Your Ref. 018/OW/AOWFL-9
Our Ref. REF/D:GEN
Contact Robert Forbes
Email pi@aberdeencity.gov.uk
Direct Dial 01224 522390
Direct Fax 01224 636181

16th September 2011

Marine Scotland
375 Victoria Road
Torry
ABERDEEN
AB11 9DB

Fao Andrew Sutherland

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Dear Sir

Aberdeen Bay, Aberdeen – Proposed Offshore Wind Farm- EIA Consultation

I refer to the above matter and your letter dated 3 August 2011. Thank you for the opportunity to provide comment in relation to this significant proposal. I note that the letter from the developer (Vattenfall) dated 1 August 2011 requests a consultation response by 16 September 2011.

It is acknowledged that the proposal represents a significant investment in terms of enhancing the renewable energy infrastructure within Aberdeen City and Shire and could also contribute significantly to encouraging diversification of the regional economy by development of renewable energy technology and related research and development. There is also likely significant potential employment creation to wider parts of Scotland during the construction phase. As such, it is considered that the proposal is consistent with Scottish Planning Policy, the National Planning Framework and the overall objective of the Scottish Government to encourage sustainable economic growth and the sustainable development target of the Approved Structure Plan that the city region's electricity needs be met from renewable sources by 2020.

As regard the submitted Environmental Statement (ES), whilst the role of the Council in this instance is limited to that of a statutory consultee, I can advise that there are considered to be a number of issues / deficiencies which it is suggested are further explored with the applicant by way of formal amendment of the ES :-

1. Terrestrial Impacts – It is noted that the scope of the ES has been limited to consideration of the impacts of the development relating to its offshore elements and that the scope has not been expanded to address the impacts

resulting form the onshore works which are an intrinsic part of the project. The need to expand the scope of the ES was previously raised in Mr Forbes's letter to the developer dated 23/9/2010. It is considered that the lack of a holistic approach to the impact analysis is considered to be a significant failing which requires to be addressed by the developer. For example there are likely to be particular landscape / ecological / road safety issues relating to the onshore works which have not been analysed and mitigated as part of the ES;

2. Noise Impact - The ES indicates that existing helicopter flight paths would require to be diverted in order to avoid the wind farm. Although this is unlikely to affect property within the city boundary, it is noted that this is likely to result in increased overflying of residential property elsewhere (e.g. Blackdog) and increased noise exposure to their occupants. It is suggested that there is a need for the ES to address this impact and consider suitable mitigation measures and the inter-relationship with other variables (e.g. carbon emissions);
3. Carbon Emissions - Although the ES takes account of likely reduction in carbon emissions resulting from the operation of the wind farm, it does not appear to take account of the likely partial increase in carbon emissions resulting from the consequent increase in helicopter flight paths and flying times from Aberdeen Airport due to the required change in flight paths referred to above. It is appreciated that such increased emissions may be marginal, however, it is considered important to demonstrate the net impact of the operation of the wind farm and to demonstrate a holistic approach to impact consideration;
4. Landscape and Visual Impact – On the basis of the information currently provided within the LAVIA, it is generally considered that the impact of the development on the landscape setting of the city would be limited and does not warrant refusal of the development. However, there is considered to be a need for additional visual analysis. Some of the chosen viewpoints are of limited relevance and do not demonstrate a worst case scenario in terms of the potential visual impact of the development. It is noted that viewpoint no.11 (Leslie Road) is from a point within the city where the coast is not visible. Conversely, there is no consideration of the impact of the development on views form the coastal path within the city in the vicinity of Girdle Ness and Greg Ness, where the development is likely to be visible from and which are within a relatively undeveloped section of coast. Viewpoint no.09 (Forvie) is taken from a point within the nature reserve where limited views of the coast are available, notwithstanding the fact that Forvie NNR includes an extremely valuable area of undeveloped coast where distant views along the coast are a significant component of its landscape quality and setting. As a natural area of regional / national importance, it is considered particularly important to demonstrate that its defining character / landscape setting and remote qualities are not compromised by the proposed development. Notwithstanding the location of Forvie NNR outwith the city boundary, given its relevance to inhabitants of the city as a regional recreational asset, it is therefore considered important that the LAVIA is modified accordingly. There is considered to be limited visual analysis of the impact of the development on the setting of Girdleness lighthouse, a category A listed building and on the setting of Torry battery, a scheduled ancient monument. These are both considered to be visual receptors of cultural significance which contribute to

the amenity of the coastal path. It is therefore suggested that the LAVIA be modified to include additional analysis of the above issues;

5. Economic Impact - It is considered that there is limited analysis of the potential economic benefits of the project, particularly with regard to possible employment creation both during construction and operation of the facility.
6. Social Impact - It is considered that there is a need to consider the possible benefits of the proposal to local communities, including within Aberdeen City, resulting form the creation / implementation of a community fund when the development is operational, as is often the case in relation to onshore wind farm developments;

I trust that the above comments are of some help in your analysis of this important development and would happy to provide further input if required. Should you wish to discuss any of the above points, please contact my colleague Mr. Forbes directly.

Yours faithfully

[redacted]

Dr Margaret Bochel
Head of Planning and Sustainable Development

Cc Vattenfall (via email only)

Our ref: W.12

Aberdeen Harbour

14 September 2011

Marine Scotland
Marine Planning & Policy Division
Scottish Government
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

Dear Sir

European Offshore Wind Deployment Centre – Environmental Statement

Thank you for giving Aberdeen Harbour Board the opportunity to comment on the above. I consider it appropriate that the Harbour Board confines its comments to the content of the marine related aspects of the Environmental Statement, and in particular the Navigational Risk Assessment.

It is recognised within the reports that Aberdeen Harbour generates a significant volume of marine traffic, which will navigate in the vicinity of the European Offshore Wind Deployment Centre (EOWDC), and on the whole we would observe that the Navigation Risk Assessment appears to adequately address the concerns of the maritime community.

Nevertheless, there are some specific issues that require individual comment or question, which are listed below (quotes from the Environmental Statement are in italics):-

Appendix 15.1 Navigational Risk Assessment

Section 13.3.1 Vessel-to-Vessel Collisions – Change in Risk

Radar interference is discussed in Section 15. It is noted that any potential impact is only likely to be a problem during bad visibility and this is mitigated to an extent by the widespread adoption of AIS which will assist vessels in discriminating genuine targets (although AIS is not currently mandatory for smaller vessels, e.g., fishing and recreational vessels). Ships may also call Aberdeen VTS if unsure whether a radar target is genuine.

...2/...

Aberdeen Harbour Board 16 Regent Quay, Aberdeen AB11 5SS
t: +44 (0)1224 597000 e: info@aberdeen-harbour.co.uk **www.aberdeen-harbour.co.uk**

The EOWDC is not within published limits of Aberdeen Vessel Traffic Services (VTS), and it is inappropriate to suggest that a vessel could rely upon calling VTS under these circumstances.

13.3.4 Recreational Vessel Collision

Given the ready availability of weather forecasts and growing use of GPS, the risk of a vessel being in proximity to the proposed EOWDC in bad weather is considered to be low but not negligible. In this scenario, a vessel unable to make way from the proposed EOWDC and at risk of collision may alert Aberdeen VTS and the Coastguard using mobile phone, VHF or flares.

The EOWDC is not within published limits of Aberdeen VTS, and it is inappropriate for vessels to call VTS under these circumstances. It is also generally recognised that the reliance by mariners upon the use of mobile phones in this type of scenario is not recommended.

15.2 Impact on Collision Risk

AIS information can be used to verify the targets of larger vessels, generally ships above 300 tonnes. Finally, Aberdeen VTS may be able to assist a vessel if in doubt as to whether a target is genuine during periods of reduced visibility.

The VTS radar may also be affected by the turbines. Discussions are being held with Aberdeen Harbour Board as to how this can be managed / mitigated. At other windfarm sites in the UK, a scanner will be fitted to one of the turbines, linked to the VTS.

The EOWDC is not within published limits of Aberdeen VTS, and it would not be appropriate for vessels to call under these circumstances. No such discussions regarding managing or mitigating interference caused by the turbines to VTS radar have been held.

17.1 Construction and Decommissioning Phases

During the construction and decommissioning phases, operational procedures will be implemented for radar and AIS monitoring of vessel activities within the working area, to detect safety zone infringements. Procedures will also be established to ensure that any infringements are formally reported in line with the regulatory requirements.

The area monitored by Aberdeen VTS may become affected by these proposed operational procedures, and we would welcome the opportunity to be consulted during their preparation.

...3/...

18.2.4 Salvage

MCA charters four Emergency Towing Vessels (ETVs) to provide emergency towing cover in winter months in the four areas adjudged to pose the highest risk of a marine accident: the Dover Strait, the Minches, the Western Approaches and the Fair Isle Channel.

These are a considerable distance from the proposed EOWDC site; however, each MRCC also holds comprehensive databases of harbour tugs available locally Procedures are also in place with Brokers and Lloyd's Casualty Reporting Service to quickly obtain information on towing vessels that may be able to respond to an incident.

MCA has an agreement with the British Tug owners Association (BTA) for emergency chartering arrangements for harbour tugs. The agreement covers activation, contractual arrangements, liabilities and operational procedures, should MCA request assistance from any local harbour tug as part of the response to an incident.

Tugs are available within Aberdeen Harbour through a licensed Tug Operator. An agreement exists which retains one tug permanently in Aberdeen, however in practice there are two tugs most of the time. The tugs Cultra and Carrickfergus have a bollard pull of 30 tonnes each. A third tug is available with notice. There are also a number of offshore industry vessels with towing capability based in Aberdeen.

The MCA have recently significantly changed the regime for the provision of ETV's, and this section should be revised to take this into account.

The tugs Cultra and Carrickfergus are harbour tugs, and it should be noted that they are not equipped to, and may not be capable of, providing assistance in the vicinity of the EOWDC. Whilst both tugs spend the majority of their time in the port there is no requirement that one is permanently positioned in the harbour and they can be deployed to Peterhead or Dundee as required.

20.2 Future Monitoring

Finally, it is noted that the site and cable route are within coverage of Aberdeen VTS, and the VTS will be vigilant to hazardous navigational practices within the general area.

The site and the cable route <u>are not</u> within the coverage of Aberdeen VTS.

VTS are only empowered to monitor and direct the busy marine activities within their area of responsibility, and are not required to be vigilant to hazardous navigational practices within the general area.

...4/...

4.
Marine Scotland

Anchoring Analysis European Offshore Wind Deployment Centre (Appendix C)

C1. Introduction

To ensure the analysis of the 4 week survey was relevant to Aberdeen Harbour, only those vessels which used the Port were considered. Throughout the report when discussing the number of anchored vessels during the 4 week survey, this refers to those which anchored and visited the Port during this period.

This methodology is not understood, since the subject of the study is the EOWDC, and not Aberdeen Harbour. The anchorage may be used by any vessel transiting the area and they may be affected by the EOWDC, irrespective of whether they visit the port or not. It is not uncommon for vessels to anchor off Aberdeen and subsequently be deployed to other ports without entering the harbour.

In general, throughout these documents, reference is made to the 'designated anchorage' and it is thought that it should be made clear that the anchorage was designated by the MCA, following a recommendation made by the UK Safety of Navigation Committee (UK SoN).

It is noted that some plans and documents refer to a proposal for an 'Ocean Laboratory' situated to the southwest of Turbine 1. There is concern that this location is very close to the designated anchorage, and it is strongly recommended that this structure is moved to a more northerly position at the least further north than the most southerly turbine position.

Yours faithfully

[redacted]

[redacted]

Our Ref: 2012/00001408
Your Ref:

Stephen Archer
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www.aberdeenshire.gov.uk
Aberdeen – LP3

Marine Scotland
Licensing Operations Team
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Aberdeen
AB11 9DB

Please ask for: Stephen Archer
Direct Dial: 01224 665520
Email: stephen.archer@aberdeenshire.gov.uk

30 January 2012

If you have difficulty reading this document please contact the admin team on 01224 664221

Dear Sir/Madam

Proposal: Notification under S36 Electricity Act 1989 for Application for Consent Under Section 36 of the Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre
Address: Aberdeen Bay Aberdeen

I write with reference to the above notification. The application was considered by Aberdeenshire Council Infrastructure Services Committee on the 26th January 2012 following consideration by both the Formartine Area Committee and the Buchan Area Committee.

Aberdeenshire Council request that the following comments are taken into consideration in the determination of the application:

- There is support for diversifying the economy by encouraging the development of both tourism infrastructure and renewable energy.
- There is concern about whether or not this is the best site for the development given the potential impacts on the environment. There is also concern that this may be a first phase of a larger development and this should be borne in mind when determining the current application.

- The location for the proposed turbine siting was questioned in terms of the possible impact –
    - (i) to the Menie Golf Course,
    - (ii) on the shipping lane to and from Aberdeen Harbour, particularly in bad weather,
    - (iii) on the breeding bird population at Bullers O' Buchan given the bird flight paths and subsequent collision risk with the proposed turbines, and
    - (iv) on the electro magnetic fields and the existing fish species, specifically the fish nursery areas

Also concern about visual impact on Balmedie Country Park and surrounding beaches as these are significant visitor destinations.

Should the turbines be given approval the following should be considered and appropriate conditions attached:

- Noise levels should be conditioned and in addition to the noise measurements already taken, further measurements should be taken at the sites of future effective housing developments identified in the Local Development Plan, notably the Cornerstone Development south of Balmedie and at Blackdog which lie on lower level ground significantly closer to the proposed site than the areas where noise measurements have already been taken;

- Consideration should be given to the landing sites for the transmission cables not least due to the proximity of a number of active landfill sites in the area and care should be taken to avoid laying cables through or over these sites;

- Consider the provisions for decommissioning of the site;

- Take into account the cumulative impact of different designs of turbines as they are selected and changed;

- Give consideration to the impact on shipping which regularly uses the bay to shelter from the weather;

- Consider what finishes will be used on the turbines especially if experimental finishes are to be used; and

- Give consideration to what kind of exclusion zone will be implemented.

The points listed above are those agreed by the Council's Infrastructure Services Committee of 26 January 2012 and represent the list of issues which the Council consider Marine Scotland should take into account in reaching a decision. Aberdeenshire Council has not take a position in favour of or opposed to the development. However, I would draw your attention to the minute of the Formartine Area

Committee and the Buchan Area Committee that both of these Area Committees were broadly supportive of the proposal. The Committee report is appended for information, and the formal minute of the Infrastructure Services Committee will be forwarded for completion of the consultation process once ratified by members at the next Full Council meeting on 8 March 2012.

Yours faithfully

[redacted]

Stephen Archer
Director
Infrastructure Services

Aberdeenshire COUNCIL Infrastructure Services

Infrastructure Services Committee – 26 January 2012

Reference Number: F/APP/2011/2815

Notification under Section 36 Electricity Act 1989 for Application for Consent Under Section 36 of the Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay, Aberdeen

Applicant: Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen
Agent: Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen

Grid Ref:	NO/NJ 400433.1 814578.4
Ward No. and Name:	EWW08 Mid-Formartine
Application Type:	Notification under S36 Electricity Act 1989
Consultations:	3
Relevant Proposals Map Designations:	Local Plan Offshore
Complies with Development Plan:	Yes
Main Recommendation:	Seek Members' Views

1. Reason for Report

1.1 The above proposal is referred to the Infrastructure Services Committee in accordance with the standing orders of the Council for consideration of a planning application whereby the Council have been consulted by a Government body under Section 36 of the Electricity Act 1989 and under part 4 Section 20 of the Marine (Scotland) Act 2010. The views of the Area Committees (Formartine and Buchan) within closest proximity to the application site have been sought prior to referral to the Infrastructure Services Committee. The views of Aberdeenshire Council will then be forwarded to Marine Scotland who is the determining body for this application.

2. Principal Planning Issues (Summary)

2.1 The application has been submitted to Marine Scotland under Section 36 Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay. The development is for a total of eleven turbines which will be located offshore within Aberdeen Bay. The distance to shore will be approximately 2.4km at the closest point. The turbines will have a maximum hub height of 120m and rotor diameter of 150m. The total height to tip will therefore be 195m.

2.2 The main issues that Aberdeenshire Council should be assessing in relation to this proposal are the impact of the turbines on the character of the area. It must be emphasised that due to the size of the turbines proposed they will be visible from some distance from coastal locations throughout the eastern coast of Aberdeenshire. As there are no offshore turbines in this area at present the installation of these will create a significant visual effect on these coastal areas of Aberdeenshire, north of Aberdeen. A full discussion of the relevant planning issues is contained within both the Formartine and Buchan Area Committee reports at **Appendix 2** and **Appendix 4** respectively.

3. Representations (Summary)

3.1 The Planning Service has been advised by Marine Scotland that they have received 420 letters of representation regarding this application. Of these, 406 letters of representation have been received in support of the application and 14 letters of objection. The content of these will be reviewed by Marine Scotland as part of their consideration of the application.

4. Area Committee Decision (Summary)

4.1 The application was reported to the Formartine Area Committee on 06 December 2011 and the Buchan Area Committee on 20 December 2011. At both meetings the majority of the Committee were broadly in favour of the development in principle but requested that Marine Scotland take a number of issues into account, these are detailed in the attached draft minutes. The following documents are attached as appendices to this report:

- **Appendix 1**: Location Plan and Site Plan
- **Appendix 2**: Copy of the Formartine Area Committee report of 06 December 2011
- **Appendix 3**: Extract of Minute of the Formartine Area Committee meeting of 06 December 2011
- **Appendix 4**: Copy of the Buchan Area Committee report of 20 December 2011
- **Appendix 5**: Extract of Minute of the Buchan Area Committee meeting of 20 December 2011

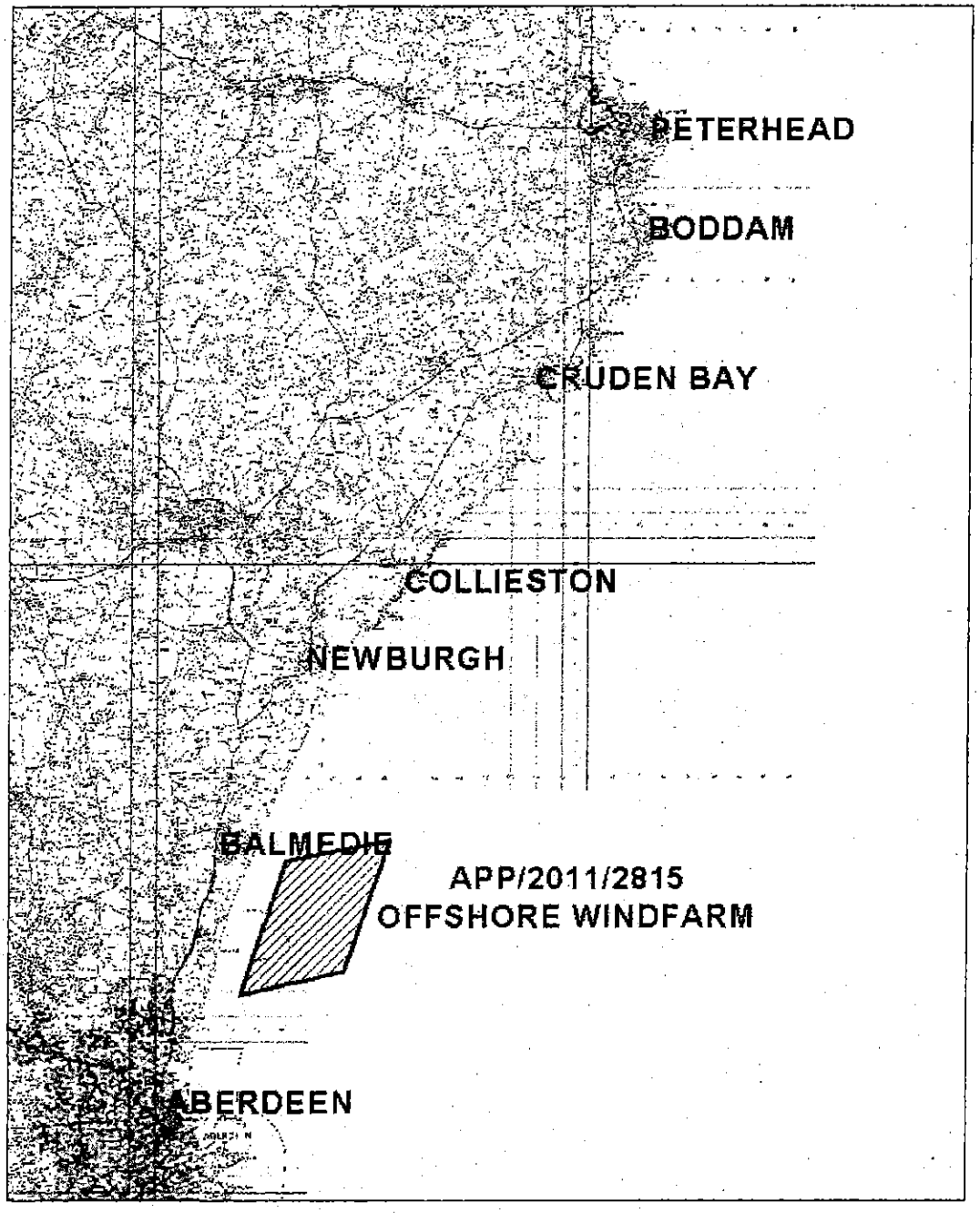
5. Officer's Recommendation

5.1 **That the Infrastructure Services Committee agree with the views of the Formartine Area Committee and the Buchan Area Committee and the points raised be forwarded to Marine Scotland as the formal response of Aberdeenshire Council in response to the above Notification under S36 Electricity Act 1989, and part 4 Section 20 of the Marine (Scotland) Act 2010.**

Stephen Archer
Director of Infrastructure Services
Author of Report: Victoria Moore VM/
22/12/2011

APPENDIX 1

Development Management & Building Standards



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Aberdeenshire COUNCIL Infrastructure Services

APPENDIX 2

Formartine Area Committee Report – 06 December 2011

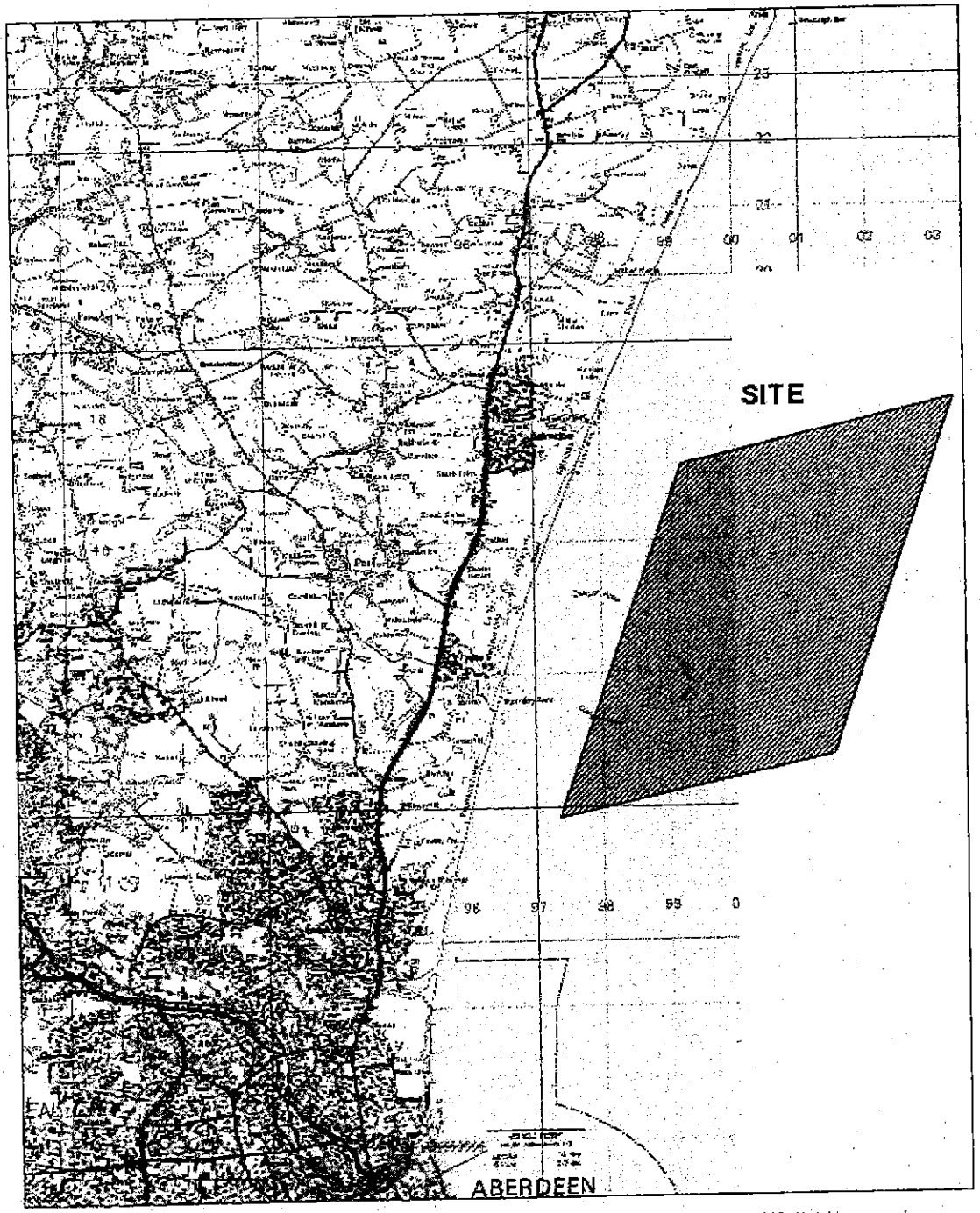
Reference No: F/APP/2011/2815

Notification under S36 Electricity Act 1989 for Application for Consent Under Section 36 of the Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay, Aberdeen

Applicant: **Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA**
Agent: **Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA**

Grid Ref:	400433.1 814578.4
Ward No. and Name:	EWW08 Mid-Formartine
Application Type:	Notification under S36 Electricity Act 1989
Consultations:	3
Relevant Proposals Map Designations:	Local Plan Offshore
Complies with Development Plans:	Yes
Main Recommendation:	Seek Members' Views

Development Management & Building Standards



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Aberdeenshire Council

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1. Reason for Report

1.1 This report relates to a planning application which Aberdeenshire Council has been consulted on. The views of the nearest Area Committees (Formartine and Buchan) are sought prior to referral to the Infrastructure Services Committee. The views of Aberdeenshire Council will then be forwarded to Marine Scotland who is the determining Authority for this application.

2. Background and Proposal

2.1 This is for a total of eleven turbines which will be located offshore within Aberdeen Bay. The distance to shore will be approximately 2.4km.

2.2 The offshore turbines are much larger than any which have been approved onshore within the Aberdeenshire area. They will have a maximum hub height of 120m and rotor diameter of 150m. The total height to tip will therefore be 195m.

2.3 The wind turbines are to be sited north of Aberdeen with the most southerly turbine being to the east of Blackdog and are positioned in a regular pattern northwards to east of Balmedie. Appendix 1 details the location of the turbines.

3. Representations

3.1 Marine Scotland has received 420 letters of representation regarding this application. Of these 406 letters of representation have been received in support of the application and 14 letters of objection. The content of these will be reviewed by Marine Scotland as part of their consideration of the application.

4. Consultations

4.1 Marine Scotland has carried out consultations in relation to the application. Aberdeenshire Council has consulted internally on the main issues that affect the area.

4.2 Infrastructure Services (Environmental Health) have assessed the Environmental Statement and note that during the construction phase the noisiest activity is likely to be the pile driving carried out in connection with the insertion of the wind turbine foundations. According to the information provided this activity is likely to last for around twelve days. In view of the relatively short period during which piling will be carried out and the expected noise levels due to these operations, piling should only be carried out during limited times to reduce disturbance.

4.3 It appears from the assessments provided that the noise emitted from the turbines will meet the criteria detailed in ETSU-R-97 "The Assessment and Rating of Noise from Wind Farms". The assessment acknowledges that the ETSU-R-97 document does not apply to offshore turbines but states that there is no equivalent guidance for such turbines. It is pointed out in the report that

due to a technical error, background noise measurements were only carried out at Hareburn House for 3 days. In view of this the approach taken was to use the noise limits derived from the measurements at Chapelwell Wynd. Although good reasons are given for using the background noise levels recorded at other locations, this service takes the view that further background noise measurements should be undertaken at Hareburn House.

4.4 Infrastructure Services (Natural Heritage) have advised that due to the nature of the development there will be significant visual affects to Aberdeenshire. There will be a moderate magnitude of change to the coastal character and seascape. In particular for those parts of Aberdeenshire close to the development site the change in character will be notable, however it is unclear if these are enough to justify refusal.

4.5 Infrastructure Services (Economic Development) have been consulted on the application and have no comments.

5. Relevant Planning Policies

5.1 Aberdeen City and Shire Structure Plan

The purpose of this Structure Plan is to set a clear direction for the future development of the North East. It promotes a spatial strategy. All parts of the Structure Plan area will fall within either a strategic growth area or a local growth and diversification area. Some areas are also identified as regeneration priority areas. There are also general objectives identified. In summary, these cover promoting economic growth, promoting sustainable economic development which will reduce carbon dioxide production, adapt to the effects of climate change and limit the amount of non-renewable resources used, encouraging population growth, maintaining and improving the region's built, natural and cultural assets, promoting sustainable communities and improving accessibility in developments.

5.2 Aberdeenshire Local Plan 2006

Policy Inf\7: Renewable Energy Facilities – Wind Energy
Policy Gen\1: Sustainability Principles
Policy Gen\2: The Layout, Siting and Design of New Development

5.2.1 Policy Inf\7 specifically discusses wind farm proposals; whilst this relates to onshore turbines, the main principles of this would still apply. It must also be demonstrated that the development meets health and safety standards relating to noise emission, shadow flicker, ice throw and other objective negative effects such as interference with television transmissions and air traffic control systems.

5.2.2 Sustainability principles are discussed in Policy Gen\1. Sustainability indicators will be used to assess development and relate to the local environment, community and economy. Development should be concerned with the long term sustainable use and management of land and does not damage valuable natural resources, habitats, species or the environment.

5.2.3 Policy Gen\2 states that new development must be laid out to fit successfully into the site itself and respect the character and amenity of the surrounding area. Its scale and height should respect the characteristics of the area.

5.3 Aberdeenshire Local Development Plan 2010

On 24 June 2010 Aberdeenshire Council agreed to approve the proposed Aberdeenshire Local Development Plan (LDP) as representing the Council's settled view as to what the final adopted content of the plan should be and to authorise the use of the proposed Aberdeenshire Local Development Plan and associated supplementary guidance as a material consideration in the determination of planning applications. In doing so it must be recognised that certain policies and proposals require to be further scrutinised and as a consequence not all aspects of the LDP have equal materiality at this stage in the process.

6. Discussion

6.1 The application has been submitted to Marine Scotland under S36 Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay. As a neighbouring Authority Aberdeenshire Council has been consulted on these proposals and Members' views are being sought prior to the application being considered by the Infrastructure Services Committee. The Planning Service will then submit the comments of Aberdeenshire Council to Marine Scotland for their consideration in the determination of the application.

6.2 The application includes an Environmental Statement which assesses the impacts of the wind turbines on the environment. This includes assessment of the impact on the marine environment and the technical details of these will be assessed by other consultees. The Environmental Statement does not contain any information on any onshore element that will be associated with this proposal including electricity substation and research building. The export cable corridor is shown as being somewhere between Bridge of Don and Blackdog. Part of this area is within Aberdeenshire Council and it should be noted that without this information it would be difficult to assess the full impact of this proposal as the exact location of this associated infrastructure could have impacts on the local environment. The applicants have stated that this will be the subject of a separate application.

6.3 The main issues that Aberdeenshire Council should be assessing in relation to this proposal are the impact of the turbines on the character of the area. It must be emphasised that due to the size of the turbines proposed they will be visible from some distance from coastal locations throughout the eastern coast of Aberdeenshire. As there are no offshore turbines in this area at present the installation of these will create a significant visual effect on Aberdeenshire. In recent years Aberdeenshire has become an area where onshore turbines of varying scales have become more common and in inland areas are becoming part of the character of the area. Notwithstanding this it

is unclear as to whether the proposed change in the character of the coastal area is sufficient to justify a recommendation of refusal of the application.

6.4 In addition to the visual impact of the turbines Environmental Health officers have assessed the application and as there is no guidance on offshore turbines equivalent to the ETSU-R-97 "The Assessment and Rating of Noise from Wind Farms" has been used for the criteria to assess the impact of the turbines on local residents. It appears from the assessments provided that the noise emitted from the turbines will meet the criteria detailed in the ETSU-R-97 document and conditions are suggested for inclusion in any permission to ensure that local residents are not adversely impacted on by noise or shadow flicker.

6.5 The visualisations submitted within the Environmental Statement show how the turbines are likely to be viewed from a number of viewpoints including the golf course being constructed at Menie, north of Balmedie. These can be used to assess the potential impact of the development and how they will be viewed from onshore. There will be a limited cumulative impact of these turbines with onshore turbines as, other than a few domestic turbines, the nearest commercial turbines are the Hill of Fiddes turbines which are 50% shorter than those proposed. There are a number of other sites off the coast of Scotland where offshore turbines have been proposed and several are installed off the coast of England.

6.6 Members' views on the proposal to install eleven wind turbines within Aberdeen Bay are sought.

7. Area Implications

7.1 In the specific circumstances of this application there is no direct connection with the currently specified objectives and identified actions of the Formartine Local Community Plan.

8. Financial Implications

8.1 There are no financial implications arising from this report.

9. Sustainability Implications

9.1 No separate consideration of the current proposal's degree of sustainability is required as the concept is implicit to and wholly integral with the planning process against the policies of which it has been measured.

