be subject to a range of different consenting regimes. We would encourage the developer to consider producing a single ES which covers all aspects of the proposed development. This will enable a full assessment of the potential effects of the development as a whole, rather than assessing certain details of the development individually.

2. Water Framework Directive and River Basin Management Planning

- 2.1 The ES should identify if the impacts of the proposal are likely to lead to deterioration of the water environment or present opportunities for improving the water environment. The ES should assess the loss of seabed habitat within the footprint of the devices and cabling, and magnitude and spatial extent of any modified coastal processes. These changes should be put into context by comparing them to the area of the surrounding water body to demonstrate that there will be no deterioration in ecological status.
- 2.2 The planning authority and Marine Scotland should take this into account in considering the application, as, in order to meet the requirements of the Water Framework Directive (2000/60/EC), they are designated “responsible authorities” by the Water Environment and Water Services (Designation of Responsible Authorities and Functions) Order 2006. Responsible authorities must carry out their statutory functions in a manner that secures compliance with the objectives of the Directive (i)

preventing deterioration and (ii) promoting improvements in the water environment in order that all water bodies achieve “good” ecological status by 2015.

- 2.3 All coastal water out to three nautical miles seaward from the Scottish territorial baseline falls under the Directive which requires them to be considered in terms of their chemical, ecological and hydromorphological status.
- 2.4 In order to assist both applicants and determining authorities, we have made information available on our website (www.sepa.org.uk/water/river_basin_planning.aspx). This includes the water body datasheet for the Old Head to Tor Ness water body (WB ID 200222) which sets out the water body’s ecological status, any pressures upon it, measures set up to resolve any issues and targets for any improvement needed. These datasheets should form part of the baseline characterisation in the ES. River Basin Management Plans have been prepared to support the successful implementation of the Directive and include measures set against individual water bodies which require to be implemented if “good ecological status” is to be achieved. The GIS interactive map (<http://gis.sepa.org.uk/rbmp/>) (complete with user guide) or the River Basin Management Plan data download function, both available on the River Basin Management Plan section of our website, should be used in assessing any development proposal. The map enables a search for individual water bodies by grid reference, place name or postcode. As responsible authorities, planning authorities and Marine Scotland should promote measures already agreed in respect of relevant water bodies as well as considering other opportunities for the proposals in question to contribute to Directive objectives. SEPA’s planning and river basin planning staff will be happy to discuss any suggestions put forward.

3. Site layout and nature of construction for marine developments

- 3.1 The ES should contain plans giving detailed information on the site layout, including details of all onshore and offshore components such as access tracks, buildings, cabling and marine devices. These plans should be supported by a statement detailing the development, as well as reasons for the choice of site and design of the development. Depending on the types and scale of construction the information below may be required.
- 3.2 We found the information on phasing in section 1.3 of the scoping report slightly confusing. If the ES will cover the full 200 MW project then we ask that the ES also includes clear information on the effects of phase 1 separately.

4. Marine renewables

- 4.1 Plans should be included in the ES showing the array of the devices, cabling routes to Mean High Water Springs, off shore substation (if required) and any other supporting infrastructure Background information that will help inform the ES process is available from European Marine Energy Centre (EMEC). The EMEC has produced guidelines (www.emec.org.uk/index.asp) to assist developers in considering the range and scale of impacts that may result from the testing of devices. Generally, if this standard industry guidance is followed for scoping, preparing and undertaking EIA for marine renewables, then we are likely to be satisfied with the standard of assessment.
- 4.2 There may be a need to address the cumulative effects of devices/arrays on coastal processes depending upon array density and location with respect to existing renewable and coastal developments.

5. Marine ecological interests

- 5.1 Advice on designated sites and European Protected Species should be sought from Scottish Natural Heritage. Marine and transitional Special Areas of Conservation (SAC) and Special Protected Areas (SPA) and Marine Protected Areas (MPA) are also Water Framework Directive Protected Areas. Therefore, their objectives are also River Basin Management Plan objectives which should be taken into account when developing the ES. In such situations, Scottish Natural Heritage may contact SEPA for input on the consultation.
- 5.2 The Nature Conservation (Scotland) Act 2004 gives all public bodies, including SEPA and planning authorities, a duty to further the conservation of biodiversity. The developer is recommended to consult both the UK Biodiversity Action Plan and Local Biodiversity Action Plan lists for marine and coastal features found within the proposed areas of development, and consider mitigation measures, as appropriate. During the construction, operation and maintenance phases, it is important that good working practice is adopted and that wider habitat damage is mitigated against or kept to a minimum within defined acceptable limits. These should be controlled through a Construction Environmental Management Plan (see section 6 below).

6. Pollution prevention and environmental management

- 6.1 One of our key interests in relation to major developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. During the construction phase, it is important that good working practice is adopted and that habitat damage is kept to a minimum and within defined acceptable parameters.
- 6.2 We advise that the applicant should, through the EIA process systematically identify all aspects of site work that might impact upon the environment, potential pollution risks associated with the proposals and identify the principles of preventative measures and mitigation. This will establish a robust environmental management process for the development. A draft Schedule of Mitigation and, as proposed by the developer, draft Construction Environmental Management Plan (CEMP) should be produced as part of this process. This should cover all the environmental sensitivities, pollution prevention and mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our [website](#). We also welcome the proposals for the application to be supported by a draft Environmental Mitigation Monitoring Plan.
- 6.3 We ask that the draft CEMP specifically includes a section on the measures that will be adopted to minimise the risks of introducing marine non-native species that are attached to marine plant and specialised equipment transported to the area before the constructional phase of the project begins and before any maintenance works commence during the operation of the new development. Guidance that may be drawn upon includes:
- The alien invasive species and the oil and gas industry guidance produced by the Oil & Gas industry (www.ogp.org.uk/pubs/436.pdf).
 - SNH web-based advice on Marine non-native species (www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/marine-nonnatives/)
 - Marine Non-Native guidance from the GreenBlue (recreation advice)

www.thegreenblue.org.uk/clubs_and_training_centres/antifoul_and_invasive_species/best_practice_invasive_species.aspx).

6.4 Best practice advice developed by The Highland Council (in conjunction with industry and other key agencies) on the Construction Environmental Management Process is available in the guidance note [Construction Environmental Management Process for Large Scale Projects](#).

7. Offshore water abstractions and discharges

7.1 Information should be set out on any offshore water abstractions and discharges. Sensitive water uses, such as bathing waters and shellfish growing waters, and associated potential impacts should be assessed. The proximity to existing discharges and designated areas (ie estuarine abstractions and cooling water discharges), should also be assessed.

Regulatory advice

See scoping questions

Scottish Natural Heritage

Natural Heritage issues 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 04/01¹. For this proposed tidal array, we highlight the key natural heritage interests which we consider should be scoped into the Environmental Impact Assessment (EIA) and reported in the Environmental Statement (ES), as well as providing initial advice in respect of Habitats Regulations Appraisal (HRA). We provide our advice on those aspects we consider significant in a natural heritage context. In Appendix A, we consider aspects that apply to the development in general and advice relevant to its offshore elements.

General comments

The scoping report provides details on the offshore and onshore components for a proposed 200 MW tidal array by Brims Tidal Array Limited (BTAL). BTAL, previously Cantick Head Tidal Development Limited (CHTDL), is a joint venture between OpenHydro Site Development Limited (OpenHydro) and Scottish and Southern Energy Renewables (Holdings) UK Limited (SSER).

The offshore component consists of between 100-200 tidal turbines (with the OpenHydro Open-Centre Turbine currently preferred), turbine support structures, inter-array cabling, export cabling to shore, and offshore hubs and/or substation. The onshore component consists of an onshore landing, cabling to the substation, a substation, vehicle access tracks, and grid connection. The substation and grid connection is the responsibility of SHE-T and will be subject to a separate application. The scoping report is not seeking an opinion on the substation and grid connection.

It is proposed to deploy the 200 MW project in two phases. The first phase consists of up to 60 MW with construction expected to begin in 2019. The second phase consists of the planned delivery of the fully commissioned 200 MW project in 2023. Although the scoping report is designed to cover both phases of the 200 MW project, each phase will be subject to separate applications. We recommend, however, that a scoping report is also produced for phase 2 as it is likely that knowledge of the proposal, the local environment, potential impacts, and mitigation and monitoring methods will be greatly advanced by then and should allow a more tightly defined range of topics to scope into the Phase 2 Environmental Statement.

It is noted that after considering the results from the tidal resource assessment surveys the original Area for Lease (AfL) was revised and moved to the west. This also resulted in changes to the subsea cable route and onshore infrastructure options. The scoping report provides information on these revisions and we are content that the site characterisation survey methodologies have taken these into account.

Given its location in respect to feeding and buffer zones for barnacle geese under the South Walls Goose Management Scheme, we consider that the south west section of South Walls is less suitable for cable landfall and onshore cabling. However, overhead cabling and collision risk to birds is a concern for all areas in the cable area of search, and will require detailed consideration in the ES.

¹ Marine Renewable Energy and the Natural Heritage: An Overview and Policy Statement. No.04/01. Available from: <http://www.snh.gov.uk/docs/A327477.pdf> (Please note this is currently being reviewed)

The scoping report states a number of options for the onshore and offshore infrastructure and construction methods. As a result, our advice in this letter is generic and covers a broad range of potential impacts. It is likely that additional consultation will be required and further advice provided as more details of the tidal energy proposal become available. Such advice will need to consider the following topics, which should be expanded upon as further details of the proposal become available:

- Preliminary results from both field and desk-top studies;
- Locations for the tidal energy devices, cable routes, maintenance facilities, landing points and onshore works;
- Further information on what the works and infrastructure comprise, including the on and offshore elements;
- Confirmation of turbines, turbine support structures and any other offshore infrastructure, such as hubs and / or substations;
- Confirmation of cable numbers, distance, types and installation/stabilisation methods;
- Information about the number and type of vessels to be used;
- Information on the likely regularity and timing of routine maintenance works and potential for associated impacts (e.g. disturbance of bird/seal breeding colonies);
- Identification of key issues for assessment at cumulative and in-combination levels and how these will be addressed;
- An Environmental Mitigation and Monitoring Plan (EMMP).

Habitats Regulations Appraisal

We provide advice in relation to the requirements of Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) and Regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), now commonly referred to as Habitats Regulations Appraisal (HRA). Appendix B provides more detail on the legislative requirements for European sites and we have provided tailored advice in relation to the potential impacts of the proposed tidal array in Appendix D for Special Protection Areas (SPA) and Appendix E for Special Areas of Conservation (SAC).

We welcome the inclusion of the HRA screening within the scoping report, the approaches outlined, and the opportunity for continued dialogue as the HRA progresses and further information, such as site characterisation surveys, becomes available.

Rochdale design envelope

BTAL proposes to undertake a 'Rochdale design envelope' approach during the EIA to retain scope for adaptation within the project description. Although this approach is currently being used to manage change within the project, it requires impact assessment of the complete range of options including the worst case scenario. We advise, therefore, that the project envelope is refined as much as possible prior to submission.

Mitigation and monitoring

We recommend that within the ES, a schedule of commitments is provided with regard to proposed mitigation. Furthermore, we recommend that the applicant provides a draft Environmental Mitigation and Monitoring Plan (EMMP) as part of the Environmental Statement (ES). The proposed EMMP should provide details on mitigation measures and monitoring studies to be undertaken.

Marine bird and mammal site characterisation surveys

We note that surveys will continue for a second year and will hopefully address the issues raised in our previous response of the 12 March 2013, including the autumn and winter data gaps. We also note that, due to the limited time available to change survey methodology

prior to the bird breeding season, Marine Scotland Licensing Operations Team advised the applicant to continue with the same survey methods, and stated that 'due consideration must be given within the Cantick Head Scoping Report and Environmental Statement to the potential biases that may result from the relatively limited survey effort within the development area and immediate surrounds'. Consideration of this issue is not addressed in the scoping report. We recommend that the applicant addresses this issue, and the other comments raised in Appendix B of this letter and in our response of the 12 March 2013, in a report once the second year of surveys has been completed.

Onshore infrastructure

Due to the lack of detail about onshore elements, we would advise at this stage that these may have further implications with regard to Natura sites, European Protected Species and wider natural heritage interests including landscape and visual impacts. We strongly recommend that the applicant discusses these aspects further with Marine Scotland, Orkney Islands Council and ourselves. We also recommend that the applicant includes all aspects of the assessment of the onshore and offshore works in one Environmental Statement, particularly as we note the recent decision to refuse the substation for the European Offshore Wind Deployment Centre, where this project was separated into two separate components and now could face substantial delays.

Cumulative impacts

We note a more detailed cumulative impact assessment scoping document will be submitted, and welcome the opportunity to provide further comments on this. We recommend that the applicant discusses other projects / plans to include in such a cumulative assessment with the key regulators, such as Orkney Islands Council, Marine Scotland and SEPA.

Further information and advice

Our comments in relation to the scoping questions (section 7 of the scoping report) can be found in Appendices A to E.

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 and those relevant to offshore elements.

GENERAL ADVICE

- ai. Project Planning & Phases of Development
 - aii. Seascape, Landscape & Visual Impact Assessment
 - aiii. Designated Sites & Species Protection
-

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 Assessment² and in SNH's Environmental Assessment Handbook³.

Project details

Section 4 of the scoping report describes the elements that make up the proposed tidal energy development. Many aspects of the project are still open to a range of design or installation options (e.g. device/array design specifications and locations, foundation type, cable routes and landfall, and onshore infrastructure).

Due to the early stage of the proposal and absence of detail on some aspects, our advice is largely generic at this stage. We would welcome ongoing dialogue with the applicant, Marine Scotland and Orkney Islands Council (OIC) as this project progresses in order to discuss location options for tidal devices / array, landfall locations and onshore infrastructure and routes, to assist in identifying environmental sensitivities / mitigation and to provide more focused advice in relation to the finalised project details.

Grid connection

We note that grid connection and the onshore substation will be the responsibility of SHE-T, and a separate application will cover this part of the project. As such, the applicant has requested that this part of the project is not considered in the scoping opinion. However, we strongly recommend that the applicant includes all aspects of the assessment of the onshore and offshore works in one Environmental Statement, particularly as we note the recent decision to refuse the substation for the European Offshore Wind Deployment Centre, where this project was separated into two separate components and now could face substantial delays. We welcome further liaison regarding the details of the proposed grid connection and substation.

Phases of development

In the ES, the applicant should address the following phases of tidal array development:

² <http://www.scotland.gov.uk/Publications/1999/10/pan58-root/pan58>

³ <http://www.snh.org.uk/pdfs/publications/heritagemanagement/EIA.pdf>

Installation & construction

The ES should include details on the likely proposed installation and construction methods including information on project management - procurement timescales and an indication of contractor arrangements, 'chain of command', roles and responsibilities of key staff and timetabling. Any phasing / sequencing of proposed works should also be included, especially if this has been identified as a mitigation measure for environmental, navigational or other effects. Information should also be included on the proposed installation equipment, vessels to be used and intended shipping routes and port facilities wherever possible.

Operation & maintenance (O&M)

The ES should include details on operation and maintenance activities and an assessment of any impacts that could arise – considering any potential environmental, navigational and/or other effects. This should include information on indicative numbers and types of vessels.

Repowering

The EIA should consider potential and options for repowering within the design life of the tidal devices. 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 tidal array layout. Any alterations to the locations of offshore elements for repowering may require further baseline characterisation and assessment to that previously carried out at application submission stage and may also necessitate a further application consent process.

Decommissioning

We recommend that any potential impacts during decommissioning are assessed in the ES.

Presentation of information and assessment

The assessment of potential impacts within the ES should be transparent and contain sufficient information to assist in the determination of the ecological changes that may arise against any underlying background trends.

For the assessment of potential impacts we recommend using the approach outlined by the IEEM in Guidelines for Ecological Impact Assessment in Britain and Ireland: Marine and Coastal (2010)⁴.

aii. Seascape, Landscape & Visual

We have reviewed the scoping report and the '*Seascape, Landscape and Visual Impact Assessment methodology for Brims Tidal Array*' (August 2013) report, and consider this provides a sound methodology for a competent assessment. The only caveat is that 'seascapes' should not predominate in the assessment in a narrow sense. Our definition of 'coastal character' comprises the coastal edge, its immediate hinterland and the sea. This is generally now termed as 'seascape'. We advise that the term 'seascape' is best understood and applied in this more specific manner to the landscape environment of coastal edge, the immediate hinterland and corresponding seaward extent to the horizon.

⁴ <http://www.ieem.net/marine-ecia/>

We consider the term 'coastal' as most appropriate to the nature of the Scottish coast where the sea is strongly inter-related to the land. Thus, views from a '*range of distances and elevations out to the edge of the 10km study area*' (page 9 of the report) could potentially major on areas of water, where there are few receptors (coast/land/people), this could well render an evaluation of likely effects relatively meaningless.

