

# **Lewis Wave Power Oyster Wave Energy Convertor Array, North West Coast Lewis**

## **Scoping Opinion**

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

## SCOPING OPINION FOR THE PROPOSED SECTION 36 APPLICATION FOR LEWIS WAVE POWER OYSTER WAVE ENERGY CONVERTOR ARRAY, NORTH WEST COAST LEWIS

### 1. Introduction

I refer to your email of 20<sup>th</sup> May 2011 requesting a scoping opinion under the Electricity Works (Environmental Impact Assessment) (Scotland) (EIA) Regulations 2000 enclosing a scoping report.

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

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

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

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

It is important that any devices to exploit renewable energy sources should be accompanied by a robust assessment of its environmental impacts. The assessment should also consider how any negative environmental impacts could be avoided or minimised, through the use of mitigating technologies or regulatory safeguards, so that the quality and diversity of Scotland's wildlife and natural features are maintained or enhanced. Scottish Ministers welcome the commitment given in the report that the EIA process will identify mitigation measures in order to avoid, minimise or reduce any adverse impacts. Marine Scotland Licensing Operations Team (MS-LOT) would suggest that the range of options considered should be informed by the EIA process in order that these objectives can be achieved. Consultation with the relevant nature conservation agencies is essential and it is advised that this is undertaken as appropriate.

## **2. Aim of this Scoping Opinion**

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

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

## **3. Description of development**

From your submitted information it is understood that Lewis Wave Power is proposing to develop a commercial wave farm located along the North West coast of Lewis. The wave farm would consist of up to 40 x 1 MW 'Oyster 3' wave energy converters which would be deployed within two lease areas at the site. The total generating capacity of the development would be 40 MW.

## **4. Land Use Planning**

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

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

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

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

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

- PAN 45: 2002 Renewable Energy Technologies
- PAN 50: Controlling the Environmental Effects of Surface Mineral Workings
- PAN 51: Planning, Environmental Protection and Regulation
- PAN 58: Environmental Impact Assessment
- PAN 60: Planning for Natural Heritage
- PAN 62: Radio Telecommunications
- PAN 68: Design Statements
- PAN 69: Planning and Building Standards Advice on Flooding
- PAN 75: Planning for Transport
- PAN 79: Water and Drainage
- Marine Guidance Note 371 (M)

- The Highland Structure Plan
- West Highland and Islands Local Plan (WHILP).

## 5. Natural Heritage

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

## 6. General Issues

### Economic Benefit

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

## 7. Contents of the Environmental Statement (ES)

### Format

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

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

### Non Technical Summary.

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

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

Given that the layout and design are still developing and evolving, the exact nature of the work that is needed to inform the EIA may vary depending on the design choices. The EIA must address this uncertainty so that there is a clear explanation of the potential impact of each of the different scenarios. It should be noted that any changes produced after the ES is

submitted may result in the requirement of further environmental assessment and public consultation if deemed to be significant by the licensing authority.

## **Baseline Assessment and Mitigation**

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

### **8. Archaeology and Cultural Heritage**

#### General Principles

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

National policy for the historic environment is set out in:

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

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

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

## **Baseline Information**

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

Data on scheduled monuments, listed buildings and properties in the care of Scottish Ministers can also be downloaded from Historic Scotland's Spatial Data Warehouse at <http://data.historic-scotland.gov.uk/>. For any further information on those data sets and for spatial information on gardens and designed landscapes and World Heritage Sites which are not currently included in Historic Scotland's Spatial Data Warehouse please contact [hsgimanager@scotland.gsi.gov.uk](mailto:hsgimanager@scotland.gsi.gov.uk). Historic Scotland are also available to provide any further information on all such sites.

## 9. Navigation

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

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

## 10. Ecology, Biodiversity and Nature Conservation

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

### Species

The ES should show that the applicants have taken account of the relevant wildlife legislation and guidance, namely

- 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
- Wildlife and Natural Environment (Scotland) Act 2011
- Nature Conservation (Scotland) Act 2004
- Protection of Badgers Act 1992
- 1994 Conservation Regulations
- Scottish Executive Interim Guidance on European Protected Species
- Development Sites and the Planning System and the Scottish Biodiversity Strategy and associated Implementation Plans

In terms of the SG Interim Guidance, applicants must give serious consideration to/recognition of meeting the three fundamental tests set out in this Guidance. **It may be worthwhile for applicants to give consideration to this immediately after the completion of the scoping exercise.**

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

## 11. Water Environment

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

All applications (including those made prior to 1 April 2006) made to Scottish Ministers for consent under section 36 of the Electricity Act 1989 to construct and operate a electricity generating station are required to comply with new legislation. In this regard MS-LOT will be advised by SEPA and will have regard to this advice in considering any consent under section 36 of the Electricity Act 1989.

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

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

- Construction.
- Operation.
- Decommissioning.

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

- increases in silt and sediment loads resulting from construction works.
- point source pollution incidents during construction.
- obstruction to upstream and downstream migration both during and after construction.
- disturbance of spawning beds during construction - timing of works is critical.
- drainage issues.
- sea bed and land contamination

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

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

## 12. Other Material Issues

### Traffic Management



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

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

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

### **13. General ES Issues**

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

#### Consultation

Developers should be aware that the ES should also be submitted in a user-friendly PDF format which can be placed on the SG website. Developers are asked to issue ES directly to consultees. Consultee address lists can be obtained from MS LOT who will also advise on the number of hardcopies required for onward distribution.

Where the developer has provided Scottish Ministers with an ES, the developer must publish their proposals in accordance with part 4 of the Environmental Impact Assessment (Scotland) Regulations 2000. Information and guidance, including the specific details of the adverts to be placed in the press, can be obtained from MS LOT; [ms.marinelicensing@scotland.gsi.gov.uk](mailto:ms.marinelicensing@scotland.gsi.gov.uk)

#### Gaelic Language

Where s36 applications are located in areas where Gaelic is spoken, developers are encouraged to adopt best practice by publicising the project details in both English and Gaelic.

#### Ordinance Survey (OS) Mapping Records

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

#### Difficulties in Compiling Additional Information

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

## Application and ES

A developer checklist is enclosed with this opinion to assist developers in consideration and collation of the relevant ES information to support their application. In advance of publicising the application, developers should be aware this checklist will be used by the licensing authority in consideration of formal applications.

## Consent Timescale and Application Quality

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

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

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

## Judicial review

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

Signed

Andrew Sutherland

12/10/2011

Authorised by the Scottish Ministers to sign in that behalf

Enclosed - Developer Application Checklist

## **Annex 1**

### **Consultee Comments Relating to Lewis Wave Power Oyster Array, North West Coast Lewis**

The following organisations provided a scoping opinion in relation to the Lewis Wave Power Oyster Array, North West Coast Lewis

#### **Statutory Consultees**

Comhairle nan Eilean Siar (Western Isles) Planning Authority  
Scottish Environmental Protection Agency  
Scottish Natural Heritage

#### **Non Statutory Consultees**

British Telecom (Radio Network Protection Team)  
Chamber of Shipping  
Civil Aviation Authority  
Crown Estate  
Defence Infrastructure Organisation  
Health and Safety Executive  
Historic Scotland  
Inshore Fishery Groups  
Joint Radio Company  
Marine Scotland  
Maritime and Coastguard Agency  
National Air Traffic Services  
Northern Lighthouse Board  
Royal Yachting Association  
Royal Society for the Protection of Birds  
Scottish Canoe Association  
Scottish Government Planning  
Surfers Against Sewage  
Transport Scotland

## **Local Authority - Comhairle nan Eilean Siar (Western Isles) Planning Authority**

### **Physical Environment**

- 1.1 The main issue identified which is addressed in part in the Scoping Report is the impact of installations on existing coastal processes and the effect of this on soft sandy coasts and till cliffs, for example, increased coastal erosion. Modelling should be considered to ensure installations are situated as sympathetically as possible in relation to the potential for increased coastal erosion.
- 1.2 A baseline should be made of the current state of coastal erosion adjacent to the proposed sites. The work carried out by HR Wallingford during 1995 for the Minch Project may help inform such a study. This is described in the report Survey of Coastal Erosion in the Western Isles, Report EX 3155, HR Wallingford.

### **Commercial Fisheries**

- 2.1 From a fisheries perspective although the Lewis Wave Power Scoping Report indicates low fishing effort this is based on Vessel Monitoring System information between 2005 and 2007. This highlights fishing effort of over 15m vessels only with most effort in the area undertaken by under 10m vessels. Local information indicates up to 8 static gear vessels working this area through the summer months. The development will materially affect the extent of this fishing.
- 2.2 The data gathering exercise indicated in the Scoping Report and used to inform the impact assessment appears reasonable with targeted consultation with local stakeholders and the utilisation of a Fisheries Liaison Officer to interact with fishing stakeholders.

### **Traffic and Transport**

- 3.1 Traffic and vehicular issues have the potential to be significant and to that effect information is required within an EIA on the following:
  - a) the effect of the project on the existing roads network;
  - b) any proposed access arrangements;
  - c) transportation of materials to sites during the construction phase;
  - d) details of any significant changes to traffic flows; and
  - e) details of a proposed management arrangements in terms of traffic and transport issues.

### **Archaeology and Cultural Heritage**

- 4.1 The Comhairle welcome's the inclusion of a dedicated chapter to assess the potential impact of any development proposal upon the cultural heritage resource.
- 4.2 On page 77, the Scoping Report notes that the assessment will consider "both direct and indirect (largely visual) effects" on both terrestrial and submerged archaeological monuments/features and deposits and also listed buildings. Each broad category of impact is commented on as below. Guidance outlining the requirements of the Western Isles Archaeology Service is also included:

#### **Potential direct (physical) impacts to the cultural heritage resource**

- 4.3 The main agencies of direct (i.e. physical) impact have been discussed within the scoping report. The impact on archaeological remains and deposits are summarised below:

- Onshore works up to c4,000m<sup>2</sup>
- Drilling of pipelines/preparation of ground
- Possible disturbance of seabed and potential submerged remains
- Changes in coastal processes
- Changes in hydrological conditions
- Junction widening

4.4 In addition, it is also important to consider the following direct impacts:

- Machinery movement onto site
- construction of temporary site compound comprising a lay down area and possibly an additional marshalling area
- hardstanding for site welfare / office facility
- site landscaping
- decommissioning

Each of these stages of work clearly has the potential to impact on or destroy archaeological features or deposits. The assessment and Environmental Statement should consider the impact of each of these activities (if applicable) on the identified and potential cultural heritage resource.

#### **Assessment requirements**

- 4.5 In order to establish the archaeological potential of the application site, to establish the significance of any archaeological remains within the proposed development site and the impact of the development, the applicant should be required to undertake a targeted programme of assessment. All stages of assessment should be undertaken prior to determination and incorporated into the required Environmental Statement. The scoping report identifies that the applicant will commission an archaeological desk-based assessment of relevant existing cultural heritage data to be augmented by a walkover survey of the site. This walkover survey should pay particular attention to the construction impact of the proposed development. Whilst the scope of this assessment should be broadly as set out 5.6.3 of the Scoping Report, it should also include an assessment of the impact upon any coastal sites which may be affected through the perceived changes in coastal processes, it is important that all phases of assessment, including the desk-based assessment, are undertaken in line with an agreed project design or method statement. A specific project brief for each stage of the assessment can be requested from the Comhairle's Archaeology Service once the parameters of the development are agreed.
- 4.6 Much of the proposed survey area has been assessed through the Coastal Zone Assessment programme, this identified a huge number of sites. This was completed in 1997 so out of date and not complete. The archaeological consultant should liaise with SCAPE directly for any additional advice or information they may hold.
- 4.7 In addition the CZA recorded changes in the geomorphology along this coastal stretch of North West Lewis, this should also be assessed for any impact for changes in coastal processes, not to provide detailed evidence of the geomorphology but rather to allow the effective analysis and assessment of the erosion regimes to address any site specific issues that may impact on the visibility, preservation and management of sites in the survey area. Assessment should also be made of specific archaeological landscape impacts, for example the prehistoric ritual landscape around Ballantrushal and not just specific individual monuments. This work will hopefully help to refine the areas requiring further archaeological evaluation.

- 4.8 North West Lewis is extremely important to the consideration of the late Quaternary environment of Scotland as an area which was positioned outwith the maximum extent of the Devensian Ice Sheet 18,000 years ago and has the rare evidence of raised beaches of the Outer Hebrides.
- 4.9 Upon completion, a copy of the archaeological desk-based assessment should be provided to the Comhairle's Archaeology Service for comment prior to being included within the EIA. Subject to the archaeological potential of the application site, further stages of assessment, including geophysical survey and intrusive evaluation (by trial trenching) and palaeoenvironmental sampling may be required, where appropriate. All phases of assessment and evaluation should also be undertaken prior to determination and incorporated within the applicant's Environmental Statement.

**Potential indirect (visual) impacts to the cultural heritage resource**

- 4.10 The Scoping Report notes that a development of this form and scale has potential to indirectly (largely visually) impact cultural heritage features some distance from the proposal. In order to enable an informed assessment of the potential visual impact to cultural heritage receptors, the desk-based assessment should also seek to identify the most sensitive cultural heritage assets (not just scheduled monuments and listed buildings but also non designated features/monuments of national importance) and the historic landscape character within the agreed study area. Once these features are identified, and subject to their relationship with relevant Zone of Theoretical Visibility (ZTV) data, consideration should be given to including these sites within the scope of the detailed visual assessment exercise, using wireframe and / or photomontage simulations.
- 4.11 The Historic Landscape Assessment for the Outer Hebrides has been completed contrary to what has been written in the Scoping Report and is available for consultation.
- 4.12 Once the initial desk-based assessment is complete the Comhairle's Archaeology Service should be consulted in order to agree specific locations for visual simulations (photomontage or wireframe) for inclusion within the Environmental Statement.

**Mitigation**

- 4.13 Appropriate mitigation advice can be made only once the results of all stages of assessment are available for consideration and details of the development agreed. In the event that significant archaeological remains are identified, appropriate mitigation works may be recommended. These could comprise one or more of the following:
- the abandonment or re-location of specific elements of the scheme;
  - full archaeological excavation of impacted areas prior to construction commencing in a defined area.
- 4.14 Where less significant archaeological remains are revealed, these areas may be dealt with by a condition requiring one or more of the following:
- a programme of archaeological strip and record mitigation prior to construction commencing in that area;
  - an archaeological watching brief during groundworks on the least significant archaeological remains;
  - topographic survey of archaeological earthworks impacted by the proposal.

- 4.15 Please feel free to get in touch with the Comhairle's Archaeology Service to discuss the information required for the EIA.

### **Onshore Noise**

- 5.1 The Scoping Report makes reference to onshore noise and the applicant's willingness to carry out additional monitoring if necessary which is welcomed. Noise from land based construction is likely to be addressed through normal planning conditions with significant effects not expected.

### **Socio- Economics**

- 6.1 The proposal shows a large search area, which will presumably narrow, down to a precise deployment site. It would be useful for the application to clarify the proposals for the unused portion of the search area e.g. reverting to The Crown Estate to become available to other developers through future leasing rounds.
- 6.2 While the Scoping Report refers to the creation of Scottish jobs during construction, an evaluation of direct jobs created in the local community should be provided with any proposals to support the development of local expertise where it does not already exist in the community. The EIA should seek to indicate any planned commitments towards local fabrication, research and monitoring in connection with the project.
- 6.3 The Scoping Report refers to a Socio Economic Assessment, which will support the EIA. One of the topics to be covered by the Socio Economic Assessment is energy supplied by the development. The assessment may wish to consider any impacts arising from any decisions to use of an Outer Hebrides Energy Supply Company.
- 6.4 As lead partner in the 'ISLEPACT' project, the Comhairle is committed to reducing carbon emissions in the Outer Hebrides by 20% by 2020 and innovative schemes like the one proposed could assist in driving the delivery of this objective.
- 6.5 In general, the socio-economic assessment should break down the variety of benefits to and impacts within the local economy as well as wider impacts outwith the Outer Hebrides.

### **General/Consultation Strategy**

- 7.1 The Outer Hebrides Coastal Marine Partnership ([www.coasthebrides.co.uk](http://www.coasthebrides.co.uk)) should be added to the list of consultees.
- 7.2 As Elected Members (local Councillors) may make a planning decision based on the proposals it would be more appropriate to simply consult Comhairle nan Eilean Siar rather than including local councillors on the consultee list.
- 7.3 It is noted that the Scoping Report is not site specific about the onshore requirements. Without that detail it is difficult to give any meaningful comment on this aspect of the proposal as part of the Comhairle's Scoping Opinion. The EIA should however be clear on the site(s) selected, the detail of the works proposed and any mitigation proposals put forward.

## Scottish Environmental Protection Agency

Thank you for consulting SEPA on the scoping opinion for the above development proposal by way of your email which we received on 27 May 2011. We would welcome meeting with the applicant at an early stage to discuss any of the issues raised in this letter. Overall we consider that the scoping report addresses most of our issues however they should check that they have included all the issues discussed within this letter. In particular we consider that the following key issues should be addressed in the EIA process:

- Impacts upon the water environment both onshore and offshore including existing Scottish Water sewage discharges from local villages
- Pollution prevention measures
- Management of waste peat should deep peat be encountered

Please note that all of the issues below should be addressed in the Environmental Statement (ES), but due to the fluid nature of the proposals 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.

We have produced SEPA Planning Guidance Note LUPS 17 [Marine development and marine aquaculture planning guidance](#) which may be helpful to the applicant. In addition we have referred to SEPA Planning Guidance Note LUPS GU4 [Planning Guidance on windfarm developments](#) as this contains guidance which is relevant to some of the onshore elements of the proposals.