10. Departures, Notifications and Referrals

10.1 Structure Plan Departures

None

10.2 Local Plan Departures

None

10.3 The application is not a Departure from the Local Plan or Structure Plan and no departure procedures apply.

10.4 The application would have to be referred to the Infrastructure Services Committee following the Area Committee to determine the views of Aberdeenshire Council prior to notification to Marine Scotland.

11. Recommendation

11.1 Seek Members views regarding the Notification under S36 Electricity Act 1989.

pp Head of Planning and Building Standards
Author of Report: Victoria Moore VM/
26/10/2011

APPENDIX 3
FAC 06/12/11 (Draft)

Draft Extract of Minute of the Formartine Area Committee Meeting of 6 December 2011

F.F/APP/2011/2815

Notification under S36 Electricity Act 1989 for Application for Consent Under Section 36 of the Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay, Aberdeen

Applicant: Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA
Agent: Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA

Councillor Loveday declared an interest in 5F as he was a Director of AREG – Aberdeen Renewable Energy Group which was the company behind the application, and felt this interest was clear and substantial and therefore would take no part in the debate.

Councillor Robertson declared an interest in 5F as she was a Director of AREG – Aberdeen Renewable Energy Group which was the company behind the application, and felt this interest was clear and substantial and therefore would take no part in the debate.

Councillor Loveday left the Chamber. Councillor Robertson was absent for this item.

The Committee **resolved** to make the following comments to be passed to the Infrastructure Services Committee for consideration:

1. The majority of the Committee were broadly in favour of the development in principle but requested that Marine Scotland take the following issues into account:

    - concern about visual impact on Balmedie Country park and surrounding beaches as these are significant visitor destinations;
    - noise levels should be conditioned and in addition to the noise measurements already taken, further measurements should be taken at the sites of future effective housing developments identified in the Local Development Plan, notably the Cornerstone Development south of Balmedie and at Blackdog which lie on lower level ground significantly closer to the proposed site than the areas where noise measurements have already been taken;
    - consideration should be given to the landing sites for the transmission cables not least due to the proximity of a number of active landfill sites in the area and care should be taken to avoid laying cables through or over these sites;
    - give consideration to potential impact on marine biodiversity of the excess heat generated by the turbines;

- consider the provisions for decommissioning of the site;
- take into account the cumulative impact of different designs of turbines as they are selected and changed;
- give consideration to the impact on shipping which regularly uses the bay to shelter form the weather;
- consider what finishes will be used on the turbines especially if experimental finishes are to be used; and
- give consideration to what kind of exclusion zone will be implemented.

Aberdeenshire COUNCIL Infrastructure Services

APPENDIX 4

Buchan Area Committee Report – 20 December 2011

Reference No: F/APP/2011/2815

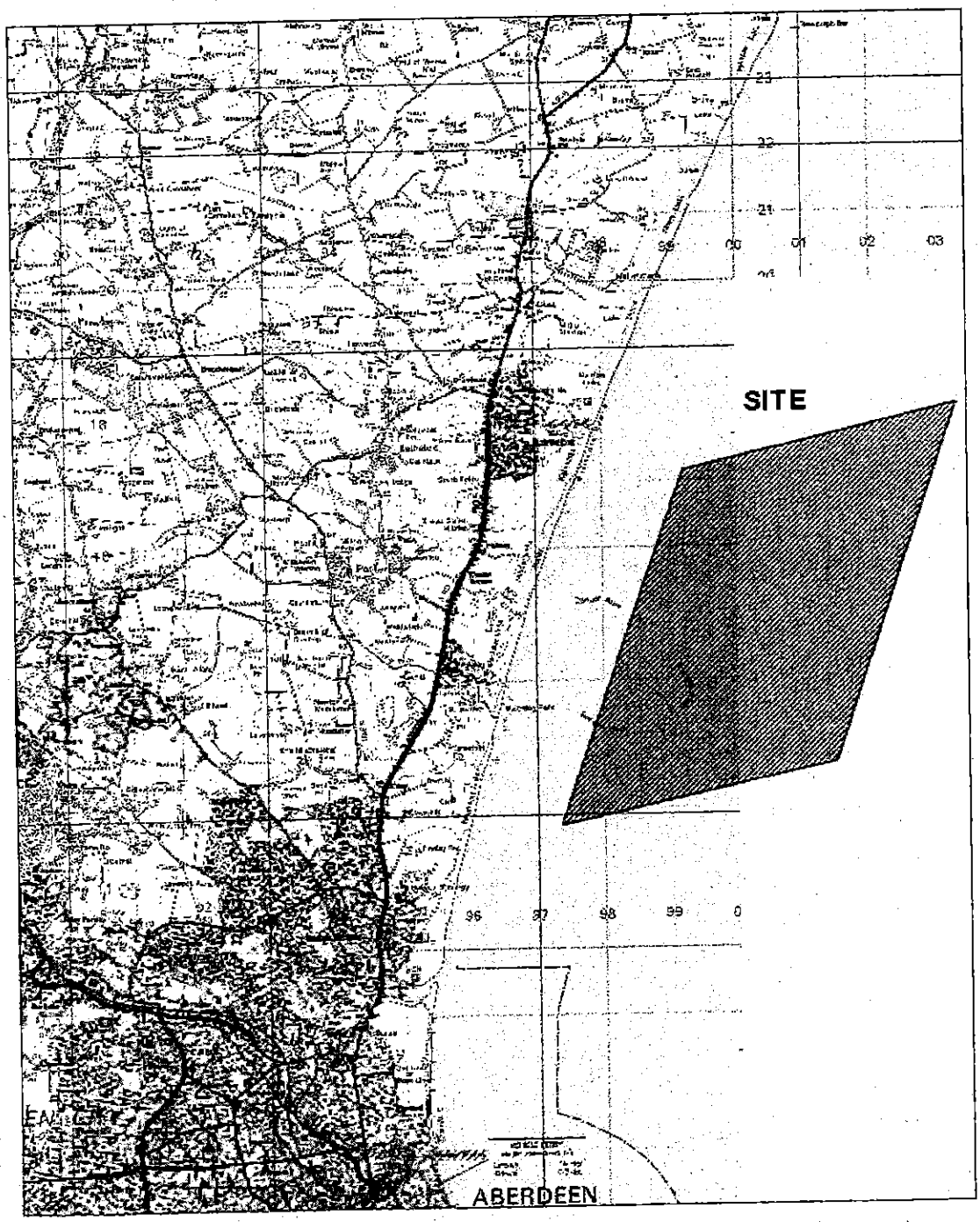
Notification under S36 Electricity Act 1989 for Application for Consent Under Section 36 of the Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay, Aberdeen

Applicant: **Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA**
Agent: **Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA**

Grid Ref:	400433.1 814578.4
Ward No. and Name:	EWW08 Mid-Formartine
Application Type:	Notification under S36 Electricity Act 1989
Consultations:	3
Relevant Proposals Map Designations:	Local Plan Offshore
Complies with Development Plans:	Yes
Main Recommendation:	Seek Members' Views

NOT TO SCALE

Development Management & Building Standards



22 August 2011

APP/2011/2815

Aberdeenshire Council

Scale - 1:75000

N

1. Reason for Report

1.1 This report relates to a planning application which Aberdeenshire Council has been consulted on. The views of the nearest Area Committees (Formartine and Buchan) are sought prior to referral to the Infrastructure Services Committee. The views of Aberdeenshire Council will then be forwarded to Marine Scotland who is the determining Authority for this application.

2. Background and Proposal

2.1 This is for a total of eleven turbines which will be located offshore within Aberdeen Bay. The distance to shore will be approximately 2.4km.

2.2 The offshore turbines are much larger than any which have been approved onshore within the Aberdeenshire area. They will have a maximum hub height of 120m and rotor diameter of 150m. The total height to tip will therefore be 195m.

2.3 The wind turbines are to be sited north of Aberdeen with the most southerly turbine being to the east of Blackdog and are positioned in a regular pattern northwards to east of Balmedie. Appendix 1 details the location of the turbines. The turbines will be visible in the distance from parts of the Buchan Area and a photomontage has been included in the Environmental Statement from Cruden Bay (Viewpoint 18: A975 near Slains Castle). This is approximately 20km from the turbines.

3. Representations

3.1 Marine Scotland has received 420 letters of representation regarding this application. Of these 406 letters of representation have been received in support of the application and 14 letters of objection. The content of these will be reviewed by Marine Scotland as part of their consideration of the application.

4. Consultations

4.1 Marine Scotland has carried out consultations in relation to the application. Aberdeenshire Council has consulted internally on the main issues that affect the area.

4.2 Infrastructure Services (Environmental Health) have assessed the Environmental Statement and note that during the construction phase the noisiest activity is likely to be the pile driving carried out in connection with the insertion of the wind turbine foundations. According to the information provided this activity is likely to last for around twelve days. In view of the relatively short period during which piling will be carried out and the expected noise levels due to these operations, piling should only be carried out during limited times to reduce disturbance.

4.3 It appears from the assessments provided that the noise emitted from the turbines will meet the criteria detailed in ETSU-R-97 "The Assessment and

Rating of Noise from Wind Farms". The assessment acknowledges that the ETSU-R-97 document does not apply to offshore turbines but states that there is no equivalent guidance for such turbines. It is pointed out in the report that due to a technical error, background noise measurements were only carried out at Hareburn House for 3 days. In view of this the approach taken was to use the noise limits derived from the measurements at Chapelwell Wynd. Although good reasons are given for using the background noise levels recorded at other locations, this service takes the view that further background noise measurements should be undertaken at Hareburn House.

4.4 Infrastructure Services (Natural Heritage) have advised that due to the nature of the development there will be significant visual affects to Aberdeenshire. There will be a moderate magnitude of change to the coastal character and seascape. In particular for those parts of Aberdeenshire close to the development site the change in character will be notable, however it is unclear if these are enough to justify refusal.

4.5 Infrastructure Services (Economic Development) have been consulted on the application and have no comments.

5. Relevant Planning Policies

5.1 Aberdeen City and Shire Structure Plan

The purpose of this Structure Plan is to set a clear direction for the future development of the North East. It promotes a spatial strategy. All parts of the Structure Plan area will fall within either a strategic growth area or a local growth and diversification area. Some areas are also identified as regeneration priority areas. There are also general objectives identified. In summary, these cover promoting economic growth, promoting sustainable economic development which will reduce carbon dioxide production, adapt to the effects of climate change and limit the amount of non-renewable resources used, encouraging population growth, maintaining and improving the region's built, natural and cultural assets, promoting sustainable communities and improving accessibility in developments.

5.2 Aberdeenshire Local Plan 2006

Policy Inf\7: Renewable Energy Facilities – Wind Energy
Policy Gen\1: Sustainability Principles
Policy Gen\2: The Layout, Siting and Design of New Development

5.2.1 Policy Inf\7 specifically discusses wind farm proposals; whilst this relates to onshore turbines, the main principles of this would still apply. It must also be demonstrated that the development meets health and safety standards relating to noise emission, shadow flicker, ice throw and other objective negative effects such as interference with television transmissions and air traffic control systems.

5.2.2 Sustainability principles are discussed in Policy Gen\1. Sustainability indicators will be used to assess development and relate to the local

environment, community and economy. Development should be concerned with the long term sustainable use and management of land and does not damage valuable natural resources, habitats, species or the environment.

5.2.3 Policy Gen\2 states that new development must be laid out to fit successfully into the site itself and respect the character and amenity of the surrounding area. Its scale and height should respect the characteristics of the area.

5.3 Aberdeenshire Local Development Plan 2010

On 24 June 2010 Aberdeenshire Council agreed to approve the proposed Aberdeenshire Local Development Plan (LDP) as representing the Council's settled view as to what the final adopted content of the plan should be and to authorise the use of the proposed Aberdeenshire Local Development Plan and associated supplementary guidance as a material consideration in the determination of planning applications. In doing so it must be recognised that certain policies and proposals require to be further scrutinised and as a consequence not all aspects of the LDP have equal materiality at this stage in the process.

6. Discussion

6.1 The application has been submitted to Marine Scotland under S36 Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay. As a neighbouring Authority Aberdeenshire Council has been consulted on these proposals and Members' views are being sought prior to the application being considered by the Infrastructure Services Committee. The Planning Service will then submit the comments of Aberdeenshire Council to Marine Scotland for their consideration in the determination of the application.

6.2 The application includes an Environmental Statement which assesses the impacts of the wind turbines on the environment. This includes assessment of the impact on the marine environment and the technical details of these will be assessed by other consultees. The Environmental Statement does not contain any information on any onshore element that will be associated with this proposal including electricity substation and research building. The export cable corridor is shown as being somewhere between Bridge of Don and Blackdog. Part of this area is within Aberdeenshire Council and it should be noted that without this information it would be difficult to assess the full impact of this proposal as the exact location of this associated infrastructure could have impacts on the local environment. The applicants have stated that this will be the subject of a separate application.

6.3 The main issues that Aberdeenshire Council should be assessing in relation to this proposal are the impact of the turbines on the character of the area. It must be emphasised that due to the size of the turbines proposed they will be visible from some distance from coastal locations throughout the eastern coast of Aberdeenshire. As there are no offshore turbines in this area at present the installation of these will create a significant visual effect on

Aberdeenshire. In recent years Aberdeenshire has become an area where onshore turbines of varying scales have become more common and in inland areas are becoming part of the character of the area. Notwithstanding this it is unclear as to whether the proposed change in the character of the coastal area is sufficient to justify a recommendation of refusal of the application.

6.4 In addition to the visual impact of the turbines Environmental Health officers have assessed the application and as there is no guidance on offshore turbines equivalent to the ETSU-R-97 "The Assessment and Rating of Noise from Wind Farms" has been used for the criteria to assess the impact of the turbines on local residents. It appears from the assessments provided that the noise emitted from the turbines will meet the criteria detailed in the ETSU-R-97 document and conditions are suggested for inclusion in any permission to ensure that local residents are not adversely impacted on by noise or shadow flicker.

6.5 The visualisations submitted within the Environmental Statement show how the turbines are likely to be viewed from a number of viewpoints including the golf course being constructed at Menie, north of Balmedie. These can be used to assess the potential impact of the development and how they will be viewed from onshore. There will be a limited cumulative impact of these turbines with onshore turbines as, other than a few domestic turbines, the nearest commercial turbines are the Hill of Fiddes turbines which are 50% shorter than those proposed. There are a number of other sites off the coast of Scotland where offshore turbines have been proposed and several are installed off the coast of England.

6.6 Members' views on the proposal to install eleven wind turbines within Aberdeen Bay are sought.

7. Area Implications

7.1 In the specific circumstances of this application there is no direct connection with the currently specified objectives and identified actions of the Formartine Local Community Plan.

8. Financial Implications

8.1 There are no financial implications arising from this report.

9. Sustainability Implications

9.1 No separate consideration of the current proposal's degree of sustainability is required as the concept is implicit to and wholly integral with the planning process against the policies of which it has been measured.

10. Departures, Notifications and Referrals

10.1 Structure Plan Departures

None

10.2 Local Plan Departures

None

10.3 The application is not a Departure from the Local Plan or Structure Plan and no departure procedures apply.

10.4 The application would have to be referred to the Infrastructure Services Committee following the Area Committee to determine the views of Aberdeenshire Council prior to notification to Marine Scotland.

11. Recommendation

11.1 Seek Members views regarding the Notification under S36 Electricity Act 1989.

pp Head of Planning and Building Standards
Author of Report: Victoria Moore VM/
26/10/2011

APPENDIX 5
BAC 20/12/11 (Draft)

Buchan Area Committee Minute 20 December 2011 – Draft Extract

2. New Planning Applications -

(d) **Notification under S36 Electricity Act 1989 for Application for Consent Under Section 36 of the Electricity Act 1989 and a Marine Licence Under Part 4, Section 20 of the Marine (Scotland) Act 2010 to Construct and Operate an Offshore Windfarm and Deployment Centre at Aberdeen Bay, Aberdeen**
For: Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA
Per: Aberdeen Offshore Windfarm Limited, Johnstone House, 52-54 Rose Street, Aberdeen, AB10 1HA
Reference: F/APP/2011/2815

The Committee, having noted that the views of the nearest Area Committees in relation to this application were being sought prior to referral to the Council's Infrastructure Services Committee, **agreed**:-

(1) their general support for the Notification under the Section 36 Electricity Act 1989, and

(2) to put forward the following points for the Infrastructure Services Committee's due consideration -

(a) that an application for wind turbines offshore was welcomed given the cumulative impacts onshore, particularly in Buchan and Banff and Buchan,

(b) whilst acknowledging that the wind turbines will be visible from onshore, they would be no more visible than ships anchored offshore, and

(c) the location for the proposed sitings was questioned in terms of the possible impact –

(i) to the Menie Golf Course,

(ii) on the shipping lane to and from Aberdeen harbour, particularly in bad weather,

(iii) on the breeding bird population at Bullers O' Buchan given the bird flight paths and subsequent collision risk with the proposed turbines, and

(iv) on the electro magnetic fields and the existing fish species, specifically the fish nursery areas

Sutherland Al (Andrew)

From: [redacted]
Sent: 14 September 2011 09:48
To: james.mckie@scotland.gsi.gov.uk
Cc: MS Marine Licensing
Subject: Your Reference 018/OW/AOWFL-9
Follow Up Flag: Follow up
Flag Status: Blue

Dear Mr McKie and Mr Sutherland
I refer to our conversations yesterday regarding the application being considered by yourselves, your reference 018/OW/AOWFL-9.

As you are aware I have a Scottish heritable title declaring that myself [redacted] and my wife [redacted] are the owners of Blackdog, Milden, Eigie and Berryhill salmon fishings. It gives me great concern that documents submitted to yourselves are fundamentaly incorrect, whether this was a deliberate act in an attempt to deceive, I am unsure. However, the fact still remains that the document is misleading. It states that the predominant fishing activity in the areas I have my salmon fishing is that of lobsters, crabs, clams and white fish. Marine Scotland are well aware that this is quite simply untrue. This area of the coast is predominantly sand and anybody who knows what they are speaking about knows that shellfish would not occupy or reside in sand. Further to this, they also state that the salmon fishing activity in the area is on a hobby fisherman basis, again completely untrue. Again, as Marine Scotland are aware, we deploy salmon fishing gear/nets every day we are legally entitled to from the start to the end of the salmon fishing season (weather permitting). It also gives me great concern that these wind turbines may interfere with the well being of the salmon and silver fish alike. These fish rely on the earths natural magnetic fields to navigate around the coast. These turbines produce another source of EMF, which may cause disturbance to the migratory patterns of these fish. The down draft from these turbines, the vibration and the noise created from these will cause avoidance behaviour from the fish. Silver fish are surface swimming and are very sensitive to such industrial pollution. During the construction phase of these turbines, we believe that the materials used and methods of construction applied may interfere with the olfactory senses of the fish, again in turn interfering with the migratory patterns of same.

Giving all of the aforementioned, please accept this email as a formal objection to this application for a licence from Marine Scotland. I also ask, as the consultation document is very large, may I have an extension to further review this document until 31st October 2011.

Kind Regards
[redacted]

BAA Airports

BAA Aerodrome Safeguarding
2nd Floor Meridian Building, Compass Centre
Nelson Road, Hounslow, Middx TW6 2GW
T: +44 (0)208 7570887/7450590/7452105
E-mail: safeguarding@baa.com

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

20th September 2011

Dear Andrew

Your Ref: 018/OW/AOWFL - 9

Section 36 application for the erection of 11x195m wind turbines at Aberdeen Bay, Aberdeen

Our Ref: ABZ1540

We refer to your letter dated 10th August 2011 and received in this office on 12th August 2011. This proposal has been examined from an aerodrome safeguarding perspective and conflicts with safeguarding criteria.

The turbines are located 11.5km east of the Aerodrome Reference Point for Aberdeen Airport. BAA and NATS Services Ltd (NSL) are currently undertaking a mitigation study regarding the effect of this development on Aberdeen Airport offshore helicopter operations and associated air traffic procedures. We understand that the developer has contracted out the Airspace Change Procedure (ACP) requirement to one of their specialists and once this has been completed, and we have had the opportunity to review results, we will be in a position to make a more informed decision. Should a suitable solution be identified and agreed for the lifetime of the development, then we would be in a position to remove the objection.[1]

We therefore at this time object to this proposal. You should note that, where a Planning Authority proposes to grant permission against the advice of BAA, it shall notify BAA, and the Civil Aviation Authority and the Scottish Ministers as specified in the Safeguarding of Aerodromes Direction 2003.

Yours sincerely

[redacted]
For and on behalf of Aberdeen Airport Limited

[1] Note that should the development go ahead the turbines will need to be marked and lit at all times in accordance with Article 220 of the Air Navigation Order.

Sutherland Al (Andrew)

From: [redacted]@bt.com
Sent: 04 August 2011 13:50
To: MS Marine Licensing
Subject: Aberdeen Bay Windfarm

BT do not have any comments to make on the above wind farm (Ref 018/OW/AOWFL-9)

Thank you for your letter dated 03/08/2011.

We have studied this wind farm proposal with respect to EMC and related problems to BT point-to-point microwave radio links.

The conclusion is that, the Wind farm Project indicated should not cause interference to BT's current and presently planned radio networks.

[redacted]
BT Operate
Radio Frequency Allocation & Network Protection
pp 4AA CTE, Newcastle Central Tel Exch (TEL-NE), Carliol Square, Newcastle upon Tyne. NE1 1BB. Tel: [redacted] Fax: [redacted] e-mail: [redacted]@bt.com

Delivering for Britain

The Chamber of Shipping
Carthusian Court
12 Carthusian Street
London EC1M 6EZ
Direct dial: [redacted]
Fax: +44 (0)20 7600 1534
Email: [redacted]@british-shipping.org
Internet: www.british-shipping.org

Marine Scotland
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

By email: ms.marinelicensing@scotland.gsi.gov.uk

14 September 2011

Dear Sir/Madam

RE: European Offshore Wind Deployment Centre Environmental Statement

The Chamber of Shipping welcomes the opportunity to comment on Aberdeen Offshore Windfarm Ltd's application to construct and operate the European Offshore Wind Deployment Centre (EOWDC) at Aberdeen Bay, Aberdeen. We confirm that we have received a copy of the Environmental Statement.

The Chamber had previously expressed some concern over earlier iterations of the EOWDC site layout but we are satisfied that issues surrounding shipping and navigation have been addressed in the design of the final iteration. We feel that the final iteration will allow sufficient space for vessels operating on the NE/SW route and that any route deviation caused by the construction of the wind farm will be minimal and acceptable from a navigational safety point of view, provided the risk mitigation measures and monitoring outlined in Section 20 of the Navigational Risk Assessment are applied.

In addition we are satisfied that 0.25nm separation between the designated anchorage area in Aberdeen Bay and the nearest turbine will be sufficient to maintain the safety of anchored vessels.

As our concerns over space for vessel traffic and anchoring have been addressed by the site redesign, we are pleased to confirm that we accept the current proposals on the basis that the mitigation measures outlined in Table 20.1 of the NRA are applied fully.

The Chamber of Shipping Limited
Registered office as above
Registered in England no. 2107383

If you have any questions or require further input from the Chamber, please do not hesitate to contact me.

Yours faithfully,

[redacted]

[redacted]
Policy Assistant, Safety & Environment
The Chamber of Shipping

Sutherland Al (Andrew)

From: Askew Paul [Paul.Askew@caa.co.uk]
Sent: 09 August 2011 16:25
To: MS Marine Licensing
Cc: Sutherland Al (Andrew)
Subject: European Offshore Wind Deployment Centre - Aberdeen Bay
Follow Up Flag: Follow up
Flag Status: Red

Dear Andrew

I have reviewed the information available in the Environmental Statement for the application for consent and Marine Licence for the above development, and I have the following specific comments to make.

Lighting

As stated in our various pre planning responses and my response to scoping in September last year there is a legal requirement for the turbines to be lit in accordance with the Air Navigation Order (2009) Article 220. Unfortunately, the proposed layout in Figure 3.6 would **not** meet current CAA guidance on meeting the legal requirement, as we would expect 900m spacing between lights, which means that all of the peripheral turbines should be fitted with Aviation Warning Lights. However, as the wind farm is about 13km from Aberdeen Airport it may be a scheme suitable for meeting airfield requirements under the Aviation Act, although there is no information in the ES to confirm this. Marine Scotland should ask the applicant to clarify the rationale behind the proposed aviation lighting scheme together with a view to identifying how the applicant intends to meet its legal requirements.

Airspace Change

There is mention in the document of a need for an airspace change. I have made enquiries with NATS and now understand this to relate to a change in helicopter instrument procedures with the addition of a reporting point. The applicant should be aware that Airspace Changes follow Government consultation guidelines and as such they need to account for the requisite statutory periods required in such a consultation in their project timescales. I would particularly draw attention to the timescales for Stage 4 and Stage 5 of the process. Further information can be found in CAP 725 (http://www.caa.co.uk/docs/33/CAP725.PDF)

The aviation elements of the application documentation lack clarity and make it difficult to assess whether appropriate consultations have taken place. Consequently it is essential that, as with all applications, Marine Scotland verify the impact of the development with both NERL and BAA Aberdeen Airport, ensuring that any mitigation scheme proposed by the applicant is acceptable to them.

I note that consultation is being undertaken with the MoD and that the details of the development will be submitted to the Defence Geographic Centre to enable obstacle databases to be updated.

Should you have any further questions please do not hesitate to get in touch. However, I am particularly interested in finding out more about the proposed aviation warning lighting scheme.

Best Regards
Paul Askew
Renewable Energy Projects Officer
Directorate of Airspace Policy

K6G4 CAA House 45-59 Kingsway London WC2B 6TE
0207 453 6529

****

Before printing consider the environment.

HSE

Health and Safety Executive

Hazardous Installations Directorate

Dean Moffat

Chemical Industries
Belford House
59 Belford Road
Edinburgh
EH4 3UE

Tel: 0131 247 2000
Fax: 0131 247 2041
dean.moffat@hse.gsi.gov.uk

http://www.hse.gov.uk/

HM Principal Inspector of Health & Safety
Mrs Jo Walker

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

Date: 26 August 2011

Our ref: DM/EIA/Aberdeen Bay/4.2.1.1701.

Dear Sir or Madam

ENVIRONMENTAL ASSESSMENT FOR PROPOSED OFFSHORE WINDFARM AT ABERDEEN BAY

Thank you for your letter of 3 August 2011 enclosing a copy of the environmental statement for the proposed development at Aberdeen Bay, Aberdeen.

Environmental Impact Assessments are concerned with projects which are likely to have significant effects on the environment. HSE's principal concerns are the health and safety of people affected by work activities. HSE has no comments on this environmental statement.

Yours faithfully

[redacted]

RECEIVED
30 AUG 2011
AR JO/08

Dean Moffat
Admin Support

HISTORIC SCOTLAND ALBA AOSMHOR

Longmore House
Salisbury Place
Edinburgh
EH9 1SH
Direct Line: 0131 668 8924
Switchboard: 0131 668 8600
Alasdair.McKenzie@scotland.gsi.gov.uk

Marine Scotland
Marine Planning & Policy Division
Scottish Government
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen AB11 9DB

By email: ms.marinelicensing@scotland.gsi.gov.uk

Our ref: AMN/16/GA
Our case ID: 201102738
Your Ref: 018/OW/AOWFL – 9

16 September 2011

Dear Mr Sutherland

ELECTRICITY ACT 1989
The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 and The Electricity (Applications for Consent) Regulations 1990

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, ABERDEEN BAY, ABERDEEN

Thank you for your letter of 3 August 2011 and the accompanying Environmental Statement for the above proposal. This letter covers our comments on the relevant documents in our role as consultee through the Scottish Ministers under the terms of the above Regulations. Our comments here concentrate on our statutory remit for scheduled monuments and their setting, category A listed buildings and their setting, designated wrecks and gardens and designed landscapes appearing in the Inventory.

As you will recall, at scoping stage we indicated that while no historic environment features were likely to be directly affected by this proposal, consideration should be given to the impact upon certain coastal sites. We are pleased that the potential for such impacts has been considered during the assessment and reported within the Environmental Statement. Having taken into account the information supplied we agree that the impact of the development upon the setting of these sites is unlikely to be significant. Consequently we have no further comments to offer on either the proposed scheme or its environmental impact assessment.

I hope you have found this helpful. Should you wish to discuss this response, please contact me on 0131 668 8924.

Yours sincerely

[redacted]

Alasdair M^{c}Kenzie
Heritage Management Team Leader

Sutherland Al (Andrew)

From: [redacted]@riverdee.org]
Sent: 30 September 2011 16:19
To: MS Marine Licensing
Cc: [redacted]
Subject: Joint Response to the Aberdeen Bay Wind Farm
Follow Up Flag: Follow up
Flag Status: Blue
Attachments: Joint Ythan Don Dee Response to Aberdeen Bay Wind Farm Sep 2011.pdf

Dear Sir / Madam

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, ABERDEEN

Please find attached the joint response from the Ythan, Don and Dee District Salmon Fishery Boards in connection with the application for the offshore wind farm in Aberdeen Bay. Please note that whilst this correspondence has been sent on Dee headed paper please send any response to the three District Salmon Fishery Boards.

I would be grateful if you would acknowledge the safe timely receipt of this submission.

Yours faithfully

[redacted]

[redacted]
River Director
Dee DSFB and River Dee Trust
River Office
Mill of Dinnet
Aboyne
Aberdeenshire
AB34 5LA

Tel [redacted]

The River Dee Trust is a charity registered in Scotland, No: SC028497

Dee District Salmon Fishery Board

Andrew Sutherland
Marine Renewables Licensing Advisor
Marine Scotland – Marine Planning & Policy Division
Scottish Government
Marine Laboratory,
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

30th September 2011

Dear Sir / Madam,

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, ABERDEEN BAY, ABERDEEN

On behalf of the three District Salmon Fishery Boards which serve a large part of the North East of Scotland i.e. the Rivers Dee, Don and Ythan, we welcome the opportunity to respond to the above mentioned application and to engage with the developer to ensure the respective populations of salmon and sea trout are not adversely impacted upon and that the proposal proceeds smoothly should all necessary permissions be subsequently received.

As the statutory representatives of salmon and sea trout within their respective districts the three Boards are of the mind that this development, in principle, will be a useful trial to examine the deployment of offshore wind farms in close proximity to the three major rivers of North-East Scotland, subject to the issues identified within this response being agreed to our mutual satisfaction.

General Comments

Background

The location of the proposed wind farm is midway between the mouths of the Ythan, Don and Dee rivers. This area of coast is very important for salmon and sea trout in two ways:

- Firstly access to the estuaries of these rivers is critical so that the fish can complete their lifecycle; whether it is juvenile fish annually migrating from the river to the sea or returning adults leaving the sea to swim into the rivers and spawn.
- Secondly the inshore environment is important as a feeding ground for migratory salmonids, particularly sea trout that some research indicates, spend the majority of their marine phase within 30 km of the estuary of their river of origin.

As well as being of prime importance in the conservation of the populations of salmon and sea trout the local rivers are important contributors to the local rural economy by generating approximately £14.8 million annually (2003 values) and supporting approximately 700 full time equivalent jobs.

Designations

In order to emphasise the recognition of the importance of the various river habitats and therefore the multiplier effect any potential negative consequences the offshore proposals may have on these we consider it important to state the current river designations and management structures in place

The Dee has been designated as a Special Area of Conservation under the EC Habitats Directive 92/43 EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna for Atlantic salmon.

Whilst sea trout, common to all three rivers, are a priority species under the United Kingdom's Biodiversity Action Plan.

All three rivers have Charitable River Trusts dedicated to the conservation of the rivers ecosystems with particular emphasis on all types of fish. These partner organisations all have in place three year Fishery Management Plans. It will therefore be appreciated how sensitive we and others regard the proposed development to our various rivers systems.

Specific Comments

Construction Phase

It is noted that detailed construction method statements have not been produced for each of the turbines and that these are to be written at a later date. As these method statements will have a bearing on the potential impact of salmon and sea trout the Boards would wish to reserve comment until these have been produced and discussed.

River Office, Mill of Dinnet, Dinnet, Aboyne, Aberdeenshire, AB34 5LA

Tel No: 013398 80411 e-mail: info@riverdee.org www.riverdee.org.uk

- As such the granting of the consent and marine licence for this development should have a clause for the Boards to comment on and approve the detailed method statements and that potential mitigation should be agreed and in place before final consents are given.

The main but not all impacts associated with the construction phase are deemed to be noise and vibration. The underwater noise modelling (Appendix 3.1) indicates that there will be avoidance behaviour by salmon at distances from 3.5 to 4.2 km from the piling activities associated with installing an 8.5m diameter pile foundation. This avoidance zone will include the mouths of the Dee and Don rivers with the potential to impact upon the migratory behaviour of salmonid adults and smolts. It noted that the modelling for Appendix 3 is based on 8.5 m diameter piles whereas the piles for the proposed scheme are up to 11m in diameter, with an increase in the noise produced to install them.

Due to the extent of the avoidance zone their proximity to the estuaries of two significant rivers, one of which is a Special Area of Conservation for Atlantic salmon, the summary of negligible to minor impact on migratory salmonids in Chapter 22 is impossible to reconcile until appropriate mitigation measures have been put in place. The rationale for this is that any delay to the migration of salmonids is known to reduce environmental fitness and ultimately survival to spawn. Sea trout from all three rivers are known to form a meta-population feeding up and down the north east coast of Scotland, within approximately 30 km of the mouths of their natal rivers. The presence of the wind farm in the middle of the area between the three rivers may impact upon the foraging and predator avoidance behaviour. This needs to be more fully understood prior to the scheme being consented.

In view of the above:

- Permission to proceed should not be granted until the mitigation measures have been identified and approved with the three Fishery Boards.

