



**Department of Environment Marine Division &
Department of Enterprise, Trade and Investment,
Energy Division**

**Scoping Opinion for First Flight Wind Ltd
proposed offshore wind farm, Northern Ireland**

May 2014

DoE MD ref: WR 208/12

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**First Flight Wind Limited request for an opinion as to the information to be included in an
Environmental Statement required under:
The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) and
The Offshore Electricity Development (Environmental Impact Assessment) Regulations
(Northern Ireland) 2008.**

1. Background

Request for a scoping opinion from the Department of the Environment, Northern Ireland.

- 1.1 The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) apply to activities requiring regulatory approval under Part 4, Section 65 of the Marine and Coastal Access Act 2009. These Regulations transpose the provisions of the EIA Directive (85/337/EC) (as amended) into Northern Ireland law. Following a written request from First Flight Wind Ltd (“the Applicant”) for a screening opinion from DoE and DETI, DoE and DETI, issued a joint screening opinion to First Flight Wind Ltd, on the 3rd June 2013, confirming that the project would require an Environmental Impact Assessment
- 1.2 On the 28 February 2014, the Department of the Environment (DoE) received a written request from First Flight Wind Ltd for a Scoping Opinion under Regulation 13 of the Marine Works (Environmental Impact Assessment) Regulations 2007(as amended), in relation to the proposed offshore wind farm project (“the project”) in waters off the County Down coast, Northern Ireland.
- 1.3 DoE have accepted the request from First Flight Wind Ltd for a Scoping Opinion under Regulation 13 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended).

Request for a scoping opinion from the Department of Enterprise, Trade and Investment

- 1.4 On the 28 February 2014, the Department of Enterprise, Trade and Investment (DETI) received a similar notification described in paragraph 1.1.
- 1.5 Any proposal to construct or operate an offshore generation station wholly or partly driven by wind or water and with a capacity in excess of 1 megawatt requires consent under Article 39 of the Electricity (Northern Ireland) Order 1992¹.

¹ The Electricity (Offshore Wind and Water Driven Generating Stations)(Permitted Capacity) Order (Northern Ireland) 2008 [S.R. 2008 No.54]

- 1.6 For an offshore development, DETI cannot grant Article 39 consent unless the requirements of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 have been complied with.
- 1.7 In DETI's view the proposed project constitutes a development described in Schedule 2 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 which is likely to have a significant effect on the environment due to its nature, size and location. On the 3rd June 2013 DoE and DETI issued a joint screening opinion to First Flight Wind Ltd confirming that the project would require an Environmental Impact Assessment.
- 1.8 Under Regulation 5(1)(b) of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008, DETI have agreed in writing with First Flight Wind Ltd to provide them with an opinion, on or before the 30th May 2014 as to the information to be provided in the Environmental Statement.

Request for Scoping Opinion

- 1.9 Under Schedule 4 of The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) and Regulation 5(3) of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 a request for a scoping opinion must be accompanied by:
 - (a) a chart, plan or map sufficient to identify the location of the regulated activity and other activities to be carried out in the course of the project
 - (b) a brief description of the nature and purpose of the project and the regulated activity and its possible effects on the environment; and
 - (c) such other information or representations as the person making the request may wish to provide or make.
- 1.10 DoE and DETI consider that this information has been provided in the scoping report.
- 1.11 In reaching a scoping opinion DoE must consider:
 - (a) the specific characteristics of the project;
 - (b) the nature and purpose of regulated activities of the type concerned in the project;
 - (c) the environmental features likely to be affected by the project; and
 - (d) the extent to which the applicant may reasonably be required to compile information having regard, inter alia, to current knowledge and methods of assessment
- 1.12 DoE must consult such of the consultation bodies as it considers appropriate before giving a Scoping Opinion. DETI must also consult with the Applicant; the local district council adjacent to the offshore area in which the proposed development is to be situated and such other authorities as appear likely to be concerned by the proposed project because

of their environmental responsibilities. Furthermore, in reaching an opinion, DETI must take into account (a) and (c) in paragraph 1.11 above.

- 1.13. DETI is required to publish a notice of any scoping opinion it issues in newspapers circulating in the locality of the proposed development and on its website. The notice will inform readers that the full scoping report and associated documentation can be viewed on the DETI website and that any person can make a written representation (within 28 days from the date the notice is first published) to DETI about the likely environmental effects of the proposed development.

Memorandum of Understanding between DOE and DETI

- 1.14 DoE and DETI have entered into a Memorandum of Understanding (MoU) which establishes a framework within which the two Departments will work closely together to ensure that planning, marine licensing and consent applications for all energy infrastructure and installations requiring Article 39 consent are brought to the most appropriate decisions as quickly as possible.
- 1.15 Under this MoU, in relation to the Applicant's request for a Scoping Opinion from DoE and DETI, DoE undertook a single consultation process on its own behalf and on behalf of DETI. A list of bodies that DoE and DETI agreed to consult in relation to this project is attached at Appendix 1. A list of consultees who responded with comments is attached at Appendix 2.
- 1.16 The Scoping Opinion provided should not be construed as implying that either DoE or DETI agree with the information or comments provided by the Applicant in their request for an opinion from DoE/DETI. In particular, comments from DoE/DETI in this opinion are without prejudice to any decision taken by DoE/DETI on the application.
- 1.17 It should also be noted that when considering the ES, DoE and DETI will take account of relevant legislation and guidelines and neither DoE nor DETI will be precluded from requiring additional information if it is considered necessary in connection with the ES or the application.

2. Description of development

2.1 The following description is based on information supplied by the Applicant.

Proposal

2.2 The development proposals comprise the following:

- a) The construction of an offshore wind farm with an installed capacity of up to 600 MW;
- b) The construction of offshore cables and an offshore substation to bring the electricity to shore
- c) The construction of associated onshore infrastructure (including the onshore substation and electrical cabling). **The associated onshore infrastructure will be subject to a separate scoping consultation**

Location

2.3 The development area is centered approximately 8 km off the south east coast of County Down (at its nearest point) and around 9 km from the Republic of Ireland.

2.4 The proposed offshore infrastructure:

- (a) Offshore wind turbines and foundations;
- (b) One or more offshore High Voltage Alternating Current (HVAC), substation(s) if required;
- (c) Intra-array subsea cables linking the offshore turbines to the offshore substation(s) and export subsea cables from the offshore substation(s) to the shoreline and
- (d) Scour protection for offshore foundations and cables, where necessary.

2.5 Operation and Maintenance:

- (a) Electricity will be transmitted from the wind farm to the onshore substation via the offshore cables; and
- (b) Electricity will be transmitted from the substation to the NIE network via overhead or underground lines.

Turbines

2.6 The exact design of the turbines to be deployed at the site will be determined following detailed site analysis. The water depths within the Wind Resource Zone range from approximately 20 m to 60 m and monopiles may be suitable for these depths but other options may be specified within the final ES. The final solution will require detailed modelling.

- 2.7 Cabling routes and design will be dependent on final layout design and landfall options, however, consideration must be given within the ES on potential outcomes.

On shore Substation and Grid connection

- 2.8 The connection of the proposed offshore wind farm to the electricity network operated by NIE is an important consideration.
- 2.9 DoE and DETI acknowledge that until the outcome of discussions with NIE, System Operator for Northern Ireland and the Utility Regulator, the Applicant will not be in position to determine (i) the location, ownership and operation of the onshore substation, (ii) the design and specification of the substation, (iii) the route of the undersea export cable, (iv) the onshore cabling and method of installation and (vi) the nature and route of connection between the substation and the NIE network.
- 2.10 Any onshore substation will also require planning approval under the Planning (Northern Ireland) Order 1999. Any overhead electrical line (i.e installed above ground) connecting the substation to the NIE network will also require planning permission if its voltage exceeds 20kV and it supplies electricity to more than one consumer.
- 2.11 **The applicant must provide information in sufficient descriptive detail about the route (or potential routes or corridors for routes) of the undersea cable and landfall location. In terms of scoping, the ES must encompass the likely and different impacts of specific routes or corridors for routes, if the actual route is not known at the time of application.**

3. Environmental Impact Assessment approach and topic areas

- 3.1 The term Environmental Impact Assessment (EIA) describes the procedure set out in EU Directive 85/337/EEC (as amended) that must be followed for certain types of project, before they can be given development consent. The procedure is a means of drawing together, in a systematic way, an assessment of a project's significant environmental impacts. The assessment includes consideration of direct and indirect effects during construction, operation, maintenance and decommissioning. It must also consider cumulative effects from other proposed developments. This helps ensure that the likely significant environmental effects are clearly documented, the scope for reducing negative effects are properly understood by the public and regulatory bodies (in this case, DoE Marine Division & DETI Energy Division) and environmental and other benefits are documented before a decision on the outcome of the application is made.
- 3.2 The objective of the EIA scoping procedure is to seek comment, from all key stakeholders, on the scope of the issues to be addressed and the method of assessment to be used during the EIA process. The exercise allows consultees to have an early input into the EIA process and to supply information that could be pertinent for the environmental statement.
- 3.3 This section should be read in conjunction with Appendix 3 (Presentation of the Environmental Statement).

Single Environmental Statement

- 3.4 Because the project requires both a Marine Licence and an Article 39 consent (see Paragraphs 1.1 to 1.11 above) any ES must fulfil the requirements set out in Schedule 3 of The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) and Schedule 4 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008.
- 3.5 DoE and DETI recommend that the Applicant compiles a *single environmental statement* which can be used to accompany the Marine Licence application, the Article 39 consent application and the planning application for any onshore substation/cabling.
- 3.6 In relation to an application for a Marine Licence, an ES must be in writing and contain the information specified in Schedule 3 of the Marine Works (Environmental Impact Assessment) Regulations (as amended) 2007.
- 3.7 In relation to an application for Article 39 consent, an ES is defined in Regulation 2 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 as:

“a statement that includes such of the information referred to in Part I of Schedule 4 as is reasonably required to assess the environmental effects of the development and which

the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile; but that includes at least the information required in Part II of Schedule 4”.

- 3.8 DoE and DETI recommend that the ES complies with Part I of Schedule 4 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008. This is broadly the same as the content required under the Marine Works (Environmental Impact Assessment) Regulation 2007 (as amended).
- 3.9 However attention is drawn to the differences in the wording of 1(a) and 1(c) in Part I of Schedule 4 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 compared to Paragraph 1 of Schedule 3 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended). Any such difference must be addressed in the ES. For ease of reference both Schedules are attached in Appendix 4.

Project description

- 3.10 The Applicant should ensure that the description of the proposed development that is being applied for is as accurate and firm as possible as this will form the basis for the environmental assessment.
- 3.11 In line with best practice and case law, the proposed development will need to be defined in sufficient detail in the ES to enable a robust assessment of the adverse and positive impacts to be undertaken.
- 3.12 DoE and DETI recommend that the ES should include a clear description of all aspects of the proposed development, at the construction, operation and decommissioning stages, and include:
- (a) the physical character of the site in terms of the location, size and design of the offshore wind farm;
 - (b) offshore and onshore land use requirements;
 - (c) site preparation (including monitoring plans);
 - (d) construction processes and methods and restoration/landscaping works to be undertaken in the course of the development;
 - (e) transport routes;
 - (f) operational requirements including the main characteristics of the production process and the nature and quantity of materials used, deposited in the sea, as well as waste arisings and their disposal;
 - (g) maintenance activities including any potential environmental or navigation impacts;
 - (h) emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc); and
 - (i) the purpose and objectives of the scheme.
- 3.13 Any proposed works required off-site as an ancillary matter should be considered as part of an integrated approach to environmental assessment.