### **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 you to consider producing a single ES which covers all aspects of the proposed development. This will enable a full assessment of the potential effects of the development as a whole, rather than assessing certain details of the development individually.

### **2. 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 determining authority should take this into account in considering the application, as, in order to meet the requirements of the Water Framework Directive (2000/60/EC), Marine Scotland is 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.
- 2.2 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. In particular the Gallan Head to Butt of Lewis water body should be assessed.
- 2.3 In order to assist both applicants and determining authorities, we have made information available on our website. 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” status is to be achieved. The GIS interactive map (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. The data download tool allows water body information to be filtered by planning authority. Both the map and data download tool hold data sheets relating to each individual water body. The water body data sheets set out the water body’s ecological status, any pressures upon it, measures set up to resolve any issues and targets for any improvement needed. As responsible authorities, determining authorities 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.

- 2.4 We note that there are several existing Scottish Water sewage discharges which the development may impact upon depending on the exact location of the proposals. The applicant should consult Scottish Water to assess whether the proposals will affect these existing discharges.

### **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 for each phase of the development. 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. We note the variability on your construction methods so depending on the types and scale of construction the information below may be required.

### **4. Land reclamation and construction (if proposed)**

- 4.1 A site plan and cross sections showing the location of all the engineering activities, including temporary works, in the marine environment will be required. Depending upon the scale and nature of the works, there may be a need to carry out hydrodynamic modelling to predict the impacts of construction activities on water quality, as well as coastal processes in the longer term. If large scale works are proposed then any potential impacts from suspended sediment should be compared to natural background levels and water quality standards (eg Shellfish Waters Directive). Any proposed mitigation should also be detailed in the ES.

### **5. Seabed preparation for device and foundation installation**

- 5.1 The ES should include information on the quantities of material to be dredged, a description of the substrate type/habitats and species, as well as the dredging method. Although by its nature dredging is a destructive activity, adverse effects can be minimised (e.g. timing, dredging technique). If large scale works are proposed then any potential impacts from suspended sediment should be compared to natural background levels and water quality standards (e.g. Shellfish Waters Directive).
- 5.2 Information describing measures to minimise impacts (e.g. from suspended solids) should also be provided. Depending upon the scale of the works and neighbouring sensitivities, there may be a need to carry out hydrodynamic modelling to predict the impacts on water quality during construction and coastal processes in the longer

term. Options for the subsequent disposal and beneficial reuse of the material should be submitted.

## **6. Marine renewables**

- 6.1 Plans should be included in the ES showing the array of the devices, cabling routes and associated onshore infrastructure.
- 6.2 Background information that will help inform the ES process is available from European Marine Energy Centre (EMEC) which you may already be aware of due to your recent testing there. The EMEC has produced guidelines to assist developers in considering the range and scale of impacts that may result from the testing of devices. These guidelines are available at [www.emec.org.uk/index.asp](http://www.emec.org.uk/index.asp). Generally, if this standard industry guidance is followed for scoping, preparing and undertaking EIA for marine renewables, then we are likely to be satisfied with the standard of assessment.
- 6.3 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.
- 6.4 The combined footprint area of the devices and associated works and zones of modified hydrodynamics should be put into context of the area of the adjacent RBMP water body.

## **7. Onshore engineering activities in the water environment**

- 7.1 In order to meet the objectives of the [Water Framework Directive](#), the on shore components of the development should be designed wherever possible to avoid engineering activities in the water environment. The water environment includes burns, rivers, lochs, wetlands, groundwater and reservoirs. We prefer the water environment to be left in its natural state, with engineering activities such as culverts, bridges, watercourse diversions, bank modifications or dams avoided wherever possible. Where watercourse crossings are required, bridging solutions or bottomless or arched culverts which do not affect the bed and banks of the watercourse should be used. If the proposed engineering works are likely to exacerbate flood risk, then a flood risk assessment should be submitted in support of the application and we should be consulted.
- 7.2 Scottish Planning Policy states “Culverts are a frequent cause of local flooding, particularly if the design or maintenance is inadequate. Watercourses should not be culverted as part of a new development unless there is no practical alternative and existing culverts should be opened whenever possible. If culverts are unavoidable, they should be designed to maintain or improve existing flow conditions and aquatic life. A culvert may be acceptable as part of a scheme to manage flood risk or where it is used to carry a watercourse under a road or railway” (Paragraph 211). Applications should be determined in line with this planning policy.
- 7.3 A site survey of existing water features and a map of the location of all proposed engineering activities in the water environment should be included in the ES or planning submission. A systematic table detailing the justification for the activity and how any adverse impact will be mitigated should also be included. The table should be accompanied by a photograph of each affected water body along with its dimensions. Justification for the location of any proposed activity is a key issue for us to assess at the planning stage. The detailed design of engineered structures in the

water environment will be considered under regulations administered by us. Where flood risk may be an issue, this will need to be addressed at the planning stage.

- 7.4 Further guidance on the design and implementation of crossings can be found in our [Construction of River Crossings Good Practice Guide](#). Best practice guidance is also available within the water [engineering](#) section of our website.

## **8. Disruption to peatlands**

- 8.1 If there are peatland or mire systems present, the ES or planning submission should demonstrate how the layout and design of the proposal, including any associated borrow pits, hard standing and roads, avoid impact on such areas where possible. For areas where avoidance is impossible details of how impact is minimised and mitigated should be provided, including a detailed map of peat depth for all construction elements that affect peatland habitats. The peat depth survey should include details of the basic peatland characteristics. Peatland impacts that should be considered include those from waste management, drainage, dewatering, excavation and pollution.
- 8.2 By adopting an approach of minimising disruption to peatland, the volume of excavated peat can be minimised and the commonly experienced difficulties in dealing with surplus peat waste reduced. The generation of surplus peat waste is a difficult area which needs to be addressed from the outset given the limited scope for re-use. Landscaping with waste peat (or soil) may not be of ecological benefit and consequently a waste management exemption may not apply, and the position regarding disposal of waste peat within borrow pits can be very difficult. Early discussion of proposals with us is essential, and an overall approach of minimisation of peatland disruption should be adopted.

## **9. Disposal of waste peat to borrow pits**

- 9.1 The disposal of surplus peat waste to borrow pits is not encouraged as experience has shown that peat used as cover can suffer from significant drying and oxidation, and that peat redeposited at depth can lose structure and create a hazard when the stability of the material deteriorates. This creates a risk to people who may enter such areas or through the possibility of peat slide and we are aware that barbed-wire fencing has been erected around some sites in response to such risks.
- 9.2 There are important waste management implications of measures to deal with surplus peat. Peat disposed at depth must be considered in the context of waste being landfilled, and may not be consentable under our regulatory regimes. It is therefore essential that the scope for minimising the extraction of peat is explored and alternative options identified that minimise risk in terms of carbon release, human health and environmental impact. It is also important to discuss options with us at an early stage.

## **10. Peat slide risk**

- 10.1 Protection of development in relation to unstable land including landslides or landslip is not generally an area within our expertise or remit. This is a matter for the planning and building standards authorities and civil engineers, who will need to consider whether or not a detailed assessment of the risks of peat slide arising from the development should also be undertaken, what it should involve, and the extent to which the peat stability report should influence the layout of the proposals and the outline construction method statement.

10.2 Our main interest relates to the consequences of a peat-slide or bog burst which can result in severe environmental damage including the pollution of the surrounding area. The risk of this occurring should form part of any peat stability report. Guidance on preparing a peat stability report can be found on the Scottish Government website.

## **11. Wetland ecology (including groundwater dependent terrestrial ecosystems)**

11.1 A Phase 1 habitat survey should be carried out for the whole site and the guidance 'A Functional Wetland Typology for Scotland' (currently available for free download on the SNIFFER website) used to help identify all wetland areas. National Vegetation Classification should be carried out for any wetlands identified. Results of these findings should be included in the ES, including appropriate maps with the location of infrastructure clearly marked.

11.2 Generally the layout of the site should be designed to avoid impacts on all wetlands. Peatland (active blanket bog in particular) should be avoided. If impacts on wetlands are likely then details of appropriate mitigation measures are required

11.3 Groundwater dependent terrestrial ecosystems are specifically protected under the Water Framework Directive. The results of the National Vegetation Classification survey and Appendix 2 of our Planning guidance on windfarm developments (which could also be used in this instance) can be used to identify if wetlands are groundwater dependent terrestrial ecosystems. If any groundwater dependent terrestrial ecosystems are located within a radius of (i) 100m from roads, tracks and trenches or (ii) 250m from borrow pits and foundations the likely impact of these features will require further assessment. This assessment should be carried out whether or not the features in (i) and (ii) occur within or outwith the site boundary in order that micro-siting and small changes to site layout do not necessitate further National Vegetation Classification work being carried out during unfavourable weather conditions. The results of this assessment and measures that will be taken to ensure the proposals do not have an unacceptable impact should be included in the ES

11.4 Infrastructure that is within 100m or 250m and likely to have an unacceptable impact on groundwater dependent terrestrial ecosystems identified as highly sensitive (in Appendix 2 of our Planning Guidance on windfarm developments which may be useful in this instance) should be reconsidered. Further detailed studies will be required if infrastructure remains within the buffer zones.

## **12. Groundwater**

12.1 Roads, foundations and other construction works associated with developments can disrupt groundwater flow and impact on groundwater abstractions. To address this risk a list of groundwater abstractions sources both within and outwith the site boundary, within a radius of i)100 m from roads, tracks and trenches and ii) 250 m from borrow pits and foundations) should be provided. Further details can be found in our Planning guidance on windfarm developments which may be helpful given your onshore elements.

12.2 If groundwater abstractions are identified within the 100m and 250 m radii from development infrastructure, then either the applicant should ensure that the route or location of engineering operations avoid this buffer area or further information and investigations will be required to show that impacts on abstractions are acceptable.

### **13. Offshore water abstractions and discharges**

- 13.1 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.
- 13.2 We also recommend the ES should assess risks of introduction of marine non-native species and we encourage the developer to draw up a protocol or method statement to remove the risk of introducing marine non-natives into this area either during the development of this project or during the construction, operational, maintenance or decommissioning phases of the project. Given that the accidental introduction of marine non-native has been highlighted as a risk for water body degradation we recommend that controls should be included for marine non-native species in line with Water Framework and Marine Strategy Framework Directive objectives. An example of guidance that may be drawn upon is the non-natives advice produced by the Oil & Gas industry [www.ogp.org.uk/pubs/436.pdf](http://www.ogp.org.uk/pubs/436.pdf).

### **14. Onshore water abstraction**

- 14.1 Where water abstraction is proposed we request that the ES, or planning submission, details if a public or private source will be used. If a private source is to be used the information below should be included. Whilst we regulate water abstractions under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 we require the following information to determine if the abstraction is feasible in this location:
- Source eg ground water or surface water;
  - Location eg grid ref and description of site;
  - Volume eg quantity of water to be extracted;
  - Timing of abstraction e.g. will there be a continuous abstraction;
  - Nature of abstraction e.g. sump or impoundment;
  - Proposed operating regime e.g. details of abstraction limits and hands off flow;
  - Survey of existing water environment including any existing water features; and
  - Impacts of the proposed abstraction upon the surrounding water environment.
- 14.2 If other development projects are present or proposed within the same water catchment then we advise that the applicant considers whether the cumulative impact upon the water environment needs to be assessed. The ES or planning submission should also contain a justification for the approach taken.

### **15. Timing and duration of project**

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

### **16. Borrow pits**

- 16.1 Detailed investigations in relation to the need for and impact of such facilities should be contained in the ES or planning submission. Where borrow pits are proposed, information should be provided regarding their location, size and nature including the depth of the borrow pit floor and the final reinstated profile. The impact of such facilities (including dust, blasting and impact on water) should be appraised as part of the overall impact of the scheme. Information should cover, in relation to water, at

least the information set out in [PAN 50 Controlling the environmental effects of surface mineral workings](#) (Paragraph 53) and, where relevant, in relation to groundwater (Paragraph 52).

- 16.2 Details of the proposed depth of the excavation compared to the actual topography, the proposed restoration profile, proposed drainage and settlement traps, turf and overburden removal and storage for reinstatement should be submitted. The reinstatement of borrow pits can raise significant waste management issues and it is essential that any proposals are discussed with our regulatory teams as part of the development of the scheme to ensure that such proposals are feasible in terms of cost and regulatory requirements.

## **17. Air quality**

- 17.1 The local authority is the responsible authority for local air quality management under the Environment Act 1995, however we recommend that this development proposal is assessed alongside other developments that are also likely to contribute to an increase in road traffic. This increase will exacerbate local air pollution and noise issues, particularly at busy junctions and controlled crossing points. Consideration should therefore be given to the cumulative impact of all development in the local area in the ES or supporting information. Further guidance regarding these issues is provided in NSCA guidance (2006) entitled [Development Control: Planning for Air Quality](#).

- 17.2 Excavation works, particularly through drilling and blasting, may cause nuisance to adjacent land users due to the generation of dust and noise. Comments from the local authority environmental health officers should be sought on the potential nuisance to adjacent land users during the construction and decommissioning phases of the project.

## **18. Construction Environmental Management Document (CEMD) and pollution prevention**

- 18.1 One of our key interests in relation to major developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. The construction phase includes construction of access roads and any other site infrastructure.

- 18.2 We advise that the applicant, through the EIA process or planning submission, should systematically identify all aspects of site work that might impact upon the environment, potential pollution risks associated with the proposals and identify the principles of preventative measures and mitigation. This will establish a robust Project Environmental Management Process (PEMP) for large scale (e.g. Major and Environmental Impact Assessment Projects (EIA). A draft Schedule of Mitigation should be produced as part of this process. This should cover all the mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our [website](#).

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

useful information such as rainfall and hydrological data through our [Access to Information Team](#).

- 18.4 A Construction Environmental Management Document (CEMD) is a key management tool to implement the Schedule of Mitigation. We recommend that the principles of the CEMD are set out in the ES drawing together and outlining all the environmental constraints and commitments, proposed pollution prevention measures and mitigation as identified in the ES.
- 18.5 The CEMD should form the basis of more detailed site specific Construction Environmental Management Plans (CEMPs) which along with detailed method statements may be required by planning condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before development commences).
- 18.6 We recommend that the detailed CEMD is submitted for approval to the determining authority at least two months prior to the proposed commencement (or relevant phase) of development to order to provide consultees with sufficient time to assess the information. This document should incorporate detailed pollution prevention and mitigation measures for all construction elements potentially capable of giving rise to pollution during all phases of construction, reinstatement after construction and final site decommissioning. This document should also include any site specific CEMPs and Construction Method Statements provided by the contractor as required by the determining authority and statutory consultees. The CEMD and CEMP do not negate the need for various licences and consents, e.g. CAR and PPS, if required. The requirements from the obtained licences and consents should be included within the final CEMPs.

## **19. Flood Risk**

- 19.1 The onshore components of the development should be assessed for flood risk from all sources in line with Scottish Planning Policy (Paragraphs 196-211). Further information and advice can be sought from your Local Authority technical or engineering services department, [Scottish Water](#) and from our [website](#). Our [Indicative River & Coastal Flood Map \(Scotland\)](#) is also available to view online. If a flood risk is identified then a flood risk assessment (FRA) should be carried out following the guidance set out in the Annex to the [SEPA Planning Authority flood risk protocol](#). Our [Technical flood risk guidance for stakeholders](#) outlines the information we require to be submitted as part of a FRA, and methodologies that may be appropriate for hydrological and hydraulic modelling. Further guidance on assessing flood risk and planning advice can be found at our [website](#).

## **20. Marine ecological interests**

- 20.1 A baseline assessment of existing intertidal and subtidal habitats and species should be submitted. This should include any UK Biodiversity Action Plan habitats and species (eg maerl, sea pens, eel grass, horse mussels). Additional information on the UK Biodiversity Action Plan is available at: <http://jncc.defra.gov.uk/default.aspx?page=5155>. Developers will then be able to ascertain if they are required to supplement or quantify the available data with in-field surveys.

- 20.2 We also recommend information be submitted detailing how the development will contribute to sustainable development. Opportunities to enhance marine habitats in line with Water Framework Directive and The Nature Conservation (Scotland) Act 2004 objectives and Scottish Planning Policy guidance should be explored. Examples may include coastal realignment, the incorporation of naturalistic features in the design of shoreline works, or planting with salt tolerant species. These could be used as examples of best practice and demonstration sites under SEPA's Habitat Enhancement Initiative (HEI).
- 20.3 During the construction phase, it is important that good working practice is adopted and that habitat damage is kept to a minimum and within defined acceptable parameters. These should be controlled through an environmental management plan.
- 20.4 Advice on designated sites and European Protected Species should be sought from SNH. For marine and transitional Special Areas of Conservation (SAC) and Special Protected Areas (SPA), these are WFD Protected Areas. Therefore, their objectives are also RBMP objectives. In this case, SNH may contact us for input on the consultation.

## **21. Coastal Processes**

- 21.1 The wave resource modelling should assess the effect that the array of devices will have upon the wave regime and nearshore processes and the effects that any changes may have upon the habitats/species (e.g. Modiolus beds) that they support.
- 21.2 Developers will then be able to ascertain if they are required to supplement or quantify the available data with in-field surveys and what mitigation measures are required.

## **22. Regulatory advice**

- 22.1 Details of regulatory requirements and good practice advice for the applicant can be found on our website at [www.sepa.org.uk/planning.aspx](http://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 James Square, James Street, Stornoway HS1 2QN Tel: 01851 706477.