Operation of Wind Farm

We consider the electromagnetic fields (emf) associated with the cabling for the individual turbines and overall scheme have not been adequately addressed in terms of their impact on the migration of salmon and sea trout and their associated foraging habits. It is acknowledged that the level of understanding of this situation is weak due to the lack of clear scientific information. This is detailed within the Scottish Natural Heritage Report[1] by Gill and Bartlett (2010).

- As this is an experimental development it is requested that a research programme be commissioned to monitor the migration and behaviour of salmon and sea trout due to emf

[1] Gill, A.B. and Bartlett, M. (2010). Literature Review on the Potential Effects of Electromagnetic Fields and Subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Scottish Natural Heritage Commissioned Report No. 401

over the life of the wind farm as part of the licensing and consenting process. This is due to the proximity of the development to the mouths of three important salmonid rivers.

Decommissioning

The decommissioning of the wind farm after its operational life does not appear to have been considered within this environmental statement.

- The three Boards would request that conditions are put in place to govern the removal of the structures at the consenting stage so that an inappropriate legacy is not left behind.

Mitigation

It is recognised that the wind farm is an experimental unit and that a significant part of the justification of this site is to develop new technologies. Along with the development of technologies should be the development of the understanding of the different types of turbine, their foundations and the differing operational impacts they may have over the course of their lifespan. For the two main impacts (construction noise and emf) Scottish Natural Heritage concluded that the state of applicable knowledge was poor and that this undermined the strength of the environmental statements associated with schemes such as this.

As this scheme is an experimental one the opportunity must be taken to increase the understanding of the impact of inshore wind farms on migratory salmon and sea trout populations.

- The three Boards, with technical input from the three associated River Trusts, would request that a monitoring plan and research programme be designed, approved and included as a condition of the consenting process.

Due to the lack of available scientific information it has been difficult to appropriately assess the level of predicted impact.

- As such safeguards and a contingency should be put in place in case damage is detected through the monitoring programmes. To this end all three rivers would request that part of the planning gain for this development should be to agree a programme to improve the habitat or ecological status of the three rivers. This should be agreed upon prior to the development being given final consent and reviewed in the light of the monitoring programmes.

In conclusion the three Boards are all forward thinking progressive bodies who do not wish to delay progress on a potentially important economic development for Scotland, particularly the North East. However that progress should not be to the detriment in any way to the ecology of the Rivers Dee, Don and Ythan. We hope we can positively work with the developer, not only during the consenting phase for this scheme but also through the operational lifespan of the project.

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All three Boards recognise that this trial development provides an excellent opportunity to gain a greater understanding on the impacts that such marine renewable developments can have on migratory salmonids. To this end the Boards would wish to meet with the licensing authorities and developer to discuss this response and to agree a clear way forward to our mutual benefit.

Yours faithfully

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Dee District Salmon Fishery Board

Ythan District Salmon Fishery Board

Don District Salmon Fishery Board

River Office, Mill of Dinnet, Dinnet, Aboyne, Aberdeenshire, AB34 5LA

Tel No: 013398 80411 e-mail: info@riverdee.org www.riverdee.org.uk

Sutherland Al (Andrew)

From: Windfarms Team [windfarms@jrc.co.uk]
Sent: 09 August 2011 10:51
To: MS Marine Licensing
Cc: [redacted]@scottish-southern.co.uk; [redacted]
Subject: Aberdeen Offshore Wind Farm -- Section 36 & Marine Licence

Follow Up Flag: Follow up
Flag Status: Red

Dear Sir/Madam,

Site Name:Aberdeen Offshore Wind Farm

Turbine 01 at NGR:	399512	813020
Turbine 02 at NGR:	399424	813896
Turbine 03 at NGR:	399337	814772
Turbine 04 at NGR:	400179	813443
Turbine 05 at NGR:	400086	814369
Turbine 06 at NGR:	399994	815295
Turbine 07 at NGR:	400929	813919
Turbine 08 at NGR:	400831	814901
Turbine 09 at NGR:	400733	815884
Turbine 10 at NGR:	401659	815493
Turbine 11 at NGR:	401555	816538

Hub Height: 120m Rotor Radius: 75m

Cleared with respect to radio link infrastructure operated by Scottish Hydro (Scottish & Southern Energy) and Scotia Gas Networks

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

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

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

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

JRC offers a range of radio planning and analysis services. If you require any assistance, please contact us by phone or email.

--

[redacted]
JRC Windfarms Team

The Joint Radio Company Limited
Dean Bradley House,
52 Horseferry Road,
LONDON SW1P 2AF
United Kingdom

TEL: [redacted]
SWITCHBOARD: +44 20 7706 5199
Skype: [redacted]

marinescotland

☎: 0300 244 9163 Fax: 0300 244 9169
💻 : Uilleam. Fraser @scotland.gsi.gov.uk

The Scottish Government

Andrew Sutherland
MPP-Licensing Operations
Room B 012
375 Victoria Road
ABERDEEN

Your ref: 018/OW/AOWFL-9

Dear Andrew

Aberdeen Offshore Windfarm Limited

Your letter and enclosures of 3rd August refer.

Having consulted the owners of the three inshore boats that work from Aberdeen and fish in the general area where the proposed offshore wind farm will be located I have, to date, received no comments or objections to the proposal back.

Yours sincerely

UA Fraser

UA Fraser
Senior Fishery Officer
Aberdeen District

16/09/2010

COMMENTS FROM MARINE SCOTLAND SCIENCE ON EOWDC ES

Comments on Benthic Ecology

Envr Statement Section 9

- 9.2 Para. 14 Is it true that only Liocarcinus holsatus was found? No L. depurator as both species often co-occur

Technical Appendix 9.1

- Section 3.4 There is an overall inconsistency with the use of common and scientific names for species. Generally you should give both unless no common name exists for the species in question.
- The contractors have failed to refer to the publications generated by the EC funded project MAFCONS. Which deals with benthos, fish and fishing from throughout the North Sea.
- Section 3.5.2 The contractor compares MSS and CMACS epifaunal and fish assemblage data sets but fails to provide details on sampling methodology which may explain some of the differences in the numbers and types of animals caught in each survey
- Para. 142 Aconitum dig Tatum is "Dead Men's Fingers" not Dead Man's Fingers which is a terrestrial fungus
- Para 146 Only Liocarcinus holsatus, no L. depurator?

Technical Appendix 9.2
There seems to be a general lack of enthusiasm for monitoring some of the operations being planned. I believe that these areas should be covered by agreed monitoring plans

- 1.3.1 Water quality
- 1.3.2 Sediment suspension/resuspension
- 1.3.3 Habitat loss
- 1.3.5 Noise and vibration (some sections).

Comments On Commercial Fisheries

We feel the current fishing activity in and around the site has been well described in the baseline technical report. It may be of interest to the developer to reanalyse the VMS data to restrict the data set only to VMS pings that had a recorded vessel speed of between 1 and 4.5 knots. Its unclear as to whether this has already been done, but this may provide a clearer indication/extent of potential fishing events, excluding the majority of non-fishing activity.

Due to the low level of fishing activity in the area, we agree that there would be minimal impact on the current commercial fishing activities. We would recommend that current lines of communication are maintained between the developer and the industry to ensure that any potential issues/concerns are addressed helping to minimise any potential effects.

It may be worth considering the possibility of the devices working as fish attracting devices (FADs) during in-combination/cumulative effects as this may lead to increased commercial fishing opportunities if vessels can safely work within the wind farm.

Other comments for Chapter 9 and associated appendices.

EMF and fish

There should be further consideration given with regard to possible exposure to EMFs due to exposure of the cable by wave action and what impact this may have on sensitive species and possible mitigation. This as has been seen at other sites where it was expected that exposure of the cable would be very unlikely but has never the less occurred. This has possible impacts on both fishing practises along the cable route i.e. snagging hazards inshore

where most of the perceived fishing activity takes place and also on the level of EMF that may be detectable by sensitive species e.g. salmonids, plaice and eels.

There appears to be a lack of planned monitoring of the site and its possible impacts. It would be recommended that some agreed monitoring plan be put in place to ensure that minimal disturbance/loss of habitat has occurred during the installation/construction phase and that the habitat can be seen to return to a similar state as pre-construction.

Comments On Coastal Processes

In general the supporting appendices for Chapter 8, 8.1 and 8.2, are extremely detailed and well thought out. There is some repetition, both between Chapter 8 and the Appendices 8.1 and 8.2 which is unavoidable and expected, but also within each chapter/appendix. This made it sometimes confusing to read as it was not necessarily clear where particular information was. However, considering the vast amount of information contained within the report the general, consistent, structure did work.

In general it was hard to find any subject areas lacking from the ES, although there were a few hasty conclusions or simplifications. One major one being that because the wind farm is unlikely to radically change the currents and wave heights, the sediment transport is unlikely to change. It would not necessarily take a considerable amount of extra work to take some steps towards providing some evidence for this conclusion. This is expanded on in the detailed notes for Appendix 8.2 below. Also, it is possible that the waves and currents within Aberdeen Bay interact and influence the sediments (both bedload and suspended) in non-linear ways. This did not appear to be pickup up upon in the ES. Mike21 can model these interactions and it would be interesting to know whether this was investigated during the EIA process.

It was disappointing not to see any details of the numerical modelling within the technical appendices. This was probably deliberate in order to keep their length to a minimum. Is there perhaps another modelling document or scope for a modelling appendix to be written outlining in more detail the (different) modelling approaches taken? The lack of such technical detail is not necessarily a problem here in the ES. However, there is a big different between a numerical model that produces results and a numerical model that produces results close to reality. It is hard to assess the quality of the modelling undertaken, and whether the methods adopted are appropriate, if no technical details are given.

Please find below a number of small technical queries related to the text.

Chapter 8: Coastal Processes

10: Whilst there is not a simple 90 degree phase difference between current speed and water elevation, it is unlikely that peak flow occurs at high and low water. Reparse this explaining how many hours before/after high and low water peak flow occurs. Also, please explain ‘mid tide’.

11: Quote the typical wave periods (possibly peak spectral period) if this information is available.

Appendix 8.1: Coastal Processes Baseline Technical Report

1.4.1.1 Metocean surveys
Was the AWAC deployed on the bed, upward looking?

2.1.1 Regional Setting
Paragraph 2: Should Aberdeen Bay be defined as “stretching between the pier at the mouth of the River **Dee** and the rock headland of Forvie”?

2.2.2.1 Osshore
Paragraph 1: Define shallower area (i.e. depths less than …)

2.2.2.2 Nearshore
Paragraph 4: Figure 4 shows that the ridge rises ~2.5m above the surrounding seabed, rather than 0.8m, and is ~200m in width, rather than 150m. Increase the resolution of Figure 5 so that it can be read more easily.

2.2.2.3 Shoreline
The so called runnel feature is not very obvious in Figure 6, if I understand the meaning of runnel correctly.

2.3.1.1 Water Elevations
Present a time series of water levels measured using the AWAC.

2.3.1.2 Currents
Paragraph 1: More details of the Mike21 tidal modelling methodology should be provided. Such as details of the domain, the boundary conditions used, the period of time modelled, the model resolution, the bathymetry data, calibration and validation.

Paragraph 2: “slack water occurs at roughly mid tide” is confusing – please rephrase and/or define “mid tide”. Presenting a time series of water elevations and current velocities would help explain this. For example it would show the phase difference between peak flood and ebb, and high and low water. Figure 7 seems to show the peak flood and ebb tides. This is not therefore velocities at high and low water (usually close to slack water). The phase difference between tidal current speed and water elevation is not simply 90 degrees in Aberdeen bay, but neither do peak current speeds occur at high and low water. The use of the vague term “around” is therefore confusing in this context. Figure 2 does not show tidal ellipses, do you mean Figures 8 and 9? Please show how the tidal excursion distance of 900m was calculated? Was this done using the tidal ellipse figures?

Paragraph 4 explains why a time series is not presented. It would still be good to show these results and some comments made about the symmetry/asymmetry of the tide.

2.3.2 Wave Regime
This section is good and comprehensive. The use of the CFSR long term data set is justified and the comparisons made with the AWAC data both interesting and valid for the ES.

2.4.2 Suspended sediments
Plotting the near bed ABS SSC measurements against the current speeds and significant wave heights does appear to show some broad correlation. However, it is far from conclusive. Can you plot a time series of water velocities, significant wave heights and near bed ABS SSC together, so they can be compared? It would be interesting for the OBS SSC measurements to also be compared in the same way, possibly in the same figure.

2.4.3 Conceptual understanding of sediment regime
Please define, where possible, the boundaries of the three zones identified/discussed (offshore; shoreline/littoral; and estuarine).

2.4.4 Process Controls on Sediment Mobility
Paragraph 4: The sheer stress exceedence methodology appears to be sound. Can you provide some more details of the wave and current conditions that were modelled (both the “mean” and “max” indicated in Figure 16) and the water depth? For what area of Aberdeen bay was this representative? It is not entirely clear what is meant by exceedence from the text. I assume it refers to the percentage of time spent above a particular (shear stress) threshold? This should be explained.

3.4 Baseline Coastal Process Regime
Paragraph 3: Please define “mid tide”. It is confusing to say that “peak flow occurs at, approximately, high and low water”. Possibly explain that peak flow occurs close to high/low water, but X hours before/after.

Figure 16
The currents line in the time series is hard to distinguish. Possible plot on top of other lines or consider showing the lines on separate axes. I assume that the vertical right hand axis is Hs (m) – please add a label.

Appendix 8.2: Coastal Processes EIA Technical Report

2.1 Potential impact: Changes to processes acting within Aberdeen Bay
2.1.2 Operation Phase
Please provide details of both the tidal and wave modelling methodologies, including the domain of the models; calibration and validation methods and data used; bathymetry data; boundary conditions; and grid size. Please state how the wind turbine foundations were represented in both the tidal and wave models.

The results show that there is likely to be very little impact on both Hs and the tidal currents. However, rather than simply inferring that there are no significant impacts on the sediment regime, it would be prudent to at least do some investigation and analysis. Can a repeat of the shear stress exceedence analysis performed in Appendix 8.1 be repeated with the modified Hs and tidal currents? Can you explain how any reduction in shear stress might impact the sedimentation regime, i.e. how likely is there to be more settling of finer sands/mud and ho might this impact the area and sensitive receptors?

2.3 Potential impact: Increase in suspended sediment concentrations
Again, there are no details of the numerical modelling techniques used. This includes those details listed under 2.1.2 above, but also details on the number of plumes modelled and their origin etc.

2.4 Potential impact: Changes to processes acting to maintain the Aberdeen Bay coastline
It is good to see that the concerns of stake holders regarding the beach profile are addressed using the XBeach modelling software. As for the other modelling sections, it would be interesting to see some more details of the model setup and validation. Figure 8 is somewhat confusing with the colour scale for the contour plot (cumulative beach erosion) not clear (is it erosion/elevation change in meters?) and “chainage” not defined. “Cross-shore distance” in place of “chainage” may be more appropriate. Also, the wind speed, Ws, doesn’t seem to be defined.

Comments On Marine Mammals

This appears to be thorough and comprehensive.

There is no mention of AA for mammals. Have SNH or JNCC stated any requirement for an AA for these species?

Comments On Ornithology

The ornithology is thorough and well presented. The applicants have provided the information necessary for us to undertake the HRA/AA, particularly for collision risk.

It would be helpful if the applicants could explain how they have estimates displacement, and how they have assessed the consequences of displacement. The species of concern are RTD and the terns. It may be in the text, but I have not spotted it.

Comments On Freshwater & Migratory Fish

Given the vast amount of information delivered. FL have restricted their consideration to a review of Chapter 13, Chapter 22, Appendix 22.1, Appendix 22.2. We have not considered prey species and assume these will be dealt with by staff at ML.

The developers have identified the relevant potential impacts, although their assessment of risks is lower than may be expected given the uncertainty over potential impacts of offshore

wind developments which leads to allot of assumptions and guess work. Given remaining uncertainty over impacts, a monitoring proposal that assesses diadromous fish movement through the area pre- and post- development may be desirable.

We also note that the documentation does not appear to explicitly consider potential impacts on European Eel which FL request as part of its standard scoping response.

Specific comments are detailed below.

Regards, Iain Malcolm.

Chapter 22

Chapter 22, paragraph 10 states that smolts swim close to the surface. Although this is generally thought to be the case from available information it is not clear whether diving or deeper swimming also takes places once smolts move far out from estuaries.

Chapter 22, paragraph 12. Should maybe just state that “unlike in other countries, adult salmon return to Scottish rivers all year round”.

Chapter 22, paragraph 13, although many sea trout smolts are expected to remain close to home, distant water captures have been observed and the extent and variability of movements remains largely unknown for the East coast of Scotland.

Chapter 22, paragraph 19. It would be safe to assume that fish from rivers outside of the region will traverse the site.

Table 22.2 given the that adult fish return to the coast all year round, installation schedule seems unlikely to be a useful mitigation. Furthermore, the consequence of noise acting as a disturbance, delay or barrier may be significant (not minor as suggested), although we have little information from which to make an assessment. The impacts on key prey species for sea trout have been identified as “negligible” but not clear how this was arrived at. The monitoring proposals for noise effects have not been stated. The effects of noise on adult fish are deemed Negligible. However, it has been suggested that salmon may use noise to orientate relative to the coast and noise could therefore be an issue during the operational phase. The effects of EMF have been noted as negligible. Although we acknowledge the very low levels, this remains uncertain pending experimental work. It is therefore potentially premature to state this as negligible at this stage.

Table 22.3 relies on Table 22.2 being correct, but there are many unknowns as to interactions between diadromous fish and offshore wind.

Chapter 22, paragraph 28 correctly identifies the importance of salmon and sea trout resource. However, paragraph 29 suggests that the significance will not be more than minor. The case for this conclusion is not well reasoned, although the great uncertaint is acknowledged. Paragph 29 states that monitoring could be put in place following decisions on deployment. This would seem to be a sensible proposal and could involve behavioural studies of fish passage suing acoustic tags and receivers or could involve local observation using Didson style cameras.

Salmon and Sea Trout Ecology and Fisheries Baseline Assessment.

Page 6, Section 5.2, salmon life cycle. The proportion of repeat spawners is not well documented for Scotland, although reported values vary widely (see Malcolm *et al.,* 2010).

Although there is a considerable amount of information in this annex, it is uncertain how much of it is of value. In particular the document does not identify how existing data could be used to provide a baseline or how any impacts would be detected. Clearly this is a priority for any monitoring proposal.

Salmon and Sea Trout impact assessment

Page 13, Table 3.1. It is uncertain if these dates relate to the dates that fish leave their natal streams or when they enter the sea (which is generally less well known).

Page 13, able 3.2. Fish entere these rivers all year round. The information on returning fish will be truncated by the fishing season. The proposal should assume year round migration to rivers.

Page 15, It is unclear that available information is clear that operational noise will not cause an impact. There is relatively little available information on Salmon or sea trout and it is uncertain how they would respond. Given that the operational noise represents a potentially persistent problem it would seem to present a higher risk. The document says that the noise may mask orientation signals and there are concerns that this could affect homing. Habituation is very unlikely for a migratory species. I would therefore suggest that risks here are higher, although with great uncertainty. As such monitoring of fish movement around this proposal may be desirable.

Page 17. Section 3.3.1 The μT values quoted for the earth's magnetic field vary substantially between here (50) and Chapter 13 (10). The developer should be sure of their facts and of the values quoted throughout the ES in order to enable MSS to assess likely affects. Are the other values quoted reliable? Although the quoted EMF values are small the consequences for Atlantic salmon and brown trout remain uncertain. As such the level of risk reported by the consultants will be associated with a high degree of uncertainty.

Page 21, section 3.6. Given the large numbers of unknowns associated with this type of development a monitoring programme that assessed the movement of salmon and eels through the development site pre- and post- deployment would be desirable.

Sutherland Al (Andrew)

From: Philip Hawes [Philip.Hawes@mcga.gov.uk]
Sent: 08 September 2011 14:07
To: MS Marine Licensing
Cc: Graeme Proctor
Subject: Proposed construction of the European Offshore Wind Deployment Centre, Aberdeen Bay

Attachments: OREIs MGN 371 Checklist Aberdeen.pdf; OREI's response letter (371) Aberdeen.pdf


OREIs MGN 371 Checklist Aberde...


OREI's response letter (371) A...

Dear Andrew,

Please find attached response from MCA regarding the above application as requested.

Kind regards,

Phil.

Philip Hawes
Technical Support Team Officer
Technical Support Team - Coastal
Bay 2/01
Spring Place
Maritime & Coastguard Agency
105 Commercial Road
Southampton
SO15 1EG
Tel: 02380 329443
Fax: 02380 329240

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has been swept for the presence of computer viruses.
****

Maritime and Coastguard Agency

Graeme Proctor
Offshore Renewables Advisor
Bay 2/4
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Tel: +44 (0)2380 329191
Fax: +44 (0)2380 329204
E-mail: Graeme.proctor@mcga.gov.uk

Mr Andrew Sutherland
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Your ref: **018/OW/AOWFL - 9**
Our ref:

8th September 2011

Dear Mr Sutherland,

PROPOSED CONSTRUCTION OF THE EUROPEAN OFFSHORE WIND DEPLOYMENT CENTRE, ABERDEEN BAY.

The Maritime and Coastguard Agency's (MCA) has now completed a full review of the Environmental Statement (ES) and Navigational Risk Assessment (NRA) submitted by Vattenfall for The European Offshore Wind Farm Deployment Centre in support of its application dated 1st August 2011. The ES for consent, together with its technical appendices, has been carefully studied and assessed with respect to navigational safety.

The general assessment is provided below, a summary is attached which is based on the MGN 371 checklist, found in Section G3 of the DTI *Methodology for assessing the Marine Navigational Safety Risks of Offshore Wind Farms.*

Appendix 15.1 Navigation Risk Assessement

Section 18.2.4 Salvage

Reference is made to the CG ETVs this contract terminates on 30th September 2011, as is therefore effectively no longer valid and should be removed.

The overall section context implies the MCA will fund an emergency salvage response, clearly it is incumbent upon developers to protect their investment, not the government as is implied, the emphasis here needs changing. Provision of salvage tugs is the responsibility of the developer, which should be considered as part of the ERCoP. The MCA remains a SAR co-ordinator, with input dependant upon the scale of the incident.

Marine Guidance Note 371

Annex 1: Site Position, Structures and Safety Zones

1.1 The traffic survey was completed in accordance with requirements of MGN 371.

Annex 2: Navigation, Collision Avoidance and Communications

2.1 No concerns raised, section 2 is considered to be fully addressed from the MCA perspective, further input may be required from CAA and NLB.

Annex 3: MCA shipping template, assessing wind farm boundary distances from shipping routes

3.1 No issues with shipping routes.

Annex 4: Safety and mitigation measures recommended for OREI during construction, operation and decommissioning

4.1 The ERCOP requirements have been addressed in outline. The creation of a full Emergency Response Cooperation Plan (ERCoP) from the construction phase onwards, remains to be completed and requires to be properly documented, before any construction works commence.

Annex 5: Standards and procedures for wind turbine generator shutdown in the event of a Search and Rescue, Counter Pollution or salvage incident in or around a wind farm.

5.1 Operating procedures have been outlined in principal in accordance with the requirements of the NRA. Full details of the SMS, monitoring, operating and emergency procedures are required to be completed before any construction works commence.

The above identifies the MCA's areas of concern relating to this application. The full development of emergency plans and operating procedures are to be properly addressed, in supporting this ES the following conditions will need to be met:

Energy Act 2004 Section 95
Electricity Act 1989 Section 36 (as amended)

1. The company shall not commence construction of the Development until the Secretary of State, in consultation with the Maritime and Coastguard Agency is satisfied that the company has taken into account and adequately addressed all the MCA recommendations in the current Offshore Renewable Energy Installations MGN371, "Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response Issues" and any Annexes that may be appropriate to the development.

MARINE SCOTLAND ACT 2010

1. A copy of this consent must be given to each contractor appointed to carry out part or all of 'the works' in order that they are clear about the extent of 'the works' for which consent has been given and the conditions that are attached to the consent.

2. The Consent Holder should ensure the best method of practice is used to minimise re-suspension of sediment during these works.

3. The Consent Holder should ensure suitable bunding, storage facilities are employed to prevent the release of fuel oils, lubricating fluids associated with the plant and equipment into the marine environment.

4. The Consent Holder should ensure the local mariners' and fishermen's organisations are notified.

5. The Consent Holder should notify the UK Hydrographic Office to permit the promulgation of maritime safety information and updating of nautical charts and publications.

6. The works shall be maintained at all times in good repair.

7. The works should be removed from below the level of mean high water springs, or such alterations made, within one month of notice being given by the Secretary of State at any time he considers this necessary or advisable for the safety of navigation, and not replaced without further consent by the Secretary of State. The owner of the works shall be liable for any expense incurred.

8. No radio beacon or radar beacon operating in the Marine frequency bands shall be installed or used on the works without prior written approval by the Secretary of State.

9. If in the opinion of the Secretary of State the assistance of a Government Department, including the broadcast of navigational warnings, is required in connection with the works or to deal with any emergency arising from the failure to mark and light the works as required by the consent or to maintain the works in good order or from the drifting or wreck of the works, the owner of the works shall be liable for any expense incurred in securing such assistance.

10. Officers of the MCA, or any other person authorised by the Secretary of State, should be permitted to inspect the works at any reasonable time.

11. Vessels to comply with the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs) – as amended, particularly with respect to the display of lights, shapes and signals.

12. The works, and any associated temporary works, should be marked and lighted in accordance with the requirements of the General Lighthouse.

13. Any jack up barges / vessels utilised during the works, when jacked up, should exhibit signals in accordance with the UK Standard Marking Schedule for Offshore Installations.

If these conditions are met I am able to advise you that the Maritime and Coastguard Agency (MCA) has no objection to consent being granted provided that measures are also taken to ensure that details of the proposed works are promulgated to maritime users through notice to mariners and/or navigational warnings.

Yours sincerely,

Graeme Proctor
Offshore Renewables Advisor
Navigation Safety Branch

Appendix 1

Offshore Renewable Energy Installation Aberdeen

MGN 371 COMPLIANCE			
Issue: OREI RESPONSE	**Yes**	**No**	**Remarks**
Annex 1 : Considerations on Site Position, Structures and Safety Zones			
1. Site and Installation Co-ordinates: Developers are responsible for ensuring that formally agreed variations in the co-ordinates of site perimeters and individual OREI structures are made available, on request, to interested parties at all project stages, including application for consent, development, array variation, operation and decommissioning. This should be supplied as authoritative Geographical Information System (GIS) data, preferably in Environmental Systems Research Institute (ESRI) format. Metadata should facilitate the identification of the data creator, its date and purpose, and the geodetic datum used. For mariners' use, appropriate data should also be provided in latitude/ longitude formats.			
2. Traffic Survey			
All vessel types	✓		AIS Radar and visual observations conducted
Four weeks duration, within 12 months prior to submission of the Environmental Statement	✓		56 days covered
Seasonal variations	✓		Seasonal variations adequately covered
Recreational and fishing vessel organisations	✓		
Port and navigation authorities	✓		
Assessment			
a. Proposed OREI site relative to areas used by any type of marine craft.	✓		
b. Numbers, types and sizes of vessels presently using such areas	✓		
c. Non-transit uses of the areas, e.g. fishing, day cruising of leisure craft, racing, aggregate dredging, etc.	✓		Limited impact on site.

Issue: OREI RESPONSE	Yes	No	Remarks
d. Whether these areas contain transit routes used by coastal or deep-draught vessels on passage.	✓		To east of site
e. Alignment and proximity of the site relative to adjacent shipping lanes	✓		Development aligned with coastal traffic flow, no specific traffic lines in area.
f. Whether the nearby area contains prescribed routeing schemes or precautionary areas	✓		Not applicable
g. Whether the site lies on or near a prescribed or conventionally accepted separation zone between two opposing routes	✓		Not applicable
h. Proximity of the site to areas used for anchorage, safe haven, port approaches and pilot boarding or landing areas.	✓		Close to Port approaches of Aberdeen Harbour, traffic running primarily to East of site, anchorage located immediately adjacent to South of Site.
i. Whether the site lies within port limits, etc.. jurisdiction of a port and/or navigation authority.	✓		Out with port limits
j. Proximity of the site to existing fishing grounds, or to routes used by fishing vessels to such grounds.	✓		Transiting vessels addressed within requirement, occasional fishing in area, local consultation undertaken.
k. Proximity of the site to offshore firing/bombing ranges and areas used for any marine military purposes.	✓		Local Rifle range in area, no other significant MOD concerns
l. Proximity of the site to existing or proposed offshore oil / gas platform, marine aggregate dredging, marine archaeological sites or wrecks, or other exploration/exploitation sites	✓		No immediate O&G or dredging activity, although high level of passing traffic.
m. Proximity of the site relative to any designated areas for the disposal of dredging spoil	✓		None in proximity of site
n. Proximity of the site to aids to navigation and/or Vessel Traffic Services (VTS) in or adjacent to the area and any impact thereon.	✓		Aberdeen VTS reporting close to South of development
o. Researched opinion using computer	✓		Aberdeen NE/SW route modelled to represent displaced

Issue: OREI RESPONSE	Yes	No	Remarks
simulation techniques with respect to the displacement of traffic and, in particular, the creation of 'choke points' in areas of high traffic density.			traffic revised risk change considered insignificant.
p. Type(s) of simulation used in analysis Limitation of system(s)	✓		Gate and data analysis used, real time AIS data collected.
3. OREI Structures			
a. Whether any features of the OREI, including auxiliary platforms outside the main generator site and cabling to the shore, could pose any type of difficulty or danger to vessels underway, performing normal operations, or anchoring	✓		No significant concerns, with the proposals as presented.
Clearances of wind turbine blades above the sea surface *not less than 22 metres*	✓		22m confirmed as minimum
Least depth of current turbine blades			Not applicable for WTG array
The burial depth of cabling	✓		0.6-3m
b. Whether any feature of the installation could create problems for emergency rescue services, including the use of lifeboats, helicopters and emergency towing vessels (ETVs)	✓		Section 18 outlines SAR response assets
c. With respect to specific OREI devices, how rotor blade rotation, other exposed moving mechanical parts and/or power transmission, etc., will be controlled by the designated services when this is required in an emergency.	✓		Emergency response (shut down) procedures noted but remain to be developed.
4. Assessment of Access to and Navigation Within, or Close to , an OREI: To determine the extent to which navigation would be feasible within the OREI site itself by assessing whether:			
a. Navigation within or close to the site would be safe:			
i. by all vessels, or	✓		Navigation within array, should be undertaken with extreme caution, preferably avoided where possible.
ii. by specified vessel types, operations and/or sizes.	✓		
iii. in all directions or areas, or	✓		

Issue: OREI RESPONSE	Yes	No	Remarks
iv. in specified directions or areas. v. in specified tidal, weather or other conditions	✓ ✓		
b. Navigation in and/or near the site should be:			
i. prohibited by specified vessels types, operations and/or sizes. ii. prohibited in respect of specific activities, iii. prohibited in all areas or directions, or iv. prohibited in specified areas or directions, or v. prohibited in specified tidal or weather conditions, or simply vi. recommended to be avoided.	 ✓		Recommend area to be avoided
c. Exclusion from the site could cause navigational, safety or routeing problems for vessels operating in the area. eg by causing a vessel or vessels to follow a less than optimum route	✓		Limited impact anticipated from site exclusion.
Relevant information concerning a decision to seek a "safety zone" for a particular site during any point in its construction, operation or decommissioning should be specified in the Environmental Statement accompanying the development application,	✓		Requirement to be considered within current proposals 500m safety zone during construction, 50m off each turbine during operation.
Annex 2 : Navigation, collision avoidance and communications			
1. The Effect of Tides and Tidal Streams : It should be determined whether:			
i. Current maritime traffic flows and operations in the general area are affected by the depth of water in which the proposed installation is situated at various states of the tide i.e. whether the installation could pose problems at high water which do not exist at low water conditions, and vice versa.	✓		Addressed
ii. The set and rate of the tidal stream, at any state of the tide, has a significant affect on	✓		Addressed

Issue: OREI RESPONSE	Yes	No	Remarks
vessels in the area of the OREI site.			
iii. The maximum rate tidal stream runs parallel to the major axis of the proposed site layout, and, if so, its effect.	✓		
iv. The set is across the major axis of the layout at any time, and, if so, at what rate.	✓		
v. In general, whether engine failure or other circumstance could cause vessels to be set into danger by the tidal stream.	✓		
vi. The structures themselves could cause changes in the set and rate of the tidal stream.	✓		
vii. The structures in the tidal stream could be such as to produce siltation, deposition of sediment or scouring, affecting navigable water depths in the wind farm area or adjacent to the area	✓		
2. Weather: It should be determined whether:			
i. The site, in normal, bad weather, or restricted visibility conditions, could present difficulties or dangers to craft, including sailing vessels, which might pass in close proximity to it.	✓		
ii. The structures could create problems in the area for vessels under sail, such as wind masking, turbulence or sheer.	✓		
iii. In general, taking into account the prevailing winds for the area, whether engine failure or other circumstances could cause vessels to drift into danger, particularly if in conjunction with a tidal set such as referred to in 2.1 (v) above	✓		Fully scoped in 13.3
3. Visual Navigation and Collision Avoidance: It should be determined whether:			
i. The structures could block or hinder the view of other vessels under way on any route.	✓		No significant effect