Alternatives

- 3.14 The ES must contain and set out an outline of the main alternatives studied by the Applicant and provide an indication of the main reason for the Applicant's choice, taking account of the environmental effects. The reasons for the preferred choice should be made clear and the comparative environmental effects identified in the ES. The ES should set out the process whereby the Wind Resource Zone was selected through the SEA process carried out by DETI.

Potential impacts

- 3.15 The Applicant should assess the potential impacts of the proposed development including any known parameters during construction, operation and decommissioning. If a plan is included in the ES showing the location of the proposed development, then this should show: the likely number and location/layout of turbines; the position of cables; the site of landfall and the route of undersea cabling.

Flexibility

- 3.16 DoE and DETI accept that, at this time, the Applicant does not know precisely the positioning and design of the turbines to be deployed. Therefore, whilst it may be necessary for design parameters to be sufficient to allow for minor variations in the scheme design, such parameters should not be so great that any variations would effectively constitute a material departure from the scheme design assessed in the EIA or result in a different assessment outcome.
- 3.17 The Rochdale envelope principle (see *R v Rochdale MBC ex parte Tew (1999)* and *R v Rochdale MBC ex parte Milne (2000)*) is an accepted way of dealing with such uncertainty. Where this is the case and the precise details are not known, the Applicant should assess the maximum potential adverse effects (i.e. realistic worst case scenario) The description of the development in the ES must not be so wide that it is insufficiently certain to comply with requirements of Paragraph 1 of Part I of Schedule 4 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 and Paragraph 1 of Schedule 3 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended).
- 3.18 The Applicant should in any event explain clearly in the ES which elements of the scheme have yet to be finalised and provide the reasons. DoE and DETI considers that it may be appropriate to carry out the environmental assessment on a range of parameters. It is a matter for the Applicant in preparing an ES to consider whether it is possible to assess robustly a range of inter-relationship effects resulting from a large number of undecided parameters.
- 3.19 The ES should be able to confirm that any changes to the development within the proposed parameters would not result in significant impacts not previously identified.

The maximum and other dimensions of the proposed development should be clearly described in the ES, with appropriate justification.

- 3.20 DoE and DETI note that the process of EIA is iterative and therefore the proposals may change and evolve. There may be changes to the scheme design in response to consultation. Such potential changes should be addressed in the ES. Once submitted, the application should not change in any substantive manner as DoE or DETI is not able to entertain material changes to the project once the application is submitted. Any substantive change will require a new application.
- 3.21 It should be noted that if the proposed development changes substantially during the EIA process, prior to application submission, the Applicant may wish to consider the need to request a new scoping opinion.

Micro-siting of turbines

- 3.22 It is acknowledged that the design, if accepted, should be sufficiently flexible to allow for any necessary micro-siting of elements of the proposed offshore wind farm during its construction. This allows for unforeseen events such as the discovery of previously unknown marine archaeology that it would be preferable to leave in situ. The need to accommodate eventualities by micro-siting is understood. However, given that the EIA should assess a maximum adverse scenario (the 'worst case' as discussed above, in paragraph 3.16) in environmental terms, the assessment should address the implications of any micro-siting as far as reasonably possible.

Decommissioning

- 3.23 In terms of decommissioning, DoE and DETI acknowledge that the further into the future any assessment is made, the less reliance may be placed on the outcome. However, the purpose of such a long term assessment is to enable the decommissioning of the works to be taken into account in the design and use of materials such that structures can be removed with the minimum of disruption. The process and methods of decommissioning should be considered and options presented in the ES. DoE and DETI require consideration of such matters in the ES.

Specific topic areas

- 3.24 The following areas must be fully considered and included when compiling the ES for the above mentioned project:
- (a) Water and Sediment Quality;
 - (b) Coastal Processes and Hydrodynamics;
 - (c) Navigation (including recreational and commercial shipping);
 - (d) Marine flora and fauna (seabirds, marine mammals and reptiles, fish and benthic ecology);
 - (e) Fisheries and Aquaculture;

- (f) Marine Archaeology;
- (g) Seascape; and
- (h) Socio - economic impacts and material assets

3.25 Each subject area should be addressed as follows:

- (a) Baselines Conditions;
- (b) Identification of Potential Impacts;
- (c) Direct, Indirect and Cumulative Effects;
- (d) Identification of Sensitive Receptors;
- (e) Prediction of Impact Magnitude;
- (f) Assessment of Impact Significance;
- (g) Mitigation Measures; and
- (h) Residual Impacts as Appropriate.

Navigation

3.26 The ES should supply detail on the possible impact on navigational issues for both Commercial and Recreational craft, that is

- (a) Collision Risk;
- (b) Navigational Safety;
- (c) Risk Management and Emergency response;
- (d) Marking and lighting of tidal site and information to mariners;
- (e) Effect on small craft navigational and communication equipment;
- (f) Weather and risk to recreational craft which lose power and are drifting in adverse conditions;
- (g) Evaluation of likely squeeze of small craft into routes of larger commercial vessels; and
- (h) Visual intrusion and noise.

3.27 Notice to Mariners procedures should be included

Study areas and methodology

3.28 For the purposes of the offshore aspects of the project, the limit of scoping is to the mean high water spring (MHWS). The physical scope of the study areas should be identified under all the environmental topics and should be sufficiently robust in order to undertake the assessment. The extent of the study areas should be on the basis of recognised professional guidance, whenever such guidance is available. The study areas should also be agreed with the relevant consultees and, where this is not possible, this should be stated clearly in the ES and a reasoned justification given.

3.29 The baseline data should be comprehensive, relevant and up-to-date. Surveys needed to inform the EIA will need to be addressed in detail within the ES. The methodology, timing

and scope of all surveys should be agreed with the relevant consultees with a statutory role. Where this is not the case, a reasoned justification should be given in the ES.

- 3.30 As the circumstances of each stage may be different, the assessment should consider all phases of the proposed scheme – construction, operation and decommissioning - separately.
- 3.31 DoE and DETI recognise that the way in which each element of the environment may be affected by the proposed development can be approached in a number of ways but considers that it would be helpful, in terms of ease of understanding and in terms of clarity of presentation, to consider the impact assessment in a similar manner for each of the specialist topics. DoE and DETI recommend that a common format would be helpful in this regard. DoE and DETI consider that the scope – the breadth of topic, the physical and temporal - should also be described and justified.
- 3.32 The ES submitted by the Applicant must also demonstrate consideration of points raised by the consultees. It is recommended that a table is provided in the ES summarising the scoping responses from consultees and how they are addressed in the ES, particularly consultees with a statutory role.

Mitigation

- 3.33 The Strategic Environmental Assessment (SEA)² and the Habitats Regulations Appraisal (HRA)³ of the draft Offshore Renewable Energy Strategic Action Plan (ORESAP)⁴ identified a number of project level mitigation measures for each potential Resource Zone in NI waters. In order to comply with the SEA and HRA Directives, these measures have been built into the final ORESAP 2012-2020 published in March 2012. A Project Level Mitigation Strategy by DETI has drawn these measures together as a reference guide for regulators, developers and stakeholders for the consents and licensing process. This is attached at Appendix 5
- 3.34 The mitigation measures proposed within the SEA and HRA represented best practice guidance at that time. It was acknowledged in the ORESAP that with the ongoing development of the offshore renewable sector, increased deployment of devices, ongoing survey and research work leading to increased knowledge of its interactions with the marine environment and other marine users, such measures may be superseded.
- 3.35 However, the Applicant will need to demonstrate that the potential impacts and measures identified within the SEA, the HRA and the Project level mitigation strategy have been considered in relation to the project in addition to the recommendations set out in this scoping opinion and as part of the EIA process and development of the Environmental Statement.

² www.offshoreenergy.co.uk

³ http://www.detini.gov.uk/28646_ni_hra_final_v4_2_4_.pdf

⁴ [http://www.offshoreenergy.co.uk/Data/NI%20Offshore%20Renewable%20Energy%20Strategic%20Action%20Plan%202012-2020%20\(March%202020\).PDF](http://www.offshoreenergy.co.uk/Data/NI%20Offshore%20Renewable%20Energy%20Strategic%20Action%20Plan%202012-2020%20(March%202020).PDF)

- 3.36 Mitigation must be identified in the ES. The effectiveness of mitigation should be apparent. Only mitigation measures which are a firm commitment or are likely should be taken into account as part of the assessment. Only mitigation which can be shown to be deliverable should be taken into account as part of the EIA. Mitigation should be discussed and agreed with the appropriate consultees. Within an ES it is important that all mitigating measures should be:
- (a) clearly stated;
 - (b) fully described with accuracy;
 - (c) assessed for their environmental effects;
 - (d) assessed for their effectiveness;
 - (e) their implementation should be fully described;
 - (f) how commitments will be monitored; and
 - (g) if necessary, how they relate to any consents or conditions.

Inter-relationship and cumulative assessments

- 3.37 It is a requirement of both Departments' Regulations that the inter-relationship between specialist topics must be addressed. DoE and DETI have set out in Appendix 3 the definition for inter-relationship and cumulative impacts.
- 3.38 The ES should not be a series of separate reports collated into one document, but rather a comprehensive assessment drawing together the environmental impacts of the proposed development as a whole; for example the geophysical survey should be used to inform the benthic characterisation survey.
- 3.39 As the project will have both marine and land based effects it is important that the impacts of the project as a whole are understood. This will also aid consultation and ensure that effects at the land/sea interface are effectively documented.
- 3.40 DoE and DETI also recommend that the impact assessment considers the cumulative impact to the biological communities; including assessment of modification/change of natural substrate type and construction noise impacts (piling).
- 3.41 For the purposes of assessing cumulative effects, any other major development in the area – including where appropriate any other development in the vicinity of the onshore development area – should, through consultation with the Planning authority and other relevant consenting bodies, also be taken into account on the basis of major developments that are:
- (a) built and operational;
 - (b) under construction;
 - (c) permitted application(s), but not yet implemented;
 - (d) submitted application(s) not yet determined;

- (e) identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited; and
- (f) identified in other policy documents, as development reasonably likely to come forward.

3.42 The assessment of offshore cumulative impact should also take account of offshore licensed activities in the area.

Matters not scoped out

3.42 Matters are not scoped out unless specifically addressed and justified by the Applicant and confirmed as being scoped out by DoE or DETI.

Presentation of Environmental Statement and Non Technical Summary

3.43 Reference should be made to Appendix 3 regarding the presentation of the environmental statement and non technical summary.

4. Other Information

Habitat Regulations Assessment

- 4.1 The Habitat Regulations Assessment (HRA) process relates specifically to the consideration of features protected for their importance as European protected habitats or species under the Habitats and Birds Directives and associated Regulations. The process considers the potential effects of the development on internationally important habitats and/or species for which the sites are designated. The assessment includes consideration of direct and indirect effects on these interests and must also consider cumulative and in-combination effects from other proposed plans or projects.
- 4.2 HRA is considered a separate process to the EIA process; however DoE and DETI recognise that it is also iterative.
- 4.3 The HRA process can be summarised as three steps:
- Step 1: The first step is to determine that the project or plan is not directly connected with or necessary for site management for nature conservation.
 - Step 2: The second step is to carry out an Appropriate Assessment to determine the implications of the project or plan either alone or in-combination for the conservation objectives of the Natura 2000 site.
 - Step 3: If it cannot be ascertained that the project or plan will not adversely affect the integrity of the site, even with the introduction of mitigation or compensation measures and there are no alternative solutions, then the plan or project should not proceed, unless there are imperative reasons of overriding public interest (OPRI)
- 4.4 The first step is to determine whether or not the project or plan is directly connected or necessary for site management for conservation purposes and whether or not it will require an Appropriate Assessment. The first step of the HRA process is undertaken by DoE Marine Division using information supplied by the applicant. It is highly unlikely that offshore renewable energy developments would be 'directly connected or necessary for site management for nature conservation' and DoE Marine Division will confirm that the project should be taken through to Step Two.
- 4.5 DoE Marine Division and DETI will undertake a preliminary assessment of Likely Significant Effects and advise on the nature and scope of step two.
- 4.6 The Appropriate Assessment must ascertain whether the proposed project will or will not adversely affect the integrity of the site(s). In cases where there is doubt about the presence or absence of adverse effects, the proposal may not proceed unless there are no alternative solutions and there are imperative reasons of over-riding public interest.