## Scottish Natural Heritage

Thank you for the recent consultation requesting our advice on the proposal for a 40MW wave array located on the north west coast of Lewis.

### Natural heritage interests to be considered

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

As part of our scoping advice we include the range of interests and potential impacts that may need to be considered in relation to the requirements of Regulation 61 of the Conservation of Habitats and Species Regulations 2010 and regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 as amended – now commonly referred to as Habitats Regulations Appraisal (HRA) (please note we are currently seeking legal advice over the application of the 2010 Regulations to reserved matters in Scotland e.g. Section 36 of the Electricity Act). We provide more detail on the legislative requirements for European sites in Appendix B. We also provide our advice on HRA tailored to the potential impacts of the proposed wave array in Appendix D for Special Protection Areas and Appendix E for Special Areas of Conservation.

### General comments

The scoping report provides details on the proposed 40MW wave energy array by Lewis Wave Power Ltd. The proposed development will deploy 40 x Oyster Wave Energy Convertors (WEC) with an installed capacity of 1MW each. One application would cover the following phased installation:

- Phase 1: three devices (installed 2013),
- Phase 2: seven devices (installed 2014),
- Phase 3: fifteen devices (installed 2015), and
- Phase 4: fifteen devices (installed 2016).

At this early stage in the process, and as described in the scoping report, it is not possible for the applicant to be definitive about the details of their project. As a result, the scoping advice we present in this response also has to be less tailored on some aspects of the project which have yet to be fully detailed.

We recommend that the applicant submits an interim report after the first year of survey work to Marine Scotland and SNH. Based on the results of this interim report, a second year of survey work may be required. We also recommend that the applicant provides an initial Environmental Mitigation and Monitoring Plan (EMMP) as part of the Environmental Statement (ES), taking into consideration monitoring work from EMEC. The proposed EMMP should provide details on the various monitoring studies to be undertaken and, importantly, schedule sufficient time between each phase in order to accurately monitor any potential impacts (both positive and negative).

The scoping report provides little information on the onshore element of the proposal, including cabling, directional drilling, powerhouse(s), transformers, substation, access tracks,

maintenance base/facility, and grid connection. The onshore works may have further implications with regard to HRA.

At this early stage in the process, and with detail lacking on both the onshore and off-shore elements, we consider that the conclusions drawn in section 6 and table 6.1 of the scoping report, regarding which potential impacts are scoped in or out of the EIA, will need to be reassessed once further detailed project information is provided. We recommend that as further project details are developed these are forwarded to all stakeholders and MS LOT to provide an opportunity for the scoping opinion to be updated.

#### Further information and advice

Answers to the scoping questions outlined in section 8.1 of the scoping report can be found in Appendices A, D and E.

We can provide further advice on natural heritage interests, at appropriate stages, as work is undertaken by the applicant in support of their formal submission. We would be grateful if you could copy us into the formal scoping opinion in due course. However, we note that due to the scoping report having omissions in relation to key aspects of the development proposals there may be a necessity for SNH to provide further formal advice and for Marine Scotland to issue scoping addendum(s). In the meantime, if further information or advice is required in respect of this scoping advice then please contact me in the first instance: [chris.eastham@snh.gov.uk](mailto:chris.eastham@snh.gov.uk) or 01292 261392.

## APPENDIX A

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

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

#### GENERAL ADVICE

- ai. Project Planning & Phases of Development
- aii. Landscape & Visual
- aiii. Fisheries
- aiv. 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 Assessment](#), in SNH's [Environmental Assessment Handbook](#), and in the draft [Marine Renewable Licensing Manual](#).

##### **Rochdale Envelope**

We note that Lewis Wave Power Ltd propose to take a Rochdale Envelope approach during the EIA. With this approach the maximum extent of development proposal is assessed, so that the scheme is then designed within these maximum parameters i.e. an assessment of a potential worst-case scenario. If this approach is to be used then we highlight that it would need to apply to both offshore and onshore elements together i.e. what is the maximum extent of onshore / associated development that is required to support the maximum number of wave devices?

##### **Project details**

Section 1.3 provides details on the project components including site layout and phasing, device design and installation, and onshore elements. As options are currently being kept open with regard to project design, so our scoping advice has to be kept general. We would welcome ongoing dialogue with the applicant and the consenting authority as this project progresses in order to discuss how they are addressing environmental interests, and to provide more focused advice with regard to the finalised project details.

Coastal geomorphology should be considered when identifying cable / directional drilling routes (please see bv. Hydrodynamic Processes & Coastal Geomorphology).

##### **Grid connection**

The report identifies that the options for export cable route, substation and grid connection, are currently under consideration.

We would welcome an invitation to be engaged in discussing potential route options to assist in identifying environmental sensitivities/mitigation at the earliest opportunity.

## **Phases of Development**

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

### **Installation & construction**

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

### **Operation & maintenance (O&M)**

The ES should include details on operation and maintenance activities (as discussed in the scoping report, section 1.3.3) and an assessment of any impacts that could arise – considering any potential environmental, navigational and/or other effects. We note that the annual scheduled maintenance for each individual device is anticipated to be approximately 2 weeks per year. For the proposed 40 devices this may result in 80 weeks of scheduled maintenance. Further details should be provided on how this maintenance will be carried out together with an assessment of any potential impacts.

### **Repowering**

The applicant does not discuss repowering in their scoping report and does not indicate the anticipated design life of any of the elements to be placed offshore: devices, pipes and cabling. 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 wave 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.

### **Decommissioning**

Decommissioning is discussed in section 1.3.4 of the scoping report. We recommend that any potential impacts are assessed in the ES.

## **iii. Landscape & Visual**

The following advice is offered to clarify the approach and methodology presented in the scoping report. We are in the process of reviewing both our own guidance and that commissioned by others in order to draw up a list of recommendations for carrying out seascape, landscape and visual assessment in Scotland in relation to marine renewables.

### **Baseline environment**

Fieldwork is a fundamental part of EIA. The Seascape and Landscape Character Assessment needs to examine both the regional and local coastal landscapes and seascape. While SNH’s Scottish seascape (Scott et al. 2005) report is a helpful reference we emphasise that it is a strategic assessment, a ‘nationwide’ look at the coast, with general descriptions of seascape character types. These were tested against a specific, set theoretical windfarm scenario to explore issues of sensitivity and visibility. Furthermore, in

this study fieldwork was not a major part of the assessment process, which was limited to a strategic desk-based approach. Thus, the seascape units are of only limited use in appraising actual development proposals and need refinement in order to examine the impacts of a specific proposal.

Field work is required to do this, and we recommend that the applicant uses the [coastal character methodology developed for aquaculture capacity studies](#). This approach identifies areas of consistent seascape character with strong integrity, like a specific bay or stretch of coast. We recommend that these local coastal character areas are defined at a scale comparable to the existing LCAs and will be informed by them and field work. The Beaches of Scotland series may also be helpful in this regard – these regional reports offer a quantified description of many aspects of Scotland’s coastline and are available from [SNH publications](#) (see The Beaches of Lewis and Harris, SNH 1970, reprinted 2004). Fieldwork and desk study will refine the broad characterisation of the ‘low rocky island coast’ (Scott et al. 2005), revealing the more varied character of the West Lewis coast.

### **EIA Methodology**

We recommend that Chartered Landscape Architects, preferably a team of at least two, should carry out the landscape and visual impact assessment.

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

Although the techniques and methods developed to evaluate seascapes are helpful, (such as [SNH’s seascapes work](#), quoted in the scoping report) it needs to be critically assessed. This is because of Scotland’s specific coastal conditions and qualities, but also because the report findings relate to offshore windfarm development. While our knowledge of the likely impacts of the new wave technology is limited, some of the principles developed in relation to the siting and design of aquaculture may be relevant. With this in mind we refer the applicants to SNH guidance on ‘*Marine Aquaculture and the Landscape*’.

Essentially, a coastal landscape assessment clearly related both ‘seawards’ and ‘landwards’ is required. Once the baseline is established, judgements on sensitivity and impacts can then be made. Establishing the relationship of landscape character to seascape character (and vice versa) is fundamental to the assessment. Important elements to consider include the contrast of form, pattern, texture and colours between the landscape and sea; and the effects of the development’s form, pattern, texture and colours within this.

### **Visibility and Zones of theoretical visibility**

In assessing visibility, reference should be made to SNH’s guidance on the [Visual Representation of Windfarms](#) (December 2007). Although the VRW guidance relates to onshore windfarms, this gives practical guidelines on the preparation, presentation and application of visibility maps, viewpoints and visualisations.

The configuration of the wave array will be noticeable, as the eye is attracted to groups or patterns. Therefore, as the horizontal extent of the sea is a strong compositional attribute in views looking out offshore from land, it will be important to assess the wave array within a ‘wider view’, or panorama.

## **Viewpoint Selection and Assessment**

Viewpoints should be selected in negotiation with MS LOT and statutory consultees, principally the Local Planning Authority and SNH. Viewpoints selected by the planning authority may include additional residences and public buildings, as local authorities have other interests in addition to those of SNH. Initially lengthy, the viewpoint list is likely to be shortened as viewpoints that best illustrate the most significant likely impacts, or help the most with design iteration, become obvious.

Public consultation on viewpoint selection is recommended. The selection of viewpoints and the direction of views selected should be based on the identification of potentially sensitive receptors (people, places and activities) and potentially significant views, locations or landscapes, taking into account the likely impacts of the wave array.

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

### **View type**

Viewpoints should be selected in order to show:

- a) Areas of high landscape or scenic value; both designated and non designated. For example NSA's, AGLV's, GDL's, search areas for wild land, tourist routes and local amenity spaces;
- b) A full representation of views from a range of distances, aspects, landscape character types and visual receptors; to include coastal views looking out to the coast and back, as well as across water to opposing shores
- c) All aspects of the proposed development, i.e. illustrate it "in the round" to help in the design development and assessment processes. This will also enable assessment of a range of light conditions e.g. side-lit, back-lit and front-lit;
- d) Visual composition. For example focussed or panoramic views, simple or complex;
- e) The variety of images that the wave array will present from coastal areas as well as important coastal hilltops and landmarks including, for example, where the whole array is visible as well as places where partial views occur;
- f) A range of distances;
- g) A range of elevations;
- h) Sequential along specific routes;
- i) The full range of different types of views, e.g. popular hilltops, footpaths and other recreational routes, key transport routes (on and offshore where relevant), minor roads where the array will be the focus of the view, settlements, cultural and recreational foci, and so on;

### **Viewer Type**

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

In addition to representative viewpoints, it is important to consider viewpoints that are already important vantage points within the landscape, for example local visitor attractions, scenic routes, or places with cultural landscape associations.

The developer should be aware that further or alternative viewpoints may need to be considered throughout the VIA process.

The local planning authority may have additional considerations regarding viewpoint selection. Elevated viewpoints, for example those on coastal walks and hilltops are particularly useful in exploring the layout and design. Precise adjustment of the viewpoint location should be made to avoid underestimation of the visual effect by, for example, the judicious positioning of screening objects.

The precise location of the viewpoint (including 12 figure OS grid reference and a brief description), viewpoint height (mAOD), nature of view (width of view in degrees and bearing of key foci within view) and conditions of assessment should be given. This should give details of the orientation to and distance from the proposed development, date, time of day and weather conditions and visual range, when the photographs were taken and the assessment made. It is helpful if a small insert map (based on a 1:50000 OS base map) showing the viewpoint's detailed location and direction is given alongside each visualisation.

All viewpoint information should be presented in a table and cross-referred to a ZTV map on which all of the numbered viewpoints are plotted.

The characteristics visible from each viewpoint that are sensitive development on the seasurface should be described and assessed, particularly in relation to changes the development would cause. Factors such as season, weather, air clarity, movement, orientation to prevailing winds, in relation to the viewer, and any screening elements may be relevant. The design and layout of the wave array, as it would appear from each viewpoint, should also be described and assessed.

Details of the types of receptors, and an assessment of their sensitivity, should be included.

### **Cumulative Impacts**

Cumulative SLVIA should be carried out with reference to the current SNH [guidance on cumulative effects](#) (2005), though please be aware that this guidance is currently being updated. Whether it follows the draft guidance or not, the reasoning behind judgements should be made clear. This is because there is more than one type of cumulative impact and their assessment quickly becomes complicated.

### **Potential Mitigation and Monitoring**

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

### **aiii. Fisheries**

#### **Fishing industry liaison / consultation**

We agree with the scoping report that close liaison with the local fishing industry is important. In addition to the Scottish Fishermen's Federation, major fishing associations, the Association of Salmon Fishery Boards and the relevant government departments, we recommend consultation with the relevant [Inshore Fisheries Group](#) (IFG). IFGs are currently being established around Scotland and, while they do not function as fishermen's associations in representing fishing interests per se, they endeavour to comprise representation from all vessels fishing in the inshore area, including those that are not part of

a major association (small independent fishers) and those that are not based locally (i.e. east coast vessels that also operate on the west coast, and vice versa). As such, they can act as a useful contact point for consultations and we welcome their inclusion on the stakeholder group list.

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

### **Data sources & survey design for fish and shellfish**

Marine Scotland Science is the primary source for information on commercial fish and shellfish in Scottish waters. For spawning information, the applicant should also be aware of [Ellis et al](#) (2010).

The desk-based study (mentioned in section 4.6.3) should not only consider the importance of the species themselves, but also: a) the importance of the habitat type and local area for these species, b) the importance of these species to other components of the natural heritage e.g: feeding seabirds), and c) the vulnerability and sensitivity of these species to the identified potential impacts.

We note that only diadromous fish are considered in the discussion on migration routes (page 58). The applicant should be aware that other (fully marine) fish and shellfish also exhibit migratory behaviour (mostly seasonal). Logic suggests that the geographical range of their migration is less restricted than diadromous species and therefore less vulnerable to potential impacts. Nevertheless the potential physical/noise barrier effects are worthy of consideration.

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. Marine Scotland Science and CEFAS should be able to advise on the most appropriate data sources relating to spawning and nursery grounds, and whether any additional surveys are required. They should also be contacted to discuss mitigation measures if there is any overlap between the development site and the location of spawning events/nursery grounds.

The impacts of underwater noise on the spawning behaviour of fish is a potential concern, and should be considered with regard to installation and operation of the array. It should be noted that different species of fish have differing sensitivities to underwater noise, and this should be considered in the EIA.

The applicant should assess the environmental effects of displacing (and potentially concentrating) fishing effort to other areas. The potential of the development area to provide a refuge for particular species, potentially increasing biomass, with potential benefits to adjacent fishing grounds should also be considered.

The applicant proposes to scope out change in abundance of targeted species. However, depending on (a) the prior intensity of fishing at the site and (b) the vulnerability and sensitivity of the species to negative effects associated with construction and operation of the array, there could be positive and/or negative impacts on local fish and shellfish populations. We recommend that the ES identifies a monitoring scheme which would identify any changes to the local populations pre, during and post construction.



## **Habitat associations for commercial fish/shellfish species**

Many fish and shellfish have strong associations with particular habitats or substrate types, sometimes varying for different life-history stages of a species. Consequently, particular sectors of the Scottish fishing industry are also closely associated with particular substrate types. The information below does not cover all species or fisheries but may help (a) focus liaison with the fishing industry, and (b) indicate some of the key commercial species which may be impacted by particular developments.

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

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

## **Fish and shellfish to consider**

In the section above we provided advice on the association between certain habitats and species, which may be used as a guide to help identify some of the key species that may be present within the proposed site. In determining species to consider within the EIA, we recommend that in addition to the UK Biodiversity Action Plan (BAP) the applicant includes the OSPAR Threatened and Declining and the [Scottish Priority Marine Features](#) (PMF) list as part of the criteria. These include some commercial species of fish, and for some the juvenile life stages.

Of the crustaceans, crawfish (*Palinurus elephas*), which has commercial value, is on the PMF list and is predominantly found on bedrock and boulder habitats. When considering shellfish, other species besides crustaceans should be considered, except where they are covered in the benthic ecology section.

## **aiv). Designated Sites & Species Protection**

### **Marine Protected Areas**

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

The guidance document by [Scottish Government](#) includes a draft list of Priority Marine Features for which MPAs may be an appropriate mechanism. SNH and JNCC are currently reviewing the lists of marine biodiversity and geodiversity features in order to help identify habitats and species for which MPAs could make a contribution to their conservation.

The MPA process is likely to be running on a parallel timescale to the applicant's project development and its formal consenting. The applicant should liaise with Marine Scotland over this aspect and we will seek to keep them informed as to our own input to the progress of MPAs, where this is relevant.

## Natura sites

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

## Sites of Special Scientific Interest (SSSIs)

As discussed in the covering letter and above in section ai, the location and extent of onshore infrastructure is currently unconfirmed. Loch Dalbeg SSSI, notified as a mesotrophic loch, is the only SSSI within the area of search. However, at present we are unable to advise whether this will require further consideration. We note that further information on SSSIs is available from our [website](#) with information on particular sites being available on our [Sitelink](#).