In judging the sensitivity of 'seascape' receptors (Table 2.1) a very high to medium category is used for a range of receptors, but this excludes coastal /coastline receptors. The latter are noted to be of only low/negligible sensitivity. This example demonstrates, how the assessment methodology needs to include the **coastal edge, and its immediate hinterland** as well as the sea in 'seascapes'. Coastal /coastline receptors may also be of very high-medium sensitivity, depending on their intrinsic attributes and it is incorrect to limit '*well-settled and readily accessible coastlines and hinterlands*' to a low sensitivity and '*urban coastlines and hinterlands dominated by development*' to a negligible sensitivity alone.

We advise that the following issues need examination in any SLVIA:

1. Potential impacts on the prevailing sense of remoteness in South Walls and the Brims. This is a very strong, perceptual experience because of the strong 'edge' dynamics at the coast, combined with the limited, single access leading to a marked 'ness' – the land-edge of Hoy and itself one of Orkney's 'edges'. Brims Ness, Aith Head and the Hope in-between form a recognisable landmark, almost a 'threshold' into the East coast and seas off Hoy with its attendant islands. There is a distinct remote and natural character.
2. The effects of any overhead lines, the scale (mass and bulk) of any substation on the designed landscape of Melsetter House (designated as a Gardens and Designed Landscape). This is a notable landscape, which creates a sharp and intriguing distinctiveness. The landscape is recognised as of national interest, one distinct criteria being its [outstanding scenic value](#).

We would welcome ongoing dialogue with the applicant and OIC as this project progresses in order to discuss onshore infrastructure location options and to provide more focused advice in relation to the finalised project details.

aiii. Designated Sites & Species Protection

Natura sites (SPAs and SACs)

Further information about SACs and SPAs and their qualifying features is available from our website, with information on particular sites being available on Sitelink⁵. 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 HRA process and potential impacts of the proposal on SPAs and SACs.

Decisions as to which SPAs and SACs are to be included in the EIA and HRA process should follow an iterative process. Further advice on relevant SPAs and SACs can be provided once more details are available regarding the proposals, as well as results from baseline characterisation surveys.

European Protected Species (EPS)

⁵ Sitelink available at: <http://www.snh.org.uk/snh/>

Appendix C provides further advice on the legislative requirements for European Protected Species (EPS). Within the proposed tidal energy development site EPS may be present both in the marine and terrestrial environment, and consideration of these species must be included as part of the application process.

Sites of Special Scientific Interest (SSSIs)

With regard to onshore works, Hoy SSSI may require further consideration and we will be able to provide further advice once details have been confirmed. We highlight that many of the Natura sites are also underpinned by SSSIs often with seabird or seal species as the notified features, which will also require consideration. Further information on SSSIs and their notified features is available from our website and on Sitelink.

Wildlife and Natural Environment (Scotland) Act 2011

Under this Act the administration of licences for the protection of species under domestic law has been brought into line with the protection of similar species under European law. All species licensing has been transferred to SNH and MS as of the 1st July 2011. There may be species present within the proposed tidal energy site that, for certain activities, would require the applicant to apply for a licence under this Act (for example, potential disturbance to basking sharks).

Scottish Marine Protected Areas (SMPA) Project

The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 include powers and duties to designate new Marine Protected Areas (MPAs) as part of a range of measures to manage and protect our seas for current and future generations. The guidance document by Scottish Government⁶ includes a list of MPA Search Features. Scottish Government are currently consulting on a network 33 possible MPAs⁷, which closes on the 13th November 2013.

Key information can be accessed via the Scottish Government website⁸. The applicant should liaise with MS regarding updates / progress on the selection of MPAs as part of the SMPA Project.

Priority Marine Features (PMFs)

Consideration should also be given to the present or absence of PMFs within the development site. These should be specifically referenced and an account of the presence, extent and quality (e.g. abundance, patchiness, density, % live/dead, and species richness) of the PMF in that location should be provided. The assessment of potential impacts and any consideration of mitigation options should also give particular consideration to PMFs, if identified. A list of PMFs can be found at: www.snh.gov.uk/protecting-scotlands-nature/safeguarding-biodiversity/priority-marine-features/.

⁶ Marine Protected Areas in the Seas around Scotland: Guidelines on the selection of MPAs and development of the MPA Network, 2011. Available at:

<http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork/mpaguidelines>

⁷ <http://www.scotland.gov.uk/Publications/2013/07/2072>

⁸ <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork>

ADVICE IN RESPECT OF OFFSHORE ELEMENTS

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

- bi. Benthic Ecology
 - bii. Fish and Shellfish including Fisheries
 - biii. Marine Mammals & Basking Shark
 - biv. Marine Non-Natives
 - bv. Ornithology
 - bvi. Hydrodynamic Processes & Coastal Geomorphology
-

bi. **Benthic ecology**

We have reviewed section 7.5 of the scoping report and the 'Brims Tidal Array Environmental Seabed Survey Method Overview' (August 2013). It is proposed to conduct a survey of the development area and cable routes using ROV video and digital still photography. The survey plan is not designed as yet; this will be planned using geophysical data. The suggestion is to use the ROV to target areas of different environmental conditions.

It is stated that the main focus of the study is to collect video footage in areas where different seabed types and biological communities would be expected – driven by depth and physical seabed characteristics, supplemented by high definition digital stills. We assume that this will involve stratifying the area based on the geophysical data; however there is no detail on the geophysical survey. Ideally, initial survey design should be planned for broad coverage partly or wholly as ground truthing in support of broadscale acoustic mapping.

We welcome the commitment to modify the survey should important habitat/species be encountered. However, on the basis of this scope, it is possible that areas will be missed using this targeted approach. We would like clarification on the use of targeted transect lines rather than a regular space sampling protocol.

Pre-construction: baseline survey should seek to answer the following:

- Are there any benthic habitats or species of note present (i.e. Priority Marine Features⁹, rare, protected or invasive)?
- What is the spatial distribution and abundance of these species?
- How will these habitats or species be affected by the development?
- What would be the significance or implications of any loss incurred?

The applicant 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.

We recommend that the ES presents clear information on, and identification of, the main biotopes found within the proposed development site. The biotopes / habitat map should be used by the applicant to inform their finalised tidal array layout, taking account of likely impacts from the turbine bases and cables on benthic ecology. Consideration should also be given to indirect impacts on birds, fish and marine mammals, where appropriate.

We welcome the opportunity to provide further advice on the detailed survey plans.

⁹ www.snh.gov.uk/protecting-scotlands-nature/safeguarding-biodiversity/priority-marine-features/

bii. Fish and shellfish including fisheries

Advice here is primarily, but not exclusively, given regarding fish and shellfish species on the recommended PMF list¹⁰. Marine Scotland Science (MSS) are likely to advise further regarding any non-PMF fish and shellfish that should be given detailed consideration in the EIA. Note that there are species of conservation importance that do not appear on the PMF list, such as most other elasmobranch species, and these should not necessarily be excluded from consideration under EIA.

Scottish Government are currently consulting on the recommended PMF list, following which SNH will develop a standard approach to our advice on PMF species within development casework. This is work in progress and as such we are adopting an interim approach to our advice on fish and shellfish PMFs. This endeavours to provide advice on a selection of fish/shellfish PMF by assigning one of the four following categories below:

- 1) **species that can be scoped out** due to being absent from the site and/or not sensitive to the development;
- 2) species for which impact assessment at the individual site level is not necessary but which should still be **considered at the cumulative level**;
- 3) species that should be **scoped in, but for which the detail of assessments will be limited** due to a paucity of knowledge on species distribution or sensitivity;
- 4) species that should be scoped in, with detailed assessment expected due to particular sensitivities and/or availability of data.

For advice on other PMFs and further species not listed here, SNH defer to the expertise within MSS. Our advice here also aims to indicate where we consider a need for additional field surveys and what other wider conservation status species have. However, for species where a specific need for targeted survey is not identified, any observations made during other surveys (e.g. benthic) should be recorded and reported on within the ES.

¹⁰ <http://www.snh.gov.uk/docs/B1064114.pdf>

Table 1: Summary of initial SNH advice on fish and shellfish for the proposal. Species for which advice is provided by Marine Scotland-Science are listed in the text below. Key: **Yes** = scope in, with detailed assessment expected due to particular sensitivities and/or availability of data; **Yes** = **scope in**, but with acknowledgement that detail of assessment may be limited by knowledge of species distribution or sensitivity; **CIA** = **consider at cumulative level only**; **No** = **scope out**

Species	Interest? (and Lifecycle Stages of Concern)	Provision of advice	Scope In? (see key)	Additional field survey advised?	Comments
Priority Marine Features (PMFs)					
Atlantic salmon	PMF, Annex II and V of Habs Dir, UKBAP priority (multi-sea winter component), OSPAR	MSS, SNH	Yes	No	The Pentland Firth is thought to be an important migratory route for Atlantic salmon.
Sea Lamprey	PMF, Annex II of Habs Dir, UKBAP priority	SNH	No	No	
River Lamprey	PMF, Annex II and V of Habs Dir, UKBAP priority	SNH	No	No	
Sea trout	PMF, UKBAP priority	MSS, SNH	Yes	No	There are records of sea trout from the vicinity of the development area.
European eel	PMF, OSPAR, IUCN red list	MSS, SNH	Yes	No	There are records of European eel from the vicinity of the development area.
Sparling	PMF, UKBAP priority, IUCN red list	SNH	No	No	
Shad (Allis and Twaite)	Annexes II and V of Habs Dir, Appendix III of Bern Convention, UKBAP Priority	SNH	No	No	
Atlantic herring	PMF (Juveniles and spawning adults), IUCN red list	MSS, SNH	?	No	In considering the detail of the assessment required for herring, consider more detailed data on sediments and benthic habitats and seek further advice from MS-S on the likelihood of the site and surrounding area as spawning habitat. This should include consideration of potential change to seabed sediments at adjacent spawning sites due to hydrodynamic changes.
Sandeels	PMF, UKBAP priority,	MSS, SNH	Yes	Refer to MS-S	As above for herring, but given proximity and overlap with Hoy SPA, potential impacts on sandeel are likely to be a key consideration.
Sand goby	PMF, Bern	SNH	No	No	Due to dominance of hard substrates on site impacts of significance are unlikely, even at the local level.
Basking shark	PMF, UKBAP priority, OSPAR, IUCN red list, Bern, W&CA.	SNH, MSS	Yes	Yes	Marine mammal surveys should include basking sharks. Requirements of the Wildlife and Countryside Act 1981 and the Wildlife and Natural Environment (WANE) (Scotland) Act to be met.
Common skate	PMF, UKBAP priority, OSPAR, IUCN red list	SNH, MSS	CIA	No	The area is unlikely to be of particularly high value to common skate. However, there are records from Orkney waters, including egg cases. Also, common skate can be found over hard as well as soft substrates and any available records (i.e. from benthic surveys) should be considered accordingly. (See Orkney Skate Trust for local records)
European spiny lobster	PMF, UKBAP priority	MSS, SNH	Yes	No	Although main population concentrations are on the west coast of Scotland, the majority of this development location is likely to consist of appropriate habitat for this species. Any benthic surveys should seek to record sightings of this species.

¹Note that Atlantic salmon and sea trout are host species for freshwater pearl mussel. A development leading to an adverse impact on these species may also therefore lead to an adverse impact on freshwater pearl mussel. Freshwater pearl mussel is a feature of several designated sites in Scotland. The scoping report does not state whether effects on freshwater pearl mussel will be considered.

PMF species for which Marine Scotland-Science may wish to provide advice are as follows: anglerfish; Atlantic mackerel; cod; ling; Norway pout; saithe; whiting and spiny dogfish. Note that Marine Scotland-Science may also advise on non-PMF species, particularly those of commercial value. It is likely to be relevant to scope in crab and lobster species to consider effects on their local populations as well as the fisheries they support.

What potential impacts need to be considered?

The scoping report briefly identifies most of the key impact mechanisms relevant to fish and shellfish. Those mentioned should indeed be addressed in the ES. However, understanding of potential impacts is currently limited by available information on the local environment, a poor scientific understanding of some potential impact mechanisms and lack of clarity on the project details. Regarding the latter, it is notable that there is uncertainty of device type and associated foundation, although the OpenHydro device and gravity foundation are preferred. However, the potential impacts of foundations that penetrate the seabed need to be assessed if they are part of the project envelope. Further to the potential impact types identified in Tables 7.14, 7.16 and 7.17, the following should also be addressed:

- Increases in suspended sediment during construction, including drill cuttings, and its subsequent fate/settlement.
- Not just 'disturbance' of spawning grounds, but loss of spawning grounds, either through the direct footprint of the development or through changes in sediment conditions due to altered hydrodynamics within the site and in adjacent areas.
- Potential introduction of, and provision of a colonisation surface for, marine non-native species (MNNS).
- EMF – assessment of this potential impact should not be limited to elasmobranchs and salmonids; these are indeed intuitively the species most likely to be sensitive, but the degree of uncertainty for other species is such that a risk-based assessment is still warranted.
- Fish Aggregation Device (FAD) effect – the potential implications of this for the fish and potential subsequent indirect effects for their predators should be addressed.

For basking sharks it will also be necessary to address the relevant legal requirements of the Wildlife and Countryside Act (1981), including amendments through the Wildlife and Natural Environment (WANE) (Scotland) Act.

With regard to identifying what impacts will be assessed for which diadromous fish species, tables 7.14, 7.15, 7.16 and 7.17 are slightly confusing. Table 7.14 (Potential impacts during construction, operation and decommissioning) and much of table 7.16 (Impact assessment strategy) states that the effects of noise and vibration will be assessed for hearing specialists such as herring and BTALat. However, Table 7.16 does also contain, 'Potential effects on migratory species e.g. salmonids, eels', which refers to construction noise and EMF. We recommend that the assessment of potential effects of habitat loss on sea trout, which are predominantly a coastal species, is scoped in. Table 7.17 (Possible mitigation and monitoring measures) refers to the effects of noise and vibration only in the context of hearing specialists and does not identify the species of 'migratory fish' that would be considered in relation to collision risk. The effects of EMF are mentioned in connection with elasmobranchs and salmonids, and European eel is not mentioned. Again, the potential effects on sea trout of habitat loss are not recognised.

Assessment of underwater noise impacts should include focus on Atlantic salmon, as they are features of several SACs, and the Pentland Firth is thought to be an important route for migratory Atlantic salmon. Sea trout and European eel are species of conservation importance for which there are records from the vicinity of the development area. However, it is recognised that there are limited data available on the hearing sensitivity and related behaviour of these species. The ES should also clarify the times of year/duration of associated activities in consideration of potential impacts.

Apart for basking sharks, it is unclear what other fish species will be assessed for collision risk with the operational turbines. Our knowledge of the potential for fish collision risk associated with tidal devices is currently limited. We consider it necessary that the ES at least assesses collision risk for diadromous fish species (including Atlantic salmon, sea trout and European eel) and, depending on the results of the site characterisation surveys, basking sharks. Our current model preference for fish is the Wilson *et al* / SRSI encounter rate model (ERM) using a range of avoidance rates. We would welcome further dialogue with the applicant on what parameters are required and use of avoidance rates.

Section 7.3.1.2 (page 189) states that Atlantic salmon from the River Thurso SAC 'are likely to head north towards their feeding grounds in the Norwegian Sea thus travelling up the west coast of Orkney and not toward the AfL....'. However, the proposed development is located in the Pentland Firth area, which is thought to be an important migratory route for Atlantic salmon (Malcolm *et al.*, 2010). As is reflected in section 3.2.4 (page 322), Atlantic salmon from several SACs may travel through the Pentland Firth. Please see appendix E for further information on the HRA for SACs.

In relation to cumulative impacts, section 9.4 (page 261) states that, 'Migratory fish, marine mammals and birds may also be considered depending on the outcomes of the impact assessment'. The inclusion of migratory fish is to be welcomed, as the proposed development is one of several proposed marine renewable energy developments in the Pentland Firth area. Depending on the outcome of impact assessments, consideration of particular marine fish and shellfish species may also become relevant and should not, at this stage, be excluded.

Data sources & survey design for fish and shellfish

MSS is the primary source for information on commercial fish and shellfish in Scottish waters. For spawning and nursery ground information, the applicant correctly refers to Ellis *et al* (2010)¹¹ and Coull *et al* (1998)¹². While these provide maps of spawning and nursery grounds for most of the key marine fish species, these are only broad indications of likely potential spawning areas, much of which is based on relatively old data and incorporates temporal and spatial variability. Also note that MSS are in the process of updating this information, which may be available in time for use in this application. The desk-study should also conduct a thorough search of primary and grey scientific literature. Spawning and nursery grounds are not spatially or temporally fixed, potentially moving according to the conditions of the substrate, seabed habitats, climate and hydrodynamic regimes.