- 4.7 Although the stages of EIA and HRA are complementary and can be shared, they are two separate processes with different legislative requirements. For example, it is possible (but unlikely) that HRA may be required for some projects that do not require EIA, and vice versa. The terms ‘significant’, ‘compensation’ and ‘mitigation’ have different definitions/implications under the EIA and HRA legislation and these need to be clearly understood at the outset.
- 4.8 For the majority of projects which require EIA, there is clear overlap between the EIA and HRA. For example, baseline data gathered for specific receptors, and the application of subsequent impact assessment tools (e.g. collision risk modelling) will be used to support conclusions on HRA and EIA. It is therefore appropriate for the developer to use, incorporate and present the information within the EIA’s ES as well as HRA screening report.

Health Impact Assessment

- 4.9 DoE and DETI considers that it would be a matter for the Applicant to decide whether or not it would be appropriate to submit a stand-alone Health Impact Assessment (HIA). The methodology for the HIA, if prepared, should be agreed with the relevant statutory consultees and take into account mitigation measures for acute risks.

Other Regulatory Regimes

- 4.10 DoE and DETI recommend that the Applicant should state clearly what regulatory areas are addressed in the ES. The Applicant should ensure that all relevant authorisations, licences, permits and consents that are necessary to enable operations to proceed are described in the ES. Also, it should be clear that any likely significant effects of the proposed development which may be regulated by other statutory regimes have been properly taken into account in the EIA.

Decommissioning

- 4.11 The Energy Act 2004 introduced a regime to allow for the creation of safety and navigation zones around offshore renewable energy installations and in some circumstances a costed decommissioning programme.
- 4.12 In relation to offshore installation, the territorial waters of Northern Ireland are not included within the scope of the Energy Act 2004 and therefore the provisions relating to safety and navigation zones, decommissioning have no practical effect here.

- 4.13 However, DETI plans to introduce primary legislation for Northern Ireland that will, where appropriate, mirror the provisions of the offshore regime in place in GB waters for Northern Ireland territorial waters.

Transboundary Effects

- 4.14 Consideration should be given to identifying whether the proposal is likely to have any significant effects on another European State. The ES will need to address this matter in each topic area and summarise the position on transboundary effects of the proposed project, taking into account inter-relationships between any impacts in each topic area.
- 4.15 The Applicant is referred to Regulation 14 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 and Regulation 18 of Marine Works (Environmental Impact Assessment) Regulations 2007.
- 4.16 In brief, DoE and DETI are required to send information about the proposal to, and consult with, another European Economic Area (EEA) state if they are of the view that the proposal is likely to have significant effects on the environment of that EEA state.
- 4.17 If this is the case it is likely to have implications for DoE's and DETI's examination of an application for a Marine licence and Article 39 consent. Given these likely implications, DoE and DETI would encourage the Applicant to draw such matters to DoE's and DETI's attention at the earliest possible opportunity within the pre-application stage. The Applicant should also provide DoE and DETI as soon as possible with any available information about potential significant transboundary effects and identify the affected state(s).

APPENDICES

- Appendix 1** **List of consultees**

- Appendix 2** **Received comments**

- Appendix 3** **Presentation of the ES**

- Appendix 4** **Sch4 of the Marine Works**

 Sch3 of the Offshore Regs

 ES checklist

- Appendix 5** **Project Level Mitigation Strategy**

Appendix 1

LIST OF CONSULTEES

Company/Dept Name

Agri-Food & Biosciences Institute
Ards Borough Council
Belfast Harbour Commissioners
Centre for Maritime Archaeology
Commissioners of Irish Lights
Department of Enterprise, Trade and Investment (DETI)
Department of Agriculture & Rural Development (Fisheries Division)
Department of Culture Arts & Leisure (Salmon, eels etc)
Down District Council
Department of Communications, Energy and Natural Resources Ireland
Department of Environment, Community and Local Government
Isle of Man Government
Loughs Agency
Louth County Council
Natural England
Natural Resources Wales
Northern Ireland Water
Northern Ireland Environment Agency
Northern Ireland Fishery Harbour Authority
Marine Division, DoE, Nature Conservation
Marine Division, DoE, Marine Monitoring
Maritime and Coastguard Agency
Moyle District Council
Newry and Mourne Council
Rivers Agency
Scottish Natural Heritage
The Crown Estate
Warrenpoint Harbour

Appendix 2

List of received comments

Please note that the following is a list of received comments from DoE and DETI undertaking consultation with consultees who have statutory obligations. Also included are several responses that First Flight Wind Ltd received directly through additional consultation. It will be expected that First Flight Wind Ltd will address the issues and comments raised through the consultation process in the Environmental Impact Assessment.

1. Response from Rivers Agency – Received 4 March 2014

Rivers Agency has no remit with respect to the offshore element of these works and therefore we have no comments in this respect.

Rivers Agency may have an interest in the onshore element of the works if they affect any watercourse whether it is designated or not. At present it appears that there is no finalised route for the onshore cabling, only that cables may come ashore in one or more places between Strangford Lough and Carlingford Lough. It is highly likely that any underground cabling may affect watercourses in this area.

Once the onshore works are finalised, we can comment in detail on the specific route(s) of any underground cable(s) involved.

Until then, please note the general informative below.

General Informative for all Marine Construction Licence Applications

Within the terms of the Drainage (Northern Ireland) Order 1973, Marine Construction Licence applicants are advised of the following legal requirements for ALL sites as follows:

1. If during the course of developing a site a watercourse is uncovered which was not previously evident, the appropriate Rivers Agency Office should be advised immediately in order that arrangements may be made for the investigation and direction in respect of any possible action necessary to deal with the watercourse.
2. Any proposals either temporary or permanent, in connection with the development, which involve interference with any watercourse at the site such as culverting, bridging, diversion, building adjacent or discharge of storm water etc require the written consent (known as “Schedule 6 Consent”) from Rivers Agency.
3. Failure to obtain Schedule 6 Consent is an offence under the provisions of the above Order, which may lead to prosecution or other statutory action as provided for.

In this instance the appropriate Rivers Agency office to contact in respect of Schedule 6 applications and any other general enquiries is dependent on the final plans for the onshore element of the works and may be either:

**Lisburn Area Office,
Ravarnet House, Altona Road, Largymore,
LISBURN, BT27 5QB
Tel: 028 9260 6100**

or

**Armagh Area Office,
44 Seagoe Industrial Estate,
CRAIGVON,
Tel: 028 3839 9111**

2. Response from Commissioner of Irish Lights – Received 4 March 2014

Thank you for the First Flight Scoping Report on the proposed wind farm off the Co Down Coast. From a navigation perspective we are satisfied that First Flight are progressing in an effective and inclusive manner. We are also pleased to note that prior to the MNSRA being undertaken, FFW Ltd intend to undertake a Preliminary Hazard Assessment in consultation with CIL and the MCA. We look forward to our continuing engagement with First Flight as the development progresses.

Related to the actual marking of the structures, please find attached to this opinion, the updated IALA recommendations on The Marking of Man-Made Offshore Structures (Dec 2013).

3. Response from Marine Division, Marine Monitoring and Assessment – Received 13 March 2014

The Marine monitoring and Assessment team require from the EIA (in terms of survey and assessment for potential impacts):

- Consideration of Habitats Directive Annex I habitats
- Consideration of possible impacts on SAC features
- Consideration of possible impacts on ASSI features
- Consideration of MSFD predominant habitats and broad-scale habitats
- Consideration of NI Priority Habitats and NI Priority Species
- Consideration of OSPAR threatened and declining habitats
- Consideration of draft Priority Marine Features and potential MCZs (Northern Ireland Marine Act 2013)

4. Response from Centre for Maritime Archaeology, University of Ulster – Received 13 March 2014

The Centre for Maritime Archaeology welcomes the fact that maritime archaeology, including both wrecks and submerged prehistoric landscapes, is to be scoped into the forthcoming Environmental Statement. We also agree with the inclusion of direct and indirect physical disturbances as well as potential effects. In terms of the methodology, a desk-based assessment and review of geophysical and geotechnical data are entirely appropriate, as is the production of a Written Scheme of Investigation (WSI).

Please also note there is now a Marine Archaeologist based in DoE Marine Division, who should be consulted with directly.

5. Response from Maritime and Coastguard Agency – Received 13 March 2014

MCA have examined the FFW Offshore Scoping Report Doc Ref 02-46-008 Version 3 and can confirm that it appears to contain all the elements we would wish to see included with particular regard to the navigational implications of the project.

I note under Section 8.73 that the unlikely effect of windfarm structures on magnetic compasses is noted; however there appears to be no mention or recognition of the effect that the export cables from the windfarm site may have on ships magnetic compasses. With the number of windfarms already generating and exporting electricity around the coast of the UK, I am sure this is an area in which adverse effects (if any) are well known and documented. It might be prudent for FFW in the Scoping Report to acknowledge the possibility of electromagnetic effects (if any) from the export cables or to state that due to the layout of the systems (twinned positive and negative cables for instance) that there are no effects on magnetic compasses.

6. Response from Marine Division, Marine Conservation and Reporting Team – Received 8th April 2014

- **Section 6.2 Physical Processes**

For the purposes of the HRA the impacts of the proposed development on both hydrodynamics and sediment movement within the WRZ will need to be fully explored. Changes to the physical environment created by the proposal may alter the sediment regime which in turn may affect Murlough SAC and its associated site selection features, particularly – “sandbanks which are slightly covered by sea water all the time”.

While the overall sediment budget may be positive within this system, there are records of considerable sediment movement within Dundrum Bay. The affect of the proposal on this will need to be fully understood and any ramifications on the SAC explored.

- **Para 7.56 Elasmobranchs**

In relation to elasmobranchs, the Common skate is now protected in Northern Ireland as a Schedule 5 species. Under the Wildlife (Northern Ireland) Order 1985 (as amended) it is an offence to kill, injure or take this species. This is in addition to it being on the International Union for Conservation of Nature Red List. A wildlife licensing system is in place in Northern Ireland and this safeguards the conservation and welfare of marine species and provides a way to allow activities to take place when the Department determines that there is no satisfactory alternative or in such a way that the risk of an offence is managed.

- **Table 7.7**

Within this list of potential impacts, corkscrew injuries needs to be clearly identified (appreciate this may fall within collision risk). Given the fact that this proposed development is to take place within 4 nautical miles of a SAC where the harbour seal is a site selection feature, the risk of injury is assessed as high (this assessment is based on guidance developed for the SNCBs on the potential risk of seal corkscrew injuries, April 2012). In addition to being protected under the Habitats Regulations (Schedule 3), seals are also protected under the Wildlife (Northern Ireland) Order 1985 (as amended) (Schedules 5, 6 and 7). The risk from corkscrew injuries is most likely to arise when vessels are travelling slowly, manoeuvring or holding stations; injuries are unlikely to occur when vessels are in transit. Table 7.7 indicates that vessels used in construction will utilise ducted propellers, if this is the case then the applicant will have to consider timing of works. If periods such as breeding season cannot be avoided then the applicant will have to submit a seal corkscrew monitoring scheme.