## ADVICE IN RESPECT OF OFFSHORE ELEMENTS

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

- bi. Benthic Ecology
- bii. Ornithology
- biii. Marine Mammals & Basking Shark
- biv. Fish of Conservation Concern
- bv. Hydrodynamic processes & Coastal geomorphology

### **bi. Benthic Ecology**

#### **Studies, Methods and Assessment**

The scoping report references the regional locational guidance published by Marine Scotland Science in 2010 which describes the predominant seabed characteristic as being infralittoral coarse sediment and provides a broad overview of the benthic features in the West of Lewis Area of Search (section 4.2.1). These are typical of an exposed high energy environment. There are records of horse mussel beds (*Modiolus modiolus*) within the Area of Search MNCR (via the NBN). Sensitive habitats such as *modiolus* beds are potentially at risk from a variety of impacts associated with installation, operation, maintenance and decommissioning, all of which are broadly identified in the scoping report (section 4.2.2).

Survey methodology is not discussed in the scoping report. We recommend that benthic ecology survey methodologies are submitted to MS and SNH for comment, and should include the proposed development area including the zone of influence in order to make an accurate assessment of any potential impacts to benthic ecology. The applicant should check for Annex 1 habitats, and/or Marine Priority Features during survey work as well as any BAP habitats and species. They may find it helpful to undertake early analysis of their survey data in case this indicates that survey methods need to be revised and / or that further detailed surveys are required. Consideration should also be given to future seabed monitoring during the 4 phases of the proposed development.

The ES should identify and where possible seek to mitigate any significant negative impacts on any protected habitats and species identified. In a high energy, exposed shallow water environment the principal impacts on benthic habitat are likely to be related to direct physical disturbance – e.g. abrasion of seabed and loss of habitat. We recommend that potential impacts due to suspended sediment and smothering are not scoped out at this stage (see section 4.2.3) as there may be protected habitats (e.g. *modiols* beds) that are sensitive to this type of impact.

The scoping report highlights that site preparation works will require a degree of kelp removal, gully infilling and 'small scale' rock removal (page 13). The ES should quantify this work and place it in context. Further information should be provided on the anti-foulants and hydraulic fluids to be used, together with an assessment of environmental risks and potential impacts.

We recommend that the ES presents clear information on, and identification of, the main biotopes found on-site. The biotope/habitat map should be used by the applicant to inform their finalised array layout, taking account of likely impacts from pipelines on benthic ecology.

### **bii. Ornithology**

In Appendix B we provide overall advice on the Habitats & Birds Directives and the process of Habitats Regulations Appraisal (HRA) that will consider potential impacts to the qualifying bird species of Special Protection Areas (SPA). In Appendix D we provide initial tailored advice that addresses the potential impacts of the proposed wave array on SPA bird species which may be affected by this development.

In Appendix D, we are only able to provide advice on HRA in respect of existing SPAs. We note that there is work underway across the UK to designate marine SPAs. This is to ensure a comprehensive network of SPAs across Europe, which will provide protection for all bird species across their life cycle stages. Further information on this programme of work is provided on the Scottish Government [website](#).

Further work is ongoing to investigate the possibility of marine SPAs for:

- [Inshore aggregations of non-breeding waterbirds](#); and
- [Offshore aggregations of seabirds](#).

This work is in addition to the extensions to existing seabird SPAs in 2009.

#### **Detailed ornithological comments**

The scoping report identifies a number of designated sites in close proximity to the Area of Search (table 4.1), but provides no reasoning for the scoping in of only these sites. Furthermore, the scoping report states that there are no designated sites within the Area of Search (section 4.1.1). However, as shown on figure 4.1, the Lewis Peatlands SPA & Ramsar site and the Ness and Bravas SPA are within the Area of Search. Please see Appendix D for further discussion of SPA qualifying interests and our advice in this regard.

We have provided comments on the methodology for the shore-based vantage point survey for birds and marine mammals which commenced in September 2010. We would welcome the opportunity to provide comment on an interim report of the survey work after one year.

Please note that the Area of Search in the scoping report covers a larger area than the Potential Areas of Interest in Figure 1 of the Monitoring Protocol which we provided comments on. We recommend that vantage point surveys should cover the development footprint and an appropriate buffer. If this is different to the Potential Areas of Search shown in Figure 1 of the Monitoring Protocol, then additional vantage points will be required.

As noted in our response dated the 20 October 2010, for a demonstration array we recommend that a minimum of one year of pre-construction baseline survey may be sufficient. However, if the results of the first year of survey work demonstrate that the site

may be important for birds we may advise that a second year of survey work would be necessary. Note that for a commercial array we recommend that a minimum of 2 years baseline survey data are collected in order to accurately characterise the use of the site by natural heritage features. This also allows the level of inter-annual variation to be assessed at the site. However, if it can be *strongly demonstrated* that either the proposed development is sufficiently environmentally benign or that the proposed development site is of a very low environmental sensitivity then 1 year of baseline survey effort *may* be sufficient. An interim report would be required to make this judgement.

We welcome the proposal to undertake breeding bird surveys and intertidal walkover surveys. These would help to inform the assessment of potential disturbance and habitat loss from onshore construction.

We are pleased that the bird survey work from the Siadar Wave Energy Project EIA is being used for the proposed Lewis wave array. This information will provide a useful context to the on-going survey work.

In addition to the key issues listed in section 4.4.2, we recommend that loss of breeding habitat is also included. At present the size of the on-shore footprint of the proposal is unclear, and the level of potential disturbance during construction, operation and maintenance and decommissioning is not known. This should be carefully assessed as part of the EIA.

Monitoring data gathered for the Oyster 1 and 2 testing at EMEC should be used to inform the assessment of potential impacts for the proposed wave array.

### **biii. Marine Mammals & Basking Shark**

Please see Appendix B for the detail of the legislative requirements that apply to SAC interests, and Appendix C for those relating to cetaceans – whales, dolphins and porpoises – which are European protected species (EPS). Appendix E provides our advice on HRA, tailored to the Lewis wave array, for marine mammals which are an SAC qualifying interest.

We highlight the sharp fall there has been in the UK population of harbour (common) seals and note that the applicant will need to consider this in their EIA. The harbour seal Potential Biological Removal (PBR) for the Outer Hebrides management area is [54](#) (not taking into account the number of licences issued to shoot harbour seals to protect fisheries and salmon farms). 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.

### **Survey methods and data analysis**

We provided comments on the proposed shore based vantage point surveys for marine mammals, basking sharks and birds on the 20th October 2010. We recommend that the applicant submits an interim report to MS and SNH after the completion of one year of survey work.

### **Potential impacts to marine mammals**

The survey results should be used to inform the likelihood of disturbance to cetaceans during the various phases of the proposal. The ES should provide information on the acoustic properties of any 'significant underwater noise' generating activities (such as piling, drilling, cardox detonations, vessel deployment, device operation, etc) and the frequency and duration at which these will occur. The ES should also provide appropriate mitigation measures to avoid any potential impacts. Information regarding potential mitigation

measures is available in the [Guidelines for Minimising Acoustic Disturbance to Marine Mammals from Acoustic Surveys](#), JNCC (2004). We would be happy to advise further on potential mitigation depending on results of survey and modelling work.

Noise in the marine environment is an important cause of behavioural disturbance in cetaceans which use acoustics to navigate, locate prey and maintain social contact. Marine noise produced during installation, operation, maintenance and decommissioning could potentially interfere with these signals through masking of communication calls, or disruption of foraging clues. We recommend that the potential impacts on marine mammals from noise are carefully assessed in the ES. The noise monitoring data for the Oyster 2 array gathered at EMEC should be compared with the modelled noise analysis (see the ES for the Oyster 2 deployment at EMEC) and used to inform the ES for the proposed deployment.

There are a number of grey seal haulouts within and in close proximity to the Area of Search; the islands and skerries off the Butt of Lewis, Dell Rock and Outer Loch Roag regularly have small numbers of grey seals hauled out on them (1-20). The area is likely to be used less frequently by harbour seals although there are known haulouts in Loch Roag and in Broadbay (east Lewis). Seals are known to travel substantial distances while foraging for food, utilise the whole water column and are inquisitive animals. It is therefore probable that both seal species commonly found in the Outer Hebrides may be found within or in close proximity to the proposed development.

Please note that certain haulout sites have been identified for protection under Section 117 of the Marine (Scotland) Act 2010 as detailed in the Scottish Government [consultation](#). Under the Marine (Scotland) Act 2010 it is an offence to harass seals at designated haulout sites, and we recommend that any works that may cause potential disturbance to seal haulouts is considered in the ES.

Harbour seals are currently vulnerable to any impacts which could lead to their further population decline or prevent their recovery. We highlight, therefore, the [report by SMRU](#) on the preliminary findings of investigations in to the causes of the recent number of "corkscrew" injuries to seals. The injuries are consistent with the seals being drawn through a ducted propeller such as a Kort nozzle or some types of Azimuth thrusters. Such systems are common to a wide range of ships including tugs, self propelled barges and rigs, various types of offshore support vessels and research boats. Such systems may be used on the installation and maintenance vessels.

Basking sharks are likely to use the area for passage and/or feeding. Basking sharks have full protection from intentional or reckless disturbance in Scottish waters (up to 12 miles offshore) under the section 6 of the Nature Conservation Act (Scotland) 2004. Basking sharks are known to be sensitive to sound (e.g. boat engine noise) and the risks of disturbance are similar to those of marine mammals, i.e. physical and marine noise related disturbance. Establishing the distribution and usage by basking sharks will be critical in determining the likelihood and significance of the array leading to any substantial loss of foraging habitat (potentially due to noise). The applicant should contact MS as licensing authority if disturbance to basking sharks is considered likely.

As raised generally, and in respect of other interests, we will be able to consider the potential effects of the proposed development on marine mammals and basking shark in more detail once the proposal is further progressed.

## **biv. Fish of Conservation Concern**

### **Fish species to consider**

We are in agreement with the fish species of conservation concern listed in section 4.6.1. For migratory fish of conservation concern we provide the following advice:

Adult Atlantic salmon – Marine Scotland Science has published a [report](#) reviewing the migratory routes and behaviour of Atlantic salmon. We recommend that the applicant considers potential impacts on Atlantic salmon populations. Atlantic salmon is a host species for freshwater pearl mussels, and so this species would also need to be considered in the ES.

Post smolt Atlantic salmon which migrate in the upper layers of the water column, making use of dominant marine currents. Whilst many smolts use the near-shore areas during the commencement of their marine migratory phase, little is known about the migratory routes of fish from individual rivers.

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

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

### **What potential impacts need to be considered?**

#### **Installation impacts**

Noise will be produced during the installation. We need to know what levels of noise production can be expected and, using published literature, decide what impact, if any, this will have on fish movements through the area. In this regard the [recent review](#) commissioned by SNH may be helpful: it considers the current state of knowledge with regard to the potential impacts of noise, associated with marine renewable energy, on Atlantic salmon, sea trout and European eel.

#### **Operational noise**

Once the devices are installed and operational, there is the potential for the development to generate noise over the longer term. It is unclear what levels of noise will be generated and what impact this may have on fish. Noise monitoring work undertaken at EMEC may help to address this.

#### **On-shore impacts**

Once we have further information regarding the on-shore proposals we will be able to provide advice on any potential impacts to freshwater species and habitats.

## **Electromagnetic effects (EMF)**

As no electricity generation or electrical cabling will occur in the marine environment this potential impact can be scoped out.

The above impacts (excluding EMF) should also be considered in terms of cumulative and incombination impacts. They should also be considered for the different life stages of the species concerned.

## **bv. Hydrodynamic Processes & Coastal Geomorphology**

The only designated geological site in the area is the North-west coast of [Lewis Geological Conservation Review](#) (GCR) site26. The proposals should try to avoid the key GCR locations (listed on page 6 of the site document).

Our own key concerns relate to the associated development – the directional drilling, cabling and land-based infrastructure. While there are no details yet in this regard, we highlight that the location and design of these elements need careful thought and planning, and we strongly recommend that expert advice is sought from an experienced coastal geomorphologist.

## **ADVICE IN RESPECT OF ONSHORE ELEMENTS**

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

- ci. Habitats
- cii. Ornithology
- ciii. Mammals
- civ. Reptiles & Amphibians
- cv. Fish of Conservation Concern
- cvi. Hydrology & Hydrogeology

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

### **ci. Habitats**

Habitat survey work will be required in respect of cable and grid connection routes, as well as for construction of any onshore substation and other infrastructure. This should also cover intertidal habitats.

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

### **cii. Ornithology**

The location of all elements of onshore infrastructure will need to be considered in respect of potential impacts to bird species, including species which are a qualifying interest of SPAs. We are also pleased that birds of high conservation interests, such as the corncrake, will be carefully considered.

### **ciii. Mammals**

The location of all elements of onshore infrastructure will need to be considered in respect of potential impacts to mammals. Survey work will be required for any mammal species likely to occur in locations where onshore works are proposed. Appendix C provides advice on the legislation that relates to otters and bats, both of which are European protected species (EPS). In Appendix B we provide overall advice on the Habitats and Birds Directives and the process of Habitats Regulations Appraisal (HRA) that will consider potential impacts to otter as a qualifying interest of Special Areas of Conservation (SAC). In Appendix D we provide initial tailored advice that addresses the impacts of the onshore elements of the proposal wave array where otter is a qualifying interest of SACs.

Whilst otters are generally regarded as a freshwater/terrestrial species, in the Outer Hebrides an important part of their lifestyle is spent in or near the marine environment. Most of the coastline of NW Lewis is considered likely to have otters present. Survey work should also cover suitable habitats in the marine environment. Information on survey methodologies and mitigation for otters is available in the SNH publication "[Otters and Development](#)".

### **civ. Reptiles & Amphibians**

The location of all elements of onshore infrastructure will need to be considered in respect of reptiles and amphibians. Please note that the only native herp on Lewis is the slow worm, and in the area where the proposal is there. Frogs and toads have been released on Lewis in recent years.

### **cv. Fish of Conservation Concern**

The applicant may need to consider the fish species which are qualifying interests of SACs e.g. Atlantic salmon and other non SAC qualifying interest fish e.g. European eel in their EIA and HRA, dependent upon the proposed locations for onshore works and whether there is any connectivity, or possible effect, on these watercourses.

### **cvi. Hydrology & Hydrogeology**

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



## APPENDIX B

### HABITATS & BIRDS DIRECTIVES, & HABITATS REGULATIONS

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

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

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

The Habitats Directive is transposed into domestic law in Scotland by the ‘Conservation (Natural Habitats, &c.) Regulations 1994’ which came into force on 30 October 1994 – usually called simply the **Habitats Regulations**. 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.

#### Habitats Regulations Appraisal

Where a plan or project could affect a Natura site, both the 1994 and 2010 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:

- determine whether the proposal is directly connected with or necessary to site management for conservation; and, if not,
- determine whether the proposal is likely to have a significant effect on the site either individually or in combination with other plans or projects; and, if so, then
- make an appropriate assessment of the implications (of the proposal) for the site in view of that site’s conservation objectives.

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

The competent authority, with advice from SNH, decides whether an appropriate assessment is necessary and carries it out if so. It is the applicant who is usually required to provide the information to inform the assessment. Appropriate assessment focuses exclusively on the qualifying interests of the Natura site affected and their conservation objectives. A plan or project can only be consented if it can be ascertained that it will not

adversely affect the integrity of a Natura site (subject to no alternatives and imperative reasons of overriding public interest).

### **Further Information and Advice on HRA**

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

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

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

For further advice on the HRA process please see [SNH's website](#), including the leaflet on "[Natura sites and the Habitats Regulations](#)" which provides a helpful summary. Some of the key concepts are explained in the European Commission's [guidance on Article 6 of the Habitats Directive](#). Revised [guidance](#) updating the Scottish Office Circular 6/1995 on the implementation of the Habitats and Birds Directive in Scotland was produced in June 2000. This sets out current Government policy relating to Natura sites. Please note that SNH is seeking advice on the full scope of interaction between the 1994 Regulations as amended and the 2010 Regulations and therefore certain technical changes may be ended to the above. However they will not alter the underlying principals or main actions.

## APPENDIX C

### EUROPEAN PROTECTED SPECIES

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

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

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

Protection of certain wild animals

39. (1) It is an offence –

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

(b) deliberately or recklessly –

- i. to harass a wild animal or group of wild animals of a European protected species;
- ii. to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- iii. to disturb such an animal while it is rearing or otherwise caring for its young;
- iv. to obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place;
- v. to disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs;
- vi. disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; or
- vii. to disturb such an animal while it is migrating or hibernating;

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

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

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

Scottish Government has also provided guidance on the 2007 amendments addressing EPS – [Explanatory guidance for species related activities](#).

## 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 Scotland](#) or by [SNH](#) 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 very strict conditions as set out in regulations 44 and 45 of the Habitats Regulations.

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

Test 1 - The licence application must demonstrably relate to one of the purposes specified in Regulation 44(2) (as amended). For development proposals, the relevant purpose is likely to be Regulation 44(2)(e) for which MS/SNH are currently the licensing authority, depending if it is onshore or offshore activity. This regulation states that licences may be granted 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 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 is satisfied that the action proposed "will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" (The licensing authority will, however, seek the expert advice of SNH on this matter).

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

## APPENDIX D

### WEST COAST LEWIS WAVE ARRAY: HABITATS REGULATIONS APPRAISAL – SPECIAL PROTECTION AREAS

#### Introduction

In the following advice for HRA we set out the three steps that need to be considered in order to determine whether or not the proposed wave array, comprising oyster devices is likely to have a significant effect on qualifying interests of SPAs, and any possible adverse impact on site integrity – Appendix B provides more detail on the legislative framework. It is the competent authority (Scottish Ministers devolved to Marine Scotland) who will carry out the HRA, based on our advice and using information and data collated by the developer.

Under HRA, the potential impacts of the wave array will need to be considered alone and in combination with other plans and projects. It may also need to be considered in combination with the other wave and tidal renewable energy developments and with other types of industry and activity in the region.