Potential impacts on fisheries species

MSS take the lead on many aspects regarding marine fish and shellfish species – in particular, they should advise on which commercial species should be scoped in to the EIA. However, we can provide further advice in relation to impacts on fish and shellfish, particularly in relation to indirect impacts resulting from habitat associations, trophic interactions or other ecological functions.

¹¹<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=2&ProjectID=16843>

¹²www.cefas.co.uk/media/29947/sensi_maps.pdf

As part of the EIA, the applicant should consider the environmental effects of displacing (and potentially concentrating) fishing effort to other areas, although it is acknowledged that this assessment may be best made at a cumulative or strategic level.

biii. Marine mammals & basking shark

General comments

Please see Appendix B for further detail of the legislative requirements that apply to SAC interests and Appendix C for those relating to cetaceans (whales, dolphins and porpoises) and otters, which are European Protected Species (EPS).

Appendix E provides our advice on HRA, for marine mammals which are SAC qualifying features. We recommend that the assessment of which SACs should be scoped-in at this early stage remains relatively precautionary, allowing them to be discounted at subsequent stages of the HRA as appropriate (see Appendix E).

We highlight the sharp fall in the UK population of harbour (common) seals and that the applicant will need to consider this in their EIA. The harbour seal Potential Biological Removal (PBR) for the Orkney and North Coast management area has been revised and is now just 9 (taking into consideration the number of licences recently issued to shoot harbour seals to protect fisheries and salmon farms)¹³. PBR refers to the number of individuals that may safely be taken from a population without adversely affecting overall numbers in addition to normal mortality. The PBR value for the Orkney and North Coast management area should be confirmed at the time of future licence applications for this proposal and taken into account in relation to such applications.

The applicant will also need to consider the proposed designated seal haulouts¹⁴. It will be an offence to intentionally or recklessly harass seals at these sites, therefore it is important to include this within the scope, but there should be an appreciation that these haul-outs have not as yet been designated and therefore there could be changes to the sites designated. However, the presence of these potential sites close to the development area should suggest a level of importance of the area for both harbour and grey seals. It would therefore be appropriate to consider all significant haul-outs in the area.

Specific comments

Marine mammal and basking shark surveys

We are pleased to note that the surveys are continuing for a second year, and that the data gap due to inclement weather is planned to be addressed.

There is a lack of detail as to what analysis will be presented in the ES. It is therefore difficult to comment on the scope in this instance. We are pleased to note that dedicated marine mammal observers and towed PAM have been employed. However, further clarification is required on whether the second year surveys will also include further PAM survey's as we previously raised a number of queries regarding the methods (see our letter dated 12th March 2013).

Given the lack of detail presented in the scoping report, we assume that previous advice has been taken on board (see our letters to Marine Scotland dated 2nd November 2012 and 12th March 2013). We note, however, that our advice here will not prejudice any comments we

¹³ <http://scotland.gov.uk/Topics/marine/Licensing/SealLicensing/PBR>

¹⁴ <http://www.scotland.gov.uk/Publications/2011/03/22093944/0>

may have in due course on sight of the ES. Please see section by – ornithology – for further advice in relation to site characterisation surveys.

Potential impacts

Table 7.9 identifies the potential impacts of this development on marine mammals. We confirm that this list is appropriate and well considered.

We highlight that due consideration should be given to the most recent knowledge available relating to ‘corkscrew’ injuries to seals¹⁵, consistent with seals being drawn through a ducted propeller such as a Kort nozzle or some types of Azimuth thrusters. Vessels used for the proposed development could use such equipment.

Baseline characterisation

Section 7.2.6 details the sources of information that will be used to further inform, the distribution and behaviour of marine mammals, the collision risk and the baseline underwater noise conditions. The example data sources detailed are suitable.

For underwater baseline conditions, we welcome the undertaking to commission experience underwater noise specialists for this work. We would like to bring to your attention that there is a relevant project due to report in the next few months, regarding guidance as to the underwater noise measurements and methods, commissioned by Marine Scotland. We will keep you updated on this project as this may be useful to inform the methodology and reporting of underwater baseline noise.

Impact assessment strategy

Table 7.11 provides a clear description of the strategy that will be employed for the ES process and as we understand it the majority will be desk-based reviews. We are satisfied that the scope includes the key impacts, and we are pleased to see the inclusion of seal corkscrew mortalities.

Assessment for drilling is included, although we appreciate that should the preferred technology be deployed (*OpenHydro*) then there would not be any drilling.

Regarding the proposed desk review of noise generated by tidal stream devices we would highlight a recent Crown Estate Enabling Actions Report “*Robinson S.P., & Lepper P.A. (2013) Scoping study: Review of current knowledge of underwater noise emissions from wave and tidal stream energy devices*”¹⁶. Within this review we would expect some discussion/modelling as to the likely levels of noise emitted from the chosen device and an estimation as to how these noise levels might propagate through the environment for the proposed array, rather than for an individual device.

We understand that the view taken regarding the risk of injury due to collision with devices is informed by a report commissioned by *OpenHydro* (Carlson *et al*, 2012)¹⁷ which considered the mechanical and biological consequences of a turbine strike on an adult killer whale. The modelling suggested that the forces involved would not result in significant tissue injury. This is however, one study on one species in one area therefore we would expect wider consideration of this issue due to the novel nature of these developments (as is noted in table 7.11).

¹⁵ <http://www.smru.st-andrews.ac.uk/newsItem.aspx?ni=308>

¹⁶ <http://www.thecrownestate.co.uk/energy-infrastructure/wave-and-tidal/pentland-firth-and-orkney-waters/enabling-actions/projects-and-publications/>

¹⁷ Carlson T.J., Watson B.E., Elster J.L., Copping A.E., Jones M.E., Watkins M., Jepsen R., & Metzinger K. (2012) Assessment of strike of adult killer whales by an OpenHydro tidal turbine blade. Prepared for the U.S. Department of Energy under contract DE-AC05_76RL01860

We recommend that collision risk modelling is undertaken for marine mammals. As stated in our response of 12 March 2013, based on data presented so far we recommend modelling to be completed for grey seals, harbour seals, harbour porpoise and minke whales, but the final species scope will need to be agreed following completion of survey work. Our current model preference for seals and harbour porpoise is the Wilson *et al* / SRSI encounter rate model (ERM) and for larger marine mammals, such as minke whale, the Band/SNH collision risk model (CRM). We would welcome further dialogue with the applicant on what parameters are required and use of avoidance rates.

Mitigation and monitoring strategy

Table 7.12 provides a clear statement of the developers' strategy and we are pleased to see the commitment to develop an Environmental Mitigation Monitoring Plan.

We appreciate the developers' view that there is not an expectation that mitigation will be required for vessel underwater noise, operational device noise and risk of injury due to collision with the devices, but we advise that these areas are not scoped out of the ES and given further consideration as the project becomes more defined.

biv. Marine non-natives

Renewable devices in the marine environment provide clean surfaces for settlement of native and non-native species, and potentially could provide 'stepping-stones' for non-natives around our coast. In addition, the movement of vessels, barges, equipment and the devices themselves, both around the UK coast and internationally, could allow the accidental transfer of fouling organisms.

The applicant should give due consideration to these risks in their EIA and present best practice steps to which they can commit in order to manage these risks in the ES. We advise to minimise the transfer of invasive non-native species, biofouling management practices should be implemented, including the use of anti-fouling and / or foul-release systems and other operational management practices to reduce the accumulation of biofouling.

Although guidance specific to the renewables industry is yet to be produced, guidance for other related industries will be useful in identifying ways to minimise risks. For example:

- The Code of Practice published by the Scottish Government on non-native species to provide guidance on the recently amended legislation in Scotland. This CoP comes into effect on 2 July 2012 and applies in Scotland only¹⁸.
- Guidelines produced by The International Maritime Organisation (IMO) provide useful recommendations on general measures to minimise the risks associated with biofouling for all types of ships¹⁹.
- Guidance produced for the prevention and management of invasive species in the oil and gas industry²⁰.

¹⁸ www.scotland.gov.uk/Resource/0039/00393567.pdf

¹⁹ 2011 guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species. Resolution MEPC.207(62). MEPC 62/24/Add.1 Annex 26. Adopted 15 July 2011. Available at: www.mardep.gov.hk/en/msnote/pdf/msin1136anx1.pdf

²⁰ www.ipieca.org/publication/alien-invasive-species-and-oil-and-gas-industry

bv. Ornithology

Appendix D provides our advice on HRA for birds which are SPA qualifying features.

Baseline characterisation surveys

We note the letter from MS-LOT to the applicant on the 13 April 2013, which refers to the 'ongoing work taking place between Natural Research Projects Ltd (NRP) and Caloo Ecological Services (Nigel Harding) to establish whether the current Cantick Head (now Brims) survey design/methodology is adequate for EIA purposes'. MS-LOT provides the following advice:

'As we are in April and year 2 bird breeding season surveys are about to begin (or have started) and no definitive conclusion has been reached by Nigel Harding's ongoing work to answer the questions in relation to whether a change in survey methods will be beneficial for EIA purposes, changing the survey design at this late stage may be of limited benefit. As well as that the use of different survey designs within a single season may overly complicate the resulting outputs. MS-LOT therefore advise that no change in survey methodology is adopted at this late stage. However, due consideration must be given within the Cantick Head Scoping Report and Environmental Statement to the potential biases that may result from the relatively limited survey effort within the development area and immediate surrounds'.

As previously stated, it is unfortunate that the applicant did not submit the survey methodology to MS and SNH prior to surveys commencing, which may have prevented the issues mentioned above. Given the lack of detail in the scoping report we are currently unable to provide further comment on whether the survey methodology is adequate for EIA and HRA purposes. However, we refer to our response of the 12 March 2013 and reiterate our main concerns regarding the survey methodology:

1. Autumn and winter data gap – the continuation of site-based boat surveys during these seasons and the use of existing contextual data sources, such as the APEM digital aerial surveys, will help to plug this gap.
2. Sufficiency of effort in survey methods – we note MS-LOTs advice mentioned above and await further information from the survey results.
3. Observer fatigue – as mentioned, we remain concerned about the potential for observer fatigue on wildlife surveys that could be detrimental to the reliability of the data. In our response of 12 March 2013 we stated that 'the amount of rest provided to observers should be described and quantified in future reports', and that 'serious consideration be given to the use of additional observers in rotation, for both birds and mammals'. Again, we request this information is provided in any future reports.
4. Onshore focal studies - we welcome the inclusion of land-based observations to help inform the behavioural usage of the site by marine birds, but stress that this is relevant to all species, not just the auks. For example, red throated diver are highly sensitive to disturbance from boats, and it is possible that land-based survey methods may be preferable to boat-based surveys for this species.
5. Priority species rating – we refer to the comments made in our previous response of the 12 March 2013, and welcome the opportunity to provide further advice once baseline surveys and any supplementary data has been compiled.

We acknowledge that turnover of individual birds on site means that a larger number of birds will be involved than the count totals will record. At present there is no accepted method of calculating turnover rates, or generic values that can be applied. Awareness of the possibility

is acknowledged and should be interpreted as an added level of caution to the assessment of impacts.

Potential impacts on birds

Table 7.4 provides a good summary of the potential impact pathways for birds. However, in addition to seabed habitat loss/change due to turbine foundations and cable armouring, we strongly recommend that indirect impacts caused by hydrodynamic changes to surrounding seabed habitats and associated prey species are considered, as this may affect a much larger area and be of greater significance (see section bvi Hydrodynamic processes and coastal geomorphology below).

Table 7.4 should also include disturbance due to installation activities. As the installation methods are undecided it is possible that some of these activities, in addition to vessel activity, may disturb birds.

For assessing cumulative impacts, we recommend the use the Ornithological Cumulative Impact Assessment Framework²¹, developed under contract to The Crown Estate.

Baseline characterisation information

Section 7.1.6 provides a good summary of baseline information that may be used to inform the EIA and HRA.

Impact assessment strategy

It is proposed to undertake a qualitative collision risk assessment using diving behaviour and operational information on the tidal devices. Although this will be helpful in determining which species are sensitive to collision risk at this site, it is likely that a more quantitative assessment is required to assess the significance of collision risk for those species at greatest risk. We recommend, therefore, that collision risk modelling is undertaken for those species considered sensitive to collision risk at this site. Our current model preference for diving birds is the Wilson *et al* / SRSI encounter rate model (ERM) using a range of avoidance rates. We would welcome further dialogue with the applicant on what parameters are required and use of avoidance rates.

The impact assessment strategy should also consider indirect impacts due to hydrodynamic changes (as mentioned above) and the other potential impacts as listed in table 7.4, such as displacement from the vicinity of the turbines, lighting of TECs and other infrastructure, and seabed habitat loss/change, due to turbine foundations and cabling armour.

If undertaking density surface modelling (DSM), we recommend the applicant uses the guidance produced by CREEM under contract with MS Science. We understand this guidance will be published in the near future and recommend the applicant contacts MS Science for further information.

When assessing SSSIs, the applicant will need to consider species that are notified in their own right as SSSI features and those notified as part of the assemblage. Black guillemot, for example, are part of the seabird colony for Stroma SSSI.

²¹ <http://www.thecrownestate.co.uk/media/420424/PFOW-ornithological-cumulative-impact-assessment-framework.pdf>

Possible mitigation and monitoring methods

We welcome the inclusion of possible mitigation and monitoring methods and the development of a suitable strategy in consultation with MS, SNH and JNCC. It is possible that other potential impacts, as mentioned above, and depending on the final design of the project, may require appropriate mitigation and/or monitoring.

bvi. Hydrodynamic Processes & Coastal Geomorphology

Recommendations

Hydrodynamic effects of the tidal array are briefly considered in the scoping report but need to be assessed in greater detail for potential impacts on the near-field and far-field habitats and species. The ES should investigate and present information on all relevant changes to hydrodynamics (not just slowing of tidal flow, but lateral accelerations too, and any potential impacts on wave climate etc). Crucially, however, any hydrodynamic changes should be considered in terms of direct and indirect impacts to species and habitats, and their conservation importance.

At the potential landfall sites, greater consideration of the mobility, vulnerability and conversely natural protection that can be provided by a sensitive and informed choice of landfall site is required. Such an informed approach should extend throughout the design of the entire project. Specific thought should be given to how to make all infrastructure 'future proof' with respect to climate change and this coastal location.

The scoping report has not outlined the position of the array within the development area and the anticipated scale of hydrodynamic effects that may result from the array. We recommend, therefore, that the boundaries of the numerical modelling exercise, the bathymetric and habitat surveys should be sufficiently broad to enclose the areas of change.

Detailed comments on the scoping report

The routing and positioning of all infrastructure should make best use of the geodiversity²² of the site. This could make best use of natural protection offered by the landforms, but could also avoid areas of increased vulnerability. We welcome the acknowledgement that correct placing of the export cable can avoid future damage and costly maintenance, and recommend this informed approach is extended to all components of the project. If infrastructure passes through dynamic landforms (as is implied in the scoping report), like The Ayre, then specific investigations should be undertaken to appreciate the inherent dynamism of these features. Ayres in Orkney can be highly variable, whilst others can be largely stable. The use of historical map data will readily inform the developer of the changes over the last 100 years.

Table 7.4 of the scoping report considers '*Marine seabed habitat loss/change, due to turbine foundations and cable armouring*' but not marine seabed habitat loss/change due to hydrodynamic changes caused by the arrays. These are likely to be far greater in size and importance, and may have indirect impacts on other species which utilise these habitats. A robust assessment, informed by detailed numerical modelling, is necessary to establish potential changes on the potentially mobile habitats within and surrounding the array.

Table 7.27 only anticipates the decrease in flow being of interest / concern. This is not the only concern. Tidal flows can be accelerated in the areas adjacent to the arrays. All hydrodynamic change should be investigated and their significance on the receptors and their conservation importance.

²² <http://www.snh.gov.uk/about-scotlands-nature/rocks-soils-and-landforms/geodiversity/>

ADVICE IN RESPECT OF ONSHORE ELEMENTS

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

- ci. Habitats
- cii. Ornithology
- ciii. Mammals
- civ. Landscape and Visual Impacts

As discussed in the covering letter, we highlight that some of the project details are incomplete particularly in relation to the onshore elements of this proposal. Once further details regarding the location of the landfall, cable routes and associated onshore infrastructure are known, together with a better understanding of the methods to be employed, we will be able to further refine our advice.

ci. Habitats

We note that a phase 1 habitat survey has been completed for the cable corridor area of search, and will be used to inform the siting of the onshore cabling to the substation. We would welcome the opportunity to provide further advice on the phase 1 survey report and whether further detailed habitat surveys are required.

The scoping report also mentions that an intertidal survey has been completed. Again we would welcome the opportunity to provide further advice on this report, and whether the results could be used to inform the landfall site.

cii. Ornithology

Three types of bird surveys have been undertaken covering the onshore cable corridor area of search. These include: breeding wader surveys, shoreline surveys and coastal waters surveys. The scoping report presents a summary of the survey results which indicate that the cable corridor area of search is of limited ornithological importance. The results and recommendations will be used to inform the design and EIA process. We would welcome the opportunity to provide further advice.