Issue: OREI RESPONSE	Yes	No	Remarks
ii. The structures could block or hinder the view of the coastline or of any other navigational feature such as aids to navigation, landmarks, promontories, etc	✓		No significant effect
4. Communications, Radar and Positioning Systems : To provide researched opinion of a generic and, where appropriate, site specific nature concerning whether:			
i. The structures could produce radio interference such as shadowing, reflections or phase changes, with respect to any frequencies used for marine positioning, navigation or communications, including Automatic Identification Systems (AIS), whether ship borne, ashore or fitted to any of the proposed structures.	✓		Interference issues addressed, with specific reference to radar concerns.
ii. The structures could produce radar reflections, blind spots, shadow areas or other adverse effects: a. Vessel to vessel; b. Vessel to shore; c. VTS radar to vessel; d. Racon to/from vessel.	✓		Interference issues addressed, with specific reference to radar concerns.
iii. The OREI, in general, would comply with current recommendations concerning electromagnetic interference.	✓		Section 15 refers, addressing issue.
iv. The structures and generators might produce sonar interference affecting fishing, industrial or military systems used in the area.	✓		19.6 specifically refers, issue addressed.
v. The site might produce acoustic noise which could mask prescribed sound signals.	✓		Addressed 19.9 specifically refers
vi. Generators and the seabed cabling within the site and onshore might produce electro-magnetic fields affecting compasses and other navigation systems.	✓		Addressed 19.7 specifically refers.
5. Marine Navigational Marking : It should be determined:			
			Lighting and marking in

Issue: OREI RESPONSE	Yes	No	Remarks
i. How the overall site would be marked by day and by night taking into account that there may be an ongoing requirement for marking on completion of decommissioning, depending on individual circumstances.	✓		accordance with standards under the direction of NLB.
ii. How individual structures on the perimeter of and within the site, both above and below the sea surface, would be marked by day and by night.	✓		In consultation with NLB and IALA guidelines
iii. If the specific OREI structure would be inherently radar conspicuous from all seaward directions (and for SAR and maritime surveillance aviation purposes) or would require passive enhancers		✓	Issue not specifically addressed in section 4, however it is a clear industry understanding that structures are radar conspicuous and do not need passive enhancers.
iv. If the site would be marked by one or more radar beacons (Racons)		✓	Not applicable
v. If the site would be marked by an Automatic Identification System (AIS) transceiver, and if so, the data it would transmit.		✓	Not applicable
vi. If the site would be fitted with a sound signal, and where the signal or signals would be sited	✓		Subject to NLB requirements
vii. If the structure(s) would be fitted with aviation marks, and if so, how these would be screened from mariners or potential confusion with other navigational marks and lights resolved	✓		In accordance with CAA
viii. Whether the proposed site and/or its individual generators would comply in general with markings for such structures, as required by the relevant General Lighthouse Authority (GLA) or recommended by the Maritime and Coastguard Agency, respectively.	✓		In accordance with MGN 372 and NLB requirements
ix. The aids to navigation specified by the GLAs are being maintained such that the 'availability criteria', as laid down and applied by the GLAs, is met at all times. Separate detailed guidance is available from the GLAs on this matter.	✓		Subject to NLB requirements

Issue: OREI RESPONSE	Yes	No	Remarks
x. The procedures that need to be put in place to respond to casualties to the aids to navigation specified by the GLAs, within the timescales laid down and specified by the GLAs.	✓		Subject to NLB requirements
6. Hydrography: In order to establish a baseline, detailed and accurate hydrographic surveys are required to IHO Order 1 standard multibeam bathymetry with final data being supplied as a digital full density data set, and erroneous soundings flagged as deleted but include in the data set. A full report detailing survey methodology and equipment should accompany the surveys.			
Annex 3: MCA template for assessing distances between wind farm boundaries and shipping routes			
Annex 4: Safety and mitigation measures recommended for OREI during construction, operation and decommissioning.			
Mitigation and safety measures will be applied to the OREI development appropriate to the level and type of risk determined during the Environmental Impact Assessment (EIA).The specific measures to be employed will be selected in consultation with the Maritime and Coastguard Agency and will be listed in the developer's Environmental Statement (ES). These will be consistent with international standards contained in, for example, the Safety of Life at Sea (SOLAS) Convention - Chapter V, IMO Resolution A.572 (14)[3] and Resolution A.671(16)[4] and could include any or all of the following:	✓		Emergency response procedures yet to be fully developed
i. Promulgation of information and warnings through notices to mariners and other appropriate media.	✓		
ii. Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC).	✓		Detailed at 18.3
iii. Safety zones of appropriate configuration, extent and application to specified vessels	✓		
iv. Designation of the site as an area to be avoided (ATBA).		✓	Not Applicable
		✓	Not applicable

Issue: OREI RESPONSE	Yes	No	Remarks
v. Implementation of routeing measures within or near to the development.			
vi. Monitoring by radar, AIS and/or closed circuit television (CCTV).	✓		Control room procedure outlined at 18.3
vii. Appropriate means to notify and provide evidence of the infringement of safety zones or ATBA's.			No ATBA avoided requirement identified.
viii. Any other measures and procedures considered appropriate in consultation with other stakeholders.	✓		
ix. Creation of an Emergency Response Cooperation Plan with the relevant Maritime Rescue Coordination Centre (from construction phase onwards)	✓		Detailed in 18 and 20
Annex 5: Standards and procedures for wind turbine generator shutdown in the event of a search and rescue, counter pollution or salvage incident in or around a wind farm.			
1. Design Requirements: The OREI should be designed and constructed to satisfy the following design requirements for emergency rotor shut-down in the event of a search and rescue (SAR), counter pollution or salvage operation in or around a wind farm or other OREI site:			
i. All wind turbine generators (WTGs) and other OREI individual structures will each be marked with clearly visible unique identification characters which can be seen by both vessels at sea level and aircraft (helicopters and fixed wing) from above.	✓		
ii. The identification characters shall each be illuminated by a low-intensity light visible from a vessel thus enabling the structure to be detected at a suitable distance to avoid a collision with it. The size of the identification characters in combination with the lighting should be such that, under normal conditions of visibility and all known tidal conditions, they are clearly readable by an observer, stationed 3 metres above sea levels, and at a distance of at least 150 metres from the turbine. It is recommended that lighting for this purpose be hooded or baffled so as to	✓		

Issue: OREI RESPONSE	Yes	No	Remarks
avoid unnecessary light pollution or confusion with navigation marks. (Precise dimensions to be determined by the height of lights and necessary range of visibility of the identification numbers)			
iii. For aviation purposes, OREI structures should be marked with hazard warning lighting in accordance with CAA guidance and also with unique identification numbers (with illumination controlled from the site control centre and activated as required) on the upper works of the OREI structure so that aircraft can identify each installation from a height of 500ft (150 metres) above the highest part of the OREI structure.	✓		
iv. Wind Turbine Generators (WTG) shall have high contrast markings (dots or stripes) placed at 10 metre intervals on both sides of the blades to provide SAR helicopter pilots with a hover reference point.	✓		
v. All OREI generators and transmission systems should be equipped with control mechanisms that can be operated from the OREI Central Control Room or through a single contact point.	✓		Remote operating procedure outlined briefly in section 18.
vi. Throughout the design process for an OREI, appropriate assessments and methods for safe shutdown should be established and agreed, through consultation with MCA Navigation safety Branch, Search and rescue Branch and other emergency support services.	✓		Outline procedure indentified
vii. The OREI control mechanisms should allow the Control Room Operator to fix and maintain the position of the WTG blades, nacelles and other appropriate OREI moving parts to configurations determined by the Maritime Rescue Co-ordination Centre (MRCC). This sam operator must be able to immediately effect thye control of offshore substations and export cables.	✓		Basic outline procedure identified,
viii. Nacelle hatches and othe OREI enclosed spaces in which personnel are working should be capable of being opened from the outside. This will allow rescuers (e.g. helicopter winch-man) to gain access to the		✓	Not specifically referenced

Issue: OREI RESPONSE	Yes	No	Remarks
tower if tower occupants are unable to assist and when sea-borne approach is not possible.			
ix. Access ladders, although designed for entry by trained personnel using specialised equipment and procedures for turbine maintenance in calm weather, could conceivably be used, in an emergency situation, to provide refuge on the turbine structure for distressed mariners. This scenario should therefore be considered when identifying the optimum position of such ladders and take into account the prevailing wind, wave and tidal conditions.	✓		To be further developed in ERCOP
x. Although it may not be feasible for mariners in emergency situations to be able to use wave or tidal generators as places of refuge, consideration should nevertheless be given to the provision of appropriate facilities	✓		To be further developed in ERCOP
2. Operational Requirements			
i. The Central Control Room, or mutually agreed single point of contact, should be manned 24 hours a day.	✓		To be further developed in ERCOP
ii. The Central Control Room, or mutually agreed single point of contact, should have a chart indicating the Global Positioning System (GPS) position and unique identification numbers of each of the WTGs in the wind farm, or individual devices in other types of OREI.	✓		To be further developed in ERCOP
iii. All MRCCs will be advised of the contact telephone number of the Central Control Room, or mutually agreed single point of contact.	✓		To be further developed in ERCOP
iv. All MRCCs will have a chart indicating the GPS position and unique identification number of each of the WTGs in all wind farms or all devices in other types of OREI.	✓		To be further developed in ERCOP
v. All search and rescue helicopter bases will be supplied with an accurate chart of all the OREI and their GPS positions.	✓		To be further developed in ERCOP

Issue: OREI RESPONSE	Yes	No	Remarks
vi. The Civil Aviation Authority shall be supplied with accurate GPS positions of all OREI structures for civil aviation navigation charting purposes		✓	To be provided
3. Operational Procedures			
i. Upon receiving a distress call or other emergency alert from a vessel which is concerned about a possible collision with a WTG or is already close to or within the wind farm, or when the MRCC receives a report that persons are in actual or possible danger in or near a wind farm and search and rescue aircraft and/or rescue boats or craft are required to operate over or within the wind farm, the he MRCC/SC will establish the position of the vessel and the identification numbers of any WTGs which are visible to the vessel. This information will be passed immediately to the Centrol Control Room, or single contact point, by the MRCC. A similar procedure will be followed when vessels are close to or within other types of OREI site.	✓		To be developed within ERCOP
ii. The control room operator, or single point of contact, should immediately initiate the shut-down procedure for those WTGs as requested by the MRCC and maintain the WTG in the appropriate shut-down position, again as requested by the MRCC, or as agreed with MCA Navigation Safety Branch or Search and Rescue Branch for that particular installation, until receiving notification from the MRCC that it is safe to restart the WTG.	✓		To be developed within ERCOP
iii. The appropriate procedure to be followed in respect of other OREI types, designs and configurations will be determined by these MCA branches on a case by case basis, in consultation with appropriate stakeholders, during the Scoping and Environmental Impact Assessment processes	✓		To be developed within ERCOP
iv. Communication procedures should be tested satisfactorily at least twice a year. Shutdown and other procedures should be tested as and when mutually agreed with the MCA	✓		To be developed within ERCOP

Sutherland Al (Andrew)

From: [redacted]@DE.defence.gsi.gov.uk]
Sent: 15 September 2011 14:21
To: Sutherland Al (Andrew)
Subject: 20110915-RE: 018/OW/AOWFL - 9: European Offshore Wind Deployment Centre Environmental Statement Request For Comments-U
Attachments: 20110915-MOD response to application-U.pdf; 20100902 - Scoping Response Annex A-U.pdf

Andrew,

With reference to your letter in your email below (12th Sept) I attached the MOD response and accompanying Annex A.

Please let me know if you require further information.

Kind regards.

[redacted]
Senior Safeguarding Officer - Operations
DIO Safeguarding

Defence Infrastructure Organisation
Kingston Road, Sutton Coldfield, West Midlands, B75 7RL

MOD telephone: [redacted] **Telephone:** [redacted] **Fax:** 0121 311 2218
Mobile: [redacted] **Email:** [redacted]@de.mod.uk | **Website:** www.mod.uk/DIO | **Safeguarding Website:** here

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From: Andrew.Sutherland@scotland.gsi.gov.uk [mailto:Andrew.Sutherland@scotland.gsi.gov.uk] **On Behalf Of** MS.MarineLicensing@scotland.gsi.gov.uk
Sent: 12 September 2011 15:58
To: Offshore Safeguarding Mailbox
Subject: 018/OW/AOWFL - 9: European Offshore Wind Deployment Centre Environmental Statement Request For Comments
Importance: High

Dear Sir / Madam,

ELECTRICITY ACT 1989

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000

The Electricity (Applications for Consent) Regulations 1990

MARINE (SCOTLAND) ACT 2010

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, ABERDEEN BAY, ABERDEEN

On 1st August 2011 Aberdeen Offshore Windfarm Limited (the applicant) submitted an application to the Scottish Ministers under Section 36 of the Electricity Act 1989 and under Part 4 Section 20 of the Marine (Scotland) Act 2010 to construct and operate the European Offshore Wind Deployment Centre (EOWDC) at Aberdeen Bay, Aberdeen.

The closing date for any comments you may wish to make on the above proposal is **16th September 2011** in this case. If you are unable to meet this deadline please contact Marine Scotland to arrange an extension. If you have no comments to make please submit a 'nil return' response. A copy of the letter requesting comments is attached below.

Please send any response you wish to submit to ms.marinelicensing@scotland.gsi.gov.uk.

Best regards,

Andrew

Andrew Sutherland

Marine Renewables Licensing Advisor

Marine Scotland – Marine Planning & Policy Division

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http://www.scotland.gov.uk/topics/marine/licensing/marine

<<Defence Estates.doc>>

COMMERCIAL IN CONFIDENCE

MINISTRY OF DEFENCE

Defence Infrastructure Organisation

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Mr Andrew Sutherland
Scottish Government
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

15 September 2011

Your Reference: 018/OW/AOWFL - 9
Our Reference: DE/C/SUT/43/10/1/9064

Dear Mr Sutherland

DE Reference Number: 9064

Site Name: Aberdeen Offshore Wind Farm

Proposal: Application for consent to construct and operate an offshore wind farm, Aberdeen Bay, Aberdeen

Thank you for consulting the Ministry of Defence (MOD) with respect to the above application.

The application is for 11 wind turbines with associated infrastructure. The turbines have a maximum tip height of 195m.

The principal safeguarding concern of the MOD with respect to the development of wind turbines relates to their potential to create a physical obstruction to military operations and air traffic movements, and to cause interference to Air Traffic Control and Air Defence radar installations.

You have previously consulted MOD regarding a scoping request in Sept 2010. At that time MOD identified concerns with the Air Defence radar at Buchan. The MOD response to the scoping request can be found at Annex A.

I can confirm that MOD maintains its position i.e. that the proposed wind farm will cause unacceptable interference to the Air Defence radar at Buchan. Therefore MOD objects to the application.

Air Defence (AD) radar

The turbines will be 26 km from, in line of sight to, and will cause unacceptable interference to the AD radar at Buchan. Trials carried out in 2005 concluded that wind turbines can have detrimental effects on the operation of radar which include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns. The probability of the radar detecting aircraft flying over or in the vicinity of the turbines would be reduced, and the RAF would be unable to provide a full air surveillance service in the area of the proposed wind farm.

Black Dog Firing Range

MOD acknowledges the reference to Black Dog Firing Range made by the applicant in the Environmental Statement (Ch 17, item 17.3.2). MOD will work with the applicant/developer to progress the issue (provisions to allow vessel access) associated with the Black Dog Firing Range. Further consultation will be required between the applicant/developer and MOD regarding the cabling/cable route as the proposed route also affects the firing range.

MOD and the developer have been in meaningful discussions regarding this wind farm project and both parties have agreed to continue to work together with the aim of overcoming the MOD issues.
MOD is aware that the developer is currently investigating potential mitigation solutions to overcome the AD radar issue and would welcome submission of a potential mitigation solution(s). MOD will work with the developer to identify a successful mitigation should a formal proposal be submitted.
If an acceptable mitigation proposal is forthcoming, MOD should be in a position to remove its objection to the Aberdeen Offshore wind farm application.

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

MOD: http://www.mod.uk/DefenceInternet/MicroSite/DIO/WhatWeDo/Operations/ModSafeguarding.htm

Yours sincerely

[redacted]

[redacted]
Senior Safeguarding Officer
Defence Infrastructure Organisation
SAFEGUARDING SOLUTIONS TO DEFENCE NEEDS

Annex A - 20100902 - Scoping Response.pdf - attached to email

MINISTRY OF DEFENCE

[redacted]
Safeguarding Assistant

Safeguarding - Wind Energy
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Mr Andrew Sutherland
Socttish Government
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

Your Reference:
Our Reference: DE/C/SUT/43/10/1/9064

2 September 2010

Dear Mr Sutherland

MOD SAFEGUARDING: – MOD RADAR AND FLIGHT SAFETY WIND ENERGY SAFEGUARDING INTERESTS

Proposal: Scoping Opinion Request For Proposed Section 36 Application

Location: European Offshore Wind Deployment Centre, Aberdeen

Thank you for consulting the Ministry of Defence (MOD) on the scoping request with respect to the above proposal.

The scheme outlined involves the construction of 11 free standing wind turbines with associated infra-structure. The turbines are expected to be 195 metres to blade tip above ground level.

The principal safeguarding concern of the MOD with respect to the development of wind turbines relates to their potential to create a physical obstruction to air traffic movements and cause interference to Air Traffic Control and Air Defence radar installations.

Consultation by the developer at the pre-planning stage has identified the following concerns:

Air Defence (AD) radar

The turbines will be 26 km from; in line of sight to; and will cause unacceptable interference to the AD radar at Buchan. Following trials carried out in 2005, it has been concluded that wind turbines can affect the probability of detection of aircraft flying over or in the vicinity of wind turbines. Due to this, the RAF would be unable to provide a full air surveillance service in the area of the proposed wind farm.

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

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

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

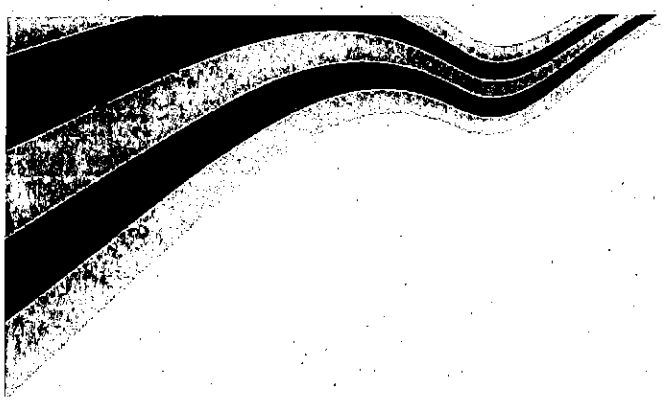
I hope this adequately explains our position on this matter. If you require further information or would like to discuss this matter further please do not hesitate to contact me.

Yours sincerely

[redacted]
Safeguarding Assistant – Wind Energy
Defence Estates

SAFEGUARDING SOLUTIONS TO DEFENCE NEEDS

DEFENCE ESTATES
Delivering Estate Solutions to Defence Needs



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Aberdeen
AB11 9DB

11th August 2011

Your Ref: N/A
Our Ref: W(F)6705

Dear Sir,

Wind Farm: European Offshore - Aberdeen

The proposed development has been examined by our technical and operational safeguarding teams and conflicts with our safeguarding criteria. Accordingly, NATS (En Route) Plc ("NERL") objects to the proposal.
The reasons for NERL's objection are outlined in the attached report W(F)6750.

We would like to take this opportunity to draw your attention to the legal obligation of local authorities to consult NERL before granting planning permission for a wind farm. The obligation to consult arises in respect of certain applications that would affect a technical site operated by or on behalf of NERL (such sites being identified by safeguarding plans that are issued to local planning authorities). In the event that any recommendations made by NERL are not accepted, local authorities are further obliged to notify both NERL and the Civil Aviation Authority ("CAA") of that fact (which may lead to the decision made being subject to review whether by the CAA referring the matter for further scrutiny or by appropriate action being taken in the courts). As this further notification is intended to allow the CAA sufficient time to consider whether further scrutiny is required, we understand that the notification should be provided prior to any granting of permission. You should be aware that a failure to consult NERL, or to take into account NERL's comments when deciding whether to approve a planning application, could cause serious safety risks for air traffic.

If you have any queries regarding this matter you can contact us on the telephone number given at the top of this letter.

Yours faithfully

[redacted]

Sarah Allen [redacted]
Technical Administrator
On behalf of NERL Safeguarding Office

NATS

Engineering and Programmes

Technical & Operational Assessment of Proposed Development at Aberdeen Offshore

Our Reference - N/SFG/W(F)6750

Your Reference - N/A

Publication history

Issue	Month/Year	Change Requests in this issue
Issue 1	August 2011	

Referenced documents

List of documents referenced in this publication, for example:

(1) End-to-End Assessment Methodology - S1/-WI/03
(2) Surveillance Technical Assessment Methodology - S1/-WI/01
(3) Operational Assessment Methodology - S1/-WI/02

Contents

1 Background

NATS En Route Plc ("NERL") is responsible for the safe and expeditious movement in the en-route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility NERL has a comprehensive infrastructure of radars, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a windfarm. In this respect NERL is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to Air Traffic Control (ATC). In order to discharge this responsibility NERL assess the potential impact of every proposed windfarm development in the UK, this document defines the assessment of the potential impact of the proposal as detailed in section 2.

2 Wind-farm Details

The Scottish Government submitted a request for a NERL Assessment for a development at Aberdeen Offshore, Aberdeen Bay, Aberdeen comprising of 11 turbines as detailed below.

Turbine Locations

Designator	Easting	Northing	Hub Height	Tip Height
1	399415	812813	120	195
2	399326	813689	120	195
3	399239	814565	120	195
4	400082	813236	120	195
5	399989	814162	120	195
6	399897	815088	120	195
7	400832	813712	120	195
8	400733	814694	120	195
9	400636	815677	120	195
10	401562	815286	120	195
11	401457	816331	120	195

3 Sites Potentially Effected

The proposed development falls within the operational range of the following **NERL Infrastructure** systems;

Potentially Effected Infrastructure

Radar Site	Easting	Northing	Range (km)	Range (nm)	Bearing (True)	Impact
Alanshill Radar	390220	861480	47.39	25.59	168.08	Slope = No Hgt deg
Great Dun Fell Radar	371030	532210	284.35	153.54	5.46	Slope = No Hgt deg
Perwinnes Radar	392190	813510	7.87	4.25	78.32	Slope = No Hgt deg
Tiree Radar	96820	740140	312.21	168.58	71.99	Slope = No Hgt deg
Nav Aid Site	**Easting**	**Northing**	**Range (km)**	**Range (nm)**	**Bearing (True)**	**Impact**
None						
AGA Comms Site	**Easting**	**Northing**	**Range (km)**	**Range (nm)**	**Bearing (True)**	**Impact**
None						

4 Assessment of Effect on NERL Navigational Aids

No impact on NERL Navigational Aids

5 Assessment of Effect on NERL Air-Ground Voice Communication Systems

No impact on NERL Air-Ground Voice Communication Systems

6 Assessment of Effect on NERL RADAR

6.1 Predicted Effect on Alanshill

The effect on Alanshill has been assessed as negligible.

6.2 Predicted Effect on Great Dun Fell

The effect on Great Dun Fell has been assessed as negligible.

6.3 Predicted Effect on Perwinnes

Using the theory as described in Appendix A and the specific propagation profiles to the turbines it has been determined that at a range of only 7km and with the limited terrain screening available to attenuate the signal, turbines of this size are likely to cause false primary plots to be generated.

Performance of the co-mounted Perwinnes SSR is also expected to be degraded in the airspace directly behind the proposed turbines

6.4 Predicted Effect on Tiree

The effect on Tiree has been assessed as negligible.

6.5 Summary of Potential Effect

The radar safeguarding assessment reveals that the windfarm development is located within an area where there is insufficient terrain shielding from the Primary Radar Service at Alanshill and Perwinnes. Due to the distance from the radar it is anticipated that the reflected power will be of adequate value to be detected by the radar and consequently generate false plots. A reduction in the radar's probability of detection, for real targets, is also expected.

Performance of the co-mounted Perwinnes SSR is also expected to be degraded in the airspace directly behind the proposed turbines

7 OPS Review Process

7.1 Required Reviewers of TOPA and their response

TOPA Responses

Unit or Role	Comment
Aberdeen ATC	**Objection**
RDP Asset Management	No Objection
Prestwick Centre ATC	No Objection

7.2 Output of Windfarm Assessment Group

The WAG recommends that an objection be raised based on the comments of Aberdeen ATC.

8 Conclusions

The proposed development has been examined from a technical and operational safeguarding aspect and conflicts with NATS (En Route) Plc's safeguarding criteria. Accordingly, NERL objects to the proposal.

9 Appendix A – Radar Background Theory

9.1 PSR False Plots

When radar transmits a pulse of energy with a power of Pt the power density, P, at a range of r is given by the equation;

$$P = Gt.Pt/(4\pi.r^2)$$

Where Gt is the gain of the radar's antenna in the direction in question.

If an object at this point in space has a radar cross section of σ, this can be treated as if the object re-radiates the pulse with a gain of σ and therefore the power density of the reflected signal at the radar is given by the equation;

$$Pa = \sigma.P/(4\pi.r^2) = \sigma.Gt.Pt/((4\pi)^2.r^4)$$

The radar's ability to collect this power and feed it to its receiver is a function of its antenna's effective area, Ae, and is given by the equation;

$$\mathrm{Pr} = Pa.Ae = Pa.Gr.\lambda^2/(4.\pi) = \sigma.Gt.Gr.\lambda^2.Pt/((4\pi)^3.r^4)$$

Where Gt is the Radar antenna's receive gain in the direction of the object and λ is the radar's wavelength.

In a real world environment this equation must be augmented to include losses due to a variety of factors both internal to the radar system as well as external losses due to terrain and atmospheric absorption. For simplicity these losses are generally combined in a single variable L.

$$\mathrm{Pr} = \sigma.Gt.Gr.\lambda^2.Pt/((4\pi)^3.r^4.L)$$

9.2 SSR Reflections

When modelling the impact on SSR the probability that an indirect signal reflected from a wind turbine has the signal strength to be confused for a real interrogation or reply can determined from a similar equation;

$$\mathrm{Pr} = \sigma.Gt.Gr.\lambda^2.Pt/((4\pi)^3.rt^2.rr^2.L)\ ]$$

Where rt and rr are the range from radar-to-turbine and turbine-to-aircraft respectively. This equation can be rearranged to give the radius from the turbine within which an aircraft must be for reflections to become a problem.

$$rr = (\lambda^2/(4\pi)^3)^{1/2}.(\sigma.Gt.Gr.Pt/(rt^2.\mathrm{Pr}.L))^{1/2}$$

9.3 Shadowing

When turbines lie directly between a radar and an aircraft not only do they have the potential to absorb, or deflect, enough power such that the signal is of insufficient level to be detected on arrival it is also possible that azimuth determination, whether this done via sliding window or monopulse, can be distorted giving rise to inaccurate position reporting.

9.4 Terrain and Propagation Modelling

All terrain and propagation modelling is carried out by a software tool called ICS Telecom (version 6.99). All calculations of propagation losses are carried out with ICS Telecom configured to use the ITU-R 526 propagation model.

10 Appendix B – Diagrams

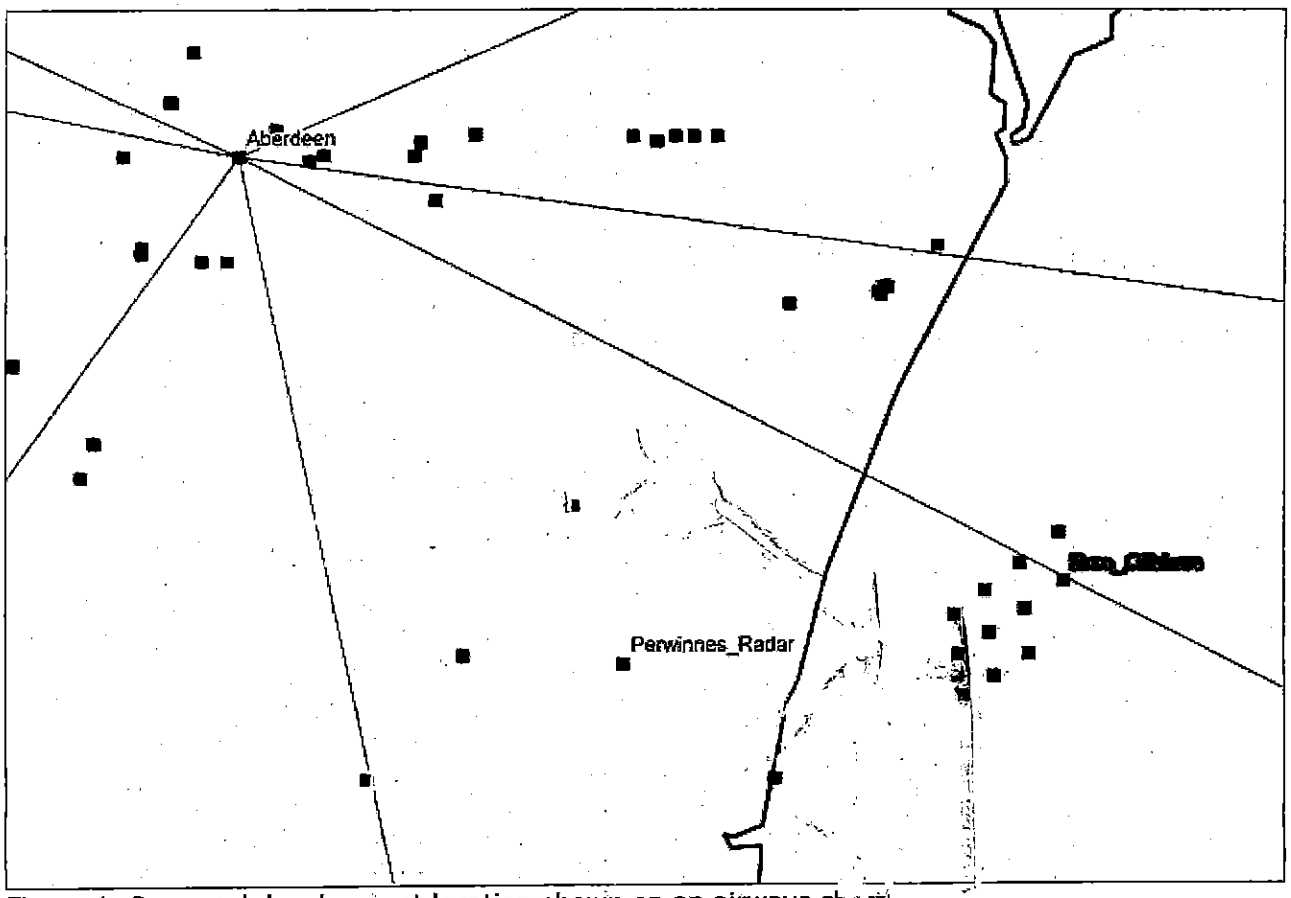


Figure 1: Proposed development location shown on an airways chart

Northern Lighthouse Board

CAPTAIN PHILLIP DAY
DIRECTOR OF MARINE OPERATIONS

84 George Street
Edinburgh EH2 3DA
Switchboard: 0131 473 3100
Fax: 0131 220 2093
Website: www.nlb.org.uk
Email: enquiries@nlb.org.uk

FAO: Mr Andrew Sutherland – Licensing Advisor

Dear Andrew

Your Ref: 018/OW/AOWFL - 9
Our Ref: AJ/OPS/CPA/O6_03_083

Marine Renewables Licensing
Marine Scotland – Marine Planning and Policy Division
Scottish Government
Marine Laboratory
PO Box 101
375 Victoria Road
ABERDEEN
AB11 9DB

24 August 2011

Electricity Act 1989 and Marine (Scotland) Act 2010 – Part 4.

Thank you for your letter dated 03 August advising of the application by **Aberdeen Offshore Windfarm Limited** to construct and operate the European Offshore Wind Development Centre

We can confirm that we are in receipt of correspondence dated 01 August 2011 from **Aberdeen Offshore Windfarm Limited** including technical documentation supporting the application for a Marine Licence regarding the European Offshore Wind Development Centre within Aberdeen Bay.

We note the intention to construct 11 support bases of varying design, construction and materials in order that testing may be carried out on prototype wind energy conversion devices of varying size and generating capacity.

With regard to the consultation and the scope of the Environmental Statement, we would only comment on any part relating to Shipping and Navigational Safety contained within the supporting documentation, particularly the Navigational Risk Assessment contained within Volume 4.

Installation Phase

We would require 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.

Noting that the installation phase of the 11 bases is as yet undecided and that the options of a 2 year phased construction or a single phase installation over one year has still to be confirmed, we would require that the development area be charted as a quadrilateral (diamond) shaped area and marked with an appropriate lit cardinal mark buoy at each corner, prior to any installation work. The buoyage should be of suitable construction and be capable of surviving in the sea conditions commonly experienced

over the winter period; and should have a minimum diameter of 2.5 metres, a minimum light focal plane of 3 metres, a minimum light range of 4 nautical miles, and be fitted with a radar reflector.

The buoys should remain on station until the installation phase is complete and the marking appropriate to the operational phase has been commissioned.

We would recommend that the prescribed buoy station pattern should be deployed at the edge of the 250m radius from the nearest SPS base centre to the buoy station mooring. Typically 250m south of A1 for the South Cardinal buoy, 250m west of A3 for the West Cardinal buoy etc. The buoys should be repositioned towards the associated turbine base, as near to the operational safety zone limit (50m), and as soon as practicably possible after construction of the base is completed in order to reduce the impact on marine traffic routeing.