#### Special Protection Areas for inclusion in HRA

At this early stage of the process we do not have full details on the development being proposed or finalised locations of all elements of infrastructure. We have provided comments on the shore-based vantage point survey methodology, and we welcome the opportunity to review this work after one year. Once this information and review has been provided, we will be able to provide further information on which SPAs should be included in the HRA. Prior to this, we recommend using the meta-data on seabird foraging ranges available from the Birdlife International database (<http://seabird.wikispaces.com/>) to determine which qualifying species from which sites are included. For some seabird species, the meta-data is such that it allows the use of cumulative frequency plots to determine the foraging range at which 95% of the population will be included. If these data are not available, or of poor quality, then we recommend using the mean of the species maximum foraging range. Although this will initially produce a long list of SPAs, this will be refined through an iterative process as the results of survey work are presented by developers, and as species sensitivity to potential impacts from the proposal are defined.

Further information on SPAs, including their conservation objectives, is available from <http://www.snh.org.uk/snhi/>

#### Advice for HRA in respect of SPA qualifying interests

We provide advice on the legislative requirement for HRA in Appendix B. The steps of the process are as follows and our advice is tailored to consideration of the wave array:

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

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

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

This step acts as a screening stage: it removes from the HRA those proposals (plans or projects) which clearly have no connectivity to SPA qualifying interests or where it is very

obvious that the proposal will not undermine the conservation objectives for these interests, despite a connection. When this screening step is undertaken at an early stage in the development process, it usually means that it takes the form of a desk-based appraisal. We advise that this is kept broad so that potentially significant impacts are not missed out, or discounted too early, in any HRA (or EIA).

The SPA bird interests being considered in respect of wave energy developments are wideranging – many seabirds make long foraging trips, especially during the breeding season. This means that wave energy proposals may be ‘connected to’ SPAs even at great distances. Although connectivity is thus established the fact that the proposal is located further away from the designated sites means that direct impacts are less likely on qualifying species while they are within the SPA.

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

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

There are three possible conclusions for this step of HRA:

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

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

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

## Conservation objectives for SPA bird species

To ensure that site integrity is maintained by:

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

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

Objective (iii) however – maintenance of the population of the bird species as a viable component of the SPA – will be relevant in most cases because:

- It encompasses direct impacts to the species, such as significant disturbance to qualifying bird interests when they are outwith the SPA.
- It addresses indirect impacts such as the degradation or loss of supporting habitats which are outwith the SPA but which help to maintain the population of the bird species of the SPA in the long-term.

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

### Issues to consider under appropriate assessment

The **key question** in any appropriate assessment for the wave array is whether it can be ascertained that this proposal, alone or in combination, will not adversely affect the population of any qualifying bird species as a viable component of the SPAs under consideration.

### 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 have been finalised.

## APPENDIX E

### WEST COAST LEWIS WAVE ARRAY: HRA ADVICE– SPECIAL AREAS OF CONSERVATION

#### Introduction

In the following advice for Habitats Regulations Appraisal (HRA) we set out the three steps that need to be considered in order to determine whether or not the wave array is likely to have a significant effect on the qualifying interests of Special Areas of Conservation, and any possible adverse impact on the site integrity of SACs – Appendix B provides more detail on the legislative framework. It is the competent authority (most likely Marine Scotland) who will carry out the HRA, based on our advice and using information and data collated by the developer.

Under HRA, the potential impacts of the wave array will need to be considered alone and in combination with other plans and projects. It needs to be considered in combination with the other wave and tidal renewable energy developments and with other types of industry and activity in the region.

#### Special Areas of Conservation for Inclusion in HRA

We recommend that the following SACs are addressed in relation to HRA:

- **North Rona SAC** designated for its population of grey seals.
- **Monach Islands SAC** designated for its population of grey seals.
- **Langavat SAC** designated for its Atlantic salmon.
- **Lewis Peatlands SAC** designated for its population of otters

Depending on the location of on-shore works, we also recommend the following SAC is addressed in relation to HRA:

- **Lewis Peatlands SAC** designated for its blanket bog, wet heathland with cross-leaved heath, depressions in peat substrates, clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, and acid peat-stained lakes and ponds.

We have considered other SACs and included only those that we consider relevant i.e. where there may be connectivity between the wave array proposal and the SAC. We confirm that we have considered the harbour seals of Ascrib, Islay and Dunvegan SAC, and that we do not identify that there would be any connectivity between the designated site and the offshore elements of the proposed wave farm. In general, harbour seals forage within 40 – 50km of their haul out sites, and prefer sheltered waters, so there is no reason to suppose that seals from this SAC would be found at the proposed wave farm site.

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 (step 2 below) on the qualifying habitats of the Lewis Peatlands SAC.

HRA should address all elements of the wave array proposal – onshore works as well as offshore elements. However, at this early stage in the process we do not have full details on the development being proposed or finalised locations of all elements of infrastructure. In particular there is limited information on the onshore works, and we cannot provide focused advice for HRA in respect of this until further details are submitted.



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

## **SNH advice for HRA in respect of Special Areas of Conservation**

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

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

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

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

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

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

There are three possible conclusions to this step of HRA:

- a) The likely impacts are such that there is clear potential for the conservation objectives to be undermined – conclude likely significant effect.
- b) The likely impacts are so minimal that the conservation objectives will not be undermined – conclude no likely significant effect.
- c) There is doubt about the scale of the likely impacts in terms of the conservation objectives – conclude likely significant effect.

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

**Grey seals of North Rona SAC and Monach Islands SAC.** The wave array is located at approximately 75km from the North Rona SAC and 105km from the Monach Islands SAC, and is therefore within the foraging range (100+km) of grey seals from these SACs. Installation, boat movements, piling and other construction activity may give rise to disturbance. There may also be impacts to the prey species of seals – either from the placement of infrastructure or due to noise. We advise that there is potential for the proposal to have likely significant effects on grey seals and we discuss below (under step 3) the issues that we think need to be considered.

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

**Atlantic salmon of Langavat SAC.** The proposed wave array may be located within the migratory pathways of Atlantic salmon from this designated site. Construction and operational noise/vibration may give rise to disturbance of Atlantic salmon. We advise that

there is potential for the proposal to have likely significant effects on Atlantic salmon and we discuss below (under step 3) the issues that we think need to be considered.

**Summary of our current advice:** likely significant effect due to the potential disturbance to migrating Atlantic salmon, so impacts (including cumulative) will need to be considered in appropriate assessment (see step 3).

**Otters of Lewis Peatlands SAC.** The potential options for cabling and onshore works are within the home range (10-20km) of otters from this designated site. Boat movements, cable-laying, piling, directional drilling and other construction activity may also give rise to the disturbance of otters. And there may be impacts to their prey species – either from the placement of infrastructure or due to noise. We advise that there is potential for the proposal to have likely significant effects on otters and we discuss below (under step 3) the issues that we think need to be considered.

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

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

This stage of HRA is termed **appropriate assessment**, and it is undertaken by the competent authority based on information supplied by the developer, with advice provided by SNH. Appropriate assessment considers the implications of the proposed development for the **conservation objectives** of the qualifying interests for which a likely significant effect has been determined. We discuss this below for each of the qualifying interests listed above.

**North Rona SAC and Monach Islands SAC: advice on grey seals.**

The **conservation objectives** for grey seals 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 grey seals that the following are maintained in the long term:

- (iii) Population of grey seals as a viable component of each site.
- (iv) Distribution of grey seals within each site.
- (v) Distribution and extent of habitats supporting grey seals.
- (vi) Structure, function and supporting processes of habitats supporting grey seals.
- repeat of (ii) No significant disturbance of grey seals.

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

We advise that noise impact assessment is likely to be an important part of assessing any disturbance to grey seals while they are outwith the SACs, including their potential displacement from feeding grounds and other supporting habitats. We highlight that the proposal may have impacts on the prey species of seals, an issue which will also need to be considered.

While we consider that the installation phase may give rise to the greatest risk of disturbance, potential impacts during the operational (including maintenance) phase of the proposal will also need to be considered, as well as any repowering and decommissioning work.

**Langavat SAC: advice of Atlantic salmon.**

The SAC conservation objectives for Atlantic salmon 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.

The key question in any appropriate assessment for the wave array is whether it can be ascertained that this proposal, alone or in-combination, will not adversely affect the population of the qualifying species as a viable component of the Langavat SAC.

Information to support the application should consider all aspects of the proposal with the potential to affect the conservation objectives of the site and, through this, ascertain whether or not the integrity of the site will be adversely affected.

We advise that a noise/vibration impact assessment is likely to be an important part of assessing any disturbance to Atlantic salmon while they are outwith the SAC. Further information on the installation, operation, maintenance and decommissioning of the array and on-shore works is required to assess whether there will be any direct disturbance to Atlantic salmon.

**Lewis Peatlands SAC: advice on otters.**

The conservation objectives for the otter population in this SAC are the same as those we have listed above for grey seals.

Based on these conservation objectives the following questions need to be addressed in an appropriate assessment of potential impacts of the proposal on the otter population of the Lewis Peatlands SAC:

- i. Will the proposal cause significant disturbance to otters while they are outwith the SAC such that the viability of this SAC population will be affected?
- ii. Will the proposal affect the viability of the SAC population of otters in any way?

Further information on cabling and on-shore infrastructure is required to assess whether there will be any direct disturbance to otters, including their potential displacement from foraging grounds and other supporting habitats.

## **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 have been finalised.

## **British Telecom (Radio Network Protection Team)**

British Telecom (Radio Network Protection Team) had no comments to make on the scoping report.

## **Chamber of Shipping**

The Chamber of Shipping welcomes the opportunity to comment on the Scoping Report for the West Coast Lewis Wave Array.

The issue of navigational safety is likely to be significant and we are satisfied that the developers have covered all the potential impacts under Section 5.3 "Shipping and Navigation". We support the developers' proposal to undertake a navigational review and a Preliminary Hazard Analysis as part of the navigational risk assessment.

We have no further comments to make at this stage but please do not hesitate to contact me should you require further input from the Chamber.

## **Civil Aviation Authority**

Civil Aviation Authority had no comments to make on the scoping report.

## **Crown Estate**

The Crown Estate had no comments to make on the scoping report.

## **Defence Infrastructure Organisation**

The MOD has no objections at this stage. Please continue to consult us on further developments.

## **Health and Safety Executive**

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

## Historic Scotland

Thank you for your letter dated 27 May 2011 requesting comments / information on the above project. We have treated this as a request for information on the potential scope of an Environmental Impact Assessment (EIA) under the relevant regulations which might be required for this development. The comments in this letter relate to our statutory remit for scheduled monuments and their settings, category A listed buildings and their settings, gardens and designed landscapes appearing in the Inventory and designated wreck sites (Protection of Wrecks Act 1973). In this case, our advice also includes matters relating to marine archaeology out-with the scope of the terrestrial planning system.

The scoping comments below relate to the potential impacts from both the onshore and offshore works associated with the proposal, in relation to both the marine and terrestrial assets within our statutory remit. Please also seek information and advice from the relevant Council's Conservation and Archaeological Service if you have not already done so.

### The Proposed Development

I understand the proposed wave energy development shall consist of 40 wave energy convertors located off the West coast of the Isle of Lewis. Two pipelines shall link the wave energy convertors to an onshore powerhouse and transformers. The proposed onshore powerhouse shall accommodate an area of approximately 4,000 sqm. The precise location of the wave convertors is yet to be determined, as is the location of the onshore aspects of the proposal. The proposed convertors shall be located in 8 – 15m water depth, they shall protrude approx 3m above the sea surface and shall be at least 10m apart. It is anticipated that the offshore element of the proposal will lead to a total cumulative development area of 2 km along the coastline.

### Marine Assets - Potential Impacts

In relation to the submitted search area of the proposed offshore wave array, I can confirm that there are no designations within our statutory remit located within this identified area. I can also confirm that there are no such designations within the immediate vicinity of the proposed wave array search area.

We recommend that the potential direct and indirect impacts on any undesignated wrecks and other archaeological sites, within the search area or in the vicinity of it, be assessed with appropriate involvement of archaeological expertise and in consultation with the Council Archaeological Service. We welcome that archaeological analysis of the geotechnical and geophysical surveys shall be undertaken, as this shall assist with identifying whether any such remains are likely to survive within the area zoned for development. We would highlight the positive contribution that EIA related surveys can make to enhancing our knowledge and in this regard it would be very helpful if the results of all archaeological assessments could be archived through the Royal Commission on the Ancient and Historical Monuments of Scotland.

Please see guidelines set down in '*Historic Environment Guidance for the Offshore Renewable Energy Sector*' (Cowrie 2007) and '*Offshore Geotechnical Investigations and Historic Environment Analysis*' (Cowrie 2011). In terms of submerged prehistoric remains, we would also refer the applicant to '*The scope of Strategic Environmental Assessment of North Sea Area SEA7 with regard to prehistoric and early historic archaeological remains*' (CR Wickham-Jones & S Dawson, March 2006).

## Terrestrial Assets - Potential Direct Impacts

The following nationally important assets are identified with the Scoping Report as being within the proposed search area:

- Cnoc na Moine, burial cairn, Dalmore (Index no. 5402)
- Loch Raoinavat, stone circle (Index no. 5344)
- Teampull Eoin, chapel, graveyard & settlement, Port Mhór Bragar, Lewis (Index no. 3926)
- Allt na Muilne, horizontal water-mills, Bragar (Index no. 5412)
- Arnol, blackhouses no. 39 and no. 42 and associated croft houses (Index no. 90022)
- Dun Borve, broch (Index no. 1669)
- Teampull nan Cro' Naombh, chapel 410m WNW of Galson (Index no. 3945)
- Loch Baravat, dun, North Galson (Index no. 5454)
- Dun Mara, dun (Index no. 5352)
- Teampull Pheadair, church, Swainbost (Index no. 5359)
- Carnan a' Ghrohair, souterrain (Index no. 5395)

Any works within a scheduled monument require the prior written consent of Scottish Ministers, obtained through Historic Scotland in the form of Scheduled Monument Consent. Without wishing to prejudge the final decision of Scottish Ministers it is unlikely that we would recommend that consent be granted for any works that impacted upon any scheduled archaeological deposits. Development should therefore be carefully designed to avoid the scheduled areas.

Further comments in relation to potential direct impacts on terrestrial assets shall be provided upon receipt of specific location details.

## Terrestrial Assets - Impact on Setting

In relation to the search areas provided, I can confirm that there are terrestrial assets which maybe subject to an indirect impact as a result of both the proposed onshore and offshore works. These are listed below:

### Scheduled Monuments

- Luchruban, Prehistoric and Monastic Settlements (Index no. 5878)
- Teampull Pheadair, Church, Swainbost (Index no. 5359)
- Teampull nan Cro' Naombh, Chapel 410m WNW of Galson (Index no. 3945)
- Teampull Pheadair, Chapel and Settlement, Shader (Index no. 5341)
- Teampull Eoin, Chapel, Graveyard and Settlement, Port Mhór Bragar, Lewis (Index no. 3926)
- Cnoc na Moine, Burial Cairn, Dalmore (Index no. 5402)
- Loch Raoinavat, Stone Circle (Index no. 5344)
- Clach an Trushal, Standing Stone, Ballantrushal (Index no. 1661)
- Arnol, blackhouses no. 39 and no. 42 and associated croft houses (Index no. 90022)
- Dun Borve, broch (Index no. 1669)
- Dun Mara, dun (Index no. 5352)

Any ES to be produced for this development should consider impacts upon these assets and any others in the wider area which may experience significant impacts. It would be helpful if such an analysis contained appropriate visualisations such as photomontage and wireframe

views of the development in relation to the sites and their settings, illustrating views both towards and from the proposed development.

Given the scale of the onshore elements of these proposals, depending on where they are placed, there is a potential that they could have significant impacts on the settings of some of the scheduled monuments both within and nearby the search area. It is possible that Historic Scotland could object were these developments to have a significant detrimental impact on a monument's, or a number of monuments', settings. Further comments shall be provided upon receipt of details of the specific design and location of the onshore elements of the proposal.

We welcome that a Zone of Theoretical Visibility (ZTV) analysis is to be applied to the proposal. This shall provide a basis for assessing the potential impacts on the setting of surrounding assets.

## **Inshore Fishery Group**

The proposed area is fished by a fleet of up to 8 local under 10m static gear vessels fishing mainly for lobster (but also velvets seasonally) in the shallower areas under 20m and lobster and brown crab in waters between 20-50m. This is a locally important fishery.

Most of this fleet are based out of Carloway and Loch Roag. The developer should meet with the local fishermen to discuss their concerns.

## **Joint Radio Company**

JRC has no concerns in respect of this development.

## **Maritime Coastguard Agency**

Thank you for your email dated 27 May 2011. We have now had an opportunity to review the Scoping Opinion Report, provided by Lewis Wave Power Ltd for the proposed West Coast of Lewis Wave Array project, and would comment as follows:

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

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

Although the anticipated traffic density is low, a Navigational Risk Assessment will need to be submitted in accordance with MGN 371 (and 372) and the DTI/DfT/MCA Methodology for Assessing Wind farms, as appropriate to this development.

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



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

Cumulative and in combination effects require careful consideration.

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

Navigational marking for array devices should be referred to the General Lighthouse Authority, in this case Northern Lighthouse Board, and the UK Hydrographic Office.

The shipping and navigation study should include radar and manual observations in addition to AIS data to ensure vessels of less than 300gt are captured.

The offshore human environment should also include recreational and other sport activities.