The scoping report mentions that a 'desk-based assessment was carried out to collate historical data on the abundance and distribution of wintering Greenland barnacle geese in South Walls'. It also mentions that 'the findings of this assessment will be used to assess the potential impacts of the proposed development on this species and recommendations will be fed into the project design'. We hold recent goose counts from South Walls and advise the applicant to ensure early liaison.

Overhead cabling and the collision risk to birds is a concern for all areas in the cabling area of search. In addition to local movements of the barnacle geese during winter, geese have been observed departing in a westerly direction at BTALing migration. Furthermore, breeding red-throated divers and possibly also Arctic skuas from the Hoy SPA are likely to fly back and forth to North Bay across the Melsetter area.

ciii. Mammals

The proposed cable corridor route and site of the onshore substation and associated infrastructure and facilities (both permanent and temporary) will need to consider potential impacts to mammals including otters and bats (European Protected Species).

Appendix C provides advice on the legislation that relates to EPS. Coastal or freshwater habitats potentially impacted by onshore works will need to be surveyed for otters. We note an otter survey has been undertaken and would welcome the opportunity to provide further advice.

We also note that initial studies have been undertaken for bats during the extended phase 1 habitat surveys. Again we would welcome the opportunity to provide further advice in relation to bats.

civ. Landscape and Visual Impacts

We have provided advice in section aii above in relation to Seascape, Landscape and Visual Impacts. We reiterate our recommendation that the applicant discusses these aspects further with Marine Scotland, OIC and ourselves.

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 and the Birds Directive are 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. For all onshore elements that may be consented through the Town and Country Planning system these amended Habitats Regulations will apply. Certain provisions of The Conservation of Habitats and Species Regulations 2010, as amended (the "2010 Habitats Regulations") apply to Natura sites in Scotland where they may be affected by activities consented under section 36 or section 37 of the Electricity Act 1989.

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.

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 61. 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 features of a Natura site, even when those features may be at some distance from that site.

The competent authority (Marine Scotland), 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 features 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 features of SPAs, and for the various qualifying features of marine and terrestrial 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 features** and the **conservation objectives** for each relevant Natura site is available from our Sitelink²³ database.

For further advice on the HRA process we direct the applicant to our website, including the leaflet on “Natura sites and the Habitats Regulations²⁴” which provides a helpful summary. Some of the key concepts are explained in the European Commission's guidance on Article 6 of the Habitats Directive²⁵. 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 Government policy relating to Natura sites.

²³ <http://www.snh.gov.uk/publications-data-and-research/snhi-information-service/sitelink/>

²⁴ <http://www.snh.gov.uk/docs/C204761.pdf>

²⁵ http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf

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'. All cetaceans, and otters are EPS; however this legislation does not currently extend to pinnipeds, basking sharks, birds or benthic habitats or species.

SNH is the statutory nature conservation body who provides advice on EPS in respect of the Habitats Regulations in Scotland, including Scottish Territorial Waters²⁶. 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

²⁶ SNH advice on EPS under the Habitats Regulations 1994 (as amended) at:
<http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/legal-framework/habitats-directive/euro/>

– Explanatory guidance for species related activities²⁷.

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 Marine Scotland²⁸ or by SNH²⁹ depending on the reason for the licence request. Please note that Marine Scotland are now responsible for issuing licences for cetaceans, and SNH will be responsible for issuing licences for otters. Licences are only issued under strict conditions as set out in regulations 44 and 45 of the Habitats Regulations.

As highlighted in Scottish Government Interim Guidance³⁰, 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 Marine Scotland / SNH are currently the licensing authorities. This regulation states that licences may be granted by Marine Scotland / SNH 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 (Marine Scotland / SNH) 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 (Marine Scotland / SNH) 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.

WILDLIFE AND NATURAL ENVIRONMENT (SCOTLAND) ACT 2011

Basking Sharks

Although not a European Protected Species, Basking Sharks are afforded protection under the Wildlife and Countryside Act 1981 (as amended) and the Wildlife and Natural Environment (Scotland) Act 2011, with disturbance licensing requirements similar to those for EPS. Marine Scotland is the licensing authority.

²⁷ Scottish Government Guidance available at:

<http://www.scotland.gov.uk/Resource/Doc/1221/0050637.pdf>

²⁸ <http://www.scotland.gov.uk/Topics/Environment/Wildlife-Habitats/16330>

²⁹ <http://www.snh.gov.uk/protecting-scotlands-nature/species-licensing/mammal-licensing/marine/>

³⁰ <http://www.scotland.gov.uk/library3/environment/epsq.pdf>

APPENDIX D

BRIMS TIDAL ARRAY: HABITATS REGULATIONS APPRAISAL SPECIAL PROTECTION AREAS

Information on the legislative framework with regard to HRA can be found in Appendix B. We have reviewed the scoping report, and in particular Appendix B Habitats Regulations Appraisal Screening, and offer the following comments in relation to SPAs:

1. The HRA screening report provides an account of the approach taken for the initial screening of Natura sites for HRA for the proposed tidal array. We commend the approach taken and welcome continued dialogue as the HRA progresses and further information from site characterisation surveys becomes available.
2. The breeding seabird foraging ranges used are based on Birdlife data and Thaxter *et al.* (2012). Thaxter *et al.* (2012) is the preferred source for foraging ranges and gives the certainty that can be placed on the distances. However, we note that Thaxter *et al.* 2012 does not provide cumulative frequency distribution plots. Further information on breeding seabird foraging ranges, such as results from the FAME project, may become available which could be used for this approach.
3. The approach only includes breeding seabirds that are qualifying features of SPAs and Greenland barnacle geese which are a qualifying feature of Switha SPA. The HRA will also need to consider migratory or wintering species, breeding wildfowl and waders, and seabirds during the non-breeding season (see note below).
4. As stated in previous correspondence, SPA breeding seabird populations are protected at all times and not just the breeding season. Therefore, we strongly recommend consideration of SPA populations during the non-breeding season in the HRA. We understand however, that outside the breeding season most species tend to range more widely, complicating the identification of connectivity with sites and the HRA process. The Statutory Nature Conservation Bodies (SNCB's) have been consulting on this topic but we do not expect to be able to provide detailed guidance to the applicant in near future. Baseline surveys during the non-breeding season will provide further information to inform the HRA/EIA. The assessment of impact on SPA populations should then be assessed using knowledge of behaviour and wintering range for each species.
5. We consider the indices presented in Furness *et al.* (2012) as a useful source for considering potential routes of impacts and the sensitivity of different species to tidal developments. However, the authors clearly state the results should be treated with caution as the review is not site-specific and does not consider local issues related to seabirds near any particular development site. Therefore, we recommend flexibility when applying these indices to account for the local situation. For example, it is not possible to scope out lower vulnerability species which occur in higher numbers near a development site and have the potential to be affected by the development. We also strongly recommend that this is conducted on a case-by-case basis, taking account current status and trend of the species involved.
6. Note that in Furness *et al.* (2012) shag are given a high vulnerability score for tidal turbine impacts and not very low as shown in appendix B.

7. Page 4 mentions 3 criteria used to established whether or not there is a potential for likely significant effect (LSE). We recommend the following criteria are added: whether the project lies within an identified migratory path or wintering area, and whether or not there is potential for any of the conservation objectives to be undermined.
8. Four abundance categories are used to give an indication of the use of the survey area by each seabird species. We require further clarification on how the average numbers of birds present have been calculated (i.e. average per survey, month, breeding season?). We advise caution when using such categories as they take no account of the current conservation status and trend of each species. They are also based on data from the first year of survey only. We note that different terms are used in section 2.1.3 (i.e. rare), table 4 (i.e. scarce), and table 5 (i.e. rare), which needs addressing to avoid confusion.
9. The key question in any appropriate assessment is whether it can be ascertained that this proposal, alone or in combination, will not adversely affect the integrity of any of the identified SPAs, where there is a likely significant effect. The conservation objectives that we advise require further consideration in particular are: significant disturbance to the qualifying species and the population of the species as a viable component of the site. However, given the AfL is partially within the Hoy SPA the conservation objectives relating to habitats which support the qualifying features, and distribution of the qualifying features within the site, will also need to be considered. For example, indirect impacts to seabirds caused by hydrodynamic changes affecting benthic habitats.
10. In addition to the next steps mentioned in section 4 of appendix b, we recommend that the potential impacts of the proposal are considered, how these will vary between construction, operation, maintenance and de-commissioning stages, and whether or not there is potential for any of the conservation objectives to be undermined. These should also include indirect impacts such as changes to habitat and food availability, or cumulative impacts. For the latter we recommend use of the Ornithological Cumulative Impact Assessment Framework³¹ work for Pentland Firth and Orkney Waters, developed under contract to The Crown Estate.
11. We recommend that the most recent, reliable population figures should be used when assessing potential effects on SPAs. These estimates must be interpreted with reference to the original baseline (site citation – see SNH Sitelink³²) population figures to establish whether there have been any significant changes in numbers supported by the site since classification. Recent population figures may be gathered from the SNH Site Condition Monitoring and the Seabird Monitoring programmes. Further information may also be found in the Marine Scotland report – *Population sizes of seabirds breeding at Scottish SPAs*³³. Importantly, site populations also need to be considered in the context of the wider population trends and the current conservation status of the species. For example, at Hoy SPA there have been substantial declines in the fulmar, kittiwake, common guillemot and puffin colonies resulting in an ‘unfavourable’ condition status. The current status of the qualifying feature should be considered in the HRA.

³¹ <http://www.thecrownestate.co.uk/media/420424/PFOW-ornithological-cumulative-impact-assessment-framework.pdf>

³² <http://www.snh.gov.uk/publications-data-and-research/snhi-information-service/sitelink/>

³³ <http://www.scotland.gov.uk/Topics/marine/marineenergy/Research/seabirdsize>

12. We are currently in the process of finalising a guidance note on how to apportion impacts on breeding seabird colonies, including SPAs, and recommend that this guidance note is incorporated into HRA process. We will provide the applicant with a copy of this as soon as it is available and would be happy to give further advice as the HRA progresses. However, in the absence of this guidance we are content for the applicant to use a reasoned approach to apportioning, and recommend that colony size and distance from the proposed size are factored in to any calculation.
13. The applicant should be aware of the on-going work to identify new marine SPAs, which may need to be considered in the HRA. The JNCC marine team newsletter (August 2013)³⁴ provides a useful update on this work.

³⁴ http://jncc.defra.gov.uk/pdf/SAS_SPA_News_August_2013.pdf

APPENDIX E

BRIMS TIDAL ARRAY: HABITATS REGULATIONS APPRAISAL SPECIAL AREAS OF CONSERVATION

Information on the legislative framework with regard to HRA can be found in Appendix B. We have reviewed the scoping report, and in particular Appendix B Habitats Regulations Appraisal Screening, and offer the following comments in relation to SACs:

1. The HRA screening report provides an account of the approach taken for the initial screening of Natura sites for HRA for the proposed tidal array. Again, we commend the approach taken and welcome continued dialogue as the HRA progresses and further information from site characterisation surveys becomes available.
2. In addition to the SACs listed in Table 7 (appendix b of the scoping report), we recommend River Evelix SAC and Abhainn Clais an Eas and Allt a' Mhuilinn SAC, both designated for freshwater pearl mussel (FWPM), are included. Atlantic salmon (and other salmonids) are integral to the life cycle of FWPM, therefore any impacts to Atlantic salmon that prevent them from returning to their natal rivers may have a resulting effect on FWPM populations.
3. Although there is a lack of information regarding the migratory routes of sea lamprey, there are no historical records of this species in the vicinity of the proposed development site. We therefore consider at this stage to be no likely significant effect to the River Spey SAC for sea lamprey from the proposed Brims Tidal Array.
4. We do not expect the applicant to undertake any specific site characterisation work to inform the HRA for migratory fish and FWPM. This is an issue for MS, SNH and the applicant to discuss and agree on the most suitable approach.
5. In the scoping report, potential LSE has been concluded for bottlenose dolphins from the Moray Firth SAC. Although this species is wide ranging, there are limited observations of bottlenose dolphin in the Pentland Firth and Orkney Waters³⁵. Furthermore, results so far from the baseline surveys have not recorded this species. We therefore consider at this stage to be no likely significant effect to Moray Firth SAC from the proposed Brims Tidal Array and advise this site and the bottlenose dolphin qualifying feature are likely to be screened out of the HRA process. We remind the applicant that continued baseline characterisation surveys will help contribute further information as to whether this species needs to be considered in relation to the HRA and / or EPS licence requirements.
6. We note that recent telemetry data suggests movement of grey seals between the Pentland Firth and Orkney and North Rona SAC located approximately 130km to the west of the Pentland Firth. Telemetry data also suggests some evidence of movement of seals between Orkney and other SACs, such as the Isle of May SAC and Berwickshire and North Northumberland Coast SAC. SAC breeding grey seal populations are protected at all times and not just the breeding season. We understand however, that outside the breeding season grey seals tend to range more widely, complicating the identification of connectivity with sites and the HRA process. We are considering our advice internally over this topic and expect to be able to provide guidance to the applicant in due course. Baseline surveys during the non-breeding season will provide further information to inform the HRA/EIA. We currently

³⁵ www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1727

advise, therefore, no LSE for the Isle of May SAC and Berwickshire and North Northumberland Coast SAC.

7. Table 7 should more clearly state for which qualifying features there is potential for LSE and for which features there is no LSE. Otters are currently listed as a qualifying feature for a number of SACs. However, considering none of these SACs are within close proximity to the proposed development site, no LSE can be concluded.
8. Once we have been provided with further information on the location of the on-shore works, we will be able to provide further information on whether the proposal will have a likely significant effect on the qualifying habitats of the Hoy SAC.
9. In addition to the steps mentioned in section 4 of appendix b, we recommend that the potential impacts of the proposal are considered, how these will vary between construction, operation, maintenance and de-commissioning stages, and whether or not there is potential for any of the conservation objectives to be undermined. These should also include indirect impacts such as changes to habitat and food availability, or cumulative impacts.
10. We provide further detailed HRA advice in relation to step 3 below.

Advice for HRA in respect of SAC qualifying features

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

This stage of HRA is termed appropriate assessment, and it is undertaken by Marine Scotland (the competent authority) based on information supplied by the applicant, with advice provided by SNH.

Appropriate assessment considers the implications of the proposed development for the conservation objectives of the qualifying features for which a likely significant effect has been determined. These conservation objectives follow a standard format requiring protection of the qualifying features and protection of the habitat in the SAC which supports them.

SAC Conservation Objectives for seal SAC features

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

And to ensure for seals that the following are maintained in the long term:

- (iii)** Population of seals as a viable component of each site
- (iv)** Distribution of seals within each site
- (v)** Distribution and extent of habitats supporting seals
- (vi)** Structure, function and supporting processes of habitats supporting seals

repeat of (ii) No significant disturbance of seals.

SAC Conservation Objectives for Atlantic salmon SAC features

The **conservation objectives** for Atlantic salmon and sea lamprey 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 SAC is maintained and that they make an appropriate contribution to achieving favourable conservation status for the qualifying species.

And to ensure for the qualifying 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.

SAC Conservation Objectives for freshwater pearl mussel SAC features

The SAC **conservation objectives** for Atlantic salmon and freshwater pearl mussel (where appropriate) are: **(i)** to avoid deterioration of the habitats of the qualifying species or **(ii)** significant disturbance to them, thus ensuring that the integrity of the SAC is 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 (where relevant), 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 in addition 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

Issues to consider under Appropriate Assessment

For seals, it is probably conservation objective (iii) that has most relevance – population of the species as a viable component of the SAC. The proposal is far enough away from the above listed SAC for there not to be direct impacts, or disturbance, to the seals whilst they are within the SAC. However, there may be occasions when they forage far enough from the SAC to come into contact with the proposed tidal energy site.

We advise that noise impact assessment is likely to be an important part of assessing any disturbance to seals whilst they are out with their SAC, including their potential displacement from feeding grounds and other supporting habitats. We highlight that collision risk will need to be considered, as will potential direct and in-direct impacts on the prey species.

While we consider that the installation phase may give rise to the greatest risk of disturbance, potential impacts during the operational phase of the proposal will also need to be considered, as well as any repowering and decommissioning work. Potential for corkscrew injuries from use of vessels with ducted propellers will also need to be considered.

For Atlantic salmon we advise that a noise/vibration/EMF impact assessment is likely to be an important part of assessing any disturbance whilst these species are outwith the SAC. Further information on the installation, operation, maintenance and decommissioning of the array is required to assess whether there will be any direct disturbance to Atlantic salmon. We highlight that collision risk will need to be considered.