Operational Phase

Once installed, the turbines should be marked in accordance with IALA Recommendation O-139 on The Marking of Man-Made Offshore Structures as follows:

a) The tower of each wind generator should be painted yellow all round from the level of Highest Astronomical Tide (HAT) to 15 metres or the height of the Aid to Navigation, if fitted, whichever is greater.
b) Towers 1,3,7,10 & 11 are designated as Significant Peripheral Structures. These should be fitted with lights visible from all directions in the horizontal plane. These lights should flash yellow once every 5 seconds, with a range of 5 nautical miles (2 nautical miles on Tower 3). All lights on these structures should be synchronised. These lights should comply with IALA recommendations and have an availability of not less than 99.8% (IALA Category 1), calculated over a rolling 3 year period. Given the proximity to the shore, lights exhibited on SPS towers 1,7,10 & 11 may have the nominal range reduced to 2 miles in the direction of the shore with applicable arcs to be agreed when final plans are produced.
c) Towers 2,4,6 & 9 are designated as Peripheral Structures. These should be fitted with lights visible from all directions in the horizontal plane. These lights should flash yellow once every 10 seconds, with a range of 2 nautical miles. All lights on these structures should be synchronised. These lights should comply with IALA recommendations and have an availability of not less than 99.0% (IALA Category 2), calculated over a rolling 3 year period.
d) All navigation lights should be mounted below the lowest point of the arc of the rotor blades. They should be exhibited at a height of at least 6 metres above HAT.
e) Towers 7 & 11 should also be fitted with synchronised sound signals with a nominal range of two nautical miles, placed not less than 6 metres and not more than 30 metres above MHWS. The character should be rhythmic blasts corresponding to morse letter 'U' every 30 seconds. The minimum duration of the short blast shall be 0.75 seconds and the sound signal should be operated when the meteorological visibility is two nautical miles or less. The sound

signal should comply with IALA recommendations and have an availability of not less than 99.0% (IALA Category 2), calculated over a rolling 3 year period.

f) Each structure shall display identification panels with black letters or numbers 1 metre high on a yellow background visible in all directions. These panels shall be easily visible in daylight as well as at night, either by the use of illumination or retro-reflecting material.

a) Aviation lighting should be fitted as required by the Civil Aviation Authority.

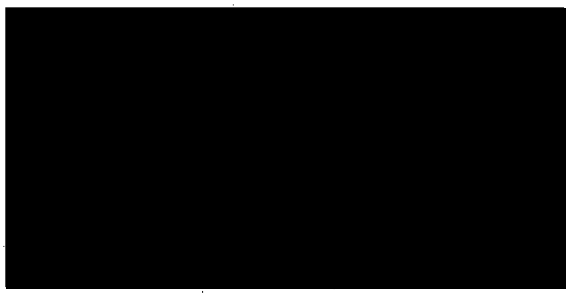
We note this is a demonstration and test site, and that various turbine designs may be assessed on different foundation types. We would therefore require that the permanent Aids to Navigation as prescribed above should remain exhibited and unaffected throughout any such change over.

We would require that the installation procedure, timescale and methodology, once finalised should be communicated to the Northern Lighthouse Board in order that we can review our recommendations and amend should it be necessary. We would likewise require information on the selected cable route(s) and landing site(s) as marking and lighting of the beach crossing(s) may also be required.

We would also welcome and encourage engagement with the Marine Safety Group, Fishing Associations, the Oil Industry, the Civil Aviation Authority and the Harbour Board in order to work together to minimise the cumulative impact of site development in the vicinity.

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.

Please advise if we can be of any further assistance, or require clarification any of the above.



Sutherland Al (Andrew)

From: [redacted]@ryascotland.org.uk]
Sent: 12 August 2011 11:15
To: MS Marine Licensing
Subject: Construction and Operation of an Offshore Windfarm at Aberdeen Bay, Aberdeen
Follow Up Flag: Follow up
Flag Status: Red

Dear Mr Sutherland

Your Ref – 018/OW/AOWFL-9

I wtrite to inform you that RYA Scotland has no objections to this application.

Kind Regards

[redacted]
RYA Scotland
[redacted]@ryascotland.org.uk
www.ryascotland.org.uk
Tel: 0131 317 7388

RSPB nature's voice

RSPB SCOTLAND

Andrew Sutherland
Marine Renewables Licensing Adviser
Marine Planning & Policy Division
Marine Scotland, Scottish Government
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen AB11 9DB

31 October 2011

Dear Andrew,

European Offshore Wind Deployment Centre (EOWDC)

RSPB Scotland has received the consultation documents for the application for consent for the European Offshore Wind Deployment Centre. We have the following comments to make on the application.

Summary

RSPB Scotland has considered the likely ornithological impacts arising from the proposed development. We have borne in mind the dual purpose of the project: to generate renewable energy, something we support when located in appropriate places, as well as its stated intent to act as a test centre which could benefit the design of future proposals. We have based our assessment on the information presented by the Applicants, having due regard to the many assumptions used in the risk assessment methods in the Environmental Statement (ES) and also on information (usually anecdotal) coming from other offshore wind farms.

RSPB Scotland **objects** to the EOWDC application as presented, though we believe it is possible that our concerns could be addressed in such a manner that this objection could be withdrawn. Our objection is on the following grounds:

1. The calculations of bird collision estimates do not follow standard methodologies and would appear to be based on an inappropriate method. If so, only limited reliance can be placed on the stated predictions and the impact of the development proposals on birds is uncertain.

East Scotland
Regional Office
10 Albyn Terrace
Aberdeen
AB10 1YP

Tel 01224 624824
Fax 01767 685571

www.rspb.org.uk/scotland

BirdLife International

2. Notwithstanding the above concern, there are potentially significant impacts predicted on several bird species using Aberdeen Bay. The ES assesses the impacts on each to be of a certain magnitude. However, all of these assessments are based on incomplete survey data, as acknowledged in the ES. We believe that it is necessary to make the assessments on the basis of the full set of boat transect survey information derived over a two-year period. This has not been done, though the necessary further data have in theory been collected in 2011. On numerous, previous occasions we have made clear that the survey period must meet minimum agreed standards and that the application should not be submitted in advance of this. However, this is exactly what has happened. We recommend strongly therefore, that no decision on this application should be made until minimum data standards and assessments have been met. This is especially important since the project has been developed as a test centre and recommended best practice for environmental surveys should be followed as a minimum.

3. The full raw data collected in previous surveys have not been provided. Although, for example, there are maps showing bird distributions, the count data underpinning them are not given in any of the documents provided. This makes it impossible to properly check the assessments made. This should be rectified.

4. Finally, we believe that there is not a strong enough commitment given towards a full and proper programme of scientific monitoring of environmental (and biodiversity) issues associated with the wind deployment centre. It is crucial that this is made more explicit, since this proposal is for a leading offshore wind test centre, and such matters should be at the heart of the application, rather than as matters to be determined later. In our view, there should be a scientific group established to develop an agreed research and monitoring programme that allows the centre to lead on the most pressing research questions that need to be addressed.

If the matters above were to be satisfactorily addressed, then RSPB Scotland would be prepared to remove its objection. Subject to further review of the extra survey information, we believe that it is inevitable that some adverse impacts on birds using Aberdeen Bay will arise. Such impacts would be of uncertain magnitude and would be offset only to a limited degree by any positive impacts, such as improved feeding resources arising due to possible 'reef effects' on and between turbines. We acknowledge that the reduced scale of this proposal and the amended layout have helped reduce potential adverse environmental impacts, compared to earlier iterations. These changes have, at least in part, been made in response to concerns raised by ourselves and others about potential impacts on birds and nearby designated sites.

Although *most* negative effects on birds are likely to be small, we highlight *some* potentially larger impacts, mostly identified in the ES, and until the full survey information is collected, analysed and made available, we are not reassured that impacts on *all* species of concern will be low.

We also suggest a number of measures in mitigation which we would wish to see addressed by means of conditions.

RSPB Scotland

RSPB Scotland is part of the RSPB, a registered charity incorporated by Royal Charter, and is Europe's largest voluntary conservation organisation, with a membership of more than 88,000 in Scotland. In the UK, the organisation has over one million members. The principal objective of the RSPB is the conservation of wild birds and their habitats. RSPB Scotland manages 75 nature reserves, covering an area in excess of 67,000 hectares.

The RSPB supports the development of renewable energy projects, including wind power, provided such developments are designed and sited sensitively, especially in relation to high conservation priority species and habitats.

RSPB Scotland's appraisal of this application

Though not acknowledged in the ES, RSPB Scotland has had considerable involvement in discussions over the development of this project since its inception in 2003. While we recognise that the development group has been responsive to issues raised by RSPB Scotland and has adapted the proposals accordingly, we are still concerned that some necessary survey effort is incomplete, leading to information gaps. Our main concern is that the recommended two-year survey period has not yet been completed and only five boat-based transects cover the site, which lies too far from shore for effective land-based Vantage Point watches. Four short periods of radar surveillance are the only other relevant bird activity monitoring for this area. Therefore, the turbine zone itself has received relatively poor ornithological survey coverage. It is a pity that opportunities were not taken to position observers on vessels anchored close to the site (as recommended by RSPB) to increase observation effort. We also note that most of the raw data collected (especially full details of species counts) have not been presented or systematically summarised in detail. These issues form the basis of our objection to the application as submitted.

We have considered the ornithological impacts likely to arise from the proposed development, using information presented in the ES and assessing it against our knowledge of offshore windfarm developments elsewhere. Little published information is available yet from constructed wind farms at sea and we have had to supplement this with anecdotal reports and conclusions, suitably modified, drawn from terrestrial wind farms.

It is inevitable that some adverse impacts on birds will arise as a result of this development. Parts of the sea-bed, the water column and the air above will be occupied by structures and thus

made unavailable to birds and disturbance, both during construction and operation of the wind farm, is unavoidable. It is possible that adverse impacts, after mitigation, will be of such a level that consent to develop should not be refused. However, we believe the information presented so far does not yet allow this conclusion to be reached. We highlight below those species and issues giving rise to concern and would wish to review the further information and analysis following completion of the remaining boat surveys. We also suggest mitigation which should be ensured by condition should Marine Scotland be minded to consent.

Species and issues potentially of most concern in relation to this proposed development:

- Disturbance to common and velvet scoters, and eiders, especially during construction and servicing of the development.
- Displacement of red-throated divers, during construction and as a result of turbine presence. The scale of this is likely to be high; we believe evidence from all sources suggests numbers in Aberdeen Bay are nearer the peak levels recorded in the survey work than the averages calculated from samples. Numbers are regularly higher than 1% of the Great Britain winter population estimate. Further boat survey data would assist in refining this assessment.
- Collision risk to herring gulls and possibly also other gull species.
- Collision risk to little, Sandwich and common terns – these impacts are identified as being possibly of moderate significance.

The first of these issues could be substantially mitigated by compliance with a well-designed vessel movement and construction plan, since these birds are found mainly well inshore of the turbine zone. Other impacts are difficult to mitigate and likely to be permanent. It is possible that changes to food supply within the turbine zone - through cessation of fishing or a "reef effect" created by turbine bases - could encourage greater use of the inter-turbine area by feeding terns, but this is uncertain and may in turn increase collision risk.

There are also likely to be overall, though probably small, negative impacts on a range of seabirds using the area (gannet, kittiwake, and three auk species), principally through displacement but also collision risk in some cases. These potential effects are compounded by the unknown influence of bad weather events, and especially, over time, the potential cumulative impacts arising from other renewable developments as they are constructed.

Suggested mitigation and other measures

We recommend that consent for this development should not be granted until the final necessary information and assessment are made fully available.

If consent is granted for this development, there are issues that should be addressed through conditions, and other actions that should be carried out by the EOWDC under its remit as a research centre.

RSPB Scotland recommends that conditions be attached to any consent requiring that:

1. Boat traffic and disturbance on the landward side of the wind farm is minimised using management plans for vessel movements, timing and activity. These should be agreed by the Applicant with Marine Scotland, SNH and other appropriate parties before any development commences. RSPB Scotland would be keen to comment on these.
   Reason: to reduce potential impacts on scoters and eiders, especially when moulting.

2. Turbine construction and servicing should be undertaken according to a plan to be agreed by the Applicant with Marine Scotland, SNH and such other parties as may be appropriate before the commencement of any development. The Plan will specify temporal and spatial restrictions on particular types of activity.
   Reason: to minimise disturbance to scoters, eiders and divers, allowing for work to be undertaken at different parts of the site during different summer months.

3. Turbine lighting is to be kept to the legal safety minimum, to be agreed by the Applicant with Marine Scotland, SNH and such other parties as may be appropriate before the commencement of any development.
   Reason: to reduce the attraction of the development to birds and potential collisions.

4. A programme for environmental research and monitoring (including bird collisions, which may include testing of novel methodologies and technology), is to be agreed by the Applicant with Marine Scotland, SNH and such other parties as may be appropriate before the commencement of any development. Thresholds of acceptable collision rates are to be established and, should a higher level occur for any species, reduction by turbine shutdown or other methods should be carried out, all as part of the remit of the centre to test mitigation methods. RSPB Scotland would be happy to comment on the development of such a programme.
   Reason: to inform judgements on the acceptability of other offshore, windfarm proposals and ensure that methods of mitigating collision risk are effective.

The following measure should be carried out before any consent is issued, as part of the remit of the centre (funded in part by the European Union) as a test-bed for offshore wind technology and assessing its environmental impacts:

5. A well-designed and comprehensive research and monitoring programme is to be developed that is innovative and inclusive. This will include proper monitoring, using novel technologies to ensure that knowledge is advanced in the areas of:

- Methods of detecting and monitoring bird collisions in a marine environment
- Deterrent methods to prevent bird collisions
- Methods of turbine shutdown at times of high bird movements

- Behaviour of birds in relation to turbines, especially during periods of bad weather
- Impacts of turbines on benthic ecosystems and food chains
- The use of the turbine envelope for feeding by birds
- A facility for bird observers in the offshore laboratory should be considered
- Tracking of movements of birds from nearby colonies is to be funded.

Improved knowledge of these issues is imperative, not only to inform decisions on the potential impacts of other, larger offshore developments, but also because better information on these issues is required before any possible application for an extension to this site is proposed. We believe strongly that a detailed monitoring and research programme is an integral part of the underlying philosophy of this test centre, and is necessary to discharge elements of the European funding package. RSPB Scotland would be happy to become involved in discussions over how these aspects could be taken forward.

We provide some detailed comments on various aspects of the Environmental Assessment in Annex 1.

Yours sincerely,

[redacted]

[redacted]
Area Manager, North-East Scotland

Annex 1. European Offshore Wind Deployment Centre - detailed comments by RSPB Scotland

Chapter 1. Introduction

The key element of this project, by which it differs from other offshore windfarm applications, is that it is conceived as a test centre for a range of technologies and issues. We believe therefore that a major element of this should be examination of environmental (including ornithological) impacts, and a sum within the European funding is, indeed, set aside for this. We note the following statements in the ES:

Paragraph 27. Environmental monitoring would provide stakeholders with information on associated environmental impacts prior to large scale deployments ie Scottish Territorial Waters or Round 3. Via the EU grant, a proposal has been made to allocate in excess of £2.7 million, funded jointly by the Applicant and the EU to environmental studies over the project lifetime including the ***development of environmental research with external partners****. Details of exact activities, and confirmation of EU matched funding, will be achieved as research proposals and requirements are received and selected.*

Paragraph 31.The Applicant will shortly embark on an exercise to scope out the potential ***environmental research opportunities*** *for the site and will encourage input from interested parties including statutory nature conservation agencies and research organisations and external Consultants working in the offshore wind sector.*

We have emphasised text **in bold** above, and believe that these matters are crucial. RSPB Scotland would be happy to be involved in this, and would suggest adding the works "and environmental NGOs" into paragraph 31. We recommend that Marine Scotland works with the Applicant to ensure the best possible research and monitoring programme is developed.

Data Gaps

Paragraph 40. The Applicant acknowledges that there is still a requirement from statutory bodies for further bird and marine mammal boat-based survey data. AOWFL contracted further monthly boat-based surveys which started in August 2010 and which will run until July 2011. Four months of this survey data has been analysed and is included in the bird and marine mammal impact assessments within this ES. The remaining eight months of data will be analysed and submitted to Marine Scotland as an Addendum to this Environmental Statement as soon as practicable.

This is an important point. Information obtained through the survey work which is currently underway in 2011 should not be set aside but should be issued for public consultation as soon as it is available. RSPB Scotland has repeatedly made the point that such work was needed and is disappointed that the application has been submitted without it. There has been more than adequate time for this to have happened.

Chapter 3. Description of the project

We note the following comment about turbine lighting:

Paragraph 49. (The wind turbines will be)... permanently lit by down-lights to minimize light pollution. As an alternative to permanent down-lights the option of Light Emitting Diodes (LEDs) to mark the identification characters is included.

Various requirements are then specified. It would be helpful if more information on the power of lighting to be used was provided, together with an assessment, with justifications, as to whether this is likely to attract birds. There should be experience on this matter from existing offshore wind farm sites.

We also note the following comment on the maintenance schedule by servicing vessels:

Paragraph 222 Maintenance of the wind farm is normally separated into three different categories:

- *physical periodic inspections*
- *scheduled maintenance*
- *un-scheduled maintenance*

It would be useful for more information to be provided on the routes to be used by servicing vessels and the total number of vessel movements. It is important to minimise disturbance to any area inshore of the turbines, as this is the main feeding zone for thousands of scoters and eiders.

Section 3.13. Wind farm decommissioning.

There appears to be no mention of a decommissioning or restoration bond, should the development consortium go into liquidation. Marine Scotland should consider whether this might be necessary.

Chapter 8 and Appendix 8.2. Coastal processes

Although some potential impacts are identified related to suspended sediment deposition and re-suspension (considered to be of minor significance), it is not possible to say how such changes may affect birds through impacts on food resources on the sea bed. Therefore, we have no comments to make on this, and accept the conclusions presented.

Chapter 9 and Appendices 9.1 and 9.2. Marine Ecology

Although we do not dispute the conclusions of these sections in terms of the projected impacts on those aspects considered, it is surprising that there is no consideration of potential effects on the invertebrate food of birds present in Aberdeen Bay. Divers, scoters and eiders, in particular, can all feed on animals that depend on the local substrate, and some seabirds on small fish that breed there. Theoretically, then, negative impacts could occur, as well as positive ones due to the 'reef effect' already mentioned, which could improve local food supplies. This issue is hardly mentioned in the Ornithology sections, so appears to have not been fully considered in this EIA.

Chapter 10.1 and Appendix 10.1. Ornithology baseline and impact assessment

Chapter 10 – Environmental Statement - Ornithology.

Section 10.3.2. Designated sites
Paragraph 26. Initial results of the RSPB's FAME project indicate that several species (or individuals of those species) travel much further on feeding trips than expected. However, it is still likely that most birds come from SPAs relatively nearby and that is where we are most likely to see a population-level impact. We concur that 74kms N and 134 kms S is an acceptable cut-off.

Assessment of cumulative impacts
Paragraph 39. In conducting an HRA of impacts of proposals on a Natura site, for some species there is no reason to confine consideration to marine activities. For potential impacts on geese or gulls, for example, onshore wind farms close by are also relevant.

10.4. Baseline assessment.
It is important to make clear in this section that the numbers recorded by surveys associated with this development do not necessarily reflect their true abundance. For example, this is acknowledged for common scoter, where the surveyed peak number was only around a third of the totals recorded through other sources (and local birdwatchers are well aware that there are far more present in the area than this). However, it is not acknowledged for red-throated diver, where, for example, 25 birds in the EOWDC area is a very low total compared to their likely true abundance in that zone. The records from local ornithologists tabulated below suggest that the bay often holds several hundred birds (nearer the almost 700 peak recorded in boat transect surveys).

Although the methods state that North-East Scotland Bird Reports were consulted, there appear to be relevant recent records not taken into account. Some examples are given below:

Counts by local ornithologists of selected species 2006-2010 (NE Scotland Bird Records):

Eider	All counts over 1500	
4200	Blackdog	10/08/2010
3200	Blackdog	27/07/2010
2800	Blackdog	18/09/2010
2600	Blackdog	25/07/2009
2550	Blackdog	31/07/2006
2400	Blackdog	20/08/2008
2300	Blackdog	19/09/2008
2300	Blackdog	14/09/2009
2300	Ythan mouth	16/05/2010
2230	Ythan mouth	20/10/2009
1900	Blackdog	25/07/2007
1900	Blackdog	05/10/2008
1900	Blackdog	17/10/2009
1800	Blackdog	30/08/2007
1750	Blackdog	19/06/2009
1700	Blackdog	09/08/2009
1621	Dornouth to Blackdog	26/07/2006

Common Scoter	All counts 1500 and over	
3300	Blackdog	12/08/2010
2800	Blackdog Rifle Range	29/07/2010
2400	off Murcar Beach	30/07/2010
2300	Blackdog	29/06/2007
2150	Blackdog	31/08/2008
2000	Blackdog	23/06/2007
1950	Blackdog	26/07/2007
1800	Blackdog	21/08/2007
1750	Blackdog	03/07/2010
1700	Blackdog	17/07/2006
1700	Sea off Blackdog	15/06/2008
1650	Blackdog	27/06/2009
1600	Blackdog	27/06/2008
1600	Blackdog	03/07/2009
1500	Blackdog	08/08/2006
1500	Blackdog	04/09/2010
1500	Sea off Blackdog	22/08/2010

Red-throated Diver	All counts over 50	
262	Blackdog	03/05/2009
240	Foveran Links	05/11/2010
155	Blackdog	19/05/2006
141	Blackdog	13/05/2006
131	BALMEDIE-YTHAN	18/09/2009
131	Blackdog	27/11/2010
125	Blackdog	10/05/2006
96	Balmedie Beach	29/01/2006
85	Blackdog	05/12/2010
84	Girdleness	23/09/2006
81	BALMEDIE TO YTHAN	21/02/2009
77	Blackdog	07/06/2008
75	Blackdog	20/05/2007
74	Foveran Links	04/05/2010
72	Blackdog	18/04/2009
70	Blackdog-Donmouth	06/05/2006
66	Blackdog	10/05/2008
65	BALMEDIE-YTHAN	07/10/2010
65	Ythan mouth	14/10/2009
63	Blackdog	21/02/2010
60	Blackdog	24/10/2010
53	Donmouth	04/05/2007
51	BALMEDIE-YTHAN	17/10/2008

Herring Gull	All counts 500 and over	
1800	BALMEDIE-YTHAN	21/08/2009
1794	BALMEDIE TO YTHAN	16/04/2009
1150	Blackdog	13/09/2007
1100	Blackdog	19/09/2006
1100	Blackdog beach	06/06/2009
1050	Blackdog	30/08/2007
1000	Blackdog - beach	20/09/2008
998	BALMEDIE TO YTHAN	24/06/2008
994	GIRDLENESS	17/04/2009
940	Ythan mouth	17/09/2009
920	BALMEDIE TO YTHAN	14/06/2006
750	Blackdog	07/06/2006
700	Blackdog - beach	31/05/2008
600	Blackdog	27/05/2006
600	Ythan mouth	03/10/2009
595	GIRDLENESS	21/06/2008
550	Blackdog	03/06/2006
500	Blackdog	09/06/2007
500	Blackdog - beach	30/09/2008
500	Blackdog beach	24/05/2009

These counts reinforce the continued high levels of use of Aberdeen Bay by these species in the period since the EOWDC vantage point watches ceased. They also suggest, especially for red-throated divers, that given the limited view available from any single shore watch point, these totals are themselves underestimates of the true numbers of birds present in the whole bay area.

This section of the ES should include a full data table that sets out the details of counts recorded by all fieldwork activity undertaken by EOWDC for this project. There appears to be no presentation of the raw count data anywhere in the ES; instead, various totals are referred to and used for various purposes, or mapped in categories for each species. It is impossible to assess quantitatively, from the data given, what was actually recorded over the years by survey work.

Table 10.3. The proposed monitoring of collision and barrier effects – land-based surveys at 2kms + range would seem unlikely to be effective given difficulties of detection and correct identification.

Appendix 10.1. Ornithological Baseline and Impact Assessment

P.8-9 Assessment of cumulative impacts. Recreational activity and fishing should also be considered in this assessment.
P.9 Final paragraph – fishing should also be included here.
P.10 Monitoring of little tern use of the area round Scroby Sands windfarm, Norfolk, revealed a complex picture that suggests the conclusions here are simplistic.
Table 2.2 Skov et al. (1995) is not included in references.
P.24 1st paragraph. The use of radar to monitor goose movements did not start until 24 Apr 2010 by which time most major goose movements would have been over.
Table 2.6. The absence of a figure for radar running time at Blackdog on 11 April is unexplained. This information should be provided.
P.28. Construction phase. Although this is indeed likely to be of relatively short duration, as this is to be a test site there could be other phases of device removal and deployment making impacts of more than short duration.
P.41. 3.6 Fishing and recreation should be included here.
Table 3-14 The Moray Firth Eastern Development will be 200 turbines, not 67.
Table 3-16. We consider that the evidence suggests the significance of collision risk impact for gulls could be higher than stated here – see comments on Herring Gull below and tabulated data above.

Species assessments
We comment here on selected species. For any species not included, it can be taken that we accept the content of the assessments.

Page 54. 4.2. Pink-footed goose. While we do not dispute the method used to assess this species, including the collision risk assessment (and we welcome the conservative approach adopted), it is worth stressing that the model is based on those observations made as part of this study. Goose movements are episodic and there is a strong likelihood that at times larger numbers could move through this area than were recorded. This is supported by records from North-East Scotland birdwatchers over many years. Movements at times of bad weather or at night were not assessed, except by radar. It is also necessary to include, in the cumulative assessment, onshore windfarms in the area, some of which have significant potential mortality – only offshore sites have been considered in the ES. We accept, though, that given the limited footprint of this site, the overall impact on this species through collisions is likely to be low.

Page 65. 4.4. Barnacle goose. As with pink-footed goose, not only are movements over time episodic and unpredictable, so are flight heights and distance from shore, depending on weather conditions. It is important to note that, with unpredictable events, the risk of geese actually flying through the turbine envelope could at times be higher than recorded in the sample surveys here. The potential combination of impacts here with onshore wind turbines should also be considered. Nonetheless, we accept that population level impacts are likely to be very small.

Page 83. 4.9. Eider. We accept that the turbine zone is located sufficiently distant from shore to present little collision risk, given the nature of this species and its movements and behaviour. However, the displacement and disturbance issue could be significant, and information is insufficient to be certain that usage of the favoured areas off Murcar and Blackdog will not be adversely affected. It is important, therefore, that a construction plan and vessel movement schedule is developed to reduce disturbance from these elements of the project. This implies that most work on the turbines nearest the shore should be undertaken in May and early June (to be consistent with impacts on scoters (below)). Evidence from elsewhere suggests that an operating windfarm c.2km from the favoured feeding areas is unlikely to deter eiders, but the boat movements and construction/servicing activity are more critical.

Page 100. 4.11. Common scoter. This species is clearly of high significance within Aberdeen Bay (see recent totals from NESBR tabulated above), and usage was underestimated by the boat-based surveys. As with eider, our concerns relate mostly to potential displacement and disturbance, rather than collision, especially since common scoters are found further out to sea than eiders (as confirmed in this species account). Their general flight height suggests low collision risk under most conditions. We accept the evidence from elsewhere in Europe that they can adapt to feeding in the presence of operating turbines, but they are also sensitive to boat-based disturbance. As for eider, it is important that a careful plan to minimise disturbance due to construction and maintenance is prepared and followed, with activity planned to coincide with periods of lowest use for both species (centred on May).

Page 112. 4.12. Velvet scoter. Aberdeen Bay is a significant area for this species. The comments for common scoter above also apply to velvet scoter.

Page 126. 5.15. Red-throated diver. Despite lower numbers since the 1980s, Aberdeen Bay is likely still to be of national significance for this species, with numbers often well over 1% of the population level for Great Britain (170 birds). Records since 2007 (the latest date shown in Figure 4.28) are tabulated above (under 10.4, Baseline Assessment). The numbers estimated to be using the EOWDC survey area (55-93 birds) are likely to be underestimates in the light of the NESBR figures presented above, and especially given the almost 700 recorded to the north in the boat transect survey work as recently as November 2010. Divers move frequently between feeding areas and their use of sea areas depends on sea conditions. Their use of favoured areas both south and north of the turbine zone suggests that at times flight through, or usage of, the EOWDC area will be at higher levels. In addition, we doubt the ability of radar to identify to species level, which affects some of the conclusions in the account.

However, the key question is what impact the turbines may have. We accept that flight height data from other sites suggest low collision risk at sea. The issue of disturbance through construction and servicing of the site could be minimised through a suitable plan that focused such activity during the June to August period (n.b. this should be co-ordinated with activity designed to minimise disturbance to scoters and eiders, which suggests working on the most coastal turbines in May, moving to the outer turbines later in the summer). This assumes that the preferred period for offshore turbine construction and servicing is during the summer. Finally, significant potential displacement of red-throated divers is predicted. This appears impossible to prevent and is the single most significant potential impact of this development. However, there is probably sufficient capacity in more preferred feeding areas to the north (towards the mouth of the Ythan) to absorb some, at least, of these displaced birds. It is necessary that more robust conclusions on this species are reached using the additional survey data gained during 2011.

Page 150. 4.17. Gannet. The main issue for this species is that of potential collision risk, as acknowledged in the species account. We have no reliable evidence on the likely population level impact as the collision risk assessment is unreliable. However, improving knowledge of the foraging distances of gannets from many SPAs suggests all offshore wind farm sites may affect birds from almost any colony; we do not, for instance, find it unlikely that gannets from Fair Isle would pass through Aberdeen Bay. We consider that the cumulative impact of the many proposed wind farms around Scotland, together with those elsewhere in European waters (which might affect birds dispersing from Scottish colonies) is likely to be of growing significance.

Page 189. 4.25. Kittiwake. Cumulative collision risk is also likely to be a growing issue for this species and, again, we have no reliable evidence on the likely population level impact as the collision risk assessment is unreliable. The overall population trend of this species is downwards, and the potential impact of any turbine collisions is likely to become more important..

Page 213. 4.29. Herring gull. Although abundant within Aberdeen Bay, numbers of this species are declining nationally and it is now red-listed in Birds of Conservation Concern. As stated, the main issue is that of collision risk but we have no reliable evidence on the likely population level impact as the collision risk assessment is unreliable. We note the putative adverse impacts on the Fowlsheugh SPA, if all the projected collisions were of birds from there. Previous presentations of the results of the radar studies showed large numbers of gulls moving, including at night and in adverse weather. This suggests that the collision risk assessment (even as presented) of 'moderate' may be too low. In addition, the recent NESBR counts tabulated above show many counts larger than the peak counts made in Figure 4-80. Whilst accepting that the NESBR counts are made closer to shore, they indicate to us that herring gull use of Aberdeen Bay is likely to be at a higher level than assessed in the ES. The cumulative impacts together with other possible developments should include onshore wind turbines, since there are several proposed for areas close to the Buchan Ness to Collieston Coast SPA which potentially may cause further collision mortality.

Page 224. 4.31, 4.32, 4.33 and 4.34. Little, Sandwich, common and Arctic Terns. These species are all likely to be affected principally through collision risk but, again, we have no reliable evidence on the likely population level impact as the collision risk assessment is unreliable. Changes to food resources resulting from the proposed development could be negative or positive. The main mitigating factors appear to be the distance of the EOWDC site from the main nesting colony at Sands of Forvie, and the fact that migrating and foraging terns appear to favour areas within 2-3km of the shore. However, as noted, evidence from other European sites suggests a relatively high risk of terns <u>not</u> being deterred from turbines, passing through them frequently, and colliding due to a high number of transits, despite avoidance. The post-construction monitoring of little tern use of the area round Scroby Sands wind farm, Norfolk, showed a complex picture related to changes in the benthic environment, food resources and onshore influences on the terns. There was evidence of some increased opportunity for feeding within the turbine zone, and terns did fly within it. However, there was insufficient monitoring of any collisions that might have occurred, so the interaction between these two factors was unclear. Such complexity is also likely here.

Page 244. 4.35, 4.36, 4.37 and 4.38. Guillemot, razorbill and puffin. We accept that collision risk is very low for these three species as they fly primarily at below rotor height. We note, however, the potentially quite high displacement and barrier effects, and the uncertainty associated with these. Guillemots, razorbills and puffins are all common and widespread birds in Aberdeen Bay and many originate from nearby SPAs, as noted in the species accounts. In total, even if the pessimistic assumptions prove unfounded, it appears that there will be some displacement of these species from the turbine zone.

P.286 – Mitigation and monitoring. This section is short and should be developed into a full and detailed plan, designed not only to minimise impacts, but also to learn as much as possible about the numerous potential negative impacts on many species identified above, as well as

monitor any positive responses to changing food resources. We make recommendations about this in the summary section at the beginning of our response.

Appendix 10.1: Appendix A, Collision Risk Modelling

RSPB Scotland considers that the methods used in collision risk assessment as outlined here are inconsistent with current guidance (both for offshore and onshore windfarms) and are likely to produce erroneous estimates of bird collisions. The lack of clear and full explanation of how estimates are derived makes it difficult to assess what has been done. In particular, the "361 minutes of survey effort" referred to in the first example on p.296 is not explained: it appears that a timing has been attributed to a series of "snapshot" counts of birds in surveyed quadrants. If so, this will have led to fundamental errors in collision estimates. We have no way of telling – without laborious calculation using raw data which are not provided – whether this will have led to an under- or over-estimate of collisions. Assumptions are generally conservative but for all species there are questions about the impacts of weather events or epidisodic movements.

P. 295. Paragraph 2. It would have been better to have spelled out that the width refers to the maximum E-W dimension. As birds will be moving (on migration or foraging flights from seabird colonies) primarily N-S or (otherwise) randomly this is acceptable – most species are unlikely to be regularly flying E-W. If it is true that this will give the highest rotor-swept area to risk-area ratio, this is another, precautionary, reason for using this metric.

P. 295, Paragraph 6. Birds were seen from a moving ship so possibly some birds may have been flying in response to ship presence: this will tend to inflate the recorded flight activity.

P.295. The explanation of the complete method is unclear.
Step 1: We acknowledge the precautionary approach here – the month with highest peak total of birds in flight used. The final sentence (beginning *"The rate at which..."* should apply to step 2, where it's repeated almost verbatim. Also example bullet points should read:

- Total gannets flying at potential collision height (using 17% site specific collision height value) = 4.93
- Total gannets flying at potential collision height (using 14% generic collision height value) = 4.06

Step 2 is unclear, as mentioned above.