Particular consideration will need to be given to the implications of the site size and location on SAR resources and Emergency Response & Co-operation Plans (ERCOP).

Particular consideration will need to be given to third party approval of the devices and associated mooring arrangements.

#### Scoping Questions

Have all regulatory requirements that the project should be taking into account been identified? *Yes*

Do the studies proposed for assessment of effects on the physical environment look appropriate and complete? *Risk assessment techniques should be based on the principles of ALARP.*

Are you aware of any proposed developments or activities with which the proposed Oyster development may interact to result in cumulative effects? *No*

Have the most likely and significant effects been identified through this analysis? *Yes*

Are there any others that should be considered for inclusion in the full assessment process and if so why? *Risk to shipping from rogue devices to be carefully considered due to low freeboard and shape.*

Does the list of proposal consultees reflect the range of stakeholders that should be considered as consultees for this project? *Yes, subject to traffic study/preliminary hazard analysis outcomes*

Are there any other key sources of environmental information that should be consulted?

1. *MAIB and RNLI information*
2. *Crown Estates MARS system*
3. *UK Hydrographic Publications*
4. *DECC Marine traffic database at [www.maritimedata.co.uk](http://www.maritimedata.co.uk)*

## Marine Scotland

Marine Scotland notes that the candidate device for the site, Oyster 3, will be informed by sea trials of the Oyster 2 device at the European Marine Energy Centre (EMEC). Without specific device dynamics of the proposed device to be installed at the Lewis site Marine Scotland is unable to provide detailed feedback on the predicted environmental issues at the site. As a result, the scoping report is limited by the lack of information about the design of the device that will be used at the site and the installation methods to be undertaken during installation of Oyster 3.

Identification of the key issues and sensitivities at the proposed site is welcome however there is little or no description of the measures that will be undertaken to reduce, prevent and where possible offset, significant adverse impacts on the environment as a result of the proposed works. The difficulties in gathering the information required to underpin the EIA are not discussed within the document. These should be given due consideration when it comes to collecting the information that will be necessary to produce the Environmental Statement (ES).

Section 1.3.2 focuses on the installation of the devices and changes in the seabed morphology and substrate should be considered as a result of site preparation and device installation. Habitat loss and variations in hydrographic flow may influence sediment transportation around and adjacent to the devices thus affecting the morphology and benthic habitat of the sea bed. Clearance of the existing seabed of vegetation could have a potentially significant effect however appropriate survey data will establish the likely significance of any clearance. Geotechnical survey work to assess site suitability for device deployment could potentially have a significant impact on the environment but the level of impact will depend on the vessels used, survey methods adopted, frequency of activity, seasonal timing and interactions with other activities of the geotechnical survey work.

Marine Scotland notes that removal of rock is a possibility as part of the installation process. More information on this would be welcome as the removal of rock and infilling of gullies has the potential to impact on the seabed habitat as well as noise sensitive species. The method by which the rock may be removed also requires clarification. Will explosives be used for example? Noise associated with site preparation, installation, operation and decommissioning will also be an issue for noise sensitive species.

Where directional drilling is proposed the developer should note that whilst this process can recover the majority of drill cuttings some will still be released during the break through phase into the marine environment along with any associated chemicals.

In section 3.1 the developer states that a model has been developed 'for the east coast of Lewis' to predict the wave resource available. Marine Scotland queries whether this should in fact state west coast of Lewis and also what was the domain of the model? Did the model solely output significant wave height and average period? Further information on the wave spectra would be welcome. Based on these predicted wave conditions, what is the theoretical power yield from the Oyster devices and would this be susceptible to change with the varying wave conditions and elevations in tidal water? The statement about the diverse range of wave climates and lack of data highlights the need for detailed measurements. The proposed deployment of an ADCP to measure wave conditions is welcomed.

Figures are provided for tidal currents and ranges at the Butt of Lewis however the source of these figures is not provided. Marine Scotland would welcome confirmation as to whether these figures are derived from a model or from measurements taken from within the development area. The reason for the data collection undertaken at Cárlabahaigh pier and

subsequent comparison with onsite data outwith the area of search is not clear. Was this undertaken to compare the veracity of the onsite data and if so, there is likely to be a degree of discrepancy between the data due to the different locations and depths. Results from these measurements should be presented within the ES.

The scoping report states that “storm waves are the dominant force in terms of sediment movement, transporting it mainly southwards along the stretch of coastline where the area of search is located.” Marine Scotland disagrees with this statement and notes that the referenced paper by [Barne et al. 1997](#) states, under section 2.4.1 Sediment Transport: Description, “Tidal currents in the regions are generally weak and net sediment transport offshore is generally northwards, determined by residual currents.” The statement in the scoping report should be corrected. Marine Scotland recommends that a more rigorous section on sediment transport is provided with a wider evidence base.

Whilst there is little sediment transport within this region, with sediments generally well confined to small coastal sub-cells, there is some onshore transport of coarse sediments. Marine Scotland broadly agrees that this issue can be scoped out of the EIA however we recommend giving a greater level of consideration to this area before simply scoping it out of the EIA. The reasons provided for doing so are weak and are dependent on the outcome of survey work (e.g. multibeam) which has not yet been undertaken. Further justification should be provided, along with a wider evidence base, in addition to what is detailed in the scoping report. Table 6.1, specifically sections on ‘Marine physical processes and geomorphology’, and ‘Benthic ecology’, should be amended to reflect this.

No reference is made to the spatial data held and made freely available by Marine Scotland Science on the Marine Scotland Interactive [website](#). This information may provide support or regional context for the information recorded in section 3.2 of the scoping document.

The scoping report, section 4.2.1, cites the paper by Gubbay (1998) where she refers to large, local populations of relatively few species. Some examples of these species should be provided. Physical disturbances to the benthic environment must also consider any alterations to the wave / current speeds and directions brought about by installation of the devices. Changes may create scour effects and result in the removal or relocation of softer sediments observed in gullies between the bedrock and boulders. Marine Scotland does not agree that smothering is an effect ‘unlikely to be significant at the proposed site’ and should not be discounted in the proposed EIA. Animal adaptations to high energy environments do not necessarily make them immune to short or long term burial and this will depend on the species impacted by the effects of smothering. The data table does not discuss the possibility of further acoustic surveys being undertaken over the lease area. Are future surveys of this type proposed by the developer? Additionally, the seabed and benthic habitat could be smothered by drill cuttings breaking through into the marine environment as well as through hypothetical rock removal.

Section 4.6 adequately identifies the main fish and shellfish species that utilise the area of search. Although none of the species identified are unique to the area, the development may pose a significant risk to these species by virtue of physical disturbance, noise and vibrations from construction or loss of habitat from the arrays footprint. Marine Scotland agrees that the potential for impacts from this development would be within scope and should be considered as part of the EIA.

The developer should be made aware that the fisheries sensitivity maps that have used [Coull et al. \(1998\)](#) data, were produced as broad scale (indicative) distributions and that more detailed site specific maps should be available through Marine Scotland Science. If the developer wishes to obtain such information they should contact Marine Scotland Licensing Operations team in the first instance.

To avoid disturbance during the construction of the devices, two periods of the year have been classified as sensitive for commercial species due to the presence of nursery and spawning grounds [Davies et al \(2010\)](#) . These are between January - April and August - September. Activities that could cause disturbance within these areas should be avoided at these times.

Fishing activity by the over 15 m fleet is well represented by the VMS data with further data available through the aforementioned Marine Scotland Science paper 'Regional Locational Guidance (Saltire Prize Projects)', Davies *et al.* (2010). Marine Scotland notes that the developer has identified the inshore fleet (less than 15 m, non-VMS) as a data gap. The commercial value of this fleet has been overlooked in terms of its importance to the local communities. The scoping report foresees the impact on the low numbers of vessels using the area to be minor. However, if these vessels were to be excluded from fishing grounds within the lease area there may be few opportunities for these fishermen to be displaced elsewhere due to a lack of available and / or suitable fishing grounds which are not already being exploited by other local fishermen.

Potential displacement of fishing activity results in additional costs to fisherman including increased fuel costs associated with having to either travel to alternative fishing grounds further afield or detouring around site on transit to these grounds. This should be taken into account by the developer who should investigate whether the fishery can absorb this additional cost and still maintain its viability. The developer should consult with local fishermen and a possible point of contact is the Inshore Fisheries Group coordinator for the [Outer Hebrides](#).

The effects of displacement should also be considered in terms of increased congestion at piers and pontoons. Although the numbers of vessels that use these facilities may be low, if they were excluded from using these piers during construction, operation etc of the wave array it may be difficult to relocate vessels and the associated onshore infrastructure elsewhere which may have impact on communities in the area.

The applicant may wish to refer to the [Marine Renewable Licensing Manual](#), currently in draft format, for further guidance and information. Marine Scotland would welcome the opportunity to review any proposed survey methodology and provide comments and advice as required.

## **National Air Traffic Services**

The proposed development has been examined from a technical safeguarding aspect and does not conflict with our safeguarding criteria. Accordingly, NATS (En Route) Limited has no safeguarding objections to this proposal.

## Northern Lighthouse Board

Please find our response to Environmental Scoping Report sent by Lewis Wave Power Ltd regarding the intention to deploy an Oyster 2 wave energy converter array within two distinct areas on the west coast of the Isle of Lewis, Western Isles, Scotland.

We would advise that as per previous correspondence with Aquamarine Power regarding the deployment of the Oyster device, there is no requirement to install navigational lighting on the device as this would be difficult to maintain and ineffective due to the operating characteristics of the device. We would however require the upper section of each device to be painted yellow to improve its visual conspicuity.

We anticipate that the various stages of development will be marked by buoyage, based on the guidance within IALA Recommendation O-139 and commensurate with the volume of traffic and degree of risk to navigation safety. We will provide more detailed guidance once the array deployment plans are clarified and navigational Risk Assessment provided in accordance with MGN-371.

We would expect that each device would incorporate a monitoring capability, capable of detecting catastrophic failure of the device. In the event of any component(s) becoming detached and which are not in negative buoyancy shall be communicated to the MCA to ensure the mariner is informed immediately.

We would advise that Navigation Warnings should be promulgated before commencement of any installation, operation, maintenance and decommissioning periods relating to the device. We would also require that the UKHO be notified of the position of each site in order that Admiralty Chart BA-2720 can be correctly updated.

With regard to the consultation and the scope of the assessment, we would only comment on that part relating to Shipping and Navigational Safety contained within section 5 of the consultation document. We agree that Notice(s) to Mariners, Radio Navigation Warning and publication in appropriate bulletins will be required stating the nature and timescale of any works carried out in the marine environment relating to this project.

We would advise that any marking and lighting recommendations will be made in a formal response through the Marine (Scotland) Act 2010: Part 4 consultation process.

It may be necessary to mark the landfall site of the export cable routes depending on the location chosen after the OFTO process has been completed. All navigational marking and lighting of the site or its associated marine infrastructure will require the Statutory Sanction of the Northern Lighthouse Board prior to deployment.

We would also welcome and encourage engagement with any other Offshore Renewable Energy Developers in order to work together to minimise the cumulative impact of site development in the vicinity.

## Royal Yachting Association

The Royal Yachting Association Scotland (RYA Scotland) is established to promote the sport of sailing and power boating in Scotland and is recognised by Sport Scotland as the governing body for all forms of recreational and competitive boating in Scotland. RYA Scotland represents dinghy and yacht racing, motor and sail cruising, RIBs and sports boats, windsurfing, inland cruising and personal watercraft and is recognised by the Scottish Government, the Crown Estate, Local Authorities and other non-governmental organisations in Scotland as being the primary consultative body for the activities it represents. RYA Scotland was a founding member of the Scottish Boating Alliance.

RYA Scotland acts as the Royal Yachting Association (RYA) Council for Scotland and the two organisations work closely together on all aspects of their activities. The RYA is the UK and internationally recognised governing body for all forms of recreational and competitive boating in the UK. The RYA currently has more than 100,000 personal and family members across the UK, the majority of whom go afloat for purely recreational non-competitive pleasure on coastal and inland waters. There are an estimated further 500,000 boat owners nationally who are members of over 1,500 RYA affiliated clubs and class associations. The RYA sets and maintains a recognised standard for recreational boat training through a network of over 2,200 RYA Recognised Training Centres in 20 countries. On average, approximately 160,000 people a year complete RYA training courses.

Over 150 RYA affiliated clubs, 120 RYA Recognised Training Centres, 1,900 RYA qualified instructors and over 5,500 RYA individual and family members are based in Scotland.

The RYA and the British Marine Federation have also developed The Green Blue programme to minimise the environmental impact of recreational boating; a programme that is directly supported in Scotland.

You will no doubt be aware of the '*RYA Position Statement on Offshore Renewable Energy Developments*'. The RYA's concerns regarding recreational boating and offshore energy devices are included in this statement. We are currently considering revising this document to take greater account of the particular issues relating to wave devices.

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

- Navigational safety
  1. Collision risk, particularly in adverse weather conditions
  2. Risk management and emergency response, for example in response to units breaking free in a storm
  3. Marking and lighting
  4. Weather
- Location
  1. Loss of cruising routes
  2. Squeeze into commercial routes
  3. Effect on sailing and racing areas
  4. Cumulative effects
  5. Visual intrusion and noise
- End of life
  1. Dereliction
  2. Decommissioning
- Consultation

These are detailed in our position statement, referenced above.

Some of these points are not relevant in the present case. As is pointed out in section 3.1 of the report, the RYA UK Coastal Atlas of Recreational Boating marks this area as being only lightly used. However, contrary to the impression given in the document, some recreational vessels do follow a route to the west of Lewis. Such vessels will be likely to keep well offshore to avoid what is often a dangerous lee shore and are thus unlikely to enter the area proposed for the Oyster devices. Moreover only experienced sailors are likely to attempt the route west of Lewis. There is thus no need to carry out a survey of the number of recreational vessels passing through this area.

We restrict ourselves to commenting on those parts of the report in which we have particular expertise, namely questions 4 and 5.

The studies proposed for the assessment of effects on those parts of the human environment related to recreational boating look appropriate. In good conditions, the devices will pose no hazard to a competent skipper. However, the Navigational Risk Assessment needs to consider the worst case scenario for recreational, and fishing, vessels, which, due to the water depth, are those most likely to enter the wave farm area through force majeure, e.g. caused by deteriorating weather, poor visibility or equipment breakdown. Many NRAs adopt a matrix approach for considering the risk and severity of incidents. However, these can underestimate the significance of rare but severe incidents, e.g. involving loss of life. Section 5.14 of the *Guidelines for Ecological Impact Assessment in Britain and Ireland: Marine and Coastal* (<http://www.ieem.net/ecia.asp>) published by the Institute of Ecology and Environmental Management and approved by the relevant authorities in the UK and the Republic of Ireland states that 'The reason for including a confidence level category of 'extremely unlikely' is that some effects may be very improbable, but extremely serious should they occur and hence merit contingency planning. Where doubt exists as to which of two categories of probability best fits the level of professional confidence, the more precautionary level should be cited.'. These comments also apply to the wider EIA process of which Ecological Impact Assessment forms a part. As the nearest lifeboat is based at Stornoway, contingency planning will be particularly important.

*IAIA Recommendation 0-139 Marking of Man Made Offshore Structures* was largely based on the Northern Lighthouse Board experience with fishfarms and at EMEC and there does not appear to be any real precedent anywhere in the world for marking such schemes. As several large wave farms are being proposed for the waters round Scotland, it is important that general guidelines are developed speedily to avoid the evolution of purely local solutions for marking and lighting. As this is one of the first developments of this size and type in UK waters, we feel that it is important that a precautionary approach should be taken to marking and lighting and would be keen to be involved in discussions in this respect. The *International Regulations for Preventing Collisions at Sea* of the International Maritime Organization may provide a useful basis for discussion. We will work with RYA (Hamble) on this matter as it raises important matters of principle that have implications elsewhere in the UK. It is important that skippers of vessels are aware of the boundaries of hazards so that an appropriate passage plan can be produced to meet the requirements of Regulation 34 - Safe navigation and avoidance of dangerous situations of *SOIAS V*. The boundaries of the actual arrays will need to be marked on charts. With an increasing use of electronic charts, there is a danger that skippers may be using charts that have not been updated or that do not contain the relevant information. *Notices to Mariners* may not reach all relevant vessels, particularly those from abroad. Moreover, the widespread use of electronic position finding can result in erroneous positions, for example when there is an equipment or power failure particularly in conditions of adverse visibility. Regrettably not all skippers follow RYA advice to also use traditional methods of navigation. However, this is a general point that applies to all developments in the sea.

As is mentioned in the report, there are likely to be cumulative effects with the Siadar wave energy project, particularly as the project description notes that: *'Besides its function to generate electricity from the Atlantic waves, it is expected that this structure will help to develop small boat, commercial and leisure craft facilities in Siadar Bay'*. That statement leads on to my final point which is that there can be useful synergies between the development of marine renewables and the development of recreational boating with its contribution to local economies. For example, infrastructure improvements necessary for the construction or maintenance phases may potentially benefit recreational craft. It is unclear whether the water inshore of the devices will be much calmer than in the open sea and thus a possible place of refuge in adverse weather conditions.

I hope that the above information proves useful. RYA Scotland members will be happy to provide any further information relating to their activities that is required in the preparation of the Environmental Statement.

A copy of the Position Statement is included in Annex 3. of this scoping opinion.

## **Royal Society for the Protection of Birds**

Thank you for consulting RSPB Scotland over the scoping request for Lewis Wave Power Ltd's proposals to the west of the Isle of Lewis. We have had some very brief initial discussions with the applicant and were aware that development of this site was being considered and welcome the opportunity to comment.