For freshwater pearl mussel the key requirement will be to demonstrate that the distribution and viability of the freshwater pearl mussel host species are maintained in the long term - conservation objective (vii).

The key question in any appropriate assessment for the Brims Tidal Array is whether it can be ascertained that this proposal, alone or in combination, will not adversely affect any Natura site(s), where it has been advised that there is a likely significant effect.

Ongoing Liaison

We will continue to review our advice on HRA as the proposal progresses, as survey work and analyses are undertaken, and when construction methods, location of infrastructure, and other aspects of the proposal tidal energy development have been finalised.

Association of Salmon Fishery Boards

Nil return

British Telecom (Radio Network Protection Team)

Nil response (no comment) from BT Radio Network Protection.

Chamber of Shipping

Nil return

Crown Estate

No comments to make.

Health and Safety Executive

HSE is the national independent watchdog for work-related health, safety and illness. They have a dedicated team that regulates occupational health and safety standards for the offshore renewable energies industry. You are advised to contact this team to discuss how you will manage health and safety during the planning, construction and operation of your offshore renewable project.

They are contactable at:

Health and Safety Executive
Belford House
59 Belford Road
Edinburgh
EH4 3UE
trevor.johnson@hse.gsi.gov.uk
offshore.renewables@hse.gsi.gov.uk

Historic Scotland

General comments

Historic Scotland understand that the proposed development will consist of offshore tidal generators and associated development including inter-array cables, export cable to shore, offshore substation and onshore cabling and that it is proposed to develop the project in two phases. It is noted that certain project components including any proposed onshore substation as identified in paragraph 3.2 of the scoping report do not fall within the scope of this assessment.

Historic Scotland welcome the inclusion of information in the scoping report on the location and extent of the areas of search proposed for offshore, landfall and onshore elements of the proposed development. Historic Scotland is content with the level of information supplied for preferred and alternative technologies. As the project will have an impact on both on and offshore heritage assets I have the following advice to offer.

Marine archaeology

Historic Scotland welcomes the inclusion of information on potential impacts on both known wreck sites and for unknown archaeological features including palaeo-landscapes in the scoping report. It is noted that the guidance referred to in our response to the consultation on the Cantick Head tidal array has been included within the list of example data sources in section 6.8. However, from the information provided it is not clear at what stage the developer will be seeking archaeological assessment of geotechnical and geophysical data. We advised that the developer should seek the advice of an appropriately experienced marine archaeologist prior to the finalisation of survey design. This advice remains relevant.

Onshore archaeology

It is noted that the information provided in the scoping report on potential impacts on heritage assets is within our remit. It is noted that there are a number of such assets within the areas of search as indicated in figure 6.10. In planning the location of the onshore components of the proposed development, potential impacts on both the site and setting of these features should be taken into account. The developer may find our Managing Change guidance on setting helpful in considering this issue. In planning any additional related development such as a potential new substation and overhead cables, the developer should take the advice provided in Orkney Islands Council's supplementary planning guidance for the Heart of Neolithic Orkney world heritage site.

Orkney Fishermen's Association

6.6.2 Land use within south Hoy. Much of the land that may appear 'idle' may part part of common grazing land.

6.14.1

'The surrounding inshore waters are also fished by a number of local creel fishermen.' It is important to understand the inter-connected dynamics of catching processing and onward shipping of crab and lobster in Orkney and how a symbiotic relationship exists between disparate parts of the whole which sustain the collective Orkney fishing industry model.

7.3

It should be understood that regulatory change has affected the species that are fished and may change target species in the future.

Lobster is significant as a high value catch.

7.3.2 Table 7.14

It should be noted that electro magnetic fields EMF effect the migration of crustaceans preventing them crossing filds which may alter breeding and migration patterns.

11

11.1

Scoping –it is essential to identify the economic impact on fisheries through an understanding of the interconnected and symbiotic interdependence of the fragmented fishing fleet and its various buyers and processors.

Cumulative impacts on fisheries should encompass all impacts, relating to other renewable developments, aquaculture, other threats (invasive species) and the particular dynamic pattern of catching, processing and selling that is unique to Orkney.

12

12.1

Human Environment

The potential to leech personnel from other local industries thereby destabilising them.

Crustaceans should be included in EMF effects.

Maritime Coastguard Agency

1. The revision of the site name is noted and supported as the geographic area reference is retained.
2. The report uses OS maps, these should be replaced with UKHO charts, allowing the full maritime picture to be reviewed.
3. The shape of the AFL indicates a potential division of the site development, this if at all possible should be avoided, ensuring the generators are co-ordinated in a uniform array.
4. The first point in table 6.44 should replace the reference to exclusion zones with 'safety zones' the former can only be instigated by the Secretary Of States Representative (SOSREP), furthermore the requirement cannot be assumed, appropriate application for a safety zone is made through DECC.
5. Within the last point in this table, any changes to shipping routes would not be sanctioned until a detailed NRA and review has been undertaken.
6. Table 6.44 reference has been duplicated
7. Table 6.45 the reverence to a detailed NRA in accordance with MGN 371 and the Risk Assessment Methodology is supported, and will inform any decisions and mitigation measures for the proposed project.
8. Under keel Clearance (UKC) will be a key consideration for this project, and should be considered against the UKC guidance paper provided by MCA

As is always the case with these projects a full review is difficult to consider without clear reference to turbine type and layout, once this information is available a more detailed review will be undertaken.

Moray Firth Sea Trout Project

Nil return

NERL Safeguarding (NATS)

Not contacted

Northern Lighthouse Board

As identified in the scoping report we require a formal Navigational Risk Assessment be made in accordance with MGN 371, verifying, updating and expanding on the information given in Appendix C: Preliminary Hazard Analysis for Brims Tidal array of the Scoping Opinion documents, it should also be used to formalise any risk and mitigation measures.

Such an assessment must take into account the available depth of water over the proposed installed turbines and the effect of heavy seas and vessel movement in relation to under keel clearance of marine traffic. The cumulative effect of developments must be considered and information shared with other developers.

Any marking and lighting recommendations required will be made within a formal response through the Marine (Scotland) Act 2010, Part 4 Marine Licensing consultation process. Any 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.

Royal Society for the Protection of Birds

We provided a response at the pre-scoping stage in May 2012 and the issues raised therein remain relevant. In addition, to these original points and following review of the Brims Tidal scoping report we take this opportunity to raise the following points:

- Overall, we welcome and support the approach to environmental assessment as it is laid out in the scoping report. We also concur with the topics identified for consideration in the EIA and HRA. As acknowledged within the report, the tidal energy industry is in its infancy and in some cases there is little available empirical data to support the environmental assessment process. However, progress is being made and a number of projects and research packages are ongoing. At this stage we recommend that regular reviews on monitoring and relevant research outcomes are undertaken to ensure the most up to date information, evidence and guidance is utilised to support the application and the supporting assessment.
- We recommend a record of the tidal states at time of survey is included in any reporting. This will enable an appraisal of the potential temporal variations and representative of the survey effort to these different states.
- Table 7.4 does not refer to the potential indirect impacts to prey species of birds and effects this may have. We would recommend inclusion of this potential indirect impact in the assessment.
- From reading Table 7.6 it is not clear whether collision risk modelling will be utilised in the assessment. We are aware that SNH are developing guidance for assessing tidal collision risk and would recommend requesting an update on this matter from them. We would expect the application to include collision risk modelling for the assessment of impacts to diving birds.
- there is currently a lack of up to date bird information on the current status of Sites of Special Scientific Interest and Special Protection Areas, particularly in terms of colony population and productivity estimates, recent trends and conservation status. We recommend detailed liaison with Scottish Natural Heritage/ JNCC in order to establish

an agreed approach to considering these important contextual issues within the assessment.

- we encourage consideration of the recent review prepared by RSPB on birds and tidal stream energy projects when undertaking/ designing the survey work and assessments:

'Birds and wave & tidal stream energy: an ecological review' Research Report No. 42 (McCluskie, A.E., Langston R.H.W. & Wilkinson N.I. (2012) Published in: RSPB research report no. 42).

(http://www.rspb.org.uk/Images/mccluskie_langston_wilkinson_2012_tcm9-307966.pdf)

Royal Yachting Association

RYA Scotland has contributed comments to the previous Cantick Head proposals, the Pentland Firth and Orkney Waters Shipping Study and to the recent consultation on the shipping study demonstrated the seasonality of use of waters in the area.

A more informative approach might be to establish the circumstances (intended destination, weather, tide etc.) in which a recreational vessel would pass through the area.

We welcome the commitment for site design and offshore route selection to consider offshore recreation use patterns (Table 6.3.5). The cable route and its landfall are unlikely to have an adverse impact on recreational sailing.

In Table 6.44, recreational boating should also include operators of dive and sea angling vessels and Pentland Firth Yacht Club based in Scrabster. Note that if all the devices were to have an adequate clearance above them the NRA would be very short. If there are any surface piercing elements then a full NRA will be required. It is a policy of the RYA to object to any exclusion zone where a clear case for it has not been made, bearing in mind that there are many cases where it is difficult for a vessel to establish whether or not it is in an exclusion zone (and marker buoys can themselves be hazards in adverse conditions) and that *force majeure* caused by bad weather can reduce a skipper's course options.

PFOW Pilot Marine Spatial Plan.

As mentioned in section 6.11.2, the UK Coastal Atlas of Recreational Boating, published by the RYA shows a light use cruising route crossing the south east corner of the site between Scrabster and Cantick Head. An anchorage in Aith Hope is described in the Clyde Cruising Club *Sailing Directions and Anchorages N & NE Scotland and Orkney Islands*.

The more detailed and more recent PFOW shipping study showed that only a few recreational vessels pass through the proposed site although the data used in the construction of the charts were strongly based on AIS information, which most smaller recreational craft do not use. The recent port developments at Scrabster and increased recreational interest in the waters to the north west of Scotland may result in increased use of this route in the future, particularly in conditions of deteriorating weather.

Thus recreational impacts should not be scoped out of the study.

Enough information has been supplied about the technologies to provide a scoping opinion. Any device with a minimum clearance of 8 m below LA T poses little risk to recreational craft. However, any technology with surface piercing elements does pose a risk, particularly in areas of strong tidal flows where a vessel's speed through the water is not much more than the tidal rate. Discussions with local sailors and sea users (6.11.4) will be useful provided that the term local includes sailors based in Scrabster.

Due to the low levels of activity found in the PFOW shipping study and the difficulty of spotting recreational craft on radar, it is by no means certain that a four week study would be informative, particularly since the shipping study demonstrated the seasonality of use of waters in the area. A more informative approach might be to establish the circumstances (intended destination, weather, tide etc.) in which a recreational vessel would pass through the area.

We welcome the commitment for site design and offshore route selection to consider offshore recreation use patterns (Table 6.3.5). The cable route and its landfall are unlikely to have an adverse impact on recreational sailing. In Table 6.44, recreational boating should also include operators of dive and sea angling vessels and Pentland Firth Yacht Club based in Scrabster. Note that if all the devices were to have an adequate clearance above them the NRA would be very short. If there are any surface piercing elements then a full NRA will be required. It is a policy of the RYA to object to any exclusion zone where a clear case for it has not been made, bearing in mind that there are many cases where it is difficult for a vessel to establish whether or not it is in an exclusion zone (and marker buoys can themselves be hazards in adverse conditions) and that *force majeure* caused by bad weather can reduce a skipper's course options.

Transport Scotland

We have been passed a copy of the Environmental Scoping Report prepared by Royal Haskoning DHV and Aquatera in support of the above development. Having reviewed the information provided, particularly section 6.13, we would make the following comments on behalf of Transport Scotland.

8.1.1 Site Access

We understand from the Scoping Report that the proposed development is an offshore tidal array providing up to 200MW of power, off the south of Hoy, Orkney. There are no trunk roads on Orkney, so the nearest trunk road to the site is the A9(T) on the Scottish mainland. It is noted from section 4.5.6 of the Scoping Report that the location of the landfall and onshore substation is not yet decided and therefore detailed access arrangements are yet to be decided. We would note that the locations and associated access arrangements are likely to be a matter for the local roads authority rather than Transport Scotland. The Scoping Report identifies that some movement of abnormal loads may be required, and that a separate assessment will be undertaken of the suitability of the relevant roads. Several local ports are listed as potentially providing strategic access, including Scrabster on the north coast of Scotland which is close to the A9 trunk road.

8.1.2 Assessment of Impacts

We would accept that the traffic and associated environmental impacts of the development on receptors adjacent to the trunk road network will be negligible and would confirm that Transport Scotland do not require any further assessment in this regard. If abnormal loads are to be transported on the Scottish mainland then the ES should identify the expected port of delivery for large components such as cable drums and transformers, and provide an assessment of the route to the site in terms of its suitability for the transportation of abnormal loads. The details required would include a report which considers the movement of abnormal loads including swept path analysis, measures required including the temporary removal of street furniture, any proposed junction widening, traffic management etc to ensure that the movement of these loads will not have any detrimental effect on structures within the route path.

Whale and Dolphin Conservation Society

WDC are endeavouring to assist with the environmentally sustainable development of marine renewable energy in Scotland. Whilst welcoming the Scottish Governments' commitment to renewable energy generation, particularly noting the potential consequences of climate change for cetaceans, we have serious concerns about current levels of uncertainty and the possible negative impacts these developments, both individually and cumulatively, may have on cetaceans (whales, dolphins and porpoises) and seals in Scottish waters.

We note that the OpenHydro Open-Centre Turbine (OCT) is the preferred technology for this development and requires no pile driving during construction. We understand that the final decision on the support structures will be made post-consent due to the advances in technology and the experiences of other tidal sites, however the alternative technologies potentially require pile driving. There is considerable scientific uncertainty surrounding the impacts of pile driving during construction on all species, and in this region. As a result, our preference is that pile driving is not used at all during construction. An effective underwater noise mitigation plan needs to be developed within the Environmental Mitigation Monitoring Plan (EMMP) for all the potential support structures.

We welcome the development of the EMMP in consultation with Scottish Natural Heritage (SNH) and the Joint Nature Conservation Committee (JNCC). The EMMP should be appropriate to the level of works. WDC requests involvement in the development of the EMMP.

WDC has serious concerns about the use of ducted propellers. Ducted propellers should not be permitted unless they are guarded or potential impacts can be effectively mitigated in some other way, especially for harbour seals. If ducted propellers are to be used, a proposed Seal Corkscrew Injury Monitoring Scheme (SCIMS) should be developed and such include informing ship crew about the possibility of interactions and a requirement to minimise use, as well as Marine Mammal Observer searches for seal carcasses to determine if injuries to seals are occurring. Beach searches should be conducted regularly enough to allow the carcasses to be 'fresh' enough for a cause of death, where possible, to be determined. There is growing evidence to suggest that harbour porpoises also suffer from 'corkscrew injuries' (Deaville et al., 2013), therefore within the SCIMS any stranded marine mammals should be reported to the Scottish Marine Animal Stranding Scheme (SMASS).

We agree with how the developers will obtain information and account for other developments in the cumulative impacts.

We understand the data sources in Table 7.10 are examples, and would welcome the addition of primary literature e.g. peer-reviewed journal articles.

Habitats Regulations Appraisal (HRA) Screening

Dornoch Firth and Morrich More Special Area of Conservation (SAC) for harbour seals should be changed to 'Potential LSE' due to the severe declining population of this species and also to account for cumulative effects.

Whilst not a requirement for the HRA, the potential impact on other cetacean species e.g. minke whale, harbour porpoise and white-beaked dolphin, which are listed as Priority Marine Features and minke whale and white-beaked dolphin are drivers in the Scottish Marine Protected Areas project, should also be given adequate consideration.

Inshore Fisheries Group

Nil return

Marine Safety Forum

Nil return

Ports and Harbours

Nil return

Scottish Canoe Association

Nil return

Scottish Fishermans Federation

Nil return

Scottish Fishermans Organisation

Nil return

Scottish Government Planning

Nil return

Scottish Wildlife Trust

Nil return

Surfers Against Sewage

Nil return

Ministry of Defence

Nil return

Annex 2 – RYA Position Statement



THE RYA'S POSITION ON OFFSHORE ENERGY DEVELOPMENTS

DECEMBER 2009

The RYA has taken an active role in policy making that affects boat users and has been the voice of recreational boating for over a century. We represent our 100, 000 personal members and over 1500 affiliated clubs representing approximately 400, 000 boating enthusiasts and administer training standards at over 2000 recognised teaching establishments. Research conducted by the RYA, BMF, MCA, RNLI and Sunsail in 2006 showed there were approximately 3.5 million participants in boating-related watersports in the UK. The BMF estimates the total turnover of the UK leisure and small commercial marine industry in 2005/6 was £2.8 billion. Of this, the 'value added contribution' which is the principal measure of national economic benefit was £1.04 billion (37.6% turnover). The industry employs 35,000 people across 4300 different businesses.