- **Special Areas of Conservation 7.149 and Table 7.10**

Within the scoping report SACs within close proximity to the proposed development have only been considered. While para 7.151 states that other designated sites may be considered in the EIA, I wish to highlight at this stage that all SACs which have marine mammals as site selection features will need to be taken into consideration for the overall project. Within Northern Ireland, in addition to those identified, this will include the Maidens cSAC and the Skerries and Causeway cSAC.

Marine mammals will also need to be assessed in relation to their specific marine mammal management unit. This will require looking at this proposal, in-combination with other offshore developments in the UK.

- In relation to mobile marine species I wish to highlight that European Protected Species are protected under the Habitats Regulations as Annex IV animals. In Northern Ireland this includes all cetaceans (dolphins, whales and porpoises) and marine turtles. Under the Regulations it is an offence to kill, injure, capture or disturb these species.

Likewise, under Article 10 of the Wildlife (Northern Ireland) Order 1985 (as amended), it is an offence to intentionally or recklessly kill, injure or take any wild animal included in Schedule 5 of this Order. It is also an offence to intentionally or recklessly: disturb these animals; damage or destroy or obstruct access to any structure or place which they use for shelter or protection; or damage or destroy anything which conceals or protects any such structure. Schedule 5 marine animals include the following: common seal (*Phoca vitulina*), grey seal (*Halichoerus grypus*), basking shark (*Cetorhinus maximus*), spiny lobster (*Palinurus elaphus*), fan mussel (*Atrina fragilis*), short snouted seahorse (*Hippocampus hippocampus*), spiny seahorse (*Hippocampus guttulatus*), common skate (*Dipturus batis*) and angel shark (*Squatina squatina*).

Any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence. The applicant must therefore be aware that these marine animals are fully protected from disturbance or harm wherever they are present and they must mitigate against any disturbance or injury.

When the applicant is considering the EIA (HRA) please advise that they adhere to the JNCC guidance document "The Protection of marine European Protected Species from Injury and Disturbance" October 2010. This document will inform the applicant of required mitigation, particularly for activities such as pile driving during offshore wind farm construction.

The additional comments provided below are mainly in relation to the risks to marine mammals associated with piling operations (installation phase), the potential for corkscrew deaths from vessels with ducted propellers (installation, operational maintenance and decommissioning phases) and mechanical or explosive cutting techniques (decommissioning phase).

The limited comment on section 7-3 (Marine mammals, Turtles and Basking Sharks) reflects the fact that we have been closely involved with FFW Limited and their consultants on approving survey methodologies from the outset and so are familiar with the survey approaches and results to date.

Acronyms and abbreviations

- ASSI – Area (not plural) of Special Scientific Interest
- EMF – Electro Magnetic Fields

Section 4 - Project Description

- Underwater noise generated through driving, drilling or vibrating steel monopoles / securing pin piles for jacket foundations is widely accepted as a construction activity which needs carefully regulated, monitored and mitigated for. The risks are more significant for cetaceans than seals; adherence to the JNCC guidelines will be required.

- From a marine EPS perspective (disturbance or injury to cetaceans), the use of suction caissons or gravity foundations is much more preferable than either monopoles or jacket foundations, both in terms of avoiding the need for piling activity (noise) and also in terms of reducing the number of vessels required for installation (direct physical risk to the local seal population from corkscrew injuries).
- Collating the total number of vessels associated with the installation of steel monopoles, up to 30 vessels (installation, support, transport) may be employed for up to a maximum of 30 months in proximity to Murlough SAC, Strangford SAC and Carlingford Lough. Both SACs include the harbour seal *Phoca vitulina* as a qualifying feature; whilst Carlingford Lough is not a European designated site, it contains significant (more than Strangford) numbers of harbour seals, all of which are protected from disturbance under Schedule 5 of the Wildlife (NI) Order. In order to assess the risk of corkscrew deaths, it will be necessary to establish how many vessels use ducted propellers, and put mitigation in place.
- Collating the total number of vessels associated with the installation of steel jacket foundations, up to 20 vessels may be used, for a maximum of 24 months. Same corkscrew risks apply as above in relation to seals protected within Murlough SAC, Strangford SAC and Carlingford Lough.
- Table 4.5 ‘Suction caisson – design envelope’ does not provide a breakdown of the number of vessels that would be required to prepare the seabed and place steel caissons. Total installation duration also needs presented here.
- Table 4.7 ‘Concrete gravity foundation – ‘indicative installation details’ raises similar concerns with regard to the number of vessels used and associated risks to seals from corkscrew deaths. For example, up to 7 support vessels may be required for each of the 3 installation vessels i.e. 21 vessels, in addition to 12 dredging vessels. Same issues as outlined above.
- Careful adherence and monitoring in relation to seal corkscrew guidelines will be required.
- Additional concerns apply to the long term use of vessels with ducted propellers for regular inspections, servicing and maintenance throughout the 20-25 year lifetime of the offshore windfarm.
- Sections 4.35 – 4.52 indicate the potential for noise disturbance to marine mammals during the decommissioning phase via mechanical cutting of monopoles, transition pieces, jacket structures etc. This phase of works will need monitored and mitigated for as much as the installation and operational phases.

Section 7.3 – Marine mammals, turtles and basking sharks

- 7.73 - Quote – “ will potentially include SAC that are designated for marine mammal features’. Given proximity of Murlough SAC and Strangford SAC, the HRA will definitely include SACs designated for marine mammals.
- 7.76 – Other important sources of information not listed include data from the DoE Cetacean Monitoring Programme (available via www.iwdg.ie), the two most recent IWDG reviews of

Northern Ireland cetacean data, data from the Northern Ireland Seal Monitoring Programmes and the Northern Ireland marine turtle review.

- 7.79 - Worth using abundance estimates generated by JNCC for the relevant marine Mammal Management units. Consideration of development applications within the context of Marine Mammal Management Units has been approved by the UK Chief Scientists Groups.
- 7.93 – the majority of recent (last decade) basking shark records for Northern Ireland are held on the IWDG website – www.iwdg.ie with some additional records held by MCS.
- P94 table 7.7 makes several references to ‘vessels used in construction of the wind farms will utilise ducted propellers’. This activity will need to be considered with the HRA and properly adequately mitigated in relation to the two close designated harbour porpoise SACs.

Section 7-5 – Nature Conservation Designations

- P112 table 7.9 – the National Designations section needs revised as below to reflect current legal position on MCZs:

MNR - Strangford Lough was designated under the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 as NI's only MNR. However, the MNR designation was repealed on the Marine Act gaining Royal Assent on 17 September 2013 and Strangford Lough is now NI's first Marine Conservation Zone (MCZ).

MCZ -The Marine Act (Northern Ireland) 2013 gained Royal Assent on 17 September 2013 and came into operation the following day. The Marine Act sets out a new framework for Northern Ireland's seas based on a system of marine planning that will balance conservation, energy and resource needs, improved management for marine nature conservation and the streamlining of marine licensing for some electricity projects. This applies to the NI inshore region comprising of the territorial sea out to twelve nautical miles. The DoE intends to have a network of well managed MPAs in place comprising European marine sites and MCZs by 2020. The DoE has already consulted on its 'Strategy for Marine Protected Areas in the NI inshore region' and 'Guidance on selection and designation of Marine Conservation Zones (MCZs) in the NI inshore region' and in March 2014 published its Areas of Search which will be the focus of the MCZ programme.

- P118 table 7.12 needs revised to include detail on Strangford Lough MCZ.

If you require any further information, please contact the Marine Division Marine Conservation and Reporting Team.

Re: First Flight Wind Ltd: Scoping Opinion Consultation Exercise for the *Offshore Scoping Report* and the *Marine Archaeological WSI & PAD*.

Thank you for your email dated 27 March and the invitation to offer comment as part of the Environmental Impact Assessment scoping opinion consultation exercise for this project. Please consider this response to represent the opinions of the Marine Division (DOE) archaeologist. This opinion is supported by the Centre for Maritime Archaeology (CMA) which continues to act as a specialist advisor to the Department of the Environment (DOE) on marine archaeological matters. Please note the specific points made below and I would ask Headland Archaeology Ltd (First Flight Wind) to have regard to these.

General comments

Overall I can confirm that the approach advocated in both the Scoping Report and the WSI & PAD is considered to be acceptable and appropriate, however there are queries regarding the specifics of the geotechnical and geophysical assessment (see **Specific comment on the WSI & PAD** below).

Otherwise we welcome the production of an archaeological WSI & PAD at this stage of the project and see it as an important step. We are also pleased to see that the planning and delivery of an archaeological analysis will be corroborated by information obtained from geotechnical and geophysical surveys commissioned specifically for this project.

Specific comment on the Scoping Report

Chapter 8-6 Archaeology and Cultural Heritage –
Paragraph 8.184. Protection of Wrecks Act (1873).

Typo, (1973)

Paragraph 8.182. *However, a number of surveys and studies are proposed which are outlined in paragraphs 8.211.*

These proposed surveys and studies have been incorrectly cross-referenced; they are not listed at 8.211.

Paragraph 8.188. ‘Morne’ (sic.)

Mourne.

Table 8.9, p. 180

This table should be labelled 8.10 not 8.9. See also previously incorrectly labelled tables in this section.

3rd row, 2nd column: typo. ‘form’ (sic.); should read ‘from’.

Specific comment on the WSI & PAD

Chapter 3 (WSI) –

Paragraph 3.6. *A systematic search will be undertaken of all readily available and relevant historic environment archives...*

In addition to the number of relevant archive sources listed we would refer the applicant to the sections of the DTI SEA6 Technical Report (2005) on ‘Maritime Archaeology’ and ‘prehistoric archaeological remains’ authored by Wessex Archaeology Ltd. and N.C. Flemming respectively.

Paragraph 3.16. *For sub-bottom data it is anticipated that every fifth main line collected will be reviewed and interpreted, giving 20% coverage across the entire study area.*

This is deemed insufficient coverage; the 20% statement is somewhat disingenuous given that seismics collect discrete lines separated by gaps rather than swaths – i.e. 20% of a dataset does not equal 20% of an entire area. The suggested line spacing for this survey is approx 100m (FFWL – Voluntary Notification for the offshore geophysical survey, p. 2). Therefore, every fifth line represents a gap of 400m between archaeologically assessed lines, which is considered too large if this

assessment is attempting to resolve the principal Quaternary deposits and establish a comprehensive understanding of archaeological potential. For comparison, note that the published guidance by English Heritage, *Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes* (2013) on sub-bottom surveys recommends a line spacing of 30-50m (EH 2013, p. 26), so the original 100m spacing is already a compromise.

Paragraph 3.18. *The geo-archaeologist will assess geotechnical data provided in available geotechnical reports resulting from any proposed survey.*

The implication is that the archaeological assessment will be done solely on the basis of the reported data. Is there no provision for archaeological cores/samples to be taken should deposits of potential archaeological significance be identified from the geophysical survey? Or perhaps direct archaeological assessment of recovered samples which intersect such deposits? Effectively, the proposed method represents the bare minimum. The COWRIE guidelines (Gribble and Leather 2011; see sections 11 and 12) recommend much greater integration of archaeology into the geotechnical programme. Would it be possible to verify whether such discussions have taken place between the archaeological and geotechnical contractors, and whether provisions for more detailed assessment have been made?

I hope that the above comments are of use. If you have any queries, please do not hesitate to contact me.