Step 3 is unclear. We appreciate why the number (or flux) of birds seen in transect area must be scaled up (or down) to the proposed development area but it is unclear how the ratio 0.393 is derived.

Steps 4-10 are clear although the assumption that birds fly 24 hrs/day is conservative, especially for gannets.

P.299. Pink-footed goose collision risk methodology (also applies to some other species). The collision risks should be combined with all other wind turbine proposals both offshore and onshore in order to properly assess the cumulative collision risk. The 46% figure for the number of birds flying across the risk window at potential collision height seems to be (from Table 8-1) a generic figure of % birds flying between 25 and 150m. This is not well explained but calculations appear to be correct.

P. 302. Common scoter – the use of 46% generic flight height info seems inappropriate for this and other species which do not fly at the same height as geese. However, it appears to be a conservative figure.

Chapter 14: Statutory designations and conservation
This chapter notes that:
Paragraph 3: In pre-scoping consultation, SNH highlighted, in conjunction with the JNCC that they are in the process of identifying possible marine SPAs. Currently, there have been no sites identified within Aberdeen Bay.

We note that this area has featured on earlier UK selection lists produced by JNCC for offshore SPAs. This reinforces the conclusion that the Aberdeen Bay area is important as a feeding area for a wide range of species, including common scoter, eider and red-throated diver (which occurs in nationally important numbers). The sum total of all birds using the bay is very high and likely to regularly exceed the 20,000 individuals adopted as one of qualifying criteria for SPA consideration. This is relevant both to the Environmental Assessment, and to future monitoring that might be carried out by the EOWDC.

Please also note that the Troup Head part of the Troup, Pennan and Lion Heads Special Protection Area is an RSPB nature reserve.

Chapter 28 and Appendix 28.1: Mitigation, management and monitoring; draft EMP.

Draft Environmental Management Plan:
21 The applicant is committed to the following environmental objectives:
- *exemplary performance in all aspects of environmental management*
- *a proactive attitude to environmental protection*
- *no prosecutions*
- *monitoring*
- *collision risk for key species less than predicted*
- *a target of no reportable environmental incidents at any stage in the project*

- *minimum ornithological and ecological disturbance commensurate with building an operational wind farm*
- *regular reporting and communication on environmental performance with statutory bodies and the local community*

We welcome the above commitments and (in paragraph 26) the intention to employ an ornithologist amongst other project staff. We would also be happy to contribute to the actions that could be included in the draft Ornithological Briefing Note (page 17 of the EMP). It is important to ensure that any actions or measures are developed in full coordination with any proposed research work to be undertaken by the Test Centre. Finally – we stress again here that a detailed research and monitoring proposal should be agreed before consent for development is granted.

Chapter 29 and Appendix 29.1: Information to inform a Habitats Regulations Appraisal

Much of the information relevant to birds is included in Appendix 10.1 and we have no further comments on this section.

SEPA
Scottish Environment Protection Agency

Our ref: PCS/115239
Your ref: 018/OW/AOWFL -

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26 September 2011

By email only to: ms.marinelicensing@scotland.gsi.gov.uk

Dear Andrew

APPLICATION FOR CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989 AND A MARINE LICENCE UNDER PART 4, SECTION 20 OF THE MARINE (SCOTLAND) ACT 2010 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, ABERDEEN BAY, ABERDEEN

Thank you for your consultation letter of 1 August 2011 which SEPA received on 2 August regarding the above proposed development.

We are generally supportive of renewable energy projects, provided they can be achieved with acceptable environmental impact. In this case, insofar as interests within our remit are concerned, we are satisfied with the proposals provided conditions to protect the environment are attached to any permission. We therefore ask that the **conditions in Sections 1 and 2** be attached to the consent. If any of these will not be applied, then please consider this representation as an **objection**. Please also note the advice provided below.

This advice is given without prejudice to any decision made on elements of the proposal regulated by us, which may take into account factors not considered at the planning stage.

Advice for the determining authority

1. Water Framework Directive

1.1 The Environmental Statement (ES) states that the proposals will generally have minor impacts or the marine environment. Overall, we are satisfied that the proposed development will not compromise the objectives of the Water Framework Directive. However, as the accidental introduction of marine non-native species is a risk for water body degradation, we recommend that controls should be included in the project relating to marine non-native species in line with Water Framework and Marine Strategy Framework Directive objectives. We request that this matter be addressed by a condition attached to any grant of consent. To assist, the following wording is suggested:

Aberdeen Office
Inverdee House, Baxter Street
Torry, Aberdeen AB11 9QA
tel 01292 266 600 fax 01224 896 657
www.sepa.org.uk

"Prior to the commencement of any works on site a project specific method statement setting out how the risks of introducing marine non-native species into the site shall be avoided during the construction, operation and decommissioning phases of the project and that the measures identified in this method statement shall be employed throughout the life of this project as set out in the method statement.

Reason: In the interests of protecting the water environment form the impacts on non native species."

2. Environmental Management and Pollution Prevention

2.1 We request that the following condition is attached to any grant of consent:

"At least two months prior to the commencement of development, a site specific Construction Environmental Management Document (CEMD) must be submitted for the written approval of the planning authority [in consultation with SEPA] [and other agencies such as SNH as appropriate] and all work shall be carried out in accordance with the approved CEMD.

Reason: In the interests of pollution prevention and protection of amenity."

Detailed advice for the applicant

3. Marine Non Native Species

3.1 To assist with the preparation of the method statement further information can be gained from:-

- The non-natives advice produced by the Oil & Gas industry: (www.ogp.org.uk/pubs/436.pdf);
- SNH advice:(www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/marine-nonnatives/);
- Marine Non-Native guidance from the GreenBlue (recreation advice): (www.thegreenblue.org.uk/clubs_and_training_centres/antifoul_and_invasive_species/best_practice_invasive_species.aspx).

4. Environmental Management and Pollution Prevention

4.1 A draft Schedule of Mitigation should be produced as part of this process. This should cover all the mitigation measures identified to avoid or minimise environmental effects. Details of the specific issues that we expect to be addressed are available on the Pollution Prevention and Environmental Management section of our website.

4.2 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.

4.3 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 condition or, in certain cases, through environmental regulation. This approach provides a useful link between the principles of development which need to be outlined at the early stages of the project and the method statements which are usually produced following award of contract (just before development commences).

4.4 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, as applicable. 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 if required. The requirements from the obtained licences and consents should be included within the final CEMPs.

4.5 Useful guidance can be found in CIRIA C584 entitled "Coastal and marine environmental site guide". Reference can be made to the appropriate checklists and good practice advice generally in this document.

4.6 The CEMP should also give consideration to how all waste streams from the project will be minimised, recycled, reused and disposed of using the principles of the waste hierarchy.

4.7 We produce a series of Pollution Prevention Guidelines, several of which maybe utilised in preparation of the submission and development of the proposals www.sepa.org.uk/air/pollution_prevention_control.aspx

5. Coastal Processes

5.1 Section 2.2.2.2 (pages 12 and 13) in Appendix 8.1 describes the nearshore shore parallel feature. Its importance in controlling the wave regime and morphology of the adjacent coastline, is discussed in Section 2.3.2.5 (pages 23 and 24) in Appendix 8.1. Little reference, however, is made to this feature in Appendix 8.2. Consideration should be given to the long term implications for the stability of this feature during the operational phase of the EOWDC. Therefore, we request that a condition is attached to any grant of consent requiring the preparation of a monitoring and mitigation scheme for potential impacts on the adjacent coastline.

5.2 Although not a significant issue we highlight with regard to the model predictions shown in Figures 4a and 4b in Appendix 8.2 that clarification should be provided to the determining authority on why the -0.01m contour for the high energy Hs: 5.8m, Dir 90 N scenario in Figure 4b is predicted to lie seaward of the -0.01m contour presented in the low energy Hs: 1.00m, Dir 60 N scenario in Figure 4a.

If you have any queries relating to this letter, please contact me by telephone on 01224 266698 or e-mail at planning.aberdeen@sepa.org.uk.

Yours sincerely

Nicola Abrams
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Planning Service

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Scottish Natural Heritage
All of nature for all of Scotland

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2 November 2011
By post and email

Your ref: 018/OW/AOWFL – 9
Our ref: CNS/REN/OSWF/DS EOWDC application

Dear Mr Sutherland

SECTION 36 OF THE ELECTRICITY ACT 1989
MARINE LICENCE: THE MARINE (SCOTLAND) ACT 2010
PROPOSAL: EUROPEAN OFFSHORE WIND DEPLOYMENT CENTRE, ABERDEEN BAY, ABERDEEN

Thank you for your letter of 3 August 2011 consulting us on the above proposal.

The proposal is for the European Offshore Wind Deployment Centre (EOWDC) consisting of 11 turbines and their connecting and export cables, to be situated between 2 and 4.5km off the coast near Blackdog, Aberdeenshire.

SNH Advice
Our advice on the proposed development is as follows:

We consider that it is likely that the deployment centre can be implemented without serious adverse effects on the natural heritage. There are, however, a number of outstanding issues that have to be addressed before this can be concluded with confidence. We remain keen to assist you in completing this assessment.

In particular, **the proposal raises natural heritage issues of international interest. We therefore object to this proposal until further analysis of data is completed to inform an appropriate assessment of its impact on qualifying interests of various Special Protection Areas (SPAs). If the further analyses and appropriate assessment demonstrate that the proposed deployment centre would not have an adverse affect on the integrity of these SPAs, and Marine Scotland are minded to grant a Marine Licence and S36 consent, our objection could be removed subject to the imposition of conditions.**

The proposal is also likely to have a significant effect on qualifying interests of a number of Special Areas of Conservation (SACs). Marine Scotland is therefore required to undertake an appropriate assessment in view of the conservation objectives for these SACs. We advise that we have undertaken an interim appraisal of the proposal and in our view, if it is carried out in strict accordance with certain conditions then it would not have an adverse effect on the integrity of any of the SACs.

The further assessment and conditions required are detailed subsequently in this letter and attached Annexes.

The Environmental Statement

We were first contacted about this proposal by the Aberdeen Renewable Energy Group in late 2004. Since that time we have made every effort to assist the developers with the provision of advice etc. We have attended many meetings to discuss the potential impacts of the proposal on European sites and marine ecology, as well as the seascape. We have advised on survey and assessment methodology, interim and final reports. We have also provided advice on the information required to inform a Habitats Regulations Appraisal and last commented on a draft scope for this in March of this year.

Given the extent of our involvement we are disappointed with the overall quality of the data presented in the Environmental Statement (ES), its analysis and interpretation. There are data gaps (e.g. incomplete data provided, remainder to be submitted November 2011), omissions (e.g. assessment of European eel which are an LBAP species and Priority Marine Feature), errors (collision risk modelling for birds) and inconsistencies (e.g. suspended sediment concentrations).

Consequently in order to provide advice to Marine Scotland it has taken some time for us to carry out our own assessments of data on various natural heritage interests. For this we have used the information in the ES as well as our experience gathered from other developments. We mostly concur with the conclusions in the ES, nonetheless, there are some matters that we do not consider to be sufficiently assessed and remain to be completed before a final conclusion can be made.

European Designated Sites (Habitats Regulations Appraisal - HRA)

The proposal has the potential to affect various SPAs and SACs in North and Eastern Scotland. This is because the features for which they are designated are mobile and frequently occur in Aberdeen Bay.

The information to inform a Habitats Regulation Appraisal (ES - Technical Appendix 29) does not in itself adequately consider impacts to these European sites / interests. More specifically, it does not consider the three tests required by the regulations nor assess the impacts of the proposal against the conservation objectives for the European sites.

In our view this proposal is likely to have a significant effect on the qualifying interest(s) of a number of sites - both Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). As a consequence *Marine Scotland* is required to undertake an appropriate assessment taking account of the conservation objectives for each site and the relevant qualifying interests.

To help you do this, we have carried out additional appraisals which may help to inform your appropriate assessment.

1. SPA interests

We have undertaken an assessment on the likelihood of impacts to the following birds from SPAs:

> Red-throated diver; Common scoter; Common eider; Northern gannet; Black-legged kittiwake; Common guillemot; Razorbill; Sandwich tern; Common tern; Herring gull; Puffin; Pink-footed goose; Barnacle goose; Fulmar and Shag.

We have used the information provided from the baseline surveys, other knowledge of foraging distances and behaviour, and the assessments contained within the ES including the HRA technical appendix:

In our view, the likelihood of there being an adverse effect on site integrity for *most* of these species is low, with the exception of common tern. However, this opinion is indicative rather than conclusive as we have been unable to complete our appraisals due to a lack of data and / or clarity within the ES. Further analysis and evaluation is required to complete an appropriate assessment for all these species. For your assistance we provide further advice on what this assessment requires in Annex B and the accompanying detailed ornithological assessment.

2. SAC interests:

Our appraisals (see Annex C) considered the impact of the proposal on the following qualifying interests:

> bottlenose dolphins, grey seals, Atlantic salmon and freshwater pearl mussels.

These species could all be directly or indirectly affected by the proposal and we have provided details on which SACs we have considered as well as the potential impacts to these species from the differing phases of the proposed windfarm.

In relation to these interests, we advise that if the proposal is undertaken strictly in accordance with specified conditions, then it will not adversely affect the integrity of the relevant sites. Details of these conditions are set out in Annex C and also collated and summarised in Annex A.

EPS

The proposal has the potential to affect marine EPS, namely cetaceans, through impacts such as noise during construction activities and disturbance from vessel movements. There will be a requirement for a European protected species licence. We will provide advice on any licence application. Conditions for mitigation detailed for mobile marine SAC species will also avoid impacts on favourable conservation status for cetaceans.

Landscape and Visual Impacts

Our advice is that this proposed development will have adverse impacts on the coastal character and visual amenity from within Aberdeen City as well as locations in Aberdeenshire, particularly coastal areas. We advise that conditions may be used to reduce these impacts and to promote visual cohesiveness; nonetheless, these will not make a significant difference to the impacts.

Conditions

If Marine Scotland is minded to grant a Marine Licence and Section 36 consent we would advise that there are several aspects of construction, operation and decommissioning that would require to be conditioned to avoid adverse effects on site integrity for European sites, including construction details, robust environmental monitoring, restriction to piling activities, and decommissioning details etc.

Annex A provides our detailed advice and the recommendations we advise/require to be addressed within conditions attached to any consent and licence. We would be happy to advise further on the details of conditions if that would be helpful.

Monitoring

The supporting information to this application in the ES states that environmental monitoring would be a key aspect of the EOWDC and that the deployment centre provides a platform for environmental research and development. Environmental monitoring would provide stakeholders with information on associated environmental impacts prior to large scale deployments i.e. Scottish Territorial Waters or Round 3 proposals. Via the EU grant, a proposal has been made to allocate in excess of £2.7 million, funded jointly by the Applicant and the EU to environmental studies over the project lifetime including the development of environmental research with external partners.

We welcome this monitoring and the opportunity to take part in developing a relevant research programme. The ES notes the potential for an ocean laboratory to support some of the monitoring effort and that this would be subject to a separate application. While we believe a laboratory can be of value, much of the research and monitoring we recommend would not require such a facility. Accordingly, we seek comfort that sufficient funds will be set aside to support the non-lab based monitoring work. This is particularly important given our concerns about the adequacy of the data collected so far.

We hope that our comments are helpful to you. If you would like to discuss any issue further please do not hesitate to contact Sue Lawrence, Operations Officer, Tayside & Grampian (sue.lawrence@snh.gov.uk or 01224 266517) or Erica Knott, Senior Casework Manager, Marine Renewables (Erica.knott@snh.gov.uk or 01738 458674).

Yours sincerely

Dr David Bale
Area Manager
Tayside & Grampian

Encls

ANNEX A
DETAILED COMMENTS ON NATURAL HERITAGE INTERESTS

Introduction
Our comments provide summaries of our assessment on a number of topics. These topics are separated into relevant issues, rationale and recommendations. The recommendations include conditions - some of which are required in order to conclude no adverse effect on site integrity for Natura sites. These comments should be read in conjunction with Annexes B and C. Finally a list of conditions proposed is provided, pulling together all recommendations into one table for ease of reference.

EUROPEAN DESIGNATED SITES

Special Protection Areas (Birds)

We recommend further analysis of the data and assessment of the impacts on individual qualifying interests of SPAs, as detailed in the Natura appraisal for SPAs which is attached as Annex B. This is required to complete an appropriate assessment before a decision on the application is made.

Further information on these requirements is provided in the detailed ornithological assessment which accompanies Annex B.

Special Areas of Conservation (Species)

We have undertaken further analysis of the impacts on individual qualifying interests of SACs, as detailed in Annex C to this response. Our appraisal concludes that there would not be an adverse affect on the integrity of these sites provided that the development is subject to specific conditions set out in that annex and collated in the table at the end of this Annex (Annex A).

EUROPEAN PROTECTED SPECIES
Cetaceans
Issue:
Will the EOWDC impact on favourable conservation status of European protected species – cetaceans?

Rationale
The proposal has the potential to affect marine EPS, namely cetaceans, through impacts such as noise during construction activities and disturbance from vessel movements.

We advise that adverse impacts can be avoided through the use of the conditions detailed in Annex C for bottlenose dolphins, grey seals and Atlantic salmon.

Recommendation
There will be a requirement for a European protected species licence. We will provide advice on any licence application, taking account of any relevant advice on survey and monitoring provided by the expert panel. Conditions for mitigation detailed for mobile marine SAC species, will also avoid impacts on favourable conservation status for cetaceans.

OTHER INTERESTS

Landscape and Visual Impacts

Issue:
Would the EOWDC result in changes to the character of Aberdeen Bay and cause adverse visual impacts?

Rationale:
The proposal would introduce a complex large feature into a coastal area currently characterised by uninterrupted, simple views across the sea.

The location of the proposal, given its proximity to the coast and to the city of Aberdeen, is sensitive and prominent.

The very large size of the turbines, means the proposed development would be dominant in views from north and east Aberdeenshire, and the city.

The proposal would set a new precedent of development of this type inshore rather than on land. It would necessitate cumulative impacts with onshore developments being considered in future.

The uncertain nature of it being a "deployment centre" rather than a fully designed windfarm raises particular issues: it may not necessarily follow good design practice (at its most basic in having the same turbine type, size, rotation speed and so on; or an evenly spaced 'readable' layout). This raises concerns given the size of the proposed development and its sensitive and prominent location.

Recommendation:
The conditions attached to any consent should require a design statement to include guiding principles for the deployment of turbines.

Coastal Processes

Issue:
Would the EOWDC result in changes to the coastal processes working in Aberdeen Bay?

Rationale:
There is coastal erosion in the southern third of Aberdeen Bay, which currently shows one of the highest rates of sea level rise in Scotland.

A subtle interaction of wave and coastal processes is an important factor in coastal erosion in the bay. There may be implications further north from introducing static turbines, cables and their scour protection.

There should be further assessment of the windfarm to ascertain if it will influence the coastal processes (wave, tide & combined), and to determine if this could have adverse implications for the bay and designated sites to the north.

Recommendation:
Consideration of this issue may have already taken place as part of the Round 2 monitoring work. If not, we recommend that there should be further analysis of the impact of the EOWDC on the coastal processes in Aberdeen Bay, both the beach to the south and designated sites to the north.

Issue:
Would the landfall site result in changes to the coastal processes working in Aberdeen Bay?

Rationale:
There is no reference to coastal processes and the landfall site. Given the longstanding management issues within Aberdeen Bay, the current sea level rise within the bay and the future projected changes, this is an important aspect of the proposed windfarm which requires detailed consideration.

Recommendation:
There should be conditions attached to any consent requiring the location and construction methods for the grid export cables, landfall site and substation to take into account coastal processes.

Fish and Shellfish
Issue:
Consideration of fish and shellfish in ES

Rationale:
The ES has not identified impacts on European eel and sea lamprey, although these are likely to be present in the area (they are found in rivers in eastern Scotland including the Dee) and were included in the scoping opinion.

Sea lamprey is listed on Annex II of the EU Habitats Directive, Appendix III of the Bern Convention and is on the UKBAP Priority List. European eel 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. Both species are Priority Marine Features.

Recommendation:
While the ES should have included an assessment for these freshwater migratory species, we recognise that little is known about their behaviour at sea and consequently any assessment would be difficult. They may benefit from the measures recommended to protect Atlantic salmon, but this needs to be considered further.

Benthic and intertidal
Issue:
No current information has been supplied on the intertidal areas where export cables may be placed.

Rationale:
The intertidal substratum in Aberdeen Bay is mostly sandy and moderately exposed to wave action, wind and tidal streams. This area has not been surveyed and the assessment in the ES is based on historic documents and a literature review of what is likely to be present on similar shores.

Landfall Recommendation:
We recommend that a site specific survey of the benthic and inter tidal habitats and communities is undertaken to identify any sensitive areas that should be avoided by construction works for the grid export cables, landfall site and substation. We recommend this should be incorporated in a suitable condition.

CUMULATIVE IMPACTS

No regard has been given to onshore developments with which this proposal may contribute to cumulative impacts. Further consideration of cumulative impacts may be required depending on the outcome of the further assessment for birds and SPAs.

List of Proposed Conditions

Condition	Reason
Expert Panel and Monitoring Programme An independent expert panel should be established to provide scientific advice on a research and monitoring programme. The programme will include survey and monitoring of the impact of the windfarm on important species and habitats in Aberdeen Bay. The programme should also include monitoring of the habitats and communities that develop on the submerged structures. The monitoring programme should be subject to input from the expert panel, consultation with consultees and subject to agreed review periods. The programme should ensure monitoring is robust and covers pre, during and post construction aspects. Amongst the subjects to be included for monitoring (but not exclusively) are: • Boat or aerial based surveys to consider any changes to species, densities, behavioural implications during all phases of the windfarm and • Measures to detect bird collisions. • Field-measurements of noise during piling at EOWDC to validate the results of the model and also during operation of the turbines. • Deployment of appropriate Passive Acoustic Monitoring systems to record vocalisation of marine mammals, pre, during and post construction. The research and monitoring programme advised by this panel will be agreed and implemented prior to the commencement of any works. Membership of the panel will be agreed by Marine Scotland in agreement with relevant consultees. The data collected should be reported on and results made available publicly.	To ensure best available and most appropriate scientific information is used to inform and develop a monitoring plan.
Details on Construction Methodology A construction method statement or similar document should be provided to Marine Scotland for agreement with relevant consultees. This should include details of commencement dates, duration and phasing	To ensure all environmental issues are taken into account in designing the construction of the windfarm.

information of key elements of construction e.g. foundations, turbine placements, inter-array cabling and landfall cabling as well as details of onshore activities for the substation. This statement should include measures to protect the marine environment (e.g. method and diurnal/seasonal timing of piling, soft-start procedure, use of Marine Mammal Observers, method and depth of cable laying, pollution prevention measures etc) and be cross-referenced with the Environmental Management System/Plan. It must include construction restrictions to avoid July/August and piling outwith daylight hours. This statement should be submitted prior to the commencements of any works within a timescale to be agreed with Marine Scotland.	To minimise disturbance to birds during the moult periods (SPAs) and to minimise disturbance and injury to marine mammals and fish, including Atlantic salmon (SACs/EPS).
Vessel Management Plan A vessel management plan providing details on numbers and individual vessel details- including whether ducted propellers will be in operation; how vessel management will be coordinated, particularly during construction, but also during operation. Location of working port(s), how often vessels will be required to passage between port(s) and site, and the routes used i.e. creation of high and low disturbance areas. We also recommend that this plan is drafted and then finalised in consultation with Marine Scotland and relevant consultees prior to commencement of any construction activity. This plan should be cross-referenced with the Environmental Management System/Plan and aim to reduce disturbance impacts to mobile species. If during construction or operation the use of helicopters is required, a similar plan outlining timings, type, numbers etc. should be provided.	To minimise disturbance to marine mammals (SACs/EPS) and birds (SPAs).
An Environmental Management System/Plan This system/plan should detail measures through all phases of the windfarm (pre, during and post construction) to prevent adverse impacts to marine mammals, birds, fish and habitats, and include species protection plans. The system/plan should take account of and implement recommendations of the expert panel. It should be cross-referenced to the construction methodology documents and vessel management plans as well as recommendations within the ES. The system/plan should also detail how each and all contractors and sub contractors will be made aware of environmental sensitivities, what requirements they are expected to adhere to, how chains of command will work including shore to vessel communications etc. In addition, we advise on the need for regular updates on construction activity, issues encountered	To ensure all environmental issues are taken into account during construction and operation of the windfarm. To minimise disturbance to marine mammals (SACs/EPS) and birds (SPAs).

and how these have been addressed. The system/plan should be submitted within a timescale specified by Marine Scotland in advance of the project construction commencing. It should be agreed by Marine Scotland in consultation with relevant consultees.	
Export Cables Details of the location and construction methods for the grid export cables, landfall site and substation, taking into account coastal processes and other environmental considerations, to be submitted within a timescale specified by Marine Scotland in advance of the project construction commencing. A survey of the intertidal habits and species to inform the routing shall be carried out before the export cable routes are selected. The export cables to be buried to a minimum depth to be agreed with Marine Scotland and relevant consultees. This will require consideration of the depth cables should be buried at to lessen any potential EMF effects on fish species. There should be monitoring of the cables to see if they become re-exposed and, if so, action taken to remedy this.	To safeguard coastal processes in the wider Aberdeen Bay. To ensure all environmental issues are considered in the location and construction of the export cables. This should include coastal processes and benthic and intertidal habitats (see comments above).
Design Statement A detailed design statement is required to provide guiding principles for the deployment of turbines. This plan should detail: i. Layout location for each phase and each turbine location and anemometer mast; ii. Guiding principles for turbine height, blade diameter and rotation speed across each phase, rows and individual turbine locations; iii. Lighting requirements (navigation and aviation) for each turbine / row and phase and any anemometer mast and Further detailed assessment of visual impacts to inform the detailed layout and design of each location and phase of the deployment centre from selected viewpoints to be agreed with Marine Scotland and relevant consultees.	To ensure visual impacts are fully understood in advance of construction and deployment.
A Decommissioning Plan. A decommissioning plan will be required for the entire scheme. We recommend that this is an iterative process and that an initial decommissioning strategy is produced. Timescale for the production, consultation and implementation of a decommissioning plan should be set out as part of any consent.	To ensure all environmental issues are taken into account in decommissioning of the windfarm or individual turbines.

In addition to decommissioning the entire scheme, details of decommissioning / replacing individual turbines should be set out taking into account criteria developed with Marine Scotland on if / when individual turbines should be removed.	

We also request that all environmental survey and monitoring information is made publicly available.

As stated in our covering letter we would welcome the opportunity to advise further on the detail of these conditions.

ANNEX B

NATURA APPRAISAL - SPECIAL PROTECTION AREAS

Casework Recording System Ref. 70703 **File Ref.** qB56167

SITE DETAILS

1a. Name of Natura site affected & current status

Please see accompanying detailed ornithological assessment for the list of all SPAs being considered in this appraisal and the relevant qualifying interests being considered.

1b. Name of component SSSI if relevant

1c. European qualifying interest(s) & whether priority/non-priority:

Red-throated diver
Common scoter
Common eider
Northern gannet
Black-legged kittiwake
Common guillemot
Razorbill
Sandwich tern
Common tern
Little tern
Herring gull
Puffin
Pink footed goose
Barnacle goose
Fulmar
Cormorant
Shag

1d. Conservation objectives for qualifying interests:

To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and
To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

PROPOSAL DETAILS

2a. Proposal title

Application for consent under Section 36 of the Electricity Act 1989 and a Marine Licence under Part 4, Section 20 of the Marine (Scotland) Act 2010 to construct and operate an offshore windfarm, Aberdeen Bay.

2b. Date consultation sent: 3 August 2011
2c. Date consultation received

2d. Name of consultee	SNH
2e. Name of competent authority	Marine Scotland
2f. Type of Case:	Marine Renewables – Offshore Wind - Application

2g. Details of proposed operation (inc. location, timing, methods):

Installation and operation of a European Offshore Wind Deployment Centre consisting of 11 turbines, inter-array and export cables. To be located 2-4.5km off the coast of Blackdog, Aberdeenshire and likely to be constructed in 2013 and 2014. Method of construction not yet known, nor the operation period of the different turbines to be deployed and how they would be replaced.

APPRAISAL IN RELATION TO REGULATION 48

3a. Is the operation directly connected with or necessary to conservation management of the site? YES/NO *If YES give details:*

No.

3b. Is the operation likely to have a significant effect on the qualifying interest? Consider each qualifying interest in relation to the conservation objectives.
i) indicate which feature of interest could be affected by the proposed operation and briefly in what way; if none provide a brief justification and the proceed to v), otherwise continue:
ii) refer to other plans/projects with similar effects/other relevant evidence;
iii) consider scale, longevity, and reversibility of effects;
iv) consider whether proposal contributes to cumulative or incremental impacts with other projects completed, underway or proposed;
v) give Yes/No conclusion for each interest.

SPA Qualifying Interests

The ES makes many untested assumptions, for example it uses an absence of evidence as evidence of an absence of impacts. The collision risk modelling does not follow current guidance (onshore or offshore) to estimate likely bird deaths. The results as presented in the ES are hard to justify and would appear to greatly under-estimate collision mortality, although this is hard to assess. The ES does make precautionary assumptions for many species (some are very precautionary) but given that the CRM then produces an unrealistically low number of birds that may enter the collision risk zone it is very hard to assess whether the results are reasonable or not. Insufficient information is presented to validate the CRM or the results independently.

Vantage point surveys indicate a number of issues relating to use of data (or not) and raise detectabilty issues further from the coast. Various flight height data sources are provided with no assessment made of which data are the most representative of this site. There is effectively no assessment of barrier effects apart from uncited sources of a lack of barrier effects. These are impossible to verify. Displacement effects are generally dismissed with more uncited references and there are several instances of an absence of evidence being invoked as evidence of absence of impacts.

The ES uses matrices to assess impacts. Our advice during pre-application discussions recommended the approach in the IEEM guidance, which emphasises that the matrix approach is not reliable for assessing impacts to Natura sites. The use of matrices in the ES underlines the problems associated with this approach, as any departure from the definitions of sensitivity or likelihood can have very important implications for the results. The matrix approach is also a poor method of summing the impacts from all sources to produce an overall impact. Within the matrix approach, it is assumed that multiple impacts cannot sum to mean a larger impact than the largest impact from any one source, whereas impacts from a number of sources may be cumulative.

The use of 1% population mortality thresholds was advised against in advice during pre application discussions. The ES justifies the use of a 1% threshold by referring to derogations for the take of SPA birds under Article 9 of the Birds Directive. This refers to the intentional take of birds for very specific circumstances, which do not include the unintentional mortality of birds from proposed developments. The use of a blanket 1% threshold is not appropriate as it does not account for

population trends and the status of an SPA population.

In providing advice to marine renewables developers we provide advice on identifying what qualifying interests and from which SPA may need to be considered. This advice recommends using the meta-data on seabird foraging ranges available from the Birdlife International database[1] 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. Foraging ranges of each qualifying species should be plotted from the SPA to the windfarm area to determine which foraging ranges overlap with the windfarm area and, therefore, which qualifying species (and which SPAs) should be included.

In this appraisal the relative likelihood of connectivity has been determined by our marine renewables ornithological adviser, using four metrics of foraging range:

1. mean foraging range
2. mean of the maximum foraging range
3. maximum foraging range
4. the cumulative foraging range at 95% (this should include 95% of the population).

These metrics were chosen as the distribution of foraging ranges of seabirds is not normal and tends to be strongly right skewed. This means that relatively few birds make a disproportionate contribution to the mean value. However, the mean of a normally distributed function excludes 50% of the population by definition. The mean of the maximum foraging range tends to be similar in scale to the point on a cumulative frequency distribution where 95% of all foraging flights are included. This roughly equates to 95% of the population foraging within this distance. Thus level of connectivity was determined if an SPA was:

- within the mean foraging range, the mean maximum and/or the 95% cumulative frequency distribution of the proposed development site the connectivity would be **high.**
- within the maximum foraging range *and* either the mean maximum or 95% cumulative frequency distribution (or close to these) than connectivity was **moderate.**
- within the maximum (but out with the mean maximum or mean range) the connectivity was **low.**
- further than the maximum foraging range there was **no connectivity.**

For each distance the shortest flight route that did not cross land was used. The results of the assessment of connectivity are shown in the accompanying detailed ornithological assessment and summarised below are those sites and species where connectivity is possible, moderate or high.

Breeding Period including post breeding qualifying interests:
Black-legged kittiwake – **Yes** – high connectivity with:

- Buchan Ness to Collieston Coast
- Fowlsheugh

Common eider – **Yes** – high connectivity with:

- Ythan estuary, Sands of Forvie and Meikle loch
- Montrose Basin
- Firth of Tay and Eden Estuary

Common guillemot – **Yes** – high connectivity with:

- Buchan Ness to Collieston Coast
- Fowlsheugh

Common tern – **Yes** – high connectivity with:

- Ythan estuary, Sands of Forvie and Meikle Loch

[1] http://seabird.wikispaces.com/

Fulmar – **Yes** – high connectivity with:

- Buchan Ness to Collieston Coast
- Fowlsheugh
- Forth Islands
- Troup, Pennan and Lion's Heads
- East Caithness Cliffs
- North Caithness Cliffs
- Copinsay
- Fair Isle
- Sumburgh Head
- Noss
- Fetlar
- Foula

Herring gull – **Yes** – high connectivity with:

- Buchan Ness to Collieston Coast
- Fowlsheugh

Northern gannet – **Yes** – connectivity with:

- Forth Islands
- Fair Isle
- Noss
- Troup, Pennan and Lion's Heads

Shag – **Yes** – high connectivity with:

- Buchan Ness to Collieston Coast

Razorbill – **Yes** – moderate connectivity with:

- Fowlsheugh

Sandwich tern – **Yes** – connectivity with:

- Ythan estuary, Sands of Forvie and Meikle loch
- Loch of Strathbeg

Little tern – **No** – only low connectivity as no terns observed in boat surveys and low numbers in vantage point surveys.