RYA represents users of inland and coastal:

- Cruising and racing sailing and motor boats
- Sailing dinghies and day boats
- Windsurfers
- Personal watercraft

The RYA supports the UK Government's and evolved administrations' efforts to promote renewable energy³⁶. We note that it is Government policy that wind farms should not be consented where they would pose unacceptable risks to navigational safety after mitigation measures have been adopted³⁷. Our primary purpose in engaging in the consultation regarding the development of offshore energy developments is to secure navigational safety and to ensure that recreational boating interests are not adversely affected. The RYA has made objections to some of the proposed developments on grounds explained in this document. As more issues have come to light, we have reviewed our position on offshore energy development. We recognise that some marine renewable schemes may provide opportunities to benefit recreational sailors, e.g. active breakwater types of power generation can provide areas of sheltered water.

This position paper sets out our concerns from a general perspective and should enable developers to more accurately take account of recreational boating concerns in their environmental impact assessments.

³⁶ The UK Renewable Energy Strategy 2009. HM Government

³⁷ Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) DECC. November 2009. Note that this NPS will be a relevant planning consideration even though marine planning is a devolved issue in Scotland and Northern Ireland and in some cases Wales.

In summary the concerns of recreational boating and offshore energy developments relate to:

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

The MCA has developed guidance for assessing the navigational impact of offshore renewable energy installations, this should be utilised in addition to the information contained here³⁸.

1. Navigational Safety

Prior to leaving the shore, mariners make a passage plan and make assessments based on weather, tides and the environmental conditions. Offshore developments become an additional navigational hazard to the mariner. However, if sited sensitively, well designed and managed effectively these developments can satisfy the safety issues of concern to recreational boating.

Construction of the first offshore wind farm, North Hoyle, was completed in 2004. Since that time, Scroby Sands was completed in 2004, Kentish Flats in 2005, Barrow in 2006, Burbo Bank in 2007, Lynn in 2008 and Inner Dowsing in 2008. A further seven are currently under construction and seven more are consented and awaiting a start date. There have been no reported incidents involving recreational craft and offshore wind farms in these five years of operation around the UK coast.

Collision risk

The RYA believes that poorly designed wind farm developments could pose a risk of rotor blade collision with recreational craft. Wave and tidal developments and the sub-surface structures and scour protection associated with wind turbines could similarly pose a threat of underwater collision. The danger that moving rotor blades or other parts of the mechanisms pose is the reason for concern. Navigating around static hazards is part of sailing and only in rare situations, such as in narrow channels with strong tidal flows, do static installations pose a threat.

The RYA believes that the threat to recreational yachts can be minimised by specifying

- 1. a minimum rotor height clearance above mean high water BTALings of 22 metres**
- 2. a minimum underwater clearance of 3.5 m below mean low water BTALings**

Practice, Safety and Emergency Response Issues: MCA 012 Offshore Renewable Energy Installations (OREIs): Guidance to Mariners Operating in the Vicinity of UK OREIs".

The RYA has developed its position on clearance height and depth on the available data. Firstly an estimation of the air draught of the national fleet of yachts around the UK was established in the knowledge that these types of yachts may be found in all UK waters, these data are taken from the Royal Ocean Racing Club (RORC) Rating Office's database. For more detail see the final section on *Developing RYA policy on minimum clearance height and depth*.

Risk management and emergency response

Risk management provisions should be formulated from the results of a site specific risk assessment that accounts for recreational craft. Recreational craft can be generalised as 'small craft' which are defined by the MCA as those craft under 24m in length. This distinction is important when it comes to equipment and other requirements for small and large craft. Guidance was developed in 2005 to outline the requirements for assessing the navigation impacts of offshore wind farms³⁹.

For recreational craft, such an assessment should take into account the following parameters:

- The number, size and type of local vessels
- The number, size and type of national vessels
- Annual events that are not covered in a short term monitoring
- Wave height and sea state conditions
- Monitoring should be carried out during the high season
- A range of possible incidences

Any risk assessment should recognise that it is a theoretical process and that utilising historical data on the number of incidents reported to HM Coastguard from the area with no hazards in place may not adequately represent the situation with 30-300 installations in situ. It should also be recognised that not all incidents are reported to the Coastguard; generally only those that represent life threatening situations are reported. However, since commercial offshore wind farms have now been deployed in UK waters for five years, this experience should be fed into any risk assessment to provide an accurate and realistic predicted level of risk and enable a proportionate and practical set of measures to be put in place to address any unacceptable risk.

In order to effectively manage the risk of a vessel in distress drifting towards an installation, there needs to be an effective *Emergency Response System* in place. This will require the ability to shut down the moving parts, such as the turbines, when an emergency call is reported. In some cases, where traffic is high, a stand-by safety vessel may be required.

Safety Zones

The RYA's opinion remains that the creation of safety zones around wind turbines or other installations that exclude small craft on a wholesale basis are likely to be unnecessary, impracticable and disproportionate. In our view, such a restriction on the small craft's right of navigation is not justifiable in terms of safety and there is little possibility of enforcing such zones. In some locations, it may actually increase risk of collision as small craft may be pushed into the lanes of larger vessels or may have to make extended voyages.

European standards are now being established where small craft, under 24m, are exempt from any operational safety zones. The German Government was the first to recognise the negative implications of imposing safety zones on small craft and has exempted small craft from such zones. In principle the RYA has no objection to the creation of *advisory or precautionary zones* but such zones must be designed and implemented on a case-by-case basis and with due respect to the right of navigation. The RYA believes that the purpose of

³⁹ Guidance on the Assessment of the Impact of Offshore Wind Farms: Methodology for Assessing the Marine Navigational Safety Risks of Offshore Wind Farms. 2005. DTI.

any *advisory or precautionary zones* should be to warn vessels to navigate with particular caution but they should not permanently restrict navigation or exclude recreational vessels. Wave and tidal technology is varied and is now the unknown factor when considering navigational safety impact. Nevertheless when these do not have moving parts within keel depth, their status as a hazard is in principle no different from that of a reef or other natural obstruction.

The RYA does, however, foresee occasions when it may be prudent to impose short-term temporary restrictions, for example during engineering, maintenance or construction works. Such temporary restrictions should be promulgated through Notices to Mariners. Many vessels visit the UK from continental Europe and this should be taken account of in any communication.

Cables and anchoring

A further issue relating to risk management is that of cables and anchoring. In most cases, small craft will not anchor within an offshore energy 'farm'. However, in emergency situations this may be the only way of securing a drifting vessel to ensure no damage is done. To secure the safety of navigation, cables should be buried to a sufficient depth to avoid being uncovered. This should take into account shifting sediments on the seabed.

Marking and lighting

As offshore renewable energy installations become more common in UK waters, the requirements for marking and lighting the sites should be consistent. This has been achieved for offshore wind and should be replicated for wave and tidal devices. Much work has been done in this field and guidance supported by RYA is available from Trinity House or the Northern Lighthouse Board as appropriate. For wind farms, as a minimum each turbine should be clearly marked in high visibility yellow paint to a height of 12 m, low level lighting should allow the turbine number to be read from a 'safe' distance, corners of the wind farms should be marked and any other points or routes through the wind farm marked accordingly. Wave and tidal developments vary dramatically in their design and the marking and lighting of these installations will need to be developed carefully. Wave power units that lie low in the water and that may move within an area of water, such as Pelamis, will be particularly hazardous to small boats and effective marking and lighting will be essential.

The RYA supports the guidance issued by the relevant light house boards on these issues and works with them to identify site specific issues that may occur.

Effect on small craft navigational and communication equipment

All craft larger than a dinghy will have some form of navigational equipment on board. The most common will be a magnetic compass. Large quantities of steel, cabling and the transmission of electrical power may produce interference with the magnetic compass. Studies have shown that the effect on systems such as GPS, VHF and mobile phones from wind farms is negligible. However, there is a demonstrated effect on radar systems which reduces the visibility of small craft to search and rescue vessels as well as to each other and larger commercial vessels. This causes concern when large wind farm developments are sited close to commercial shipping lanes and obstruct small craft routes avoiding these commercial routes or at the confluence of routes.

Problems may be found with small craft navigational equipment, which is not as powerful as commercial varieties, when we start consider installations further offshore. Antennae are likely to be lower and less powerful than many larger commercial vessels.

Any proposed development should account for the effect on small craft navigation and communication equipment in detail

Weather

Local weather conditions should also be examined in the risk assessment and measures taken to reduce the effects of poor weather conditions, low visibility and fog should be included in the risk management plan. Installations may need to have fog horns attached for low visibility conditions.

2. Location

The location of offshore energy installations is going to be crucial to navigational safety as well as potential loss of amenity for recreational craft. It should also be noted that commercial routes and shipping lanes do not represent those routes taken by small recreational craft. Whilst these routes will vary, the RYA, has collated these routes into the *UK Coastal Atlas of Recreational Boating* which is available from the RYA and which details cruising routes, sailing areas and racing areas as well as the location of marinas, RYA affiliated clubs and recognised training centres. This document should be consulted when considering the location of offshore energy developments and when writing an environmental statement.

Recreational routes, general sailing and racing areas must be accounted for when examining the impacts of wind farm developments.

Loss of cruising routes

When examining the routes and location of turbines it is important to recognise that sailing boats behave differently to power driven craft in that their actual line of travel may zigzag across the ultimate direction of travel as they are dependant on the wind direction. The coastal atlas should be consulted as well as any other available information to inform the siting of the developments and individual installations and the potential provision of navigation routes through the larger sites.

Along many stretches of coast, recreational craft may need to seek shelter in poor weather. Sheltered harbours and anchorages and routes to these harbours of refuge should be protected. These are identified as essential routes in the Coastal Atlas.

The loss of routes will also lead to an increased distance of travel. This has environmental implications for powered craft and safety implications for all craft. Some routes, typically narrow channels or strong tidal flows, may already be hazardous at times to navigate through and adding hazards in these areas may seriously compromise navigational safety. There are also safety issues with the creation of turbulence and wind shadowing in confined areas where craft may be moving slowly and gusty turbulent conditions may create problems.

Squeeze into commercial routes

Recreational routes differ from commercial routes as recreational craft essentially aim to keep out of the major commercial navigation routes by travelling in the shallower adjacent waters or taking other routes entirely. As a result, examining commercial routes alone will not enable the safe positioning of OREIs, recreational boating must also be accounted for. This may require routes through large developments to be identified or inshore routes for smaller craft to be safeguarded. The cumulative impact of all marine developments is becoming increasingly important when assessing these issues of squeeze.

Effect on sailing and racing areas

Most of the general day sailing and racing areas are close to the shore and in the more sheltered waters. The Strategic Environmental Assessment for Round 3 offshore wind development⁴⁰ recognises the busy inshore areas and states that the majority of offshore wind development should be beyond 12nm. European standards are again being set by Netherlands and Germany who have excluded any development within 12nm from the shore in order to retain 'open space' for its amenity and recreational value. Recreational activity is

⁴⁰ Offshore Energy Strategic Environmental Assessment: Post consultation report. June 2009. DECC.

important to the health and wellbeing of the community as well as economic support for the local coastal economies. Retaining the undisturbed remoteness of some waters will be important in terms of its wilderness and amenity value.

In certain confined areas and areas heavily used for sail racing, the effects of wind turbines in terms of turbulence and shadowing on craft should be taken into account.

Any interference in wind speed and/ or turbulence created by a wind farm in a racing area would create a significant negative impact on the event site and diminish its value.

Cumulative effects

Of increasing concern with the planned number of developments is the need to assess each development in its wider surroundings. The *cumulative effects* of offshore energy installations on navigation routes will be increasingly significant. Existing navigation routes affected by other proposed development sites will need to be accounted for, rather than only current routes.

3. End of Life

Dereliction

Whilst we would hope that these installations remain economically viable for the lifetime of the structures, the RYA would support measures taken by Government to secure the financial implications of removing the structures, prior to consents been given. This will ensure that after the installation ceases electricity production for whatever reason, derelict structures that are not marked or lit and remain a hazard to navigation and anchoring are not found in UK waters.

Decommissioning

Equally, any decommissioning plan needs to ensure that the structures are completely removed. Any parts of the structure remaining after the commercial operation of the installation may pose a hazard to navigation and should be avoided. However, we recognise that secondary uses may be identified for these structures once energy generation ceases. If structures are to remain in the water, navigational safety must be taken into account and structures should be appropriately marked and lit.

4. Consultation

Consultation with the RYA should be through the Headquarters in Hamble and the Scottish, Welsh and Northern Irish offices who can coordinate wider consultation with their regional environmental coordinators, the clubs and individual membership and if needed, help to coordinate stakeholder meetings.

RYA Head Office
Caroline Price
Planning and Environmental Advisor
RYA House,
Ensign Way,
Hamble,
Southampton, SO31 4YA.
Tel: 02380 604222
Email: Caroline.Price@rya.org.uk

RYA Northern Ireland
 Hon Secretary
 RYA Northern Ireland Council
 House of Sport
 Upper Malone Road
 Belfast, BT9 5LA

RYA Scotland
 Hon. Secretary
 RYA Scotland, Caledonia House
 South Gyle
 Edinburgh, EH12 9DQ

Welsh Yachting
 Association
 Hon. Secretary
 WYA Office
 8 Llys Y Mor,
 Plas Menai
 Caernarfon,
 Gwynedd, LL55 1UE

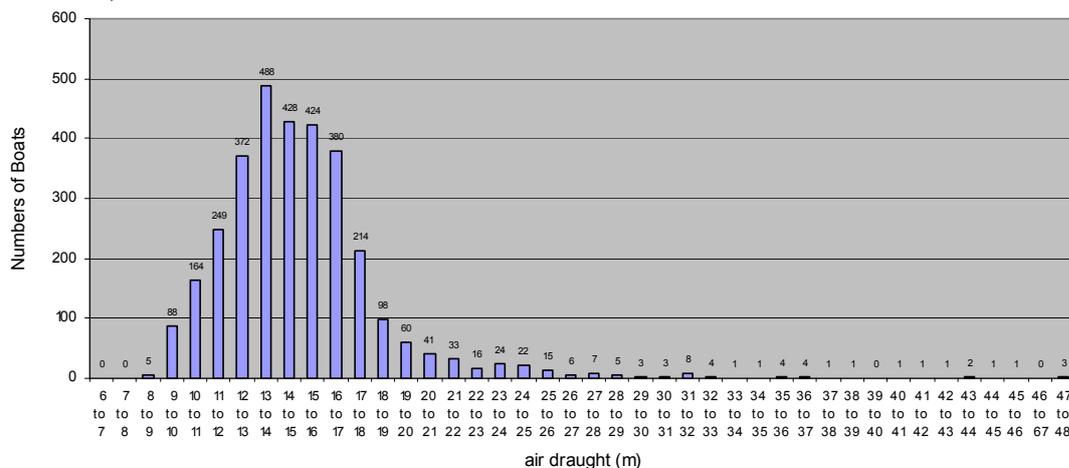
Original document December 2005, revised December 2009

Development of the RYA policy on minimum clearance height and depth

The RYA has developed its position on clearance height and depth on the available data. Firstly an estimation of the air draught of the national fleet of yachts around the UK was established with the knowledge that these types of yachts may be found in all UK waters, this data is taken from the Royal Ocean Racing Club (RORC) Rating Office's database. Although there are other rating systems in use, the RORC system is widely accepted and applied worldwide. Rating is a technical handicapping process that enables adjustments to be made to yacht racing results so as to allow a wide range of different boats to be raced on equal terms. The boats contained in the database are mainly cruisers and yachts. Many yachts taking place in club races are registered with the RORC Rating Office. The RYA believes this data, containing 3179 records, is a good representation of the type of yacht to be found sailing around the shores of the UK. Although the total number of yachts around the UK has not been quantified, this database represents 6% of the total number of boats owned in the UK, estimated at 564,000 (BMF, 2003).

'Air draught' as presented here is the distance from the waterline to the top of the mast structure. This is based on the 'p' measurement, boom to top of mast, in the rating system (RORC, 2003). Two metres have been added for the distance from the boom to the water surface, which is a conservative estimate for the larger vessels. It should be noted that masthead equipment and instrumentation has not been included in the calculation of air draught, although it will also add a further half to one metre to the air draught of a yacht. Loss of this equipment may produce failure in communication from the yacht although not structural failure to the yacht.

Figure 1: Graph showing the air draught in metres of the boats within the IRC fleet (sample size=3179)



Looking at the above data in the form of percentage of the UK boating fleet, we can see the percentage of recreational yachts at risk from different rotor clearance heights. Figure 2, shows that a clearance height of 14 metres above sea level will put 57% of the national fleet at risk from rotor height collision. Reducing this to 18 metres above sea level, substantially

reduces this percentage, however it still leaves 12% of the national fleet at risk from rotor height collision. This is still an unacceptable level of risk to the yachts found in UK waters. A clearance of 22 metres has been shown to be possible in engineering terms, which would put 4 % of the national fleet at risk, a more acceptable level of risk in the view of the RYA. As a matter of common observation, larger yachts over 18 metres in length (see Figure 3), representative of this 4% group are more likely to be run by highly experienced crews and skippers. The datum of mean high water Springs (MHWS) is taken as the clearance datum rather than mean sea level and then factoring in a site specific wave height parameter. However, wave height should be examined in the risk assessment at each site. It should be noted that 22 m above MHWS has already been specified as a minimum clearance height in several of the wind farms consented in the first round of consents and is therefore a feasible, cost-effective option for developers.