Marine renewables are emerging technologies and we acknowledge the input that has gone into producing this document. As an organisation we have commented on similar schemes in Orkney (including proposals from Aquamarine for Oyster devices) and Argyll, as well as the nPower Wavegen proposal in north Lewis, the site for which overlaps with this scheme.

Wave-powered devices are likely to cause some disturbance to birds and other wildlife during construction, maintenance and decommissioning. However, impacts related to construction activities are likely to be minimised where pile driving is not required.

Marine renewables also have the potential to change environmental processes indirectly around the devices, which in turn may alter habitat assemblages. Disturbance could have deleterious impacts on the foraging efficiency of some bird species, however there is the possibility that the reverse may also be true, as some species could profit from an increase in food availability through changes in water flows.

RSPB Scotland is also aware that the area is utilised by several species of cetaceans and other marine animals. Before and after monitoring of species such as basking shark would be encouraged to instruct the industry generally and inform decision-making on any future extensions to this site in particular.

Potential impact on landfall locations is perhaps of greatest concern. Bragar Bay is one of the few areas of machair on Lewis where local people still undertake strip arable cropping: not only should potential impacts on crofting operations be considered but this site is also a biodiversity 'honey pot' with machair, great yellow bumblebees, corncrakes, otters and a natural lagoon. The applicant should be aware of infringing on such sensitive natural sites when undertaking work on land and seek to mitigate adverse impacts arising from his proposed activity.



Machair is a globally restricted habitat, listed on Annex 1 of the EU Habitats Directive and primarily occurring in west Scotland. In addition to Bragar, a larger open area of machair occurs at Barvas and Brue. It develops under an exceptional blend of physical factors in addition to human and livestock influences, but is formed primarily by blown and deposited sand. It can be very sensitive to disturbance, for example by vehicles. Monitoring should take place to assess machair habitats and sand movements before and after implementation of these devices.

We note the comment in the section "Wave Resource". A model developed by Aquamarine Power for the east coast of Lewis predicts that over a 12 year period the average maximum significant wave height of for the area is 7.7m and waves occur at intervals of 7.38 seconds..... "

It should however be remembered that the area proposed here is on the more exposed Atlantic Ocean, west side of Lewis, where physical conditions are likely to be more extreme, rather than the sheltered eastern side.

RSPB Scotland understands that sediment transport in the area may be an issue. This has been raised previously through public consultations on potential marine renewables developments on the west coast and is being looked at by SNH and CnES (S. Angus and D.Muir pers comm). It should be noted that the development and maintenance of machair habitats are linked closely to sediment transportation. This may contradict the statement in the report of:

"Effects on sediment transport: Due to the relatively low levels of sediment transport thought to occur within the area of search, the substrate (mostly hard substrates with limited sediment) and the proposed alignment of devices (non barrier forming) along the coastline, it is likely that installation and operation of a wave array off the coastline of Lewis will have little or no effect on sediment transport and distribution within the area. Therefore this issue has been scoped out of the EIA (see Table 6.1)."

We would therefore like to see some further consideration of sediment transport, or further evidence to show that sediment transport related environmental effects would be unlikely to be significant.

Otters. Page 36 of 106 states "A walkover survey in October 2010 identified fresh otter spraint under the pedestrian bridge over Abhainn Bhuirgh (NB 408,572). Otter records are also presented on the NBN gateway website (submitted by the Mammal records from Britain from the Atlas of Mammals (1993) and the Scotland Otter Survey Database). It is therefore likely that otters are present in the wider area of search."

Otters are frequent around the coast and can regularly be seen at Shawbost, Bragar, Arnol, Brue, Barvas and Balantruseil/Siadar. As such, full otter surveys will be required, perhaps utilising historical knowledge from other planning applications such as Lewis Wind Power and Wavegen, as well as dedicated searches.

Red throated divers, in particular, utilise the sea areas mentioned in the document. These birds form part of the Lewis Peatlands SPA assemblage, breeding on inland moorlands but feeding in the sea, and any potential impacts upon these birds will require thorough assessment. The pattern of movement of birds was established in dedicated diver surveys in relation to the Lewis Wind Power proposal in 2003. It may be possible to use this as baseline information for future project-specific studies.

Tern colonies: Arctic terns, and occasionally little terns, breed on the coast in the survey area. Particularly notable colonies can be found at Brue and Barvas, though colonies have

been established at times at a number of other coastal locations. RSPB Scotland holds datasets relating to many of these colonies and would be willing to supply these on request for a nominal charge to cover our costs.

Black guillemot: The document notes a nesting count of 92 between Geodha Chaol to Geodha Ruadh in table 2. This is a very high count of this species and RSPB would suggest that these data be reviewed.

Overall, a monitoring programme should be established on site to measure any changes in biodiversity that may occur. RSPB Scotland would be grateful for further consultation on any application which may come forward.

## **Scottish Canoe Association**

The Scottish Canoe Association (SCA) has concerns relating to this proposed wave array.

Page 81 of the scoping report says “possibly sea kayaking would be displaced during construction, operation & decommissioning.” This proposal has the potential to be a major safety hazard to sea kayakers who will continue to paddle this stretch of coastline at all times. Serious consideration will need to be given as to which side of the devices small boats like kayaks would be expected to take. On an exposed stretch of coast like this it would be far preferable to paddle between the shore & the wave devices, rather than being forced onto the seaward side.

We also have concerns over the design of any landfall infrastructure, especially if this was to restrict access in any way or impact on tidal flows. Also, from a surf kayak point of view we are concerned that this proposal could impact on the quality of surf beaches along this stretch of coast.

We would therefore expect the EIA to address these issues.

## **Scottish Government Planning**

In terms of national planning policy, I am content that reference is made to the consolidated Scottish Planning Policy (SPP) and the National Planning Framework 2.

I am also content that reference is made to the relevant Development Plan policy, namely the Western Isles Structure Plan 2003 and the Western Isles Local Plan 2008, and that it is noted that the first Local Development Plan under the Planning etc (Scotland) Act 2006 is currently being prepared. The Council’s Proposed LDP is expected to be published at the end of this year.

Section 2.3 should make clear that statutory planning control under the Town and Country Planning (Scotland) Act 1997 and associated legislation extends to the mean low water mark of ordinary spring tides, and to marine fish farming, but that the Marine (Scotland) Act 2010 extends up to the mean high water mark. It should also be noted that although the terrestrial planning system and the marine planning system are legally and functionally separate, they overlap in the inter-tidal area.

# Surfers Against Sewage

## Introduction

Surfers Against Sewage (SAS) have been invited by Lewis Wave Power to comment on the Scoping Report prepared in relation to the proposed 40MW wave farm off the west coast of Lewis. SAS have been effectively representing recreational water users in the UK since 1990. SAS's campaign remit has expanded from safeguarding public health with the successful Sewage & Sickness campaigns, to encompassing surfing resource and recreation protection with the popular Protect Our Waves campaigns. SAS have been an integral stakeholder in several offshore renewable proposals over the last 7 years.

## SAS Offshore Renewable Energy Position Statement

SAS believe that climate change poses a major threat to recreational water users, the marine environment and the global environment as a whole, and agrees that action needs to be taken to combat it. SAS also believe that offshore renewable energy has the potential to help solve climate change, but are concerned that future development has the potential to cause negative impacts on surfing resources and recreation, and negative impacts on the social and economic benefits that surfing contributes to both the surfing and wider communities. SAS strive to protect surfing breaks from unacceptable levels of environmental impact and will work with, and where necessary against, governmental regulators and agencies, NGOs and developers to ensure surfing breaks get the protection they deserve.

## SAS's Concerns Relating To Surfing Waves

Waves are naturally occurring features of the environment. Waves that are suitable for surfing only exist where the wave climate and seabed morphology combine to form sufficiently progressively breaking waves of sufficient height and power. Although most of the Scottish coast has some kind of surfable waves and is surfed on a regular basis, the quality of the waves hitting the coast varies enormously.

SAS [1, 2], Marine Scotland [3] and the Scottish Government [4] have summarised the surfing conditions along Scotland's west coast including the Isle of Lewis. The surfing breaks are of very high quality, high consistency and very low popularity in terms of the number of regular surfers. Prevailing winds are westerly and the coast of Lewis receives sufficient swell from the Atlantic Ocean that even sheltered spots are surfed. The breaks are a mixture of reef and beach breaks.

More specifically, there are a number of locations along Lewis coast where breaking waves are surfed. Notable locations are identified in SAS [2] and include those known as Tolsta, Port of Ness, Europie, Barvas, Bus Stop, Bragar, Dalbeg, Dalmore, Cliff, Mangersta, Scarasta; a number of these breaks are located within the area of search in Figure 1-2 of the Scoping Report (at page 10). The Scottish Government [5] identify the west coast of Lewis as a prime location for surfing while Sport Scotland [6] notes that "Scotland's environment provides conditions of international quality for...surfing off Thurso and the Western Isles".

SAS [1] estimate that there are approximately 300,000 recreational water users in Scotland while Marine Scotland [3] estimate that there are approximately 53,000 surfers (aged above 16 years) in Scotland and the Borders. There is little data about the socio-economic value of surfing. Based on 2007 data, Marine Scotland [3] estimate that surfing contributes £16.4m per annum to the Scottish economy, noting "high quality waves located in remote areas could bring economic benefits to a rural area through travel, accommodation and subsidence

expenditure of visiting surfers”. It should be noted that, according to UK Marine Monitoring and Assessment Strategy (UKMMAS) [7] “the economic value of the UK surf industry...is growing each year with the increasing popularity of the sport”.

Wave energy converters (WECs), such as those proposed for installation at Lewis, whether individually or in arrays, can change the environment in which they operate. WECs can affect surfing resources by changing:

- Wave climate (e.g. height, period, direction, harmonics).
- Seabed geomorphology (e.g. bathymetry).
- Wave form (e.g. section length, peel angle).

The potential impacts of WECs on surfing waves and recreation are not unknown and ongoing research indicates that the impacts could have significant adverse effects on surfing resources and associated recreational and socio-economic activities. For example, reporting from an industry perspective, Neumann [8] identified the modification of surf as a potentially conflicting use posing a non-technological barrier to generating energy from waves, noting “a common concern of the surfing community is that wave energy farms will destroy the swell conditions for this popular sport”.

Studies informing the impacts of WECs on wave climate have, to date, been largely based on numerical modelling of reduced downstream wave height (and wave energy) in relation to WECs’ wave energy reflection, absorption and transmission characteristics. Studies of WECs have been made for a number of locations in UK waters including southwest England, south Wales and the Orkney Islands, and for other locations including Portugal. Numerical modelling predicts downstream wave height changes caused by WECs by using wave transmission and/or absorption rates to represent a proposed or hypothetical array’s influence on the passing wave energy.

Wave height reductions appear to be largest immediately downstream of WECs irrespective of the modelled scenario (i.e. the combination of factors such as the array, transmission / absorption rate and wave climate). Halcrow [9] predicted maximum wave height reductions above 20% for the Wave Hub project off the north coast of Cornwall, and Venugopal and Smith [10] predicted maximum wave height reductions between 13% and 69% for a linear array of five sea bed mounted WECs at a site off the western shore of the Orkney Islands. While wave height reductions do not appear to progressively drop off with distance downstream of WECs, the proximity of the WECs to an impact receptor (such as surfing breaks) has a bearing on an impact’s significance. In addition, based on their predictions of downstream wave height reductions, Venugopal and Smith [10] show how they can significantly reduce downstream wave height and change downstream sediment transport patterns such that beach erosion and/or deposition can occur. In summary, independent research establishes that wave farm development has the potential to negatively affect surfing resources which, by implication, means that wave farm development has the potential to negatively affect surfing recreation and socio-economic activities.

The Scottish Government has long recognised that the natural environment and publicly accessible open space contributes positively to recreational and sporting activities including surfing. Former Scottish Planning Policy (SPP) 11 [11] states:

“Scotland’s outdoors presents outstanding opportunities to participate in a range of sport and recreation activities. Resources such as rivers, lochs, hills, crags and paths support activities as diverse as fishing, mountain biking, horse riding, surfing, canoeing, rock climbing and snowboarding...In assessing development proposals which may affect such

facilities and resources, sport and recreation interests should be fully considered and planning authorities should consult with sport and recreation interests.”

Current Scottish Planning Policy [12] states:

“Rural areas provide a wide range of outdoor recreation opportunities, many of which are closely linked to the quality of the environment. Planning authorities should support, protect and enhance open space and opportunities for sport and recreation.”

### Review of the Lewis Wave Farm Development Scoping Report

In relation to scoping the environmental impact assessment in relation to surfing resources and recreation and associated socio-economic benefits, SAS’s review of the Scoping Report establishes that the Scoping Report provides very little, if any detail, on the baseline conditions, potential impacts and potential cumulative effects on surfing. This is of concern to SAS because the importance of surfing in Lewis is referred to in a number of documents published by SAS and various organisations within the Scottish Government, and the potential impacts of WECs on surfing are established by previous impact assessments and research.

Under sections on the Existing Environment (i.e. baseline conditions), there is no reference to waves and the shoreline bathymetry providing surfing resources under section 3.1.1 on Marine Physical Processes and Geomorphology (at page 22), little reference to surfing recreation under Section 5.8.1 (at page 80) on Recreation and Tourism, and no reference to surfing contributing to the socio-economy under section 3.9.1 on Socio-economics (at page 81).

Under sections on the Identification of Key Issues and Sensitivities (i.e. impacts) and Table 6.1 on Key Potential Effects (at pages 85 to 89), there is no identification of either direct or indirect impacts on surfing resources under section 3.1.2 on Marine Physical Processes and Geomorphology (at page 23), on surfing recreation under Section 5.8.2 (at page 81) on Recreation and Tourism, and the socio-economy where it is influenced by surfing-related jobs, income, etc under section 3.9.2 on Socio-economics (at page 82).

Under Section 5.10 on Cumulative Effects (at page 83) and Table 6.1 on Key Potential Effects (at pages 85 to 89), there is no identification of either additive or interactive effects on surfing resources, surfing recreation and the socio-economic benefits of surfing.

Given that the Scoping Report contains very little baseline formation, does not identify impacts and does not identify potential additive and interactive cumulative effects in relation to surfing resources and recreation, SAS believes that it is insufficient to inform the EIA process and Marine Scotland’s scoping opinion in accordance with the requirements of, for example, Regulation 7 (2) (b) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended), which states that a request for a scoping opinion shall be accompanied by “a brief description of the nature and purpose of the proposed development and of its possible effects on the environment”. Accordingly, SAS requests that Marine Scotland gives notice to the developer that further information is required in relation to surfing and other nearshore recreation to inform the scoping opinion.

### SAS Responses to the Scoping Questions

The developer has requested responses to the scoping questions posed under Section 8.1 of the Scoping Report (at page 98). SAS’s responses are presented below.

Q1. Have all relevant regulatory requirements for the proposed project been identified? A1. SAS have no comment to make in relation to this question.

No. It is not clear how, if at all, the “potential for stakeholder and team engagement” identified in Figure 3.8 (at page 12) is aligned with the stakeholder engagement strategy identified in Chapter 9. Nevertheless, SAS would like to participate in the optioneering process associated with identifying acceptable options for the proposed wave farm development.

Q2. Do the studies proposed for assessment of effects on the physical environment look appropriate and complete?

A2. No. SAS are concerned that, despite the development’s potential for far-field effects on wave climate identified under Section 3.1.2 (at page 23) and published research showing that WECs can change wave climates and bathymetry at surfing breaks, the scoping report does not propose studies for assessing impacts on surfing resources under Section 3.1.3 (at pages 23 and 24). In addition, SAS are concerned that the studies proposed under Section 3.1.3 (at pages 23 and 24) appear to be focused on the developer’s requirements (i.e. “to inform device siting and array layout”) rather than assessing impacts on the environment. SAS recommend that the studies are undertaken in accordance with the recommendations made in Part 4 of SAS’s Guidance on environmental impact assessment of offshore renewable energy development on surfing resources and recreation [2].

Q3. Do the studies proposed for assessment of effects on the biological environment look appropriate and complete?

A3. SAS have no comment to make in relation to this question.

Q4. Do the studies proposed for assessment of effects on the human environment look appropriate and complete?

A4. No. SAS are concerned that, despite the presence of the surfing breaks identified in Section 5.8.1 at page 80), the impacts identified at Section 5.8.2 (at page 81) do not identify potential impacts on surfing recreation (i.e. “Existing marine recreational activities (likely only to be recreational boating / fishing, and possibly sea kayaking) would be displaced during construction, operation and decommissioning of the array”).

SAS are also concerned that, despite the SAS are concerned that, despite Marine Scotland [3] noting “high quality waves located in remote areas could bring economic benefits to a rural area through travel, accommodation and subsistence expenditure of visiting surfers”, the impacts identified at Section 5.9.2 (at page 82) do not identify potential indirect impacts on surfing related socio-economic benefits associated with impacts on surfing resources and recreation.

In addition, SAS are concerned that the studies proposed under Sections 5.8.3 (at page 81) and 5.9.3 (at page 82) are not transparent on how they will be used for assessing impacts on surfing recreation and the associated benefits surfing has on the local socio-economy. SAS recommend that the studies are undertaken in accordance with the recommendations made in Part 4 of SAS’s Guidance on environmental impact assessment of offshore renewable energy development on surfing resources and recreation [2].

Q5. Are you aware of any proposed developments or activities with which the proposed Oyster development might interact to result in cumulative effects?