Puffin – **No** – only low connectivity with SPAs

Qualifying interests connected with Aberdeen bay either due to migratory patterns and/ or wintering aggregations.

Barnacle goose – **Yes** – high connectivity with:

- Loch of Strathbeg
- Upper Solway Flats and Marshes

Common scoter – **Yes** – connectivity possible with:

- Firth of Forth
- Firth of Tay and Eden Estuary

Pink-footed goose – **Yes** – high connectivity with multiple SPAs:

- Ythan estuary, Sands of Forvie and Meikle loch
- Loch of Strathbeg
- Montrose basin

Red-throated diver – **Yes** - connectivity possible with breeding populations in:

- Caithness and Sutherland Peatlands

- Hoy
- Orkney Mainland Moors
- Foula
- Hermaness, Saxa Vord and Valla Field
- Otterswick and Graveland
- Ronas Hill – North Roe and Tingon

Cormorant – **No** – no connectivity with SPAs

3c. Appraisal of the implications for the site in view of the site's conservation objectives.

i) Describe for each European qualifying interest the potential impacts of the proposed operation detailing which aspects of the proposal could impact upon them and their conservation objectives
ii) Evaluate the significance of the potential impacts, e.g. whether short/long term, reversible or irreversible, and in relation to the proportion/importance of the interest affected, and the overall effect on the site's conservation objectives. Record if additional survey information or specialist advice has been obtained.

For many species the ES does not contain sufficient information to make a robust enough assessment to demonstrate that there would be no adverse effect on site integrity. For each species with potential connectivity to one or more SPAs, the attached accompanying detailed ornithological assessment shows our judgement of the *likelihood* of there being an adverse effect on site integrity (AESI). This judgement is derived from a re-assessment of the survey results combined with site condition, population trend and evidence from other windfarms. This judgement is indicative and not conclusive. Further work is required to complete an appropriate assessment, as advised in the detailed ornithological assessment.

The species for which further work is required to complete an appropriate assessment are:
Red-throated diver
Common scoter
Common eider
Northern gannet
Black-legged kittiwake
Common guillemot
Razorbill
Sandwich tern
Common tern
Herring gull
Puffin
Pink-footed goose
Barnacle goose
Fulmar
Shag

For most of these, the likelihood of there being a conclusion of AESI is fairly low, but this is subject to further assessment being completed.

One species is thought to have a high likelihood of AESI (common tern), two species are too difficult to assess from the information given in the ES (herring gull and shag), and two species are thought to have a moderate likelihood of concluding AESI (black-legged kittiwake and sandwich tern). Each of these species is discussed more fully below.

Common tern – it was clear from the ES that there were generally more terns in the area than at the nearest SPA with connectivity (Ythan Estuary, Sands of Forvie and Meikle Loch SPA). Thus there was a potential for collision risk in particular to have an impact on the population of this SPA. The collision risk modelling (CRM) in the ES was not appropriately conducted and it is thought that the method used may result in a gross underestimate of the collision probability. The nearby SPA population has undergone a severe decline over a protracted period and the population currently

stands at only 4 pairs (data from 2010). The population at citation was 256 pairs and the site condition is currently "unfavourable declining". It is appears that this population cannot sustain any additional impacts and the potential exists for the proposed development to have an adverse effect on this population. However, common terns are known to move colony locations en masse, and it is likely that this is what has occurred with the colony at the Ythan Estuary, Sands of Forvie and Meikle Loch SPA. It appears that most of the colony has relocated to St Fergus to the north, which is further than the accepted maximum foraging range of this species.

The appropriate assessment will need to correctly conduct the collision risk modelling and determine the local colonies within foraging range. It will then need to apportion the impacts appropriately to those colonies. It will therefore seem likely that the collision impact attributed to the tiny population at the Ythan Estuary, Sands of Forvie and Meikle Loch SPA will be very small indeed. The AA will need to address each of the conservation objectives of the site, but pay particular attention to the "Structure, function and supporting processes of habitats supporting the species". Given the decline in the population for reasons not associated with the SPA, there will need to be an assessment of what the impacts may be if the population were to return to the site and return to citation levels. Would the impacts be sustainable after the development i.e. would it be able to support common terns in the long term at a minimum of the population specified in the citation. This could be achieved using hypothetical collision risk modelling based on the known foraging range of the species, the area likely to be used by the population from this SPA (this should account for the coastal foraging behaviour of the species), and the frequency distribution of foraging range data to estimate the breeding season density of common terns using the proposed development area. From this a hypothetical CRM would be able to estimate the predicted collision mortality for a population at citation level and then determine whether this may be an adverse effect on site integrity.

Herring gull – there were two SPAs with breeding herring gull as a qualifying feature within foraging range of the proposed development site: Buchan Ness to Collieston Coast SPA and Fowlsheugh SPA. Both of these SPAs are in unfavourable condition with the population at the Buchan Ness to Collieston Coast SPA declining and the population at the Fowlsheugh SPA showing no change. Generally the breeding populations of herring gulls within foraging range of the proposed development site have declined markedly over a protracted period (on average a 74% decline between 1985-88 and 1998-2000), including the SPA populations. However, the breeding population within the City of Aberdeen has increase markedly over a similar period (1260%, from 259 to 3522 pairs), though these increases have not offset the decreases in the coastal breeding populations.

The appropriate assessment will need to conduct a CRM for breeding herring gulls and then apportion the impacts from this among the colonies from St Fergus to St Cyrus. This area covers the cumulative frequency distribution of the foraging range of approximately 95% of the population. The impacts should be attributed to colonies using the SPA boundaries and the Seabird Monitoring Programme colony register count boundaries. The impacts could then be attributed proportionally to these colonies based on the size of the colony and the distance from the proposed development site. Given the size and close proximity of the large City of Aberdeen population it appears likely that most of the impact will be attributed to those birds. However, it is important to note that the SPA populations are currently in decline, so smaller impacts may have proportionally higher consequences. Note that the peak occurrence of herring gull at the proposed development site was during the breeding season.

Shag – the population of shag at the Buchan Ness to Collieston Coast SPA is within the mean of the maximum foraging range. The population within the SPA is well below the citation level and has remained so over the past ten years, though it has fluctuated over this period there is no indication of a general decline over recent years. The site condition is unfavourable with no change in the population.

Without an accurate assessment of the collision mortality and a proper apportioning of impacts to those birds within the mean of the maximum foraging range it is hard to assess whether there may be an impact. It is likely that collision would be the most important source of impact, as shags do not show a strong displacement effect and are known to be tolerant of ships and often forage in harbours. While their flight height distribution is generally very low it is possible that a small impact

from collision could have an impact on the much reduced population at the Buchan Ness to Collieston Coast SPA.

Black-legged kittiwake – most of the black-legged kittiwakes using the area around the proposed development site are likely to be from the Buchan Ness to Collieston Coast SPA and the Fowlsheugh SPA. The site condition at the Buchan Ness to Collieston Coast SPA is unfavourable, no change, but at the Fowlsheugh SPA the site condition is described as favourable maintained. There are often large numbers of kittiwakes in Aberdeen Bay (including within the area of the proposed development site) during the breeding and post-breeding period and these birds are most likely to come from these two large SPA populations. The main source of potential impact to kittiwake is from collision risk as the species is known to have a low displacement from offshore wind farms and a relatively high proportion of flight heights within the risk window. Therefore, assessing the potential impacts requires appropriate collision risk modelling.

The appropriate assessment will need to conduct an appropriate CRM and apportion the impact proportionately between these two SPAs. It should then be possible to assess whether the impacts from collision mortality would not result in an adverse effect on site integrity, taking in to account the population trends at each SPA.

Sandwich tern – there is a strong likelihood of connectivity with the population of Sandwich terns at Ythan Estuary, Sands of Forvie and Meikle Loch SPA and a much lower likelihood of connectivity with the Loch of Strathbeg SPA, which is at the limits of foraging range of this species. The site condition of the closer Ythan Estuary, Sands of Forvie and Meikle Loch SPA is favourable maintained, while that of the further Loch of Strathbeg SPA is unfavourable declining. However, these two SPAs are mostly likely designated for the same population of birds, which are known to switch between these two sites for unknown reasons (though likely a mix of foraging quality and predation risk).

The appropriate assessment will need to conduct an appropriate CRM and determine whether this impact may be important to the single population that uses both of these sites.

In addition the ES failed to consider cumulative impact assessments in detail as it failed to account for impacts from onshore developments/projects. It will be necessary to assess information from onshore projects and determine whether these may result in an adverse effect cumulatively with the proposed development. We advise in particular that the following onshore windfarm is considered as part of this cumulative assessment – Keith Inch and Green Hill, Peterhead.

Finally, should it be concluded that there would not be an adverse effect on site integrity the accompanying detailed ornithological assessment also provides advice on post-construction monitoring requirements and license conditions.

iii) In the light of the appraisal, ascertain whether the proposal will not adversely affect the integrity of the site for the qualifying interests. If SAC and/or SPA and/or Ramsar site, give separate conclusions. If conditions or modifications are required, proceed to 4.

SNH considers that it has not been ascertained that the proposal will not adversely affect the integrity of the sites. Further assessment is required **to determine whether or not there would be an adverse impact on site integrity. The assessment required for this is summarised in the accompanying detailed ornithological assessment . While for most species it is likely that further assessment will conclude no adverse effect on site integrity, we are uncertain what this assessment for common tern will conclude.** If the further assessment demonstrates that the proposed deployment centre would not have an adverse affect on the integrity of these SPAs, and Marine Scotland are minded to grant a Marine Licence and S36 consent, **our objection could be removed subject to the imposition of conditions.**

4. Conditions or modifications required.

Indicate conditions/modifications required to ensure adverse effects are avoided, & reasons for these.

Condition:	*Reason:*
1. Expert panel appointed to advise on robust monitoring approach for environmental issues, particularly birds. The monitoring should include: • *Boat or aerial based surveys to consider any changes to species, densities, behavioural implications during all phases of the windfarm and* • *Measures to detect collisions.* *Data collected should be reported on and results made available publicly.*	*1. To ensure best available and most appropriate scientific information is used to inform monitoring strategy.*
2. Construction Method Statement providing details on phasing, duration of activities etc.	*2. To ensure all environmental issue are taken into account in designing the construction of the windfarm.*
3. Vessel Management Plan providing details on vessels to be used, steaming routes, use of ducted propellers.	*3. To minimise disturbance to marine mammals through a detailed plan outlining vessel type and movements.*
4. Decommissioning Plan – provision of details.	*4. To ensure any environmental impacts are considered.*
5. Construction restrictions to avoid July /August	*5. To minimise disturbance to moult periods for birds.*

5. Advice sought.

Include here details of or clear reference to, advice sought from AS, colleagues etc. If no advice sought give brief reasons/justification.

Advice was sought from: Marine Renewables Ornithological Adviser

6. RESPONSE

a) Natura Comments

Holding Objection

b) SNH Comments (

For SNH advice to other authorities:

The proposal could raise natural heritage issues of national interest and we therefore object to this proposal until the further information detailed is obtained from the applicant. Further assessment is required to inform an appropriate assessment to be undertaken by Marine Scotland.

Appraised by	Sue Lawrence/Erica Knott
Date	31 October 2011
Checked by	David Bale
Date	31 October 2011

ANNEX C

NATURA APPRAISAL – SPECIAL AREAS OF CONSERVATION

Casework Recording System Ref. 70703 **File Ref.** qB56167

SITE DETAILS

1a. Name of Natura site affected & current status

Name of SAC Site	Key Qualifying Interests
Moray Firth SAC	Bottlenose Dolphin / Subtidal sandbanks
Rivers Dee and South Esk SAC	Atlantic Salmon / Freshwater Pearl Mussel / otter
Isle of May SAC	Grey Seals / Inshore sublittoral rock reefs
Firth of Tay and Eden Estuary SAC	Harbour Seals / Subtidal sandbanks, estuaries / intertidal mudflats and sandflats
Berwickshire and North Northumberland Coast	Grey Seals / reefs / sea caves / shallow inlets and bays / intertidal mudflats and sandflats

1b. Name of component SSSI if relevant

N/A

1c. European qualifying interest(s) & whether priority/non-priority:

MORAY FIRTH SAC	
Bottlenose dolphins	
Subtidal sandbanks	These interests are not appraised further as the development will have no impact at all on this feature.
RIVER DEE SAC	
Freshwater Pearl Mussel	
Atlantic Salmon	
Otter	Otter are not appraised further as the development will have no impact at all on this feature.
RIVER SOUTH ESK SAC	
Atlantic Salmon	
Freshwater Pearl Mussel	
ISLE OF MAY SAC	
Grey seals	
Inshore sublittoral rock reefs	These interests are not appraised further as the development will have no impact at all on this feature.
Firth of Tay and Eden Estuary SAC	
Harbour Seals	
Subtidal sandbanks	These interests are not appraised further as the development will have no impact at all on this feature.
Estuaries	These interests are not appraised further as the development will have no impact at all on this feature.

Intertidal mudflats and sandflats	These interests are not appraised further as the development will have no impact at all on this feature.
Berwickshire and North Northumberland Coast SAC	
Grey Seals	
Intertidal mudflats and sandflats	These interests are not appraised further as the development will have no impact at all on this feature.
Reefs	These interests are not appraised further as the development will have no impact at all on this feature.
Sea caves	These interests are not appraised further as the development will have no impact at all on this feature.
Shallow inlets and bays	These interests are not appraised further as the development will have no impact at all on this feature.

1d. Conservation objectives for qualifying interests:

Moray Firth SAC

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying species that the following are established then maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

Qualifying Species

- Bottlenose Dolphin

Rivers Dee and South Esk SACs

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species, including range of genetic types for salmon, as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species
- Distribution and viability of freshwater pearl mussel host species
- Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species

Qualifying species:

- Atlantic salmon
- Fresh water pearl mussel

Isle of May and Firth of Tay and Eden Estuary SACs
To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

Qualifying species

- Grey Seal (Isle of May and Berwickshire and North Northumberland Coast)
- Harbour Seal (Firth of Tay and Eden Estuary)

PROPOSAL DETAILS

2a. Proposal title

Application for consent under Section 36 of the Electricity Act 1989 and a Marine Licence under Party 4, Section 20 of the Marine (Scotland) Act 2010 to construct and operate an offshore windfarm, Aberdeen Bay.

2b. Date consultation sent:	3 August 2011
2c. Date consultation received	
2d. Name of consultee	SNH
2e. Name of competent authority	Marine Scotland
2f. Type of Case:	Marine Renewables – Offshore Wind - Application

2g. Details of proposed operation (inc. location, timing, methods):

Installation and operation of a European Offshore Wind Deployment Centre consisting of 11 turbines, inter-array and export cables. To be located 2-4.5km off the coast of Blackdog, Aberdeenshire and likely to be constructed in 2013 and 2014. Method of construction not yet known, nor the operation period of the different turbines to be deployed and how they would be replaced.

APPRAISAL IN RELATION TO REGULATION 48

3a. Is the operation directly connected with or necessary to conservation management of the site? YES/NO *If YES give details:*

No

3b. Is the operation likely to have a significant effect on the qualifying interest? Consider each qualifying interest in relation to the conservation objectives.
i) indicate which feature of interest could be affected by the proposed operation and briefly in what way; if none provide a brief justification and the proceed to v), otherwise continue:
ii) refer to other plans/projects with similar effects/other relevant evidence;
iii) consider scale, longevity, and reversibility of effects;
iv) consider whether proposal contributes to cumulative or incremental impacts with other projects completed, underway or proposed;
v) give Yes/No conclusion for each interest.

Moray Firth SAC
Bottlenose dolphins – yes.
Bottlenose dolphins occur regularly throughout the year in Aberdeen Harbour, just south of the proposed deployment centre. Photo ID has confirmed that at least some of these individuals are

from the Moray Firth SAC and as there are no known other bottlenose dolphin populations along the east coast of Scotland, it is assumed that all of them are part of the SAC population. The dolphins are believed to travel south from the Moray Firth along the east coast of Scotland with regular sightings as far as the Firth of Forth[2].
Bottlenose dolphin distribution appears to be more coastal than other cetacean species that occur in Aberdeen Bay. They are observed regularly (throughout the year) at Aberdeen harbour entrance for foraging and may also be transiting through the area to other preferred areas for foraging or nursery area e.g. St Andrews Bay [3]. The Moray Firth population of bottlenose dolphins prefer coastal habitats. A study by Armstrong 2011[4] found that the preferred depth for BND was 4.5 - 35m (117 sightings) and that of 202 sightings 85% were found within 800m of the shore with only 1 sighting 3.4km from the shore.

Potential impacts from the proposed deployment centre on bottlenose dolphins are:
Construction

- Sub acoustic noise arising from construction activities including deployment of foundations, resulting in disturbance or potential injury and death.
- Boat movements, cable-laying and other construction activity may give rise to disturbance.
- There may also be impacts to the prey species of dolphin – either from the placement of infrastructure (habitat changes, pollution, sediment increase etc) or due to noise.

Operation

- Boat movements and other operation and maintenance activity may give rise to disturbance.
- Presence of structures may cause disturbance / barrier effects.

Decommissioning

- Activity associated with removal of turbines may give rise to disturbance due to increased vessel movements, noise etc.

River Dee SAC
Salmon and Freshwater Pearl Mussel - Yes
River South Esk SAC
Salmon - and Freshwater Pearl Mussel- Yes

Atlantic salmon occur along the coast of NE Scotland and spawn in several NE rivers. The closest designated natural heritage site to EOWDS is the River Dee SAC, which is located approximately 7.2 km south of the proposed development. The River South Esk SAC is located approximately 58 km south of EOWDC.
Potential impacts from the proposed deployment centre on Atlantic salmon and freshwater pearl mussels are:
Construction

- Sub acoustic noise arising from construction activities including deployment of foundations resulting in disturbance or potential injury / death
- Pollution/Increased sedimentation during construction, particularly foundations and cable laying

Operation

- Effects of EMF on fish passage, particularly from the land fall cabling rather than the inter-array cabling.

Decommissioning

- Activity associated with removal of turbines may give rise to disturbance due to increased

[2] Thompson, P.M., Cheney, B., Ingram, S., Stevick, P., Wilson, B. & Hammond, P.S. (Eds) (2011). Distribution, abundance and population structure of bottlenose dolphins in Scottish waters. Scottish Government and Scottish Natural Heritage funded report. Scottish Natural heritage Commissioned report No.354

[4] Armstrong J. (2011) The long-term distribution, habitat use and site fidelity of bottlenose dolphins frequenting the outer southern Moray Firth coastline: a spatio-temporal analysis with implications for existing population management. MRes Thesis

vessel movements, sedimentation, noise etc.

Freshwater pearl mussels rely on salmon and sea trout as host species during the larval stage of their reproduction. Any impacts on these host species may therefore have an impact on freshwater pearl mussels.

Isle of May / Berwickshire and North Northumberland Coast SACs
Grey seal – Yes
Firth of Tay and Eden Estuary SAC
Harbour (common) seal – No

Grey seals occur throughout Scottish waters. Recent analysis of seal telemetry data by SMRU[5] has shown that grey seals tagged in both the Isle of May SAC and Berwickshire and North Northumberland Coast SAC appear to routinely travel past Aberdeen (through the proposed location) on their way to the Pentland Firth. Grey seals will haul out at various places along the route and may therefore use the grey seal haul out sites in Aberdeenshire. The proportion of the SAC populations that travels in this way is not known nor how long they remain in this area for.

The telemetry study showed that harbour seals tend to be more limited in their movements (foraging distances - approx 50km) than grey seals and stay in the same area. The Firth of Tay and Eden Estuary SAC is approximately 90km from the development site and would normally be considered outwith 'normal' harbour seal foraging range, it would therefore be exceptional that harbour seals found in the vicinity of the proposed windfarm are from either this SAC or the Dornoch Firth SAC - the two closest harbour seal SACs, both are beyond the 50km normal foraging range. Most recent tagging data from the Firth of Tay and Eden Estuary from Spring 2011 from 5 individuals indicate that none of these individuals travelled as far as Aberdeen Bay.

Potential impacts from the proposed deployment centre on grey seals are:
Construction

- Sub acoustic noise arising from construction activities including deployment of foundations resulting in disturbance or potential injury / death
- Potential for vessel movements for operation and maintenance activities to require use of vessels with certain types of ducted propellers. There is a potential issue relating to ducted propellers ad cork screw injuries. Guidance is currently being drafted by the Statutory Nature Conservation Agencies alongside various strands of research will mean this issue will be continually reviewed to provide most up to date guidance.

Decommissioning

- Activity associated with removal of turbines may give rise to disturbance due to increased vessel movements, noise etc.

3c. Appraisal of the implications for the site in view of the site's conservation objectives.

i) Describe for each European qualifying interest the potential impacts of the proposed operation detailing which aspects of the proposal could impact upon them and their conservation objectives
ii) Evaluate the significance of the potential impacts, e.g. whether short/long term, reversible or irreversible, and in relation to the proportion/importance of the interest affected, and the overall effect on the site's conservation objectives. Record if additional survey information or specialist advice has been obtained.

Generic
For all the mobile species, impacts will occur away from the designated site area, so it is for the following conservation objectives to be considered against the potential impacts:

- Will the proposal cause significant disturbance to mobile species (bottle nose dolphins, grey

[5] SNH Commissioned Report 441: Utilisation of space by grey and harbour seals in the Pentland Firth and Orkney waters 2011

seal and salmon) while they are outwith the SAC such that the viability of the SAC population is affected?

- Will the proposal in any way affect the population viability of the SACs from which the mobile species are connected? This could include indirect impacts – such as the degradation or loss of supporting habitats or feeding grounds which are outwith the SAC but which help to maintain the population of mobile species in the SACs in the long-term.

For freshwater pearl mussels, the conservation objective that requires consideration is:

- Distribution and viability of freshwater pearl mussel host species i.e. impacts on salmon may have an indirect effect on FWPM and if the salmon in the Rivers Dee and South Esk are assessed not to be at risk from an adverse effect on site integrity, then FWPM can also be ruled out as being at risk in both these SACs.

Proposal Details

The development comprises (ES Chapter 3):
11 turbines and foundations likely to be developed in two phases - 4 turbines in 2013 and 7 turbines in 2014,
Turbine types are not yet determined but will be of a typical design comprising a tower, nacelle and 3 blades; foundations could comprise gravity foundation, monopile in steel, steel tripod or piled concrete tripod, jacket structure or suction bucket.
Potentially one anemometer mast.
Inter-array cables between each turbine location linking to an onshore substation. The inter-array cables are likely to be approximately 13km in length and are likely to be 33kv 3 core cables.
A maximum of 4 export cables is proposed again these are likely to be 33kv 3 core cables with an approximate total length of 26km) comprising 4 differing lengths connecting the windfarm to the onshore substation.

Potential impacts from this development

Construction
As indicated above there are a number of aspects that could lead to impacts during construction for each of the SAC qualifying interests.
Death / Displacement / Barrier Effects / Indirect Impacts

- Construction Activities including vessel movements; cable laying

Studies have shown that displacement of marine mammals and fish species can occur from increased vessel movements and noise disturbance from construction activities.[6] Seals and cetaceans have been recorded both within the windfarm area and the Aberdeen harbour mouth.
During construction there will be increased vessel traffic, noisy activities associated with foundations and activities associated with the inter-array cabling and grid connections. Aberdeen Harbour (approx 7km) is in close proximity to the proposed windfarm footprint, the port is busy and has an associated anchorage area during peak demand. Although seals and cetaceans at the harbour mouth are therefore accustomed to frequent vessel movements they will still take avoiding action at certain levels of activity.

In order to reduce the risk of corkscrew injuries to seals, up to date advice on vessels operating with ducted propellers can be provided as details emerge on construction methods and operating and maintenance requirements. This relates to issues that have been raised regarding recent injuries to seals, particularly harbour seals where there is a possibility that seals are attracted to certain types of ducted propellers and are drawn through resulting in a cork screw fatality.

[6] Baldock A (2008) The Effect of Boats on the Foraging Behaviour of the Bottlenose Dolphin *(Tursiops truncatus)* in Aberdeen Harbour Using Observational and T-POD Data. MSc Thesis; **Richardson WJ, Greene CR, Malme CI, Thompson DH (1995) Marine Mammals and Noise. Academic Press, San Diego, CA**

[7] Brandt, M J, Diederichs, A, Betke, K, Nehls, G. (2011) Responses of harbour porpoises to pile driving at the Horns Rev II offshore wind farm in the Danish North Sea Mar ecol prog ser 421:205-216

[8] http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Piling%20protocol_August%202010.pdf

[9] www.offshorewind.co.uk/Assets/1351_**emf**_research_report_04_05_06.pdf

A vessel management plan will be required as mitigation to minimise the risk of injury and disturbance to seals and cetaceans.

- Sub Acoustic Noise

There have been limited studies on impacts from piling on fish or marine mammals. There are a number of effects that noise can have ranging from death, physical damage, behavioural avoidance and no reaction.

Impacts from existing offshore windfarms have to date only been able to consider impacts to harbour porpoise and seal species, species which are more commonly encountered in the UK and other areas of Europe where offshore wind is being developed.

Piling works have been taking place in Aberdeen harbour recently. Refurbishment of several of the piers and berths has required construction activity including vibro-piling, drilling etc. As part of the consenting process for these works consideration of noise impacts on both Atlantic salmon and bottle nose dolphins was required. Sub acoustic noise was modelled to determine the extent that the vibro-piling noise was predicted to travel. As part of the consent mitigation was agreed including
(i) diurnal restrictions to piling activity, and
(ii) observations and soft start procedures for marine mammals.

The ES has provided a prediction of sub acoustic noise, with a worst case scenario based on the selection of a foundation monopile of 8.5metre diameter. Differing peak to peak levels of noise impacts will have differing results. Most species will exhibit strong behavioural avoidance at 90dbht, however at 75dbht most individuals will exhibit "significant avoidance", (ES – Technical appendix 3.1). The ES also identifies that for all species, lethal effects may occur within 3m of the noise source and physical injury out to 60m. There is a further caveat indicating that the model used may have overestimated impacts and that lethality is not expected to occur. Tables 1.9.14 – 1.9.17 provide an estimated impact range for a number of marine species, from 4 turbine locations. The greatest extent of the mean range predicted for SAC qualifying interests are seal sp – 10km, bottle nose dolphins – 9.2km and salmon 4.1km. These ranges extend to and include Aberdeen harbour mouth.

Piling noise will result in disturbance and therefore displacement. Limited periods of disturbance may not lead to displacement on a permanent basis, however it is likely that during construction species will show an avoidance reaction. A recent study by Brandt et al (2011) at the Horns Rev II offshore wind farm found that porpoise acoustic activity was reduced by 100% for 1 hour after pile driving and stayed below normal levels for 24 to 72 hours at a distance of 2.6 km from the construction site. They concluded that the behavioural response of harbour porpoises to pile driving lasted much longer than previously reported.[7] There have been no studies on how bottlenose dolphins or cetacean species would react to piling at offshore wind farms. Given that porpoise are known to be sensitive to noise disturbance we can assume that other species may also show similar reactions.

Consequently there is likely to be temporary displacement of bottlenose dolphins and seals from these foraging areas during and possibly after piling activity. In addition, construction noise from piling may act as a temporary barrier to movement north and south of the windfarm, due to the preference by dolphins / seals to remain in coastal waters. However any displacement or barrier effect should be short lived, the worst case scenario indicates piling would last a maximum of 4 – 6 hours and there are alternative foraging areas available, which are also used, either side of the development.

Adult salmon returning to their natal river are likely to take avoidance action during piling events. This may result in adult salmon delaying entry to the natal river which can be mitigated by diurnal restrictions preventing piling at night. Evidence indicates that smolts leave the River Dee during high tide / high water and darkness. A diurnal restriction would also help reduce any impact to smolt migration.

The installation of driven piles in the marine environment without mitigation is likely to produce noise levels capable of causing injury and disturbance to marine mammals and fish. The Statutory nature conservation agencies have produced a protocol for minimising the risk of injury to marine mammals from piling noise[8] Physical impacts to dolphins, seals and salmon can be reduced through mitigation such as soft start procedures. The deployment of marine mammal observers and use of Passive Acoustic Monitoring (PAMs) prior to any piling commencing can ensure that no piling commences while dolphins and seals are present within the mitigation zone.

- Indirect effects including effects on prey species through water quality

Construction activities will result in increased sediment release within the bay. Aberdeen bay is currently a highly dynamic location. As foundations are to be constructed individually within a phased timeframe, sediment released from individual foundations and cabling works have been modelled. Note the monopile of 8.5m has been modelled based on it being the worst case scenario for sediment released with approximately 2100m3 of seabed disturbed. The sediment disturbance at each foundation location has been modelled with *in-situ* sediment release and there will be temporary increase in suspended sediment concentrations (SSC) as each turbine foundation is constructed along with each of the cable routes.

There are some potentially conflicting assessments of suspended sediment levels made between different sections of the ES e.g. section 2.4.2 of Appendix 8.1 and section 3.2 of Appendix 22.2. The localized maximum concentrations in Chapter 8 (Coastal processes), are above the levels indicated elsewhere in the ES and above the threshold given for causing avoidance reactions in juvenile Atlantic salmon in freshwater. This inconsistency needs to be rectified and an assessment made as to how quickly any plume would disperse. We consider that, subject to this re-assessment, the plumes are likely to disperse quickly and not have a significant adverse impact on marine mammals or salmon.

Construction activities could also give rise to pollution, depending on the materials used during construction, or through collision of boats. This could be addressed by requiring pollution prevention measures in the construction method statement and environmental management system and through a vessel management plan.

Operation and Maintenance

As indicated above there are a number of aspects that could lead to impacts during operation and maintenance for each of the SAC qualifying interests.

Displacement / Barrier Effects / Indirect Impacts

Vessel movements and activities associated with operation and maintenance could result in temporary disturbance and / or displacement. O&M activities impacts will be less frequent and intensive compared to during construction. Mitigation to reduce these impacts as undertaken during construction should be deployed, including use of marine mammal observers (as detailed in the SNCA piling protocol), requirements of vessel / helicopter details should be submitted as part of an O&M Plan within the Environmental Management Plan.

With regard to fish migration, particularly Electro Magnetic Fields (EMF).. impacts and Atlantic salmon, conditions will be required identifying a minimum depth requirement for the burial of the grid export cable. Evidence indicates that the greater the burial depth the more it reduces any potential EMF effect. Current knowledge indicates that EMF fields may disrupt salmon migratory abilities which rely on the earth's magnetic fields. If cables which emit EMF fields are sufficiently buried (depends on ground conditions etc.) than these effects are minimised and therefore impacts are lessened[9].

Operation / maintenance activities could also give rise to pollution, depending on the materials used during construction, or through collision of boats. This could be addressed by requiring pollution prevention measures in the environmental management system and through a vessel management plan.

Decommissioning

Details on decommissioning of the windfarm are not provided; there will be different methods for

decommissioning, such as complete removal, partial removal of all parts etc. Where structures have been drilled into the seabed, current practice is either to leave them in place or to cut off at the sea bed level. The impacts of this would not result in impacts greater than those experienced during construction. Further advice will be provided as part of the consultation on a decommissioning plan.

iii) In the light of the appraisal, ascertain whether the proposal will not adversely affect the integrity of the site for the qualifying interests. If SAC and/or SPA and/or Ramsar site, give separate conclusions. If conditions or modifications are required, proceed to 4.

SNH considers that it has not been ascertained that the proposal will not adversely affect the integrity of the site within the supporting ES / Information to inform HRA for this application. SNH have however, undertaken an appraisal of the potential impacts and this appraisal should assist Marine Scotland as the competent authority to determine this application.
SNH has concluded in the light of the SAC interests (bottlenose dolphins, grey seal, Atlantic salmon and freshwater pearl mussel that no adverse effects on site integrity will occur so long as conditions are attached to any consent to minimise impacts.

This proposal however is not just a small scale windfarm, but a deployment centre, which *'at the heart of the EOWDC project is the interaction between a research and potential test and training centre with a small, highly innovative, commercially operated and highly instrumented and monitored offshore wind farm'. (ES Appendix 28.1, section3.3).*

SNH therefore provides a number of recommendations for conditions etc. if the project is consented, to increase the evidence base to help inform wider offshore renewable industry requirements by providing results for a detailed, robust monitoring plan with analysis of results publicly available.

5. Conditions or modifications required.

Condition:	*Reason:*
1. *Expert panel appointed to advise on robust monitoring approach for environmental issues, particularly marine mammals.*	1. *To ensure best available and most appropriate scientific information is used to inform monitoring strategy.*
2. *Construction Method Statement providing details on phasing, duration of activities, pollution prevention measures etc.*	2. *To ensure all environmental issue are taken into account in designing the construction of the windfarm.*
3. *Vessel Management Plan providing details on vessels to be used, steaming routes, use of ducted propellers.*	3. *To minimise disturbance to marine mammals through a detailed plan outlining vessel type and movements.*
4. *Export cable details (location, timing, type, method etc) to be agreed in advance of any works commencing.*	4. *To ensure this aspect of construction and operation is considered in sufficient detail and mitigation provide if necessary.*
5. *Decommissioning Plan – provision of details.*	5. *To ensure any environmental impacts are considered.*
6. *Construction restrictions to avoid July /August*	6. *To minimise disturbance to marine mammal species.*
7. *Restriction of piling activity to daylight hours*	7. *To minimise disturbance to marine mammal and Atlantic salmon.*
8. *Use of MMOs and PAMs during piling to ensure that start up does not occur while dolphins, seals (and other cetaceans) are within the mitigation zone*	8. *To minimise disturbance to marine mammals.*
9. *Piling to commence with soft start.*	9. *To allow any unseen dolphins and seals to take avoiding action and reduce the risk of death and injury, and thereby minimise disturbance to marine mammals*

5. Advice sought.

Include here details of or clear reference to, advice sought from AS, colleagues etc. If no advice sought give brief reasons/justification.