Marine Conservation and Reporting (archaeology)

DOE Marine Division

7. Response from NIEA – Received 9 April 2014

NIEA Conservation Science have no issues with assessment as presented, however, recommend that, in context of physical environment, there is explicit consideration given to direct (cable issue landfall especially) and indirect (through any changes to sediment and hydrodynamic regime) impacts on sites of earth science importance along that section of the Co Down coast. I did provide FFW with information relating to the ESCR site series and geological ASSIs at the outset.

Of particular concern would be Murlough ASSI, designated in part for coastal processes. Full list of designated earth science features below – note that Samuel’s Port, St. John’s Point and Mournes Coast have only just been designated and probably doesn’t show up as part of the GIS data accessible through our website, I can provide a GIS file for designated sites if necessary

Site Name	ASSI Feature	Site	Feature Type
Ballyquintin Point	Sealevel history		Earth Science
Carlingford Lough	Carboniferous stratigraphy		Earth Science
Carlingford Lough	Pleistocene		Earth Science
Kilkeel Steps	Pleistocene		Earth Science
Killard	Pleistocene		Earth Science
Mournes Coast	Igneous petrology	Bloody Bridge cone-sheet	
Mournes Coast	Igneous petrology	Glassdrumman	

		cone-sheet	
Mournes Coast	Igneous petrology	Green Harbour dyke series	
Mournes Coast	Igneous petrology	Dunmore Head dyke series	
Murlough	Coastal processes		Earth Science
Murlough	Sea-level history		Earth Science
Samuel's Port	Igneous petrology		Earth Science
Sheepland Coast	Silurian stratigraphy		Earth Science
St. John's Point	Igneous petrology		Earth Science
Strangford Lough Part 1	Coastal processes		Earth Science
Strangford Lough Part 1	Pleistocene		Earth Science
Strangford Lough Part 3	Coastal processes		Earth Science

There are no additional ESCR sites between Carlingford Lough and Strangford Lough: that is no priority earth science sites identified through the ESCR process which are awaiting designation.

NIEA Conservation Science (Geology)

8. Response from Ards Borough Council – Received 9th April 2014

Thank you for consulting with Ards Borough Council on the First Flight Wind Scoping exercise.

The First Flight Wind project was considered at last evening's meeting of the Council's External Affairs & Planning Committee where it was agreed to respond expressing strong concern:-

- a. about the proposals to develop an offshore windfarm off the County Down coast, given the negative impact it will have on the Co Down fishing industry (by possibly displacing fish stocks, creating exclusion zones and reducing navigation rights for fishermen and potentially increasing costs for local fishermen who may have to navigate round exclusion zones).
- b. at the visual impact the project could have on local towns and villages and reduce their tourism potential as well as at the potential restrictions on leisure craft usage.
- c. that 600 megawatts could take up much of the Northern Ireland capacity. The price of renewable obligations certificates was questioned and members expressed concern at what the impact of that cost might be on fuel prices and, by extension, on fuel poverty.
- d. at the timeliness of the project. The Committee highlighted that if 20% of electricity/energy was generated through wind activity, it would need to be properly captured and stored. It was noted that

Northern Ireland currently lacked renewables storage capacity and interconnector capacity and that it had no nuclear power industry to draw from.

The Committee was keen to have information made available to it on the potential onshore, as well as offshore, impact of the project and asked what proposals First Flight had in mind to compensate or otherwise support communities affected by the project.

Members further commented on the proposed size of the wind turbines which had been increased to enable the quantity to be reduced. Some members welcomed this aspect of the proposal.

The Committee further agreed to include in its response to you reports from NIFPO and Seafish. These are attached for your perusal.

I hope that this is of assistance to you. The Committee looks forward to receiving any report arising from the Scoping exercise and is keen to have the opportunity to comment on applications as they progress.

9.1 Response from Northern Ireland Fisheries Producers Organisation consulted via DARD - received 14th April 2014

First Flight Wind
Offshore Scoping Response
c/o B9 Energy
186 High Street
Holywood
BT18 9AZ

11TH March 2014

Dear Sirs,

Offshore Scoping Report

The report comes with no conclusion but does identify areas where conclusion needs to be made.

The Commercial Fishing section I found disturbing as it appeared that the importance of the area to fishing was understated and the impacts the proposed development would have on the environment and as a consequence the fishery was minimised. Indeed the interrelationship between commercial fisheries and benthic/fish ecology was played down.

I found it strange claim that Mourne Herring spawn at low intensity in the east Irish Sea as well as some other statements in section 7 including that Cod which we know spawns in the WRZ and that the inshore area of the WRZ is a very significant Codling nursery.

It is to be regretted that the data from Fishramp could not have been incorporated in the Scoping Report.

Northern Ireland Fisheries Producers Organisation

9.2 Response from Anglo-North Irish Fish Producers Organisation Ltd to First Flight Wind Ltd public consultation

The following response was received as a direct result of public consultation by First Flight Wind Ltd, however, it will be expected that the issues raised in this response will be identified and addressed through the Environmental Impact Assessment process.

First Flight Wind Ltd
Offshore Scoping Response
c/o B9 Energy Offshore Developments Ltd
18b High Street
Holywood
Co. Down BT18 9AZ



9 April 2014

Dear Sir/Madam,

FFW Offshore Scoping Report

In the first instance we wish to acknowledge this extensive report, which probably for the first time has cumulated such a broad range of valuable data into one document. The amount of information contained in the report is impressive and reflects the broad range of interests at work in and around the Wind Resource Zone.

As we have done in the past, we wish to acknowledge that the choice of the County Down Wind Resource Zone was not of First Flight Wind's making. It remains evident that the process that led to the designation of this WRZ was flawed, particularly with regard to the variety of issues that impact directly and indirectly upon the commercial fishing industry, which as the report itself acknowledges is so important to the coastal community adjacent to the WRZ.

DONG Energy's former resident fisheries expert in the UK, Dr. Andrew Reville is on record as describing the area of the western Irish Sea and specifically the WRZ itself as probably the most intensely fished area ever explored for potential offshore wind farm development. It is precisely because of this fact that whilst some members of the fishing community have identified potential opportunities to diversify their businesses if this wind farm proposal was to proceed, the majority of the industry remains gravely concerned about the impact of this proposed development on commercial fisheries. However, as we have repeatedly stated, this Organisation is not saying no to the development of offshore wind farms if they are situated in areas where and in a way that the impact upon fisheries is negligible.

The scoping report records many of these concerns and again we acknowledge that FFW's team have obviously been listening to the industry during their frequent meetings with us. Nevertheless, there remain some areas where the Scoping Report does not fully address our concerns.

Physical & Biological Environment - Construction:

We do not believe sufficient emphasis is placed on the probable environmental changes brought about by the physical construction of the wind farm, which in themselves will lead to biological changes. Options presented for the turbines make only a brief mention of 'scour protection'. Paragraph 4.20 does point out that rock armour is the most commonly used protection. The report also acknowledges that the seabed in the area is comprised in the main of fine sediments, notably muds. Therefore the introduction of rock will not only significantly change the characteristics of the seabed, but also the fauna that live

Anglo-North Irish Fish Producers Organisation Ltd.
The Harbour, Killybegs, Co. Down, BT34 4W, Northern Ireland
T. 028 4176 2855 - F. 028 4176 4904
E. mail@anifpo.com - W. www.anifpo.com

there. From a fisheries perspective there is implications for a range of stocks, notably nephrops.

Rock armouring is not confined to the turbines, but will also be required at cable crossings. This will lead to further physical and environmental changes, as well as creating potential navigational hazards to fishing vessels. The distribution of rock armour is not a precise science and it has been known for the 'rock dumpers' involved in such operations to miss their target zones, thus creating further hazards.

This subject should be given further consideration.

In addition it might be concluded that many of the references about the impact of offshore noise may not be from neutral participants. The level of underwater noise pollution depends on many variables. However, it is clear that much more work needs to be done in this area. Evidence from other areas that have quite different physical and environmental characteristics to this FFW must not be used to demonstrate 'a norm', further independent work and analysis is needed.

The report also discusses the western Irish Sea gyre, which is such an important component of the environment in the area. It would seem that further consideration should be given to the potential impact on this unique tidal circulation, even if the WRZ is on the edge of the gyre activity.

Human Environment - Commercial Fisheries:

As mentioned above, it is clear the FFW team have listened to the concerns of industry representatives. Despite this there remain a few points within the Scoping Report still worth highlighting.

Overall it is easy to get the impression that the value of fish and shellfish harvested from the area is relatively small. Local and regional numbers are presented in a national context, which for the reader can leave the impression that fisheries in the area is somewhat less valuable. We do not believe this is FFW's intention, but for those with little knowledge about fisheries in the area, in particular their importance to the coastal community, it would be easy to get that impression. Figure 8.1 and Table 8.1 demonstrate this point.


Paragraph 8.29 makes the assumption there is no VMS (satellite tracking data) for the under 15 metre fishing fleet. The authors know this to be incorrect and are very aware of the investment made by the members of this organisation to voluntarily correct this regulatory requirement. It could be concluded by some that for example Figure 8.6 shows relatively light fishing operations within the WRZ, something we know to be incorrect.

Table 7.2 indicates spawning areas for the main commercial species as defined from 2012 CEFAS egg surveys. It would seem this information is flawed. The WRZ is along the western edge of the Irish Sea. The CEFAS data refers to the "eastern Irish Sea". For example, the Mourne Herring spawning area (on the west side of the Irish Sea) is at least partially within the WRZ, yet the comment in the table discusses spawning along the eastern Irish Sea. A small, but important point!

Conclusion:

The Scoping Report is well presented. However there are some flaws in terms of presentation. As we have learned from experiences elsewhere it is important these issues are highlighted as early in the process as possible.

Yours sincerely,


Alan McCulla OBE (Chief Executive)

10. Response from Natural Resources Wales – Received 14th April 2014



Cara Lavery
Department of the Environment
Causeway Exchange
1-7 Bedford Street
Belfast
BT2 7EG

Our Ref: DWR/200432
Your Ref: ML208/12

14th April 2014

Dear Ms Lavery,

THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED)

THE OFFSHORE ELECTRICITY DEVELOPMENT (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS (NORTHERN IRELAND) 2008

FIRST FLIGHT WIND LTD: REQUEST FOR SCOPING OPINION

Many thanks for your consultation dated 3rd March 2014.

Natural Resources Wales brings together the work of the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales, as well as some functions of Welsh Government. Our purpose is to ensure that the natural resources of Wales are sustainably maintained, used and enhanced, now and in the future.

To ensure that Welsh interests are adequately covered within the Environmental Impact Assessment and Habitats Regulations Assessment we advise that all migratory birds and marine mammals are included and assessed for effects where they are within known migratory limits. This applies to the proposed Project alone and in-combination with other plans or projects.

Please do not hesitate to contact me using the details provided at the foot of this letter should you require any further advice or clarification.

Yours sincerely,

A handwritten signature in cursive script that reads 'D Rowlands'.