A5. SAS have no comment to make in relation to this question.

Q6. Have the most likely and significant effects been identified through this analysis? Are there any others that should be considered for inclusion in the full assessment process and if so why?

A6. No. Under Table 6.1 on marine physical processes and geomorphology (at page 85), potential significant effects are identified on hydrodynamics and seabed morphology but are scoped out for sediment transfer. Despite the acknowledgement in Section 3.1.2 that the development could have device-scale, near-field and far-field effects on wave climate and seabed morphology, SAS believe that Table 6.1 does not identify the types of effects that could arise (e.g. reduced wave height, changed wave direction, etc) to be addressed by the EIA process. Accordingly, the scoping report is too generic and, therefore, fails to be transparent on how, if at all, the EIA process will assess impacts on particular aspects of the environment directly associated with marine physical processes and geomorphology, including surfing resources.

Also, under Table 6.1 on tourism and recreation (at page 89), potential significant effects are identified on disturbance to recreational activity. For the reasons given in our response to Q4, SAS believe that Table 6.1 does not identify the types of effects that could arise (e.g. changes to surfing recreation including sport as a result of changes to surfing resources) to be addressed by the EIA process. Accordingly, the scoping report is too generic and, therefore, fails to be transparent on how, if at all, the EIA process will assess impacts on particular aspects of the environment directly associated with tourism and recreation, including surfing recreation.

Finally, Table 6.1 does not identify any cumulative effects. Given that the potential for cumulative effects is not scoped in this table or in Section 5.10 on Cumulative Effects (at page 83), this means that the scoping report does not identify any potential cumulative effects in relation to the proposed development.

Overall, SAS believe that the information on potential key issues is insufficient to inform the scoping stage of the EIA process and Marine Scotland's scoping opinion in accordance with the requirements of, for example, Regulation 7 (2) (b) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended), which states that a request for a scoping opinion shall be accompanied by "a brief description of the nature and purpose of the proposed development and of its possible effects on the environment". Accordingly, SAS request that further information on potential key issues is required in relation to surfing to inform the scoping stage of the EIA process and Marine Scotland's scoping opinion. In addition, SAS recommend that the assessment of impacts on surfing receptors (resources and recreation) is undertaken in accordance with the recommendations made in Part 4 of SAS's Guidance on environmental impact assessment of offshore renewable energy development on surfing resources and recreation [2].

Q7. Does the proposed list of consultees reflect the range of stakeholders that should be considered for this project?

A7. No. SAS and the Scottish Surfing Federation (SSF) are not included in the consultee list (Table 7.2 at pages 96 and 97). SAS also welcome the inclusion of British Surfing Association (BSA), but it should be noted that as of 2010 the BSA has been succeeded by Surfing GB as the national governing body for surfing.

The Scottish Government has long recognised the importance of consultation in relation to development that may affect recreation and sport. For example, former Scottish Planning Policy (SPP) 11 [10] states:

“In assessing development proposals which may affect such facilities and resources, sport and recreation interests should be fully considered and planning authorities should consult with sport and recreation interests. Depending on the nature of the proposal this could include sports clubs, community groups, Non Governmental Organisations, governing bodies of sport, the local sports council, land managers and the appropriate local authority service.”

Q8. Are there any other sources of key environmental information which should be consulted?

A8. Yes. The information source identified in Section 5.8.1 (at page 80) is insufficient to inform the EIA process in relation to surfing resources and surfing recreation and tourism. SAS recommend that the approach for gathering data and information in relation to surfing resources and recreation is undertaken in accordance with the recommendations made in Part 4 of SAS's Guidance on environmental impact assessment of offshore renewable energy development on surfing resources and recreation [2]. Data sources include, but should not be limited to, SAS [1], SAS [2], Marine Scotland [3], Scottish Government [4], Scottish Government [5], Sport Scotland [6] and UKMMAS [7].

### Conclusions

SAS are fully in favour of offshore renewable energy development, including the development of wave farms, but the priority must always be that such development takes place without significantly impacting on surfing resources and recreation. Independent research suggests that WECs have the potential for significant adverse impacts on the natural features that create surfing breaks (i.e. wave climate and bathymetry) and that, indirectly, support the social and economic benefits associated with surfing.

SAS's review of the Scoping Report identifies that it contains very little baseline information, does not identify impacts and does not identify potential additive and interactive cumulative effects in relation to surfing resources and recreation. Accordingly, SAS believes that it is insufficient to inform the EIA process and Marine Scotland's scoping opinion and requests that Marine Scotland gives notice to the developer that further information is required in relation to surfing resources and recreation.

SAS have responded to the scoping questions raised in the Scoping Report. SAS's responses identify that the Scoping Report and EIA process is insufficient in a number of matters relating to surfing resources and recreation.

SAS [2] have produced a comprehensive guidance document aimed at developers of offshore renewable energy. This document promotes the surfing community as an important stakeholder to offshore renewable energy development and promotes best practice within the EIA process. If used effectively, this guidance could expedite the consent process for the proposed development in relation to surfing resources and recreation.

Yours sincerely

Andy Cummins

SAS Campaigns Director

Cc: Mr Noble, Scottish Surfing Federation Chairman & Mr Thompson, Surfing GB Director.



## References

1. Surfers Against Sewage (2010). The WAR Report. Waves Are Resources. SAS, August 2010.
2. Surfers Against Sewage (2009). Guidance on environmental impact assessment of offshore renewable energy development on surfing resources and recreation. SAS, May 2009.
3. Marine Scotland (2011). Economic Assessment of Short Term Options for Offshore Wind Energy in Scottish Territorial Waters: Costs and Benefits to Other Marine Users and Interests. Scottish Government, March 2011.
4. Scottish Government (2011). Scotland's Marine Atlas: Information for The National Marine Plan. March, 2011.
5. Scottish Government (2011). Scotland's National Marine Plan. Interim Sustainability Appraisal Report. Scottish Government, March 2011.
6. Sport Scotland (2008). Out There. A Sport Scotland policy statement on sport and physical recreation in the outdoors. Sport Scotland, 2008.
7. UKMMAS (2010). Charting Progress 2. Feeder Report: Productive Seas. Defra, 2010.
8. Neumann, F. (2009). Non-technological Barriers to Wave Energy Implementation. WAVEPLAM Project. Del. 2.2 Final Version, March 2009.
9. Halcrow (2006). Wave Hub. Environmental statement. South West of England Regional Development Agency, June 2006. pp 268.
10. Venugopal, V. and Smith, G.H. (2007). Wave climate investigation for an array of wave power devices. Proc. 7th European Wave and Tidal Energy Conference, paper 1071, Porto, Portugal, 11-13 Sept 2007.
11. Scottish Government. Scottish Planning Policy. SPP 11. Open Space and Physical Activity. Scottish Government, November, 2007.
12. Scottish Government (2010). Scottish Planning Policy. Scottish Government, February, 2010.

## **Transport Scotland**

I refer to your email of 27 May 2011 and the accompanying report the comments of the Trunk Road and Bus Operations Directorate (TRBOD) are as follows.

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

## **Annex 2. Marine Scotland scoping comments in relation to information requirements on diadromous fish of freshwater fisheries interest**

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

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

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

1. Identify use of the proposed development area by diadromous fish (salmon, sea trout and eels)
  - a. Which species use the area? Is this for feeding or migration?
  - b. At what times of year are the areas used?
  - c. In the case of salmon and sea trout what is the origin / destination of fish using the area?
2. Identify the behaviour of fish in the area
  - a. What swimming depths do the fish utilise
  - b. Is there a tendency to swim on or offshore
3. Assess the potential impacts of deployed devices on diadromous fish during deployment, operation and decommissioning phases. Potential impacts could include:
  - a. Strike
  - b. Avoidance (including exclusion from particular rivers and subsequent impacts on local populations)
  - c. Disorientation that could potentially affect behaviour, susceptibility to predation or by-catch, or ability to locate normal feeding grounds or river of origin
  - d. Delayed migration
4. Consider the potential for cumulative impacts if there are multiple deployments in an area.
5. Assess 1-4 above to determine likely risk.
  - a. If there are insufficient data to determine use of the development area, these should be obtained
  - b. If there are insufficient data on the origin / destination of fish using the area then these should be obtained

- c. Where it is not possible to obtain site specific data, the developer should make a convincing argument why this is the case and apply appropriate expert judgement based on published information.
6. If there is any remaining doubt as to the potential impacts of a particular development, then the developer should recommend a scientifically robust monitoring strategy to assess any impacts either on stocks as a whole, or on particular rivers as necessary.

Marine Scotland Science has completed a review of migratory routes for Atlantic salmon, sea trout and eels relevant to Scotland. The review is available from <http://www.scotland.gov.uk/Resource/Doc/295194/0111162.pdf>. This will assist the developers in identifying what pre-existing information is available and what supplementary site specific data will be required.

### Annex 3. RYA Positional 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 energy<sup>1</sup>. 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 adopted<sup>2</sup>. 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.

<sup>1</sup> The UK Renewable Energy Strategy 2009. HM Government

<sup>2</sup> 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 here<sup>3</sup>.

## **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

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<sup>3</sup>(MGN 371 "*Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response Issues.*", MGN 372 "*Offshore Renewable Energy Installations (OREIs): Guidance to Mariners Operating in the Vicinity of UK OREIs.*".

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 springs of 22 metres
2. a minimum underwater clearance of 3.5 m below mean low water springs

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 farms<sup>4</sup>.

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.

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<sup>4</sup> 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.

## **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 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 development<sup>5</sup> 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 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.

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<sup>5</sup> Offshore Energy Strategic Environmental Assessment: Post consultation report. June 2009. DECC.

### **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.

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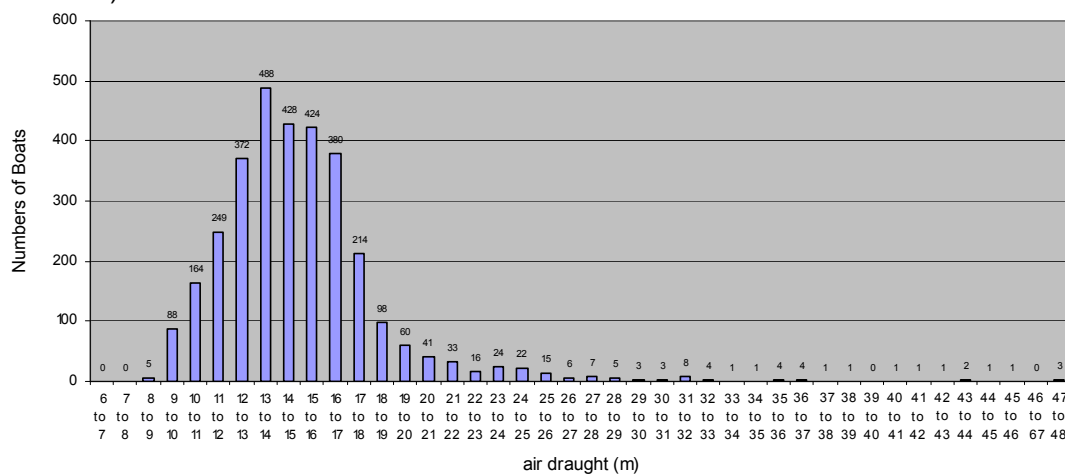
**Original document December 2005, revised December 2009**

## 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)

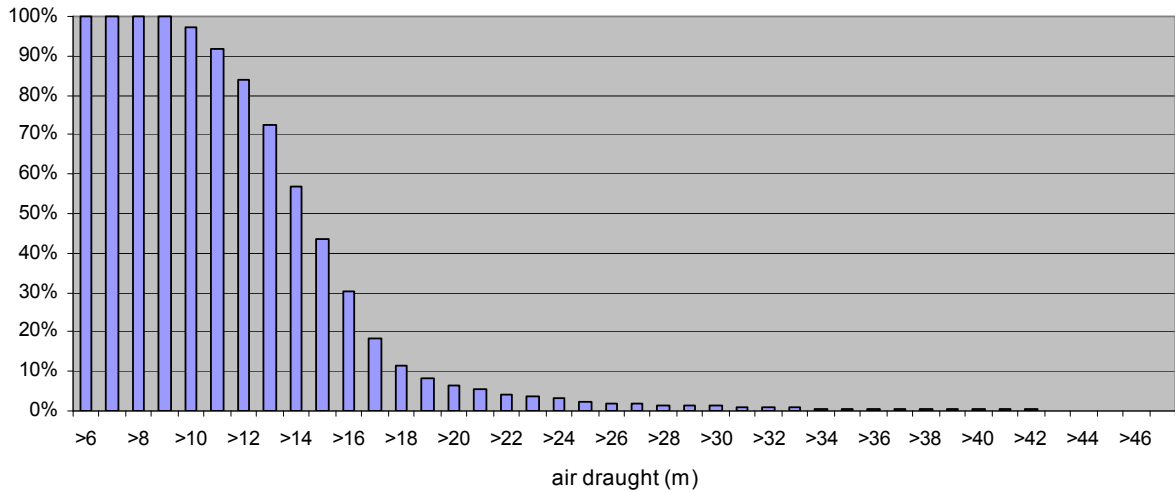
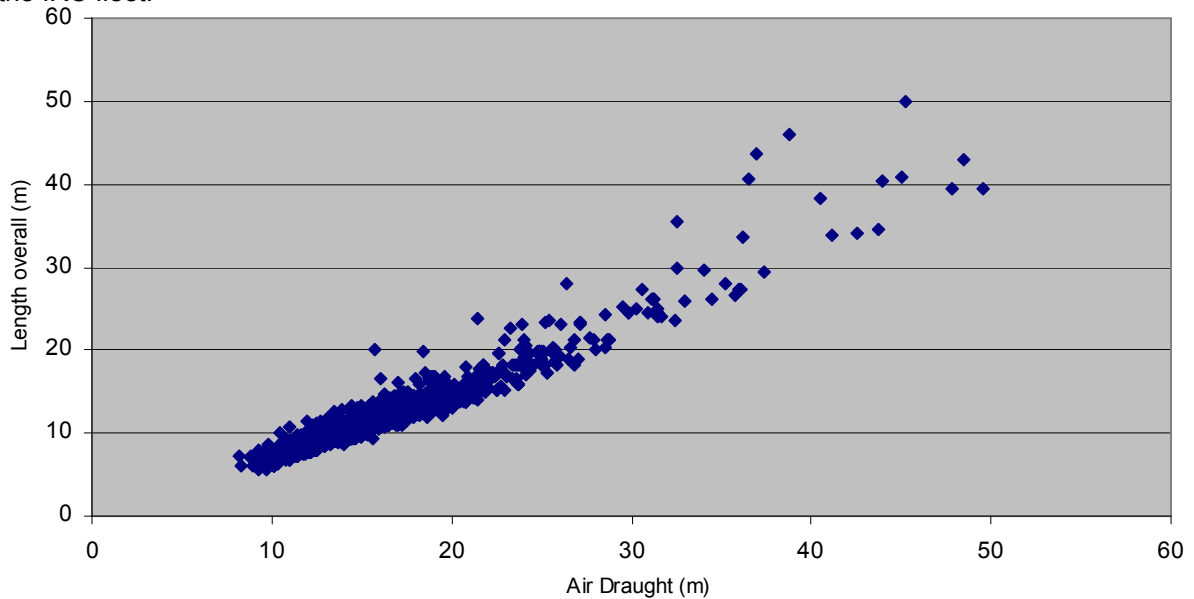
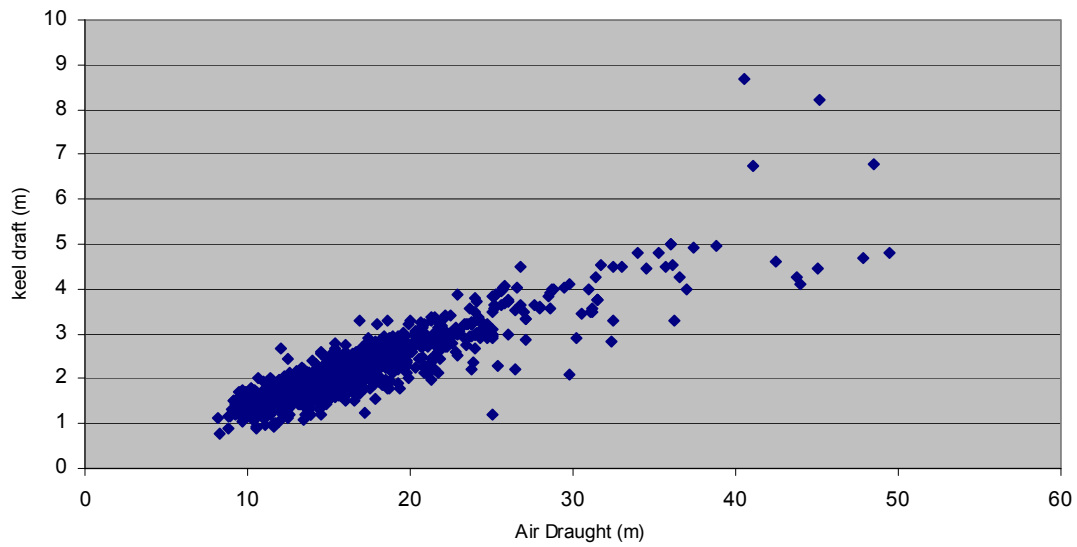


Figure 3: Graph showing the relationship of Length Over All (LOA) in metres and air draught in metres of the IRC fleet.



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 4. Developer Application And Environmental Statement Checklist

### 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"/>

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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.