Advice has been sought from the following specialism's within SNH:
Marine mammals / ecology
Diadromous fish
Inshore fisheries
Protected places (Natura)
Coastal processes
In addition, advice has also been sought from SCM – Marine Renewables, Principal Advisers – Casework and Advice and Marine along with the Area Manager - Tayside and Grampian.

6. RESPONSE

a) Natura Comments (for additional guidance see Development Management and the Natural Heritage, section 8, or the Natura Model Responses (in the Natura Casework Guidance) for all other Natura casework)

Conditioned objection
In our view, this proposal is likely to have a significant effect on the qualifying interest(s) of the above SAC sites. As a consequence Marine Scotland is required to undertake an appropriate assessment in view of each site's conservation objectives for the qualifying interests affected. To help you do this, we would further advise that (on the basis of our appraisal, if the proposal is undertaken strictly in accordance with conditions outlined above, then the proposal will not adversely affect the integrity of the site.

b) SNH Comments

For SNH advice to other authorities:

This proposal could be progressed. However, the proposal does raise natural heritage issues of national significance and we therefore object to this proposal unless it is made subject of the mitigation measures through conditions.

Appraised by	Sue Lawrence / Erica Knott
Date	26 October 2011
Checked by	David Bale
Date	1 November 2011

Sutherland Al (Andrew)

From:	Ferguson V (Val)
Sent:	17 August 2011 09:12
To:	Sutherland Al (Andrew)
Subject:	Aberdeen Offshore Wind Deployment centre
Follow Up Flag:	Follow up
Flag Status:	Red

Andrew,

Thanks for sending this through. I have no comments to make on this case. So long as you are consulting Aberdeen Harbour and take on board any issues relating to harbour access I am content.

Val Ferguson

Ports and Harbours Branch

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Our Ref SCT6556B
Your Ref 018/OW/AOWFL-9

22 September 2011

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Andrew Sutherland
Marine Renewables Licensing Advisor
Scottish Government
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

Dear Sirs

ELECTRICITY ACT 1989
THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) (SCOTLAND) REGULATIONS 2000
MARINE (SCOTLAND) ACT 2010
THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGUALTION 2007
PROPOSED EUROPEAN WINDFARM, ABERDEEN BAY, ABERDEEN (ENVIRONMENTAL STATEMENT)

With reference to your correspondence dated 3rd August 2011 on the above development we write to inform you of our involvement as Term Consultants to Transport Scotland – Trunk Road Network Management Directorate (TS-TRNMD) in relation to the provision of advice on issues affecting the trunk road network.

We have been forwarded various pieces of information for the proposed European Offshore Wind Farm Development. We have reviewed the information provided by the applicant, including the Environmental Statement (ES) and would make the following comments on behalf of Transport Scotland.

We understand that the site of the proposed windfarm lies approximately 2.4 kilometres offshore from the coastline of Aberdeenshire at Blackdog. We note that the total area of the wind turbine layout is approximately 4.3 km^2 and is situated within a 20 km^2 lease boundary awarded by The Crown Estate. We note that the information provided within the ES deals mainly with the offshore operations of the proposed development and we accept that the offshore activities would not have any significant environmental impact on the trunk road network.

Notwithstanding that, we note that a planning application to cover the onshore operations of the proposed development will be made separately under the Town and Country Planning (Scotland) Act 1997 once those activities have been identified. A full review of the onshore operation and its effects on the trunk road network (if any) would be undertaken once the application has been submitted. Therefore, on the basis of the information provided in support of the current application, we can confirm our agreement to the conclusion that the offshore activities would not have any significant environmental impact on the trunk road network and we do not require any further information in this regard.

I trust that the above is satisfactory and should you wish to discuss any issues raised in greater detail, please do not hesitate to contact me at our Glasgow office.

Yours faithfully

[redacted]

[redacted]
Associate Director

Tel [redacted]
Email [redacted]@jmp.co.uk

Cc Malcolm Forsyth, Transport Scotland Development Management

WDCS
Whale and Dolphin Conservation Society

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25th October 2011

Dear Mr Sutherland

WDCS comments on the European Offshore Wind Development Centre

Thank you for providing WDCS with the opportunity to comment on the proposed development of the European Offshore Wind Development Centre in the waters off Aberdeen. WDCS has been part of the stakeholder group surrounding discussions about this development since 2007. We acknowledge the small scale of this development, consisting of eleven turbines, as compared to other larger sites planned to be developed in Scottish Territorial Waters and UK waters.

We understand that this site is intended to be a test site and therefore should demonstrate best practise in its approach to environmental assessment and monitoring of potential impacts. We have only provided comments on Appendix 12.1 and 12.2 and brief comments on Appendix 28.1 and 29.1 that relate to marine mammals.

WDCS welcome the commitments from the Scottish and UK Governments to renewable energy generation, particularly noting the potential adverse consequences of climate change for cetaceans (whales, dolphins and porpoises). This is an issue that we have been working on for some time[1]. WDCS would like to support an innovative and dynamic marine renewable industry that is adaptive and demonstrates best practice.

However, we have serious concerns about the possible negative impacts these developments may have on cetaceans in Scottish and UK waters if not developed with appropriate consideration to the application of existing legal protection and an adequate scientific understanding.

The waters around Scotland offer a range of rich cetacean habitats with more than twenty species being recorded here, and many routinely encountered in coastal waters, including off the

[1] See, for example, Whales in Hot Water available at www.wdcs.org

Aberdeenshire coast. In a European context, Scottish waters are very important for a number of cetaceans with large percentages of Europe's populations being found here.

Large gaps remain in our knowledge of the cetaceans which live year round or migrate through these waters. No clear picture exists of their abundance and distribution in most areas, including off Aberdeen. Whilst the data collected in preparation for this development go some way to answer some basic and important biological questions, we believe that there is still some way to go before the Habitats Directive requirements for strict protection can be ensured and Natura 2000 conservation objectives can be met.

Overall, Appendix 12.1 provides an adequate summary of the current knowledge of cetaceans in Aberdeen Bay. However, as presented, we do not believe that enough effort data has been collected and we were disappointed that not all collected data were available in the Environmental Statement. This should not be acceptable as it clearly impedes effective decision making. We were very disappointed with the standard of Appendix 12.2 (Marine Mammal EIA), which makes a number of assumptions that are not based in fact and are not precautionary in nature. Detailed comments are provided in the appendix to this letter.

Specific comments regarding Aberdeen Bay

Aberdeen Bay is a significant region for a number of cetacean species within both a Scottish and a regional context. The diversity of cetacean species regularly encountered in this region is not found elsewhere outside of Scottish waters in the whole of Northern Europe.

The population of bottlenose dolphins that are offered protection through the Moray Firth Special Area of Conservation are found in the Aberdeen Bay area all year round (Table 5 of Appendix 12.1) and regularly forage in the area around Aberdeen harbour and, as identified in the ES, this puts them in close proximity to the proposed site of the development.

Minke whales and white-beaked dolphins, which are both Priority Marine Features (PMF) under the Scottish Marine Protected Area (MPA) Project, are seasonally resident in the Aberdeen Bay area. Risso's dolphins appear to be seen more frequently in the area in recent years and yet we still know very little about the importance of the area for this PMF.

To date, impacts of marine wind farms have focused on harbour porpoises, the species most commonly encountered in most parts of Europe. There are no impact studies, of which we are aware, on the impacts on these Priority Marine Features or any other cetacean species found in the Aberdeen Bay area. As a result, there will be wider interest, including from the international scientific community, in the monitoring and mitigation work undertaken and the subsequent results to minimise disturbance from this development.

Potential impacts

As the Scottish and UK governments strive to meet their greenhouse gas emission targets and renewable energy commitments, renewable development continues at a rapid pace. Vast areas of the seas surrounding the UK have already been set aside for marine renewable development and, in addition to habitat loss caused by the presence of these structures, WDCS is concerned about the

potential for cetaceans to be disturbed and displaced, including by the noise introduced into their environment. Noise will be produced throughout the life of the development, including construction, operational and decommissioning phases, and from associated vessel traffic. Noise pollution has the potential to displace animals and populations, interfere with normal behaviour and, at very high intensities, is physically damaging.

As the marine renewable industry is a relatively new one, a lack of detailed information about the potential impacts on cetaceans and other marine life means that a highly precautionary approach is required in the development of this industry.

We have little information about how cetaceans will interact with other new renewable structures being placed in the water column and other significant impacts that may come to light as the industry develops.

The combined effects of these developments with other industries operating in the marine environment, such as shipping and oil and gas exploration, are also largely unknown. Yet it is important that cumulative and in-combination impacts be adequately considered as our understanding develops.

We acknowledge that there could be positive impacts of renewable developments for cetaceans such as the establishment of fisheries no-go zones around devices, yet there is little evidence to support this at the moment.

Pile driving

We are particularly concerned about the intense impulsive noise caused by the pile-driving that is likely to be used to anchor the turbines to the seabed. Pile driving is one of the loudest sources of underwater noise. As the report documents, this activity may disrupt the behaviour of marine mammals at distances of many kilometres, with hearing potentially impaired at close range.

Disturbance impacts as a result of pile driving and the possible displacement, particularly of the bottlenose dolphins from key habitat around the harbour entrance, and the unknown consequences of this, have not been adequately considered in this ES. We are particularly concerned about the potential for increased impacts from pile driving due to reverberations off the harbour wall.

In addition, there are no impact studies on pile driving on those Priority Marine Features or any other cetacean species found in the Aberdeen Bay area and so measures to minimise disturbance should be carefully thought through. We believe that an independent scientific panel is required and should consider the implications and scientific requirements for monitoring and mitigation more fully than the ES has done.

Monitoring and mitigation

It is essential that appropriate and adequate baseline monitoring surveys are conducted before construction begins, to allow for properly informed decision making, effective impact monitoring and adaptive management. The baseline data reported in this ES does not cover two years, is piece-meal and does not appear to answer any specific research questions, such as how many animals will

be impacted, whether this will be detrimental to the local population or where they might go if/when they are displaced. This is despite the year-round presence of the Moray Firth SAC protected bottlenose dolphins and numerous other EPS species, which are likely to be disturbed as a result of development activities.

For example, the average bottlenose dolphin group size is five animals. This small number of animals is a significant percentage of the overall population of 193 animals (Thompson et al., 2011) that are protected by the Moray Firth Special Area of Conservation (SAC). This number of animals is likely to be encountered in the vicinity of the harbour and so measures to mitigate impacts need to be transparent and proven as effective – to meet the conservation objectives of the site and to ensure scientific certainty under the EU Habitats Directive.

The summary of Appendix 12.1 states *"A higher number of bottlenose dolphins were recorded in the wind farm area in comparison to the control site and in the vicinity of the entrance to Aberdeen harbour, which is a known hotspot for dolphin sightings."* It seems very likely that bottlenose dolphins will be displaced or otherwise impacted by the development activities. There is no evidence to support that the animals can and will move out of the area to forage elsewhere. It is therefore essential that impacts of displacement are fully considered and that a longer term monitoring programme is scientifically robust and is maintained to ensure that any potential impacts are monitored and mitigated effectively.

Once a decision has been made that development can safely proceed without impacts on the marine environment, monitoring should then continue during development to document any observable impacts and mitigation should occur to minimise the effects on EPS species, including cetaceans.

WDCS are supportive of a Marine Mammal Protection Plan (MMPP). However, it is not adequate to state that such an MMPP will be developed to address and mitigate impacts. The assumption that this is possible is incorrect. The MMPP needs to ensure that all aspects of the monitoring and mitigation are effective and will enable the requirements of 'strict protection' of EPS and the conservation objectives of Natura site designation to be met. It does not currently do this.

It would be appropriate to form a small independent scientific panel to ensure adequate consideration is given to all relevant marine species, including cetaceans, in the design and implementation of all stages of monitoring and mitigation. WDCS would like to be included in such a panel.

Effective management strategies should include adequate and transparent monitoring, mitigation and subsequent adaptive management. Important considerations include:

- What monitoring and mitigation measures are available
- What measures have been validated and how well they work
- What uncertainties and gaps remain in monitoring and mitigation strategies
- What research activities are needed to address those uncertainties and gaps
- How monitoring and mitigation data might be better collected, stored and analysed to provide insights into developing new and effective mitigation approaches

- How monitoring data might be used to assess mitigation efficacy over large temporal and spatial scales
- How the results of these studies will be fed back into the decision making process to further develop future mitigation and management decisions

SUMMARY

At such an early stage of licensing of marine wind farms, where so little is known about potential impacts, it is critical that monitoring and mitigation measures are adequate to allow detailed analysis of potential impacts to enable an adaptive approach to future decision making.

Continued uncertainties surrounding the foundation structures and mitigation measures as part of the MMPP make it very difficult to offer substantive comments about these key parts of the development. Overall we continue to have considerable concerns about the potential impacts of pile driving activities and the current lack of specific measures to mitigate impacts effectively to prevent both injury and disturbance of European Protected Species (EPS).

Part of the population of bottlenose dolphins that are offered protection through the Moray Firth Special Area of Conservation are found in the Aberdeen Bay area all year round. Their dependence on the area around the harbour puts them in close proximity to the development of the site. This ES does not make convincing arguments for maintenance of the SAC conservation objectives. Various other cetacean species are found in the Aberdeen Bay area, including PMFs, and the ES does not make convincing arguments that existing mitigation measures can effectively deal with disturbance.

It seems very likely that bottlenose dolphins and other cetacean species will be displaced or otherwise impacted by the development activities. Arguments made in the ES to dismiss habitat displacement and potential impacts of pile driving are unconvincing. These matters are not trivial and more certainty about the potential impacts to both individuals and populations is required.

As a result, we disagree that the risk of an adverse impact will be low for bottlenose dolphins (Appendix 29.1 - section 8.1.2) and that the proposed development either alone or in-combination will not cause an adverse effect on the integrity of the relevant SAC with regard to bottlenose dolphin (section 8.1.4). As stated above, we do not believe that enough has been done to determine this.

Given the current flaws in the ES and the outstanding uncertainties concerning the potential impacts of the development of offshore wind farms for the range of cetaceans that are likely to be disturbed, we make the following recommendations:

Specific recommendations to Marine Scotland Licencing Team on the EOWDC:

- An independent scientific panel should be formed to ensure adequate scientific consideration is given to all relevant cetacean species in the design, scale and implementation of all stages of monitoring and mitigation;

- Adequate monitoring should be undertaken (determined by the scientific panel) to take full account of disturbance, and to the distances that are reported in scientific literature, not theoretical assumptions;
- A longer term scientifically robust monitoring programme should be set up and maintained to ensure that any potential impacts are monitored and mitigated effectively;
- The Marine Mammal Protection Plan (MMPP) should be designed based on the expertise of the scientific panel;
- The MMPP should consider the difference between monitoring and mitigation, and should only rely on tested mitigation measures to reduce impacts of development;
- A disturbance licence should be required, to include a detailed assessment of how many animals of each species are likely to be disturbed, what percentage of the population is likely to be disturbed and what behaviours are likely to be impacted as determined by the scientific panel;
- A detailed scientific report of monitoring results should be provided to SNH within a suitable timeframe of the development;
- Given the potential for wide-ranging impacts of pile driving especially, and the critical calving period of some species between April and September (Table 5), any pile driving should occur outside of these spring and summer months, but taking full account of bottlenose dolphins, grey seal and other marine species biologically important activities;
- The EOWDC ES should be peer-reviewed to ensure that it is accurate in its interpretation of the existing science, appropriately identifies data gaps and generally reaches a suitable standard to make an informed decision; and,
- Data should be publicly available within a suitable timeframe and in an appropriate format so that they can be included in the JNCC Joint Cetacean Protocol.

Recommendations to enable industry best practise in marine renewable energy development:

- Primarily, detailed guidance on disturbance licencing should be produced, with key stakeholder input, as a priority;
- As JNCC has done with marine mammal data collected on seismic survey vessels (see Stone, 1997; 1998; 2000; 2003a; 2003b; 2003c; Stone and Tasker, 2006), an annual and publicly available review of all scientific data collected from renewables developments should be produced to inform future plans through an adaptive approach;
- Quieter and more benign alternatives to pile-driving are an important and viable option that governments and other key stakeholders, including The Crown Estate, should be funding to develop. Similarly, there may be methods that can be used to limit noise;
- The Scottish Government and The Crown Estate should fully consider how to understand and effectively monitor and mitigate against cumulative impacts of wider renewables developments on mobile species who's range includes more than one development site or animals that move from one development site to the next as a result of activities being undertaken;
- Prioritise and assist in funding those data gaps which are most important, to ensure that strict protection of species are maintained;
- The COWRIE research fund should be continued and extended to include full consideration of the range of species found in Scottish waters; and,

- An independent environmental audit should be planned once the MS licencing department has been in operation for a year to assess the level of adequacy of supporting material for environmental assessments and to ensure an adequate standard is maintained.

We would welcome the opportunity to discuss these concerns in person.

Yours sincerely

[redacted]

References

Stone, C.J., 1997. The Effects of Seismic Activities on Marine Mammals in UK Waters 1996. JNCC Report 228, Joint Nature Conservation Committee, Peterborough.

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Stone, C.J., 2003c. The Effects of Seismic Activities on Marine Mammals in UK Waters 2000. JNCC Report 322, Joint Nature Conservation Committee, Peterborough.

Stone, C.J., 2006. Marine Mammal Observations During Seismic Surveys in 2001 and 2002. JNCC Report 359, Joint Nature Conservation Committee, Peterborough.

Stone, C.J. and Tasker, M.L., 2006. The effects of seismic airguns on cetaceans in UK waters. Journal of Cetacean Research and Management 8, 255–263.

Specific comments on the European Offshore Wind Development Centre ES

Detailed comments on Appendix 12.1

As the Marine Mammal Environmental Baseline report (Appendix 12.1) shows, Aberdeen Bay is a significant region for a number of cetacean species within both a Scottish and a regional context. The diversity of cetacean species regularly encountered in this region is not found elsewhere outside of Scottish waters in the whole of Northern Europe. Yet we note the large errors surrounding the field data collected, due to the small number of surveys conducted (Figure 22).

There are some obvious flaws in the data collected. Those of primary concern to us are outlined here:

- Field survey coverage does not cover the ranges over which we can anticipate disturbance to occur (Figure 2);
- Some data collected were not included in the ES (Table 2);
- We see that two years of data is not available (Tables 1 & 2 for visual and Tables 4 & 5 for acoustic data). Both of these factors are likely to inhibit appropriate decision making to ensure strict protection; and,
- Sea state is not included in the boat based data analysis. Increasing sea state is known to be a critical factor in sightability of some key species in the region, including both harbour porpoises and minke whales.

During the boat-based surveys bottlenose dolphin sightings were frequently made at the entrance to Aberdeen Harbour (Figure 8 in Appendix 12.1). We are very concerned about the potential for increased impacts from pile driving due to reverberations off the harbour wall. These should be modelled and ground-truthed with in-field acoustic data. Alternatives to, and effective mitigation for, pile driving are required and should be developed.

That dolphins were not visually detected on SMRU surveys in 2010 and 2011, and yet dolphins were heard acoustically (page 131), testifies to the fact that visual surveys cannot be relied upon to detect animals in order to aid mitigation. Further, detection of animals in itself is not a mitigation measure.

The average bottlenose dolphin group size is five animals. This small number of animals is a significant percentage of the overall population of 193 animals (Thompson et al., 2011) that are protected by the Moray Firth Special Area of Conservation (SAC). This number of animals is likely to be encountered in the vicinity of the harbour and so measures to mitigate impacts need to be transparent and proven as effective – to meet the conservation objectives of the site and to ensure scientific certainty under the EU Habitats Directive.

Summary of Appendix 12.1

Appendix 12.1 accurately summarises that *"The main findings from this review indicate that of the marine mammal species recorded in the area, bottlenose dolphins, harbour porpoises, white-beaked dolphins, minke whales, harbour and grey seals are regularly present in the area. Therefore, these species could be affected by potential impacts associated with the proposed development, such as underwater noise disturbance, changes in prey availability and foraging areas, displacement and barrier effects."* WDCS agree with this part of the summary.

However, we do not believe that these findings are given adequate consideration, as the summary goes on to propose, *"These potential impacts and possible mitigation measures will be addressed in the ES technical report."*

Further, we note that the summary states *"A higher number of bottlenose dolphins were recorded in the wind farm area in comparison to the control site and in the vicinity of the entrance to Aberdeen harbour, which is a known hotspot for dolphin sightings."* It seems very likely that bottlenose dolphins will be displaced or otherwise impacted by the development activities. It is therefore essential that the conservation objectives of the site can be met. Impacts of displacement should be fully considered and a longer term monitoring programme should be scientifically robust and maintained to ensure that any potential impacts are monitored and mitigated effectively.

Detailed comments on Appendix 12.2 – Marine Mammal EIA

Risk assessment

Taking a risk assessment approach may not be most appropriate given the lack of data surrounding the distribution and abundance of cetaceans in the region, the value of the region for important biological activities such as feeding and breeding, as well as the lack of any existing data on the potential impacts of renewables developments on cetaceans. The ES does not clearly state how it ensures to maintain the conservation objectives of the Moray Firth SAC for the bottlenose dolphins or ensure strict protection of other cetaceans.

Mitigating for injury and disturbance

There is a clear difference between injury, that occurs at short distances from the pile driving, and can be mitigated to some extent to a distance of 500m – 1km, and disturbance, for which the impacts can be varied and can occur to much greater ranges up to ten's of km. Section 1.1 is somewhat confusing in its representation of the differences between injury and disturbance.

Speculation in the EIA

Appendix 12.2 makes a number of assumptions that are not based in fact and are not precautionary in nature. For example, *"It is expected that the perceived loudness of the piling activity will cause the marine mammal to exhibit an aversive behavioural reaction, with the animal moving from the area before the onset of any auditory injury can occur."* No scientific evidence is provided to support these claims. On the contrary, there is some evidence that cetaceans will approach low intensity airguns (for example, McCauley et al., 2000; Weir, 2008) and other surveys occurred with mixed responses from different species (Stone and Tasker, 2006). We do not know how these species will respond to piling activity.

"The potential exclusion of bottlenose dolphins through behavioural displacement for the duration of the piling activity and out to an extent of 16 km has been assessed as being of high magnitude, and therefore potentially of major significance to the bottlenose dolphin. As bottlenose dolphins are present along the east coast of Scotland, it has been predicted that the temporary displacement of animals from the Aberdeen Bay area will be mitigated by animals moving into other areas within

their natural range, this is a hypothetical assessment and is based on the available habitat range for bottlenose dolphins being extensive covering the coastal waters along the Scottish east coast." The range of the bottlenose dolphins has expanded in the last decade, from the animals being almost wholly found within the boundaries of the SAC to a wider distribution along the coastline, down to St Andrews Bay and beyond. Yet the reason for this expansion is not known. For example, the animals may have been displaced from the Moray Firth due to prey depletion or noise pollution impacts from human activities occurring there, including seismic surveys. Therefore, it is not adequate to assume that displacement will not have a significant impact on such a small and vulnerable population, which already face a large number of human activities on a daily basis.

"Any temporary exclusion of the cetacean species from Aberdeen Bay is considered to be of low to negligible magnitude, given that there is likely to be adequate areas for foraging relatively nearby. If piling occurs during summer months (July/August) the significance of this is likely to increase to moderate for the white beaked dolphins, but will still be a minor impact for all other cetacean species." There is no evidence to support that the animals can and will move out of the area to forage. This assessment is not adequate to ensure protection of the bottlenose dolphins.

"Masking of biologically relevant sounds produced by high frequency cetaceans, such as the harbour porpoise, and possibly mid-frequency cetaceans, such as the bottlenose dolphin, is unlikely as the piling pulses have little high frequency energy. The pile driving pulse are of short duration, and are therefore may be below the time where full detection of signals is possible in cetaceans." There is evidence of displacement of harbour porpoises around pile driving activity and concerns have been raised for cetaceans regarding cumulative exposure over time, such as exposure to repetitive pulses during pile driving (De Jong & Ainslie, 2009; Madsen, 2005).

These arguments to dismiss habitat displacement and potential impacts of pile driving are unsubstantiated. These matters are not trivial and more certainty about the potential impacts to both individuals and populations is required.

"Noise dose modelling has also been carried noted that this is considered an unlikely scenario as it implies that the animal makes no attempt to flee the high sound field area." There is some evidence to show that foraging animals, even (or especially) compromised ones, will remain in an area despite noise (for example, Beale and Monaghan, 2004; Beale, 2007).

WDCS are supportive of a Marine Mammal Protection Plan (MMPP). However, it is not adequate to state that such an MMPP will be developed to address and mitigate impacts. The MMPP needs to ensure that all aspects of the monitoring and mitigation are effective and will enable the requirements of 'strict protection' of EPS and the conservation objectives of Natura site designation to be met.

Section 2.2.1 documents the existing baseline. Currently a number of survey techniques have been employed for short periods but the combination for these does not equate to two years environmental monitoring. This is not sufficient.

The 'duration of effect' (section 2.3) is inappropriate for cetaceans. For example, impacts of between 1-5 years is considered short-term in the document, yet the maximum longevity of a harbour porpoise in the UK is reported to be about 24 years (Lockyer, 1995), whereas most don't live longer than 10 years (Jefferson *et al*, 2008). Impacts that could span for half an animal's life could not be considered short-term. An independent scientific stakeholder group would help to ensure that data collected are appropriate to the true potential scale of effects for the animals.

Section 2.4 should consider military activities that occur in the Moray Firth and wider North Sea area including, but not limited to, NATO Exercise Joint Warrior, which is a large multi-national exercise that occurs twice annually.

Consideration of cumulative and in-combination impacts does not extend to future wind developments. Whilst this may be following the letter of the law, we believe that not considering future developments that are planned to occur, means that this development cannot be considered as 'best practice'.

Section 3.1 (Impact Assessment) is entirely speculative. Whilst multiple approaches have been reviewed, almost all of the data are theoretical.

"Although, to date, there have never been any records of piling having caused any form of physical injury to a marine mammal." (Section 3.1.1.1) Absence of evidence is not the same thing as evidence of absence.

Page 32: *"It can be seen that the animal would have to be between 1 and 1.5 km at the onset of piling to avoid a damaging sound exposure level, assuming that it stayed in the same position throughout the entire piling operation. It should be noted that this scenario is considered highly unlikely as marine species are likely to attempt to escape areas where injury is likely to be caused."* This is speculation.

Given the potential for wide-ranging disturbance impacts of pile driving for a number of species, and the critical calving period of most regular visitors being between April and September (Table 5 in Appendix 12.1), as a minimum, any pile driving that is permitted should occur outside of these spring and summer months. However, full account should be taken of bottlenose dolphins, grey seal and other marine species breeding activities.

Section 3.1.1.4 (Mitigation) is wholly inadequate. The authors are confusing management measures to observe animals (monitoring) and those to minimise disturbance (mitigation measures). The use of MMOs (marine mammal observers) and PAM (passive acoustic monitoring) are not in themselves mitigation measures. They are merely monitoring measures that help to determine if mitigation measures (such as shutting down the piling when animals approach) should be required.

Mitigation measures should be required to minimise disturbance, as well as to minimise physical impacts.

Pre-piling (introducing more noise into the marine environment) and soft start are not proven mitigation techniques.

No mention is made to shutting down activities should animals, including but not limited to, European Protected Species and Natura species be observed within a pre-determined distance of activities. If shut down is proposed within the 'mitigation zone' of 1km, then this should be included in the bullet point list of mitigation measures to be included. If shut down is not proposed, then the only reason to monitor out to 1km is to record incidences where animals enter that zone during construction operations.

The use of Acoustic Mitigation Devices (AMD's) introduces more noise pollution into the water and these are not a proven method of deterrent for cetaceans. They may induce the 'dinner bell' effect in seals as other (presumed) similar Acoustic Deterrent Devices (ADDs) have done in the past. If concerns about injuring marine mammals are such that additional noise sources are being considered as a mitigation then alternatives to pile driving should be seriously considered, especially given the sensitivities of bottlenose dolphins, harbour seals and other marine mammals in the area.

Section 3.1.2.2 (Assessment of behavioural effects) is all theoretical speculation. At such early stages of licensing of marine wind farms, where so little is known about potential impacts, it is critical that monitoring and mitigation measures are adequate to allow detailed analysis of potential impacts to enable an adaptive approach to future decision making.

Acoustic monitoring is an important component of this and whilst habitat displacement may be monitored using this approach for some species (but not minke whales), there are many more subtle impacts, including stress response, that we cannot yet monitor for (Wright et al., 2007a; 2007b).

Acoustic monitoring should be conducted to distances over which impacts are anticipated. As the report concludes that dolphins may be displaced for a distance of 12-13 km and that harbour porpoises may be displaced for a distance of 22 km, impact monitoring and analysis of population level impacts should be conducted to these distances. These distances are theoretical and based on very little real-time data and require ground-truthing.

The report continually cites habituation as a limiting factor to behavioural disturbance. A recent peer-reviewed publication says this about habituation: *"However, misinterpretation of the theoretical basis for these studies can jeopardise this objective and lead to management outcomes that are detrimental to the wildlife they are intended to protect. Misapplication of the terms 'habituation', 'sensitisation' and 'tolerance' in impact studies, for example, can lead to fundamental misinterpretations of research findings. Habituation is often used incorrectly to refer to any form of moderation in wildlife response to human disturbance, rather than to describe a progressive reduction in response to stimuli that are perceived as neither aversive nor beneficial. This misinterpretation, when coupled with the widely held assumption that habituation has a positive or neutral outcome for animals, can lead to inappropriate decisions about the threats human interactions pose to wildlife"* (Bejder et al., 2009).

Section 3.1.2.3. uses Temporary Threshold Shift (TTS), a hearing symptom which can lead to Permanent Threshold Shift (PTS), which is considered as injury. Auditory impacts are not an appropriate measure for behavioural disturbance.

"The range at which potential adverse behavioural responses is considerable being up to 22 km for harbour porpoise and 16 km for common and grey seals. For harbour porpoises the results of post-monitoring studies suggest that after piling stops the animals have been found to return to the area within a few hours. Therefore, behavioural disturbance, which could lead to displacement of marine mammals from the piling activities, is only expected to occur for the duration of piling activities." This statement is inaccurate in that it is being selective about the data it reviews. Whilst some data shows that porpoises return after construction to forage in the wind-farm site (Lindeboom et al., 2011), other studies have shown that porpoises do not return to the wind farm site and the reason for this is not known. A study in the Baltic Sea, Nysted, showed that porpoises left the area after construction and did not return during the operational phase (Tougaard *et al.,* 2009). Therefore these results cannot easily be extrapolated to any wind farm.

The distances over which displacement (and so a crude measure of behavioural disturbance) are reported in scientific literature are greater than those being produced by theoretical assessments. Environmental decision making should rely much less on theoretical assessments. It is necessary to ensure that adequate real time monitoring is occurring to inform future decision making.

Section 3.1.6.1 discusses the potential for vessel collisions as a result of increasing vessel traffic. The potential for collisions remains, and as the source of corkscrew deaths of seals off the east coast of Scotland remains unknown but is possibly linked to bow thrusters, this cannot be ruled out.

Poor general standard of Environmental Impact Assessment

We believe that the standard of Appendix 12.2 is questionable in some parts. We have grave misgivings about assumptions being made to support decisions about significant impact in other parts. This Appendix is speculative in parts and plays down potential impacts in a number of areas where significance is being determined. Such an approach can lead to 'death by a thousand cuts'.

The standard of EIAs has been a consistent problem with the oil and gas industry (Green, 2000) and we are keen that this poor standard of environmental assessment and reporting is not replicated within the marine renewable energy industry as it develops.

It is very important that EIAs for all marine renewable energy developments are consistent and adequate in their review of baseline data and potential impacts for the outcomes to be able to offer the requirements of 'strict protection' that is offered to cetaceans in Scottish waters. Marine Scotland should maintain a standard that is based in fact, acknowledges the data gaps and works to fill those gaps which are most important, whilst ensuring that strict protection of the species in the area are maintained.

We recommend that all marine renewable energy EAs that are available after one year of the Marine Scotland licencing department commencing its decision making should be audited, to determine strengths and weaknesses in each EA and to ensure a common and suitable standard in the future.

Appendix 28.1 Draft EMP

Having a marine mammal scientist rather than a marine mammal observer on staff would be a better use of resources (section 4.1). This would help to ensure that monitoring and mitigation were appropriate and adequate. WDCS would welcome such a move.

We note the reference to the MMPP in outline briefing note 3 (marine mammals) of Appendix 28.1. We also note that soft start is listed as mitigation for noise and vibration impacts on fish (including salmon and sea trout) and shellfish in outline briefing notes 4 and 9. However we are not aware that soft start has been proven as an effective mitigation technique for any of these species.

Appendix 29.1 Information to inform the HRA

We disagree that the risk of an adverse impact will be low for bottlenose dolphins (section 8.1.2) and that the proposed development either alone or in-combination will not cause an adverse effect on the integrity of the relevant SAC with regard to bottlenose dolphin (section 8.1.4). As stated above, we do not believe that enough has been done to determine this.

The report states that *"The use of a soft start and marine mammal observers complying with the relevant JNCC guidance will reduce the risk of bottlenose dolphins being present within close proximity of the construction activities."* However JNCC guidance only deals with injury and not disturbance. This statement is misleading and inaccurate.

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