Delyth Rowlands
Marine Casework Officer

Ffôn/Phone: 01248 385548

E-bost: delyth.rowlands@cyfoethnaturiolcymru.gov.uk
www.cyfoethnaturiolcymru.gov.uk

Plas Penrhos, Ffordd Penrhos,
BANGOR, Gwynedd, LL57 2BX

Croesewir gohebiaeth yn y Gymraeg a'r Saesneg

Ffacs/Fax: 01248 385512

Email: delyth.rowlands@naturalresourceswales.gov.uk
www.naturalresourceswales.gov.uk

Plas Penrhos, Ffordd Penrhos,
BANGOR, Gwynedd, LL57 2BX

Correspondence welcomed in Welsh and English

11. Response from Scottish Natural Heritage – Received 14th April 2014



Scottish Natural Heritage Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad

Cara Lavery
DOENI
Marine Licensing Team
Marine Division
Causeway Exchange
1 – 7 Belford Street
Belfast
BT2 7EG

Your ref: ML208/12

Our ref:
CNS/REN/OSWF/ Other sites (not
Scotland)/CEA129546

Date: 14 April 2014

By email only:

cara.lavery@doeni.gov.uk

CC:

ms.marinelicensing@scotland.gsi.gov.uk

roger.may@scotland.gsi.gov.uk

Dear Ms Lavery,

THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007 (AS AMENDED)

THE OFFSHORE ELECTRICITY DEVELOPMENT (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS (NORTHERN IRELAND) 2008

SCOPING ADVICE FOR THE PROPOSED FIRST FLIGHT 600 MW OFFSHORE WIND FARM, COUNTY DOWN COAST, NORTHERN IRELAND – FIRST FLIGHT WIND LTD

Thank you for your letter of 3 March 2014 requesting comments on the scoping report for the proposed First Flight offshore wind farm (OSWF) off the County Down coast, Northern Ireland. Please note we are still in discussion with all of the UK Statutory Nature Conservation Bodies (SNCBs) and Regulators / Competent Authorities with regard to the process for cross border consultations. For this reason we are copying our response to Marine Scotland.

First Flight Wind Ltd proposes to develop a commercial scale OSWF of up to 600 MW within the identified Wind Resource Zone (WRZ) off the south east coast of County Down, Northern Ireland. The scoping report covers the offshore component of the project and outlines a project design envelope encompassing between 40 – 120 turbines, options for foundation designs, offshore electrical substation(s), inter-array and export cables to landfall. The design envelope will outline the 'realistic worst case scenario', is indicative at this stage and will be refined by environmental surveys, technical reports and through stakeholder engagement. The final wind farm design will fall within the limits outlined within the design envelope. The onshore elements will be considered in a separate scoping report.

Advice

There are a range of interests and potential impacts within Scottish territorial waters that will need further consideration, some of which are highlighted in the scoping report. These include

Scottish Natural Heritage, Stilligarry, Isle of South Uist. HS8 5RS

Tel: 01876 580236

e-mail: tracey.begg@snh.gov.uk

www.snh.org.uk



those in relation to the requirements of Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) and Regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), now commonly referred to as Habitats Regulations Appraisal (HRA). We highlight the range of interests that should be considered for EIA and HRA (Habitat Regulations Appraisal) purposes.

Habitats Regulations Appraisal

HRA applies to any plan or project which has the potential to affect the qualifying interests of a Natura site, even when those interests may be at some distance from that site, such as is the case in this instance, with regard to breeding seabirds in Scottish territorial waters. We note that the applicant plans to submit an HRA in tandem with production of the Environmental Statement (ES) for the project. We can provide further advice on the HRA with regard to qualifying features of SPAs in Scottish waters at that time, as required. Decisions as to which SPAs and SACs are to be included in the EIA and HRA should follow an iterative process.

For seabirds, we have used the mean maximum foraging ranges + 10% buffer to develop a long list of species of birds that are qualifying features from relevant SPAs within Scottish waters that may be affected by the project. Thaxter *et al.* 2012 provides the most up to date source of information for foraging ranges and assigns confidence levels (high, moderate and low) to the representative foraging ranges for each species. BirdLife International data from BirdLife International Seabird Wikispace¹ has been used to provide mean maximum foraging ranges for species not included in Thaxter *et al.* (2012).

At this stage, we would therefore advise that the following qualifying features of SPAs should be considered at the beginning of the iterative HRA process:

SPAs and relevant qualifying features:

Ailsa Craig - breeding gannet

Mingulay and Berneray - breeding fulmar

We would also highlight at this stage that there are proposals for new marine SPAs and SACs. As proposed sites come forward, we will provide updates.

Further information about SPAs and SACs and their qualifying features is available from our website, with information on particular sites being available on Sitelink.

Designated Sites & Species Protection

Natura sites are considered in our HRA advice, outlined above. Cetaceans, basking sharks and seals may use the development area for foraging or/and passage. The west coast of Scotland is important for basking sharks. The scoping report indicates that the potential impact on these populations will be considered within the Environmental Statement (ES), and will be informed by baseline characterisation and existing data sources e.g. SCANS II data. Similarly, the potential impacts of the development on seal management areas within Scottish waters should be considered within the ES, notably the south west management area. Further information about seal management areas can be found on the Marine Scotland Website (<http://www.scotland.gov.uk/Topics/marine/Licensing/Seallicensing>).

Potential cumulative and in-combination impacts of the proposal are considered within table 5.4 of the scoping report. We note and welcome the inclusion of offshore renewables developments within Scottish waters, notably Robin Rigg OSWF, approximately 113 km north east of the First Flight WRZ and West Islay Tidal Array (DP Energy) approximately 115 km

¹<http://seabird.wikispaces.com>

north of the WRZ. We note that the SSE offshore wind farm 13km off the west coast of Islay and the Sound of Islay tidal array have also been included.

Scottish Marine Protected Areas (SMPA) Project

The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 include powers and duties to designate new Marine Protected Areas (MPAs) as part of a range of measures to manage and protect our seas for current and future generations. The guidance document by Scottish Government² includes a list of MPA Search Features. Following consultation, Scottish Government is currently considering the proposed network 33 possible MPAs³.

Key information can be accessed via the Scottish Government website⁴. The applicant should liaise with MS regarding updates / progress on the selection of MPAs as part of the SMPA Project.

We hope these comments are helpful. If further information or advice is required please contact Tracey Begg in the first instance: tracey.begg@snh.gov.uk or 01876 580236.

Yours faithfully,

DR TRACEY BEGG
Marine Renewable Energy Casework Adviser

² Marine Protected Areas in the Seas around Scotland: Guidelines on the selection of MPAs and development of the MPA Network, 2011. Available at:

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

³ <http://www.scotland.gov.uk/Publications/2013/07/2072>

⁴ <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork>

12. Response received from Isle of Man Government to First Flight Wind Public Consultation

The following response was received directly from the Isle of Man Government to First Flight Wind Ltd's public consultation. It will be expected, however, that First Flight Wind Ltd will address the issues raised by Isle of Man comprehensively through the Environmental Impact Assessment and also through specific consultation with Isle of Man Government.



email: michael.gallagher@gov.im
Tel: (01624) 685903
Fax: (01624) 686443

Director of Planning & Building Control
Michael Gallagher, M.R.T.P.I.

Jack Farnham
First Flight Wind Limited
Offshore Scoping Response
C/o B9 Energy Offshore Developments Limited
18B High Street
Holywood
Belfast
BT18 9AZ

9th April 2014

Dear Mr Farnham

Re: Consultation on First Flight Wind Offshore Scoping Report

Thank you for providing the Isle of Man Government with the opportunity to review and comment on the above document. We found it a very interesting consultation document and eagerly await its outcome. On behalf of the Isle of Man Government (and our agency Manx National Heritage), I would comment as follows.

The Isle of Man Government is supportive of a transition to a low carbon economy ensuring the continued energy security of the British Isles for future generations. The generation of energy from renewable sources is not just essential environmentally but will create economic opportunities throughout the British Isles, creating new jobs in the construction and operation of offshore wind farms. I would also draw your attention to the recent Isle of Man Government announcements regarding our own strategy to develop offshore renewable energy projects in the Isle of Man territorial sea.

The document provides the reader with an overview of what First Flight Wind will undertake in order to develop their proposals within the Irish Sea. The Isle of Man Government is satisfied from this document that First Flight Wind will endeavour to meet all international standards and best practice when undertaking and analysing the data obtained within the proposed site, and will ensure appropriate mitigation measures are in place to address any concerns identified throughout the Environmental Impact Assessments which will follow in due course. We appreciate that First Flight Wind will have to progress along a rigorous consenting process prior to any development being permitted.

The Isle of Man Government would expect that the cumulative and in-combination impacts of developing wind farms within this proposed site (in close proximity to the boundary of our territorial waters) will be thoroughly investigated, as well as the downstream effects from all turbines.

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Murray House, Mount Havelock, Douglas, Isle of Man, IM1 2SF

The Isle of Man Government has recently published the Manx Marine Environmental Assessment ([see http://www.gov.im/categories/planning-and-building-control/marine-planning/manx-marine-environmental-assessment/](http://www.gov.im/categories/planning-and-building-control/marine-planning/manx-marine-environmental-assessment/)), which provides a comprehensive source of baseline data. We would urge you to take account of its contents in your work.

Whilst support of the concept of developing offshore renewable energy projects, the Isle of Man Government has particular concerns on the impacts in a number of areas:

- Air navigation;
- Marine navigation; and
- habitats and species found within the Isle of Man waters (particularly those protected under Manx law or identified as threatened or declining by the OSPAR Convention).

All of which may be affected dependent on the proposed location of the turbines within this site.

We would welcome any further information relating to the redistribution of shipping lanes and navigation routes within the proposed site, particularly those which might affect shipping traffic to and from the Isle of Man (Ferry and Freight Operations). Safety of shipping and navigation systems is a key concern of the Isle of Man Government. Wind turbines can interfere with Marine Radars and can cause impact on the detection and tracking ability of other vessels in the vicinity, particularly in bad weather. The Maritime Coastguard Agency recommends that mariners are not to pass at a distance of less than 2 miles from such structures and clearly marked limits of travel (Marine Guidance Notice 372). This can reduce the risk of impact of the turbines on marine radars and potential consequence of maritime casualty.

The Isle of Man Government continues to be concerned about the impact of wind turbines on ship navigation systems. The Isle of Man Government acknowledge that auto sea cluttering and fine tuning are available on marine radar, however it is also known that clutter adjusting also impacts on the radar ability to detect close by objects/targets, particularly if they were relatively small. Any significant risk of incident due to interference with navigation systems is of concern to the Isle of Man Government who depend upon a good safety record with regard to transport to and from the Island. The Isle of Man depends upon our transportation systems for our economic development e.g. tourism, import of goods. First Flight Wind are urged to fully engage with both Isle of Man Government, the Isle of Man Steam Packet Company and Mezcron Limited on this issue.

Wind farms can impact upon air radar systems. The movement of turbine blades can give false readings and therefore potentially increase the risk of an accident. The Isle of Man already experiences issues with current wind farms concerning radar signals but at present it is manageable. As a small offshore Island it is highly dependent upon these transport networks. The development of the proposed wind farms between the Isle of Man and Northern Ireland could severely affect its air systems which in turn may threaten the viable operation of key business routes for air travel. It is noted that dialogue has already commenced between the Isle of Man Airport and First Flight Wind on this issue.

At this stage you are requested to note that:

- The Sclox ATCR 33 PSR has been set up to reduce wind farm interference by specifying areas of non-initiation of aircraft tracks. This can result in the complete loss of PSR targets as they transit through the area of the wind farm, these effects have been noted in observations and results of radar flight trials.
- The Isle of Man Airport is also in the process of commissioning a Multilateration (MLAT) Mode S surveillance system. With this type of system there is the possibility of 'multi-path' returns from the turbine blades which can cause the SSR target to jump or stagger. This has been observed in the area of Walney wind farm during evaluation of this new system.

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- It should be noted that some aircraft that are flying under both Visual Flight Rules and Instrument Flight Rules may request a radar based Deconfliction or Traffic Service. Air Traffic Controllers at the Isle of Man Airport are licensed and approved to provide Deconfliction, Traffic, Procedural and Basic Services outside controlled airspace (ATSOCAS). It is completely at the pilot's discretion as to which agency he/she communicates with and requests a service from.

We would also welcome further information on any telecommunication or power cables which may be affected by the proposed development, of particular concern would be those running through Isle of Man territorial waters.