It should also be noted that while this is currently an acceptable level of clearance, yachts are increasing in size and future developments may require a greater clearance height.

Figure 2: Graph showing the percentage of boats in the IRC fleet with different air draught shown in metres (sample size = 3179)

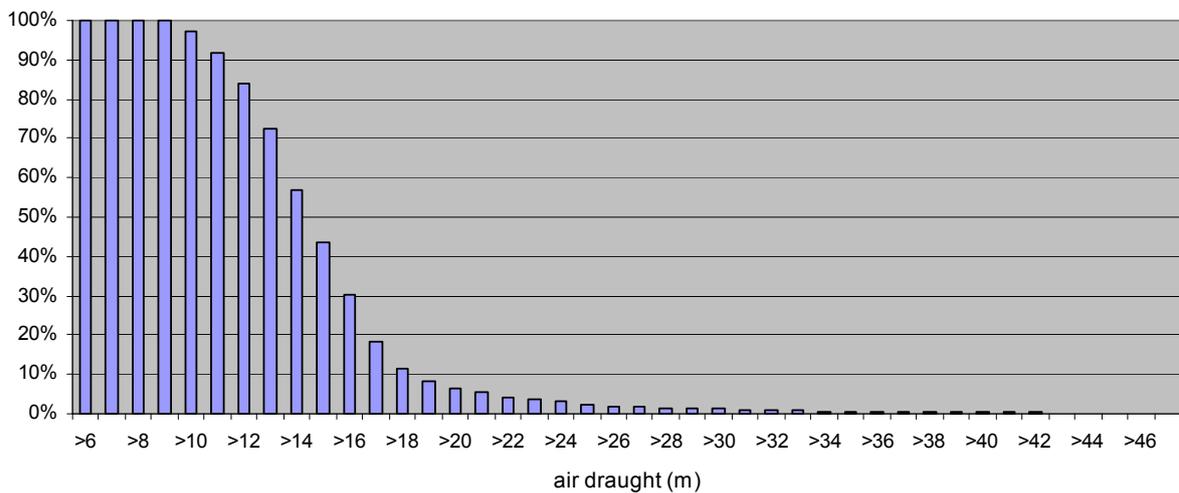
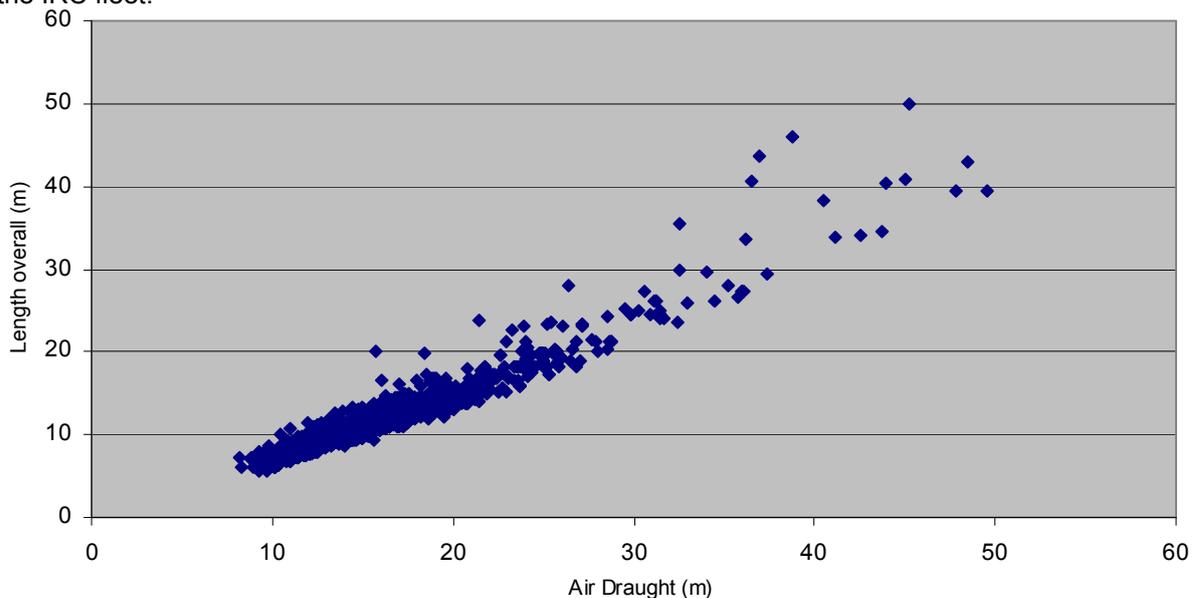
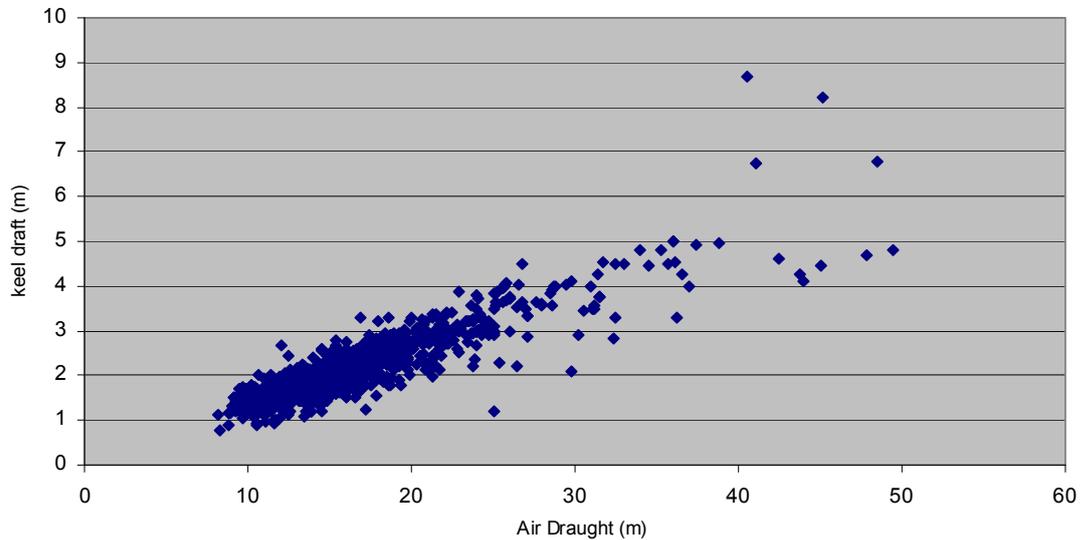


Figure 3: Graph showing the relationship of Length Over All (LOA) in metres and air draught in metres of the IRC fleet.



Additional data is provided showing the relationship between air draught and the depth of water required for clearance below the vessel's keel (Figure 4). Figure 4 shows that a depth of 3.5 metres corresponds to an air clearance of 22m above MHWS which is relevant for subsurface wave and tidal developments.

Figure 4: Graph showing the relationship of water draft in metres and air draught in metres of the IRC fleet.



References

- RORC (Royal Ocean Racing Club). 2003. IRC/IRM Yearbook. London
- BMF (British Marine Federation). 2003. *Marine Leisure Industry European Overview*. Egham, Surrey.

Annex 3 – SCA Renewable Energy Policy

Introduction

In passing the Land Reform (Scotland) Act 2003 the Scottish Parliament has provided a statutory right of access to inland water and confirmed the customary freedoms of access that paddlers have always enjoyed in Scotland.

However, the quality of the resource that we take access to, Scotland's rivers, lochs and coastal areas, is coming under increasing threat from various types of development, most notably at the current time from renewable energy proposals. Whilst the Scottish Canoe Association (SCA) welcomes the passing of a statutory right of access, we are concerned that the canoeing resource in Scotland does not suffer from damage by inconsiderate or poorly planned renewable energy schemes.

With this in mind the SCA has developed a Renewable Energy Policy in order to express our concerns about the value of the places where canoeing takes place and to explain to developers, planners, government agencies, councillors and politicians the views that the SCA holds and the kind of sites that we would wish to see protected from development.

Throughout this document we will use the generic term canoeing to refer to the use of both canoes and kayaks.

Policy Context

The SCA believes that government should make the promotion of energy efficiency a much higher priority. There is a fundamental issue with causing damage to our natural heritage in order to generate energy that is then wasted on inefficient appliances, under insulated buildings and overly relaxed public attitudes to use of energy.

The SCA recognises the global problems associated with carbon emissions and climate change, and accepts there is a need to alter our sources of energy and societal attitudes towards use of energy.

The appendices to this policy statement describe the historical context to the SCA's involvement in the energy debate as well as the current relevance of national energy policy. The appendices then go on to review the trends in hydro and marine energy development.

The SCA's policy for dealing with Renewable Energy issues is set out below.

SCA Policy

1. The SCA wishes to be involved in the debate on the future of the nation's energy policy in order to play a proactive role in determining the impact on water that canoeists make recreational use of.
2. The SCA seeks to work with developers, agencies, consultants and planning authorities to help identify potential conflicts between canoeing and proposed renewable energy projects. The SCA believes that early consultation should lead to the avoidance of damaging conflicts between recreational interests and energy companies.
3. The SCA will form a view on each new renewable energy proposal taking into account a number of factors. These include: the likely impact on paddling interests; the importance of the water body involved in paddling terms; the protection of scenery and a judgment on any cumulative effect of a range of different renewable projects.

4. We are concerned that good rivers are being threatened for a very small power output in return. Therefore, in assessing any proposed energy scheme the SCA will perform a power output to canoeing interest comparison. We believe this will enable us to consider and compare two important factors: what is being lost and what is being gained.
5. Where the canoeing value of a river is not so great that we would wish to see the proposed development stopped we will work with the developer to comment on the safety aspects of the inlet and outlet features, negotiate shut down days for the river to be paddled and in most cases request an online river level gauge.
6. The SCA will oppose renewable energy proposals when we consider the watercourse or coastal area that is under threat to be of national or international value to our sport.
7. The SCA is concerned that building barrages in estuaries could hinder navigation and introduce safety issues for paddlers. Any barrage should have continuously navigable channels near the coast to ensure safe passage for canoes, kayaks and other small craft. The possible ecological and silting problems caused by tidal barrages are also of concern.
8. The SCA seeks to protect our finest coastal scenery. Scotland's coastline is the most scenically attractive in Europe and should be offered special protection to recognise this. Major developments on our remoter and most scenically attractive stretches of coastline should be resisted and will be opposed by the SCA. The SCA would prefer to see offshore wind turbines located well out to sea; and tidal and wave power stations either out to sea or located entirely below the surface of the water.
9. The SCA is concerned about the safety implications of certain marine renewables and the consequences for sea navigation. For this reason we are opposed to developments on stretches of coast that would require small craft to go further out to sea to navigate around or stop paddlers from landing on the coast in an emergency.
10. The SCA is concerned about the access implications of marine renewables on the water close to the coast and in the coastal zone. We are opposed to developments on the sea and coastline that limit where small craft can navigate. Where it is necessary to have renewable energy installations or their shore facilities near the coast, existing launch sites should be preserved. Where it is necessary to use part of the coast for the installation, provision of car parking and access to the water for recreational users should be maintained or improved as part of the installation. The principle of multiple uses for coastal sites should apply.
11. Tidal energy represents the only form of renewable energy that could produce large amounts of new base load energy. For that reason we believe it is inevitable that tidal energy will eventually become widely utilised and will contribute to our nation's security of supply. We would like to see a locational strategy drawn up well in advance of Scotland's tidal energy being harnessed.
12. The SCA is concerned that starting up and shutting down turbines can cause rapid and artificial fluctuations in river levels. This could cause problems for canoeists, as well as anglers and other recreational visitors, especially in gorge sections of white water rivers. The artificial altering of water levels by hydro schemes switching on and off could lead to accidents or contribute to existing incidents turning into accidents. The SCA will assess the safety implications of any proposed scheme on paddlers. This will require information on the anticipated normal running regime for the turbine and the implications of an emergency shutdown. The anticipated number of controlled start ups and shut downs on

a daily basis and the speed at which the water levels change will be required to carry out this assessment.

13. The SCA believes that water release information from existing hydro power stations should be more freely available to canoeists so that more recreational use can be made of the water.
14. The SCA seeks to work with developers and energy companies to secure good quality access facilities that will assist canoeing, such as passes navigable by canoe and footpaths round new obstructions on the river as well as car parks close to the access and egress points on controlled rivers.
15. The SCA believes the practice of cutting the capacity of existing hydro schemes in order to qualify for subsidies is indefensible and should be stopped.
16. The SCA believes in the principle of early consultation being used to identify problems with proposed plans at an early stage and as a way of avoiding protracted conflicts between developers and opponents of a proposed scheme as well as generally improving the public perception of renewable energy.
17. The SCA believes that government should provide a lead by developing a locational strategy for all forms of renewable energy.
18. The SCA would like to see renewable energy developed in such ways that the need for unsightly transmission systems is reduced and any environmental impact is minimised. As renewable energy projects eventually move offshore we would like to see more use of sub-sea cabling, albeit with due care taken to consider the natural heritage value of our underwater ecosystems.

Appendix A

Historical Context

A great deal of hydro development took place in the Scottish glens in the post-war years. These schemes had a major impact on our upland landscapes, but they did provide energy to remote parts of Scotland for the first time. These schemes are still operational and providing electricity to the national grid some 50 years after they were built. The dammed storage schemes that were built in those days still provide electricity as well as predictable water for canoeing via releases in the form of freshets, which are primarily aimed at helping fisheries management but are sometimes specifically for canoeing events.

With the exception of the massive Glendoe hydro scheme, the modern day renewable energy industry appears not to be looking to build anymore dammed storage schemes. Whilst storage schemes do provide opportunities for good canoeable water during releases, the landscape impacts caused by their highly visible draw-down scars can be significant, and are considered unacceptable to a wide range of recreationalists, and this is one reason why they are not currently being seen as a viable proposition in Scotland.

The building of nuclear power stations in Scotland during the 1950s and 1960s led to the need for pump storage hydro schemes and the Cruachan and Foyers power stations were constructed for this purpose. Should government commit to replacing our ageing nuclear power stations there could be a renewed interest in pump storage. Should this happen there could be implications for high mountain lochs and the burns and rivers that drain them. The decision about our future commitment to nuclear power will be based on the political direction Scotland chooses to follow, but it could also depend on future developments in the international quest for power from waste free nuclear fusion as opposed to nuclear fission with its associated problem of how to dispose of the waste nuclear material. A return to nuclear power in combination with pump storage hydro would be likely to impact on a small number of mountain burns and the main concern to canoeing would be whether these were canoeable.

Appendix B

National Energy Policy

The UK and Scotland are undergoing a change in energy policy, partly brought about by ageing power stations and partly because of our Kyoto and other commitments to reducing carbon emissions. As well as reviewing our energy mix in terms of power sources, we also have to review our network for electricity transmission. The Beaulieu to Denny powerline upgrade proposals are highlighting the problems of landscape impact, health concerns and affect on property prices associated with overland pylons. With renewable energy production set to move increasingly offshore the arguments for sub-sea transmission lines becomes a more viable option. Also, the greater the amount of power produced the more economically viable the higher investment in sub-sea cabling becomes. Onshore transmission lines have a scenic impact for a number of recreational activities, including canoe touring on open water, especially lochs. Sub-sea cabling, on the other hand, would usually be buried well out to sea and should not have any impact on kayakers who generally keep close in to shore. We would have concerns that the places where cabling leaves the land or comes back onto land should be well protected, but the high voltages concerned would require that in any case. Our other concern in this area is that access to the foreshore is not affected by the building of shore based structures for new developments.

The comment is often made that if energy efficiency were taken more seriously we would not have to destroy valuable parts of our countryside in order to power inefficient electrical appliances and allow householders to leave their appliances on standby overnight or workplaces their lights and computers on overnight. The threat to our countryside in general, and canoeing resource in particular, would be lowered if more effort were put into the promotion of energy efficiency.

We believe the public perception of renewable energy is being harmed by contentious planning applications that create critical opposition. Anti wind farm campaigns, protests against the proposed Beaulieu to Denny powerline and objections to hydro proposals are all on the increase and the combined effect is of a growing opposition to renewable energy. This may also be having a related impact of increasing support for nuclear power. Public opposition to renewable energy proposals may eventually influence government policy, and developers may begin to take this opposition more seriously. A way in which developers can react positively is to seek early consultation with interested communities and to work to avoid key recreational and landscape sites with the intention of trying to achieve greater public support for renewable energy.