The Isle of Man Government would like to highlight the impact of wind farm proposals on a number of nature conservation issues.

Manx National Heritage have advised that its interests in the wind farm developments in the Irish Sea centre on public amenity and coastal wildlife. As custodians of coastal properties which support breeding seabirds and seals Manx National Heritage are concerned that the marine environment remains able to sustain healthy populations of these animals on land and at sea, particularly at their feeding grounds. Manx National Heritage expect the assessment process to take account of the importance to the Isle of Man of the seabirds on the Calf of Man, in particular the Manx Shearwaters. As the Scoping Report indicates, shearwaters range between here and Ireland in some numbers to search for food and it is quite possible that the birds breeding on the Calf are amongst them. It is noted that under the heading 'Potential trans-boundary impacts' the possibility that there will be impacts on seabirds from the Isle of Man is acknowledged and is considered to be 'in scope' for the purposes of the EIA. Similarly, under Protected Sites, the potential for cumulative effects to impact on receptors in the Isle of Man is recognised and scoped in, though presumably this again relates mostly to highly mobile species such as seabirds which depend upon coastal habitats over here.

In relation to marine mammals and basking sharks (the 'marine megafauna'), the Report again provides welcome reassurance that impacts on these species will be fully considered in the EIA. We would like to emphasise the international importance of the Irish Sea for basking sharks (IUCN red listed, OSPAR priority species), particularly the area to the south west of the Isle of Man. Detailed information now exists on the distribution of basking sharks in Manx waters and beyond. In 2009 74% of all British Isles public sightings of basking sharks were reported from the Isle of Man (Marine Conservation Society 2009). We would hope that you will ensure that the use of this proposed site by basking sharks is fully assessed. Recent tagging work by Manx Basking Shark Watch may give additional insight which will assist with this. We would also like to draw your attention to additional research into cetaceans that has been carried out since 2005 by Manx Whale and Dolphin Watch which has highlighted the importance of Manx waters for Risso's dolphins and other cetaceans. The presence of cetaceans and basking sharks in Manx waters is enjoyed by visitors from vantage points on the Island's coast. EIA consideration of trans-boundary and cumulative impacts on these species is also welcome. Basking sharks, cetaceans and other marine megafauna are protected within the Manx Territorial Sea under the Isle of Man Wildlife Act 2009, with the Department of Environment, Food and Agriculture (DEFA) being the administering authority for this legislation.

Similarly, with regards to commercial fisheries, DEFA administer the Fisheries Act 2012 within the Territorial Sea, and while the Manx fleet have limited fishing activity in the proposed development area, we note that the Scoping Report makes only limited reference to the impact on Herring spawning grounds. It is possible that relevant fisheries spawning areas for this and other species may occur in Manx waters and so it would be appropriate to ensure that this is stated within the text. The impact of the wind farm developments would also be of major concern to the commercial fisheries industry within the Isle of Man, particularly from potential effort displacement, so it would be useful if our commercial fishing baseline data was considered and included in the text. We would also appreciate being kept up to date on any progress via inclusion

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Murray House, Mount Havelock, Douglas, Isle of Man, IM1 2SF

of both DEFA and the Manx Fish Producers (iomfishermen@manx.net) in the list of consultees in the Fisheries Working Group outlined in Chapter 8, section 8.1, and any communications via the appointed Fishing Liaison Officer.

Given our close proximity to the proposed site boundary, it may be necessary to consider the visual amenity of some areas of the Isle of Man which may be affected by the wind farm extension. It appears that the visual impact of the proposed wind farm on Isle of Man receptors, has been scoped in and there will presumably be further discussion on ways to mitigate any adverse effect on much appreciated views across to the Mountains of Mourne.

In conclusion, the Scoping Report appears to cover the main environmental elements which the Isle of Man Government would expect to be addressed in the Environmental Impact Assessment. As with other Irish Sea wind farm developments, the crucial point is that the cumulative effects should be thoroughly examined as there are many pressures on marine life around the Isle of Man.

The Isle of Man government would welcome further involvement opportunities as stakeholders and would appreciate being kept updated of any future developments within this site. Should you require any further information or clarification on any of the above, please do not hesitate to contact myself.

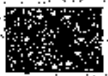
Yours sincerely

Michael Gallagher
Director of Planning and Building Control


Department of Infrastructure
Murray House, Mount Havelock, Douglas, Isle of Man, IM1 2SF

13. Response received from Newry and Mourne District Council

The following response was received directly from Newry and Mourne District Council to First Flight Wind Ltd's public consultation. It will be expected, however, that First Flight Wind Ltd will address the issues raised by Newry and Mourne District Council comprehensively through the Environmental Impact Assessment.



Teach Uí Aonáin,
Rae Mhuinacáshá,
An Uir,
BT35 4DU.



Gerard McEivern BA (Hons), MA, Dip. Ed. & Ed.M. Ed.D.
Director of District Development,
Haughy House, Rampart Road,
Riesbank Industrial Estate, Newry, BT34 2QU
Tel: (028) 3031 3233
Fax: (028) 3031 2299
Mhicom: (028) 3025 7859
www.newryandmourne.gov.uk
E-mail: districtdevelopment@newryandmourne.gov.uk

Cornhairle an Uir & Mhúrn
Newry & Mourne District Council
Clerk & Chief Executive
Thomas McCall

M/4/2
11th April 2014

First Flight Wind Ltd
Offshore Scoping Response
c/o B9 Energy Offshore Developments Ltd
18a High Street
Holywood
Co. Down BT18 9AZ

Ar dtéar / Our Ref: 11th April 2014
Siua / To / Your Ref:
Dáta / Date:

11 April 2014

Dear Sir/Madam,

FFW Offshore Scoping Report

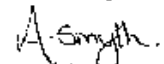
We would wish to thank you for the opportunity to respond to the scoping report, which provides a very detailed overview of the range of issues concerned with the Wind Resource Zone in Co Down.

As you are aware this WRZ has been identified as the most intensely fished area ever explored for potential offshore wind farm development. Whilst some members of the fishing community have identified potential opportunities to diversify their businesses if this wind farm proposal was to proceed, the majority of the industry remains gravely concerned about the impact of this proposed development on commercial fisheries.

Physical & Biological Environment - Construction:
Further emphasis needs to be placed on the probable environmental changes brought about by the physical construction of the wind farm, which in themselves will lead to biological changes. Paragraph 4.20 does point out that rock armour is the most commonly used protection, therefore the introduction of rock will not only significantly change the characteristics of the seabed, but also the fauna that live there. From a fisheries perspective there is implications for a range of stocks, notably nephrops.

Rock armouring is not confined to the turbines, but will also be required at cable crossings. This will lead to further physical and environmental changes, as well as creating potential navigational hazards to fishing vessels.

In addition, further independent work and analysis is required in the area of underwater noise pollution, and evidence from other areas that have quite different physical and environmental characteristics to this FFW must not be used to demonstrate 'a norm'.

Yours sincerely,

Amanda Smyth
Enterprise Development Officer

14. Response received from Irish Aviation Authority

The following response was received as a result of the public consultation undertaken by First Flight Wind Ltd. It will be expected, however, that First Flight Wind Ltd will undertake to address the points raised in this response.

Irish Aviation Authority
The Times Building
11-12 D'Olier Street
Dublin 2, Ireland

Údaird éiríochta na hÉireann
Fábriúcaim na hAmairc
11-12 Straid D'Olier
Baile Átha Cliath 2, Éire

T +353 1 871 6655
F +353 1 879 2954
www.iaa.ie



Safety Regulation
Division

Rainn na Rialacháin
Sábháilteachta

Aeronautical Services Department

19th April 2013

Mr. Daniel Richards
Offshore Developer
Renewable Energy Systems Limited
Faraday House
Station Road
Kings Langley
Watford
Hertfordshire WD4 8LU
United Kingdom

RE: First Flight Wind Offshore Wind Farm Initial IAA Radar Assessment

Dear Mr. Richards:

I refer to the preliminary radar assessment summary for the proposed First Flight Windfarm, off the coast of County Down, Northern Ireland, received by this office on the 4th April.

While the proposed windfarm is located entirely within the territorial waters of the United Kingdom, a small portion is located in airspace administered by the Republic of Ireland (the Shannon FIR). As the majority of the proposed development is within the UK's Airspace, all the turbines in this proposed development should be marked and lit in accordance with the requirements of the UK's Civil Aviation Authority.

Concerning the initial radar assessment, based all 40 turbines of the largest size being realised, and due to the unprecedented nature of this proposal the IAA would request an impact assessment of this proposed development on the combined primary and secondary radars at Dublin. This is prudent due to the size of the proposed turbines and the line of sight information supplied by First Flight Wind Ltd.

Please keep me apprised of progress on the realisation of this project, and let me know if you need any further information.

Yours sincerely,

Pieter van Velzen
Aeronautical Officer

Board Chairman/Chair of Directors
Airte Buidé/Chair of Directors
Airte Buidé na hÉireann
100, North Wall Quay, Dublin 1
Dublin, Ireland
Tel: +353 1 475 2000
Fax: +353 1 475 2001
www.iaa.ie

Chief Executive
Céadúnaí na hÉireann
Céadúnaí na hÉireann
100, North Wall Quay, Dublin 1
Dublin, Ireland
Tel: +353 1 475 2000
Fax: +353 1 475 2001
www.iaa.ie

Registered Office
The Times Building, 11-12 D'Olier Street
Dublin 2, Ireland
Registered for VAT No. IE000000000
VAT No. IE000000000



Appendix 3

PRESENTATION OF THE ENVIRONMENTAL STATEMENT

- 1.1 DoE and DETI advise that the ES should be laid out clearly with a minimum amount of technical terms and should provide a clear objective and realistic description of the likely significant impacts of the proposed development. The information should be presented so as to be comprehensible to the specialist and non-specialist alike, with technical information placed in appendices.

ES Indicative Contents

- 1.2 DoE and DETI emphasise that the ES should be a 'stand alone' document in line with best practice and case law.
- 1.3 Both the Marine Works (Environmental Impact Assessment) Regulations (as amended) 2007 and Schedule 4 of the Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008 require a description of the aspects of the environment likely to be significantly affected by the development which should include *'in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors'*.
- 1.4 The content of the ES should include these areas. This includes the consideration of 'Alternatives' which DoE and DETI recommends could be addressed as a separate chapter in the ES.
- 1.5 Traffic and transport is not specified as a topic for assessment although in line with good practice DoE and DETI consider it is an important consideration *per se*, as well as being the source of further impacts in terms of air quality and noise and vibration.

Balance

- 1.6 DoE and DETI recommend that the ES should be balanced, with matters which give rise to a greater number or more significant impacts, being given greater prominence. Where few or no impacts are identified, the technical section may be much shorter, with greater use of information in appendices as appropriate.
- 1.7 DoE and DETI consider that the ES should not be a series of disparate reports and stresses the importance of considering inter-relationships and cumulative impacts.

Physical Scope

- 1.8 In general DoE and DETI recommend that the physical scope for the EIA should be determined in the light of:

- (a) The nature of the proposal being considered;
- (b) The relevance in terms of the specialist topic;
- (c) The breadth of the topic;
- (d) The physical extent of any surveys or the study area; and
- (e) The potential significant impacts.

1.9 Therefore, DoE and DETI recommend that the study area for the EIA should include at least the whole of the application site (onshore and offshore) embracing all off-site development and for certain topics, such as landscape and transport, the study area will need to be wider. The study area for each specialist topic should be clearly defined and determined by establishing the physical extent of the likely impacts in accordance with good practice.

1.10 DoE and DETI considers that the study areas should be agreed, wherever possible, with the relevant statutory consultees and local authorities.

Temporal Scope

1.11 The assessment should consider:

- (a) Environmental impact during construction works;
- (b) Environmental impacts on completion/operation of the development;
- (c) Environmental impacts a suitable number of years after completion of the development in order to allow for traffic growth or maturing of any landscape proposals; and
- (d) Decommissioning.

1.12 DoE and DETI recommend that these matters should be set out clearly in the ES and that the suitable time period for the assessment should be agreed with the relevant statutory consultees. DoE and DETI consider that the duration of effects should use a standard terminology, which should be defined.

1.13 In terms of decommissioning, DoE and DETI acknowledge that the further into the future any assessment is made, the less reliance may be placed on the outcome. However, the purpose of such a long term assessment is to enable the decommissioning of the works to be taken into account in the design and use of materials such that structures can be taken down with the minimum of disruption, materials can be re-used and the site can be restored or put to a suitable new use. DoE and DETI encourage consideration of such matters in the ES.

Baseline

1.14 DoE and DETI recommend that the baseline should describe the position from which the impacts of the proposed development are measured. The baseline should be chosen carefully and, where possible, be consistent between topics. The identification of a single

baseline is to be welcomed in terms of the approach to the assessment, although DoE and DETI considers that care should be taken to ensure that all the baseline data remains relevant and up to date.

- 1.15 DoE and DETI recommend that the baseline environment should be clearly explained in the ES, including any dates of surveys. Wherever possible the baseline should be agreed with the appropriate consultees. For each of the environmental topics, the data source(s) for the baseline should be set out together with any survey work undertaken with the dates.

Identification of Impacts and Method Statement

- 1.16 In terms of the EIA methodology, DoE and DETI recommend that reference should be made to best practice and any standards, guidelines and legislation that have been used to inform the assessment. This should include guidelines prepared by relevant professional bodies.
- 1.17 In terms of other regulatory regimes, DoE and DETI recommends that relevant legislation and all permits and licences required should be listed in the ES where relevant to each topic.
- 1.18 In terms of assessing the impacts, the ES should approach all relevant planning and environmental policy – local, regional and national (and where appropriate international) – in a consistent manner.

Assessment of Effects and Impact Significance

- 1.19 Both Departments Regulations require the identification of the *likely significant effects of the development on the environment*. Therefore, DoE and DETI consider it is imperative for the ES to define the meaning of ‘significant’ in the context of each of the specialist topics` and for significant impacts to be clearly identified.
- 1.20 DoE and DETI recommend that the criteria should be set out fully and that the ES should set out clearly the interpretation of ‘significant’ in terms of each of the EIA topics. Quantitative criteria should be used where available. DoE and DETI consider that this should also apply to the consideration of cumulative impacts and impact interactions.

Potential Environmental Impacts

- 1.21 DoE and DETI consider these under Section 3 of this scoping opinion. The inter-relationship of impacts on the same receptor should be taken into account. These occur where a number of separate impacts, e.g. noise and air quality, affect a single receptor such as fauna.
- 1.22 DoE and DETI consider that the inter-relationship between aspects of the proposed development should be assessed and that details should be provided as to how inter-relationships will be assessed in order to address the environmental impacts of the proposal as a whole.

Cumulative Impacts

- 1.23 The ES should describe the baseline situation and the proposed development within the context of the site and any other proposals in the vicinity. Other major development in the area should be identified beyond the proposal itself including any associated development.
- 1.24 DoE and DETI recommend that this should be identified through consultation with the Planning Service on the basis of major developments that are:
- (a) Built and operational;
 - (b) Under construction;
 - (c) Permitted application(s), but not yet implemented;
 - (d) Submitted application(s) not yet determined;
 - (e) Projects on the Planning Inspectorate's Programme of Projects;
 - (f) Identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited; and
 - (g) Identified in other policy documents, as development reasonably likely to come forward.
- 1.25 Details should be provided in the ES, including the types of development, location and key aspects that may affect the EIA and have been taken into account as part of the assessment.

Associated development

- 1.26 DoE and DETI recommend equal prominence be given to any development which is associated with the proposed development site to ensure that all the impacts of the proposals are assessed. DoE and DETI recommend that the Applicant should distinguish between development for which development consent will be sought and any other development. This distinction should be clear in the ES.

Alternatives

- 1.27 The ES must set out an outline of the main alternatives studied by the Applicant and provide an indication of the main reasons for the Applicant's choice, taking account of the environmental effect. This should include matters such as, *inter alia* alternative design options and alternative mitigation measures. The justification for the final choice and evolution of the scheme development should be made clear. Where other locations have been considered, the reasons for the final choice should be addressed.
- 1.28 DoE and DETI advise that the ES should give sufficient attention to the alternative forms and locations identified, where appropriate, and justify the needs and choices made in terms of the form of the development proposed and the sites chosen.

Mitigation measures

- 1.29 Mitigation measures may fall into certain categories: namely prevention; reduction; compensation or enhancement and should be identified as such in the specialist sections. Mitigation measures should not be developed in isolation as they may benefit more than one topic area. The effectiveness of mitigation should be apparent. Only mitigation measures which are a firm commitment should be taken into account as part of the assessment.
- 1.30 The application itself will need to demonstrate how the mitigation would be delivered, and only mitigation which can be shown to be deliverable should be taken into account as part of the EIA. This could be achieved by means of describing the mitigation measures proposed either in each of the specialist reports or collating these within a summary section on mitigation.

Trans-boundary Effects

- 1.31 DoE and DETI recommend that consideration should be given in the ES to any likely significant effects on the environment of another EEA member state. In particular, the DoE and DETI recommends consideration should be given to discharges to the air and sea and to potential impacts on migratory species. Public notification of member states should also be addressed.

Presentation

- 1.32 DoE and DETI recommend that all paragraphs in the ES should be numbered. This is for ease of reference. Appendices must be clearly referenced, again with all paragraphs numbered. All figures and drawings should be clearly referenced.

Cross References and Interactions

1.33 DoE and DETI recommend that all the specialist topics in the ES should cross reference their text to other relevant disciplines. Interactions between the specialist topics is essential to the production of a robust assessment, as the ES should not be a collection of separate specialist topics, but a comprehensive assessment of the environmental impacts of the proposal and how these impacts can be mitigated. The ES should include an indication of any technical difficulties (technical deficiencies or lack of know-how) encountered by the Applicant in compiling the required information.

Terminology and Glossary of Technical Terms

1.34 DoE and DETI recommend that a common terminology should be adopted. This will help to ensure consistency and ease of understanding for the decision making process. For example, 'the site' should be defined and used only in terms of this definition so as to avoid confusion with, for example, the wider site area or the surrounding site. A glossary of technical terms should be included in the ES.

Summary Tables

1.35 DoE and DETI recommend that in order to assist the decision making process, the Applicant may wish to consider the use of tables to identify and collate the residual impacts after mitigation. This would include the EIA topics, inter-relationship and cumulative impacts. The ES should also demonstrate how the assessment has taken account of this scoping opinion and the consultation.

Bibliography

1.36 A bibliography should be included in the ES. The author, date and publication title should be included for all references.

Non Technical Summary

1.37 A non technical summary is required. This should be a summary of the assessment in simple language. It should be supported by appropriate figures, photographs and photomontages.

Consultation

1.38 DoE and DETI recommend that any changes to the scheme design in response to consultation should be addressed in the ES. It is recommended that the Applicant provides preliminary environmental information to the local authorities.

Environmental Management

1.39 DoE and DETI advise that it is considered best practice to outline in the ES, the structure of the environmental management and monitoring plan and safety procedures which will be adopted during construction and operation.

Appendix 4

Offshore Electricity Development (Environmental Impact Assessment) Regulations (Northern Ireland) 2008

SCHEDULE 4

Matters for Inclusion in Environmental Statement

PART I

1. Description of the development, including in particular —
 - (a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;
 - (b) a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used;
 - (c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc) resulting from the operation of the proposed development.
2. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.
3. A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the factors.
4. A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:
 - (a) the existence of the development;
 - (b) the use of natural resources;
 - (c) the emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant of the forecasting methods used to assess the effects on the environment.
5. A description of the measures envisaged to prevent, reduce and, where possible, offset any significant adverse effects on the environment.
6. A non-technical summary of the information provided under paragraphs 1 to 5.

7. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

PART II

1. A description of the development comprising information on the site, design and size of the development.
2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.
3. The data required to identify and assess the main effects which the development is likely to have on the environment.
4. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.
5. A non-technical summary of the information provided under paragraphs 1 to 4.

SCHEDULE 3

INFORMATION TO BE INCLUDED IN AN ENVIRONMENTAL STATEMENT

1. A description of the project and of the regulated activity, including details of the following matters—
 - (a) The location, size and nature of the project and the regulated activity;
 - (b) The quantity and nature and source of the materials to be used in the course of the project and the regulated activity;
 - (c) The quantity, nature and source of any items or materials to be deposited in the sea in the course of the project and the regulated activity; and
 - (d) The working methods to be used in the course of the project and the regulated activity. 2.
A description of the aspects of the environment likely to be significantly affected by the project and the regulated activity, including—
 - (i) Human beings, fauna and flora;
 - (ii) Soil, water, air, climate and the landscape;
 - (iii) Material assets and the cultural heritage; and
 - (iv) The interaction between any two or more of the things mentioned in the preceding sub-paragraphs.

3. (1) A description, complying with sub-paragraph (2), of the likely significant effects of the project and the regulated activity on the environment resulting from—
 - (a) The nature of the activities to be carried out and the manner in which they are to be carried out;
 - (b) The use of natural resources;
 - (c) The emission of pollutants;
 - (d) The creation of nuisances; and
 - (e) The elimination of waste.
- (2) The description should cover each of the following categories of effect—
 - (a) Direct and indirect effects;
 - (b) Secondary effects;
 - (c) Cumulative effects;
 - (d) Short-term, medium-term and long-term effects;
 - (e) Permanent and temporary effects; and
 - (f) Positive and negative effects.
4. The forecasting methods used by the applicant to assess the main effects that the project and the regulated activity are likely to have on the environment.
5. A description of the measures envisaged to prevent, reduce and offset any significant adverse effects of the project and the regulated activity on the environment.
6. An outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects of those alternatives and the project as proposed.
7. A non-technical summary of the information provided under paragraphs 1 to 6.
8. Any difficulties, such as technical deficiencies or lack of knowledge, encountered in compiling any information of a kind specified in paragraphs 1 to 6.

Checklist for ES

Environmental Statement

1. **Development Description**
2. **Planning Policies, Guidance and Agreements**
3. **Economic Benefits**
4. **Site Selection and Alternatives**
5. **Baseline Assessment data – air emissions**
6. **Design, Landscape and Visual Amenity**
7. **Construction and Operations (outline methods)**
8. **Archaeology**
9. **Designated Sites**
10. **Habitat Management**
11. **Species, Plants and Animals**
12. **Water Environment**
13. **Sub-tidal benthic ecology**
14. **Hydrology**
15. **Waste**
16. **Noise**
17. **Traffic Management**
18. **Navigation**
19. **Cumulative Impacts**
20. **Other Issues**

DEVELOPER APPLICATION AND ENVIRONMENTAL STATEMENT CHECKLIST

Enclosed

1. Developer cover letter and fee cheque
 2. Copies of ES and associated OS maps
 3. Copies of Non Technical Summary
 4. Confidential Annexes
 5. Draft Adverts
 6. E Data – CDs, PDFs and SHAPE files
 7. **N.B. Developers are encouraged to use this checklist when progressing towards application stage and formulating their Environmental Statements. The checklist will also be used by officials when considering acceptance of formal applications