The SCA is concerned that the drive to increase the proportion of our energy derived from renewable sources is leading to a loss of support for renewable energy. Much of this opposition to renewable energy is coming from previous supporters of such energy. The terms renewable energy and environment-friendly have become inter-changeable, but in many cases renewable energy proposals carry a massive cost to the environment and this leads to the levels of opposition that such proposals are encountering. We believe the quality of our environment and quality of our recreational enjoyment of our environment should be given higher priority.

The economic value of tourism, and of segments of tourism such as adventure sports tourism, should be given greater recognition for the revenue it creates for the national economy. The scenic quality of the countryside is the foundation for the majority of that tourism spending.

Appendix C

Hydro Power

The current trend in hydro development is for run-of-river schemes. With no facility for storing water, only for running the water down a pipe parallel to the river, a run-of-river scheme means that the water in the river is either at its natural level if the hydro is not operating, or at a lower than natural level if the hydro is operating. In this respect a run-of-river scheme can only be to the detriment of canoeing. Furthermore, run-of-river schemes can create dangers, especially on constricted gorge sections of rivers, when the hydro system is being switched on or off and the water level is being artificially altered. Recent trends in hydro power generation and canoe design have led to power companies and canoeists being interested in the same types of rivers.

Run-of-river hydro developers are looking for relatively small rivers with a steep gradient, usually with a waterfall to increase the overall gradient. The development of shorter playboats, made possible by the advances in roto-moulded plastic construction over the past 20 years, has opened up for canoeing the narrower and steeper creek-type rivers with steep drops. This interest in the same type of river by the two different groups is causing a significant problem, and with the lack of storage facility in a run-of-river scheme there is little space for compromise. Where the potential impact is too great we would wish to see the proposed scheme being dropped, but where the value of the river to canoeing is not that great we would wish to comment on the safety aspects of the intake and outlet features, as well as agreeing some kind of system of shut down days when the river can be paddled and requesting that an online river level gauge be made available.

The changing trends within canoeing, mainly brought about by the radical transformation in the size, strength and manoeuvrability of white water canoes, means that rivers that were considered impossible then are now increasing in popularity. This trend towards paddling narrow creek style rivers is certain to continue into the future and is likely to increase the potential for energy production and canoeing to come into conflict.

Canoeing guidebooks cannot keep up with this trend towards exploring steep narrow rivers, so energy companies referring to such guidebooks is not going to be sufficient to gather an accurate assessment of a river's interest for canoeing. Furthermore, whilst some rivers are going to be paddled by a few but never become popular, others are going to become increasingly popular and are likely to be amongst Scotland's most paddled rivers in a few years time. The SCA is going to be far more concerned about protecting the latter category of rivers than the former.

With the increase in leisure time and disposable income in modern society, canoeing has become increasingly popular and as some enthusiasts have moved on to creek rivers so the availability of conventional kayaks, sit-on-tops and open boats has also led to increased paddling on the less extreme rivers, some of which may be of interest to hydro developers.

The avoidance of conflict between canoeing and energy companies can be avoided through the use of early consultation. The SCA responds to a number of scoping study requests for initial reaction to hydro proposals on behalf of various developers. This provides the opportunity to flag up at a very early stage the SCA's interest in a particular river.

The SCA is willing to work with the Scottish Environment Protection Agency, Scottish Natural Heritage and hydro developers in order to devise ways of avoiding conflicts of interest on strategically important Scottish rivers. We would hope that this willingness to work proactively and discuss ways of helping the industry identify key paddling rivers would be recognised and respected by all the relevant companies in the hydro power sector and that we can find ways to achieve protection for our finest rivers and burns so that they can be kept in their current state. We would enter into any discussions on the basis that the SCA retains the right to oppose proposals on any river or burn, and that we would still have the right to take part in any consultation exercise.

The SCA would like to see more commitment to micro renewable energy schemes. Micro scale hydro power has the potential to harness power from burns that are too small for canoeing, but which could produce power for single houses or small communities without causing damage to scenically attractive and recreationally important watercourses.

Appendix D

Marine Energy

The greatest source of renewable energy is undoubtedly from the marine environment. The potential for harnessing power from sources such as tides, waves and wind at sea are enormous and we believe the power generating industry will eventually make much greater use of these marine based energy sources. One of the huge advantages of harnessing tidal energy is that it is entirely predictable and when several geographically BTALead stations are used in combination it is capable of generating large amounts of base load power. This element of predictability gives tidal power an advantage over all other forms of renewable energy.

As marine renewable energy schemes become more commercially viable and the civil engineering capability develops further, it is likely the government subsidy system will adapt to encourage a wider range of technologies. As this happens it is inevitable that developers' interests will turn increasingly to our estuaries, coastlines and the open sea.

The greatest resource enjoyed by sea kayakers in Scotland is our stunning coastal scenery. Our concern with marine renewables is therefore the impact on the scenery, especially close to the coastline. Man made developments close to shore also represent a significant safety concern as they can force small craft such as kayaks and dinghies to go out to sea in order to travel around them, which in times of bad weather or poor visibility can make them serious hazards to navigation. For these reasons it is preferable from a kayaking point of view if marine energy developments are located further out to sea or contained below the surface of the water.

The potential amount of renewable energy available in our estuaries is massive. However, renewable energy in estuaries can be harnessed with or without the need for tidal barrages. Barrages mean that greater amounts of energy can be produced, but experience from overseas suggests that they lead to enormous ecological problems with the silting up of the estuary and a gradual reduction in the amount of power produced. We believe the tidal flow can be harnessed in estuaries without the need for barrages, and with a predictable flow of water we see this as a form of renewable energy worth harnessing as long as it is developed with recreation and nature conservation firmly in mind. Scotland's estuaries are valuable areas for recreation and canoeists make great use of these vast expanses of water. Whereas a barrage would affect the ecological balance of an entire estuary, a non-barrage power plant would have a more localised ecological impact and could be designed so that it would not have a significant impact on recreational water craft.

There are certain locations around the Scottish coast that hold the potential for truly massive amounts of tidal power to be generated. The Pentland Firth is perhaps the most obvious example of a natural power source that could one-day produce sufficient power to replace a major fossil fuel power station, but there are several other locations around the Scottish coast that could be of interest to energy companies searching for tidal energy projects. The civil engineering capability entailed in such a proposal could be a significant hurdle to such schemes, but as that barrier is overcome we are likely to see a move towards more tidal power generation facilities being proposed. From a kayaking point of view the massive tidal races around Scotland are all of great interest to our activity and we would have concerns with any plans to develop within them any structures that would break the surface of the water. We are particularly concerned in this respect for the protection of Corryvreckan, which is one of a handful of tidal whirlpools in the world. Due to our concerns regarding safety and seascape already discussed in this policy document the SCA would wish to be consulted on any such planning proposals.

Structures on the surface of the water such as the Polaris wave machine and structures that break the surface of the water such as turbines mounted on vertical posts could present small boat users such as kayakers with serious safety issues. The risk of collision combined

with the navigational challenge of going around such structures could be quite significant, so we would always welcome the opportunity to comment on proposals for such developments.

Our final concern with marine renewable energy projects is the impact of any landfall facilities. Shore based infrastructure such as servicing facilities for sea based plant, wave machines and interface equipment between renewable energy generators and the grid have the potential to impact on the coastal landscape and restrict access to and along the foreshore. From a safety point of view, as well as aesthetic and access, we would wish to be consulted on proposals for such shore based facilities. The SCA's policy is that any shoreside infrastructure associated with renewable developments should be designed to minimise encroachment on the foreshore and that access to the foreshore from the land and water is preserved for kayakers and other recreational users. Any downside caused by the developer's shoreside infrastructure should be balanced by creating better pathways, car parking and access to the foreshore and water for recreational purposes.

17 December 2008

Annex 4.

Scoping Questions at a Glance

Questions to be put forward to the reader

Q1. Are the Project geographic and technical boundaries outlined both clear and sufficient for what will / will not be included in the EIA?

MS LOT

Yes from MS LOTS aspect.

OIC

The submission providing search areas rather than specific boundaries for the actual site boundaries makes it difficult to provide good clear advice specific to the actual site. It is considered that the whole development including all elements that are inextricably linked require to be included within the EIA.

OIC Maritime services

Although mentioned in Appendix C the revised area of search is partially inside the boundaries of Orkney Harbour limits. As Orkney Harbours is a Statutory Harbour Authority (SHA) I would suggest that these boundaries should be clearly shown in this section in the various drawings, maps and charts. A SHA has very specific responsibilities with regard to works, navigation and operations within it's area. In addition there is an implied condition that a SHA also has a duty of care of a similar nature to vessels in the approaches to the Harbour Area. As this array falls within both of these requirements Orkney Harbours will need to be fully involved in all aspects of this project.

SEPA

Question 1 we note that the scoping report makes it clear that it only relates to the off-shore element of the development. As a result our scoping advice also relates only to the elements below Mean High Water BTALing Tide but we refer the applicant to our previous scoping response in relation to on-shore issues.

Questions to be put forward to the Regulators

Q2. Are MS-LOT / OIC comfortable in the application of the Rochdale Envelope principle to the assessment of impacts of the proposed Project and would any further information be required?

MS LOT

Yes, but with the points above taken into account by BTAL.

OIC

A 'Rochdale design envelope' approach during the EIA to retain scope for adaptation within the project description is proposed by the developer. Although this approach is used to enable changes to the project to take place as technology develops, it is recommended that the use of this approach is limited for the on shore elements where the technology associated with the proposal is much better established.

OIC Maritime services

Our only concern with using this method of setting maximum and minimum limits for this Project is that it may restrict commercial aspects of Scapa Flow, ie: larger vessels, more vessels etc., that as this time may be difficult to quantify but will have to be very carefully considered during the next stages of this Project.

Q3. Does MS-LOT / OIC have any questions relating to the proposed consenting strategy?

MS LOT

No.

OIC Maritime services

Although mentioned elsewhere in the Scoping Document this section appears to miss the point that an OIC Works License will be required for any works within the Harbour Area – this includes any structures, cables or similar up to the high water mark.

Q4. Please could MS-LOT / OIC confirm the party who will take the lead consenting role for the intertidal area?

OIC

Legislation does not allow a lead to be taken. The intertidal area is covered by both the Town and Country Planning (Scotland) Act 1997 as amended and The Marine (Scotland) Act 2010, therefore a planning consent and marine licence has to be obtained. Orkney Islands Council would work together with Marine Scotland to minimise the duplication of work as far as would be possible in terms of the legislation.

Q5. Please could OIC confirm Pre Application Consultation is not required for the onshore cable corridor?

OIC

Until full details of the development and the site area of the onshore works are provided it cannot be confirmed that a Pre Application Consultation (PAC) will not be required. It should be noted that within the draft NPF3 it was indicated that some on shore developments associated with off shore renewables may fall into the category of major/national development, depending of the final published NPF3 which is expected in BTALing 2014. This may have further implication on whether a PAC is required or not as all major/ national applications require to undertake a PAC. I would recommended that you follow this up at the time of the publication of NPF3.

Questions to be put forward to the Regulators

Q6 Please could all readers confirm if enough information has been provided to form a Scoping Opinion for a) the preferred technology and b)the alternative technologies?

MS LOT

MS LOT has the following comment to make with respect to part a:

- There is not sufficient information on the surface piecing structure.

MS LOT has no further comment to make, with respect B of the above.

OIC

There are limitations on the scope of the opinion given due to the uncertainty on certain elements of the proposal and the associated works.

OIC Maritime services

In general terms the answer is yes, but we would point out that a great deal of additional and detailed information will be required during the next stages of this project with regard to all aspects of the NRA, in particular a full and detail formal risk assessment on the entry into and egress from Scapa Flow of large laden and unladen vessels of different types ie: not just tankers, but container vessels, vessels under tow etc. The prospect of having surface piercing devices or hubs very close to the main entrance of an oil / gas and possibly container port will need to be fully assessed. This applies either a) or b) as stated in the question.

SEPA

In relation to Question 6 we can confirm that we are satisfied with the information provided on the preferred and alternative technologies.

Q7. Please could OIC confirm if Pre Application Consultation (PAC) will be required for the construction of the onshore cable corridor?

OIC

Duplication of question 5. Until full details of the development and the site area of the onshore works are provided it cannot be confirmed that a Pre Application Consultation (PAC) will not be required. It should be noted that within the draft NPF3 it was indicated that some on shore developments associated with off shore renewables may fall into the category of major/national development, depending of the final published NPF3 which is expected in BTALing 2014 this may have further implication on whether a PAC is required or not as all major/ national applications require to undertake a PAC. I would recommend that you follow this up at the time of the publication of NPF3.

Questions to be put forward to the Regulators

Q8. Have all the regulatory requirements for the project been identified

MS LOT

MS LOT is content with the contents of the Scoping Report on regulatory requirements.

OIC Maritime services

It would appear, as in the answer to Question 3, that the requirement of a Works License for any work within the Harbour Area has been omitted from section 5.9 Consents and Licensing of the document.

SEPA

In relation to Question 8 then details of SEPA's regulatory requirements and good practice advice for the applicant can be found on our website at:

www.sepa.org.uk/planning.aspx.

If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the operations team in your local SEPA office at:

Norlantic House,
Scott's Road,
Hatston,
Kirkwall
KW15 1RE

Q9. Are the studies proposed for assessment of effects on the human environment appropriate and complete for a) the preferred technology and b) the alternative technologies?

MS LOT

MS LOT has the following comment to make with respect to A of the above:

- BTAL should address the note by MSS Marine Analytical Unit.

MS LOT has no further comment to make, with respect to B of the above.

OIC

There are limitations on the ability to provide a clear response to this question due to the uncertainty on elements of the proposal and the associated works, consequently this may affect the studies required.

OIC Maritime services

As per the answer to question 6, in general yes but we have concerns that any future commercial expansion of activities in Scapa Flow may be constrained by the siting of a tidal array just within and on the deep water approach to the port. It is mentioned in the Document but we would like to re-iterate that the provision and carrying out of a full NRA is essential – it should be noted that this may include studies and other details outside of those specified in the Document and MGN's 371 and 372.

Q10. Do you consider the studies proposed for assessment of effects on the ecological environment appropriate and complete for a) the preferred technology and b) the alternative technologies?

OIC

There are limitations on the ability to provide a clear response to this question due to the uncertainty on elements of the proposal and the associated works, consequently this may affect the studies required.

OIC Maritime services

No specific comment although we would point out that Orkney Harbours has a Marine Environment Unit which has been established for over thirty years. Although restricted to within Scapa Flow we may have information that is of use for any further work in this section. In addition we are just completing a baseline study with regards to a Monitoring and Reporting System for marine non-native species within Scapa Flow which may be of use.

Q11. Are the studies proposed for assessment of effects on the physical environment appropriate and complete for a) the preferred technology and b) the alternative technologies?

MSS

The proposed methodology in section 8.1, with the suggested amendments above, is considered to be robust enough to cover most horizontal axis tidal turbines. It is noted however that sediment and water quality is proposed to be scoped out in section 8.3. Whilst section 8.3 is not reviewed in full here, this scoping out may not be appropriate for other technologies, such as ones requiring oil based lubrication.

OIC

There are limitations on the ability to provide a clear response to this question due to the uncertainty on elements of the proposal and the associated works, consequently this may affect the studies required.

Q12. Are you aware of any proposed developments within the planning process or activities with which the proposed tidal Project might interact to result in cumulative effects?

OIC Maritime services

With the statement that activities not subject to licensing / consent not being included in the CIA gives rise to the previously expressed concerns on any future commercial use of Scapa Flow. For example an increase in oil related traffic to Flotta Oil Terminal does not need a license but will / may alter the NRA, an increase in marine traffic will / may have the same effect – but from the statement above they will not be included in the CIA as they would not require a license or consent. We are not certain how this can be included in the CIA but would suggest that an increase in marine traffic (vessels) using Scapa Flow is included in the CIA.

In addition we know of a Company that has just re-opened the possibility of having a floating Container Hub based in Scapa Flow. This will require a license for construction (not necessarily for operation) and may be some way in the future before it materialises – but is an example of commercial use of Scapa Flow that may / may not be restricted by the position of the tidal array. This is further evidence of the need for a full, detailed and practical NRA to be carried out.

Q13. Have the most likely and significant effects been detailed through this analysis for a) the preferred technology and b) the alternative technologies? Are there any others that should be considered for inclusion in the full assessment process and if so why?

OIC Maritime services

As per the answers to questions 6, 9 and 12 we consider that under the Ports and Harbours there should be an additional item regarding the possible commercial effects on Scapa Flow as a result of the tidal array. The reasons are given in the answers to the relevant questions, but we would be happy to provide further reasoning if required.

Annex 5.

DEVELOPER APPLICATION AND ENVIRONMENTAL STATEMENT CHECKLIST

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

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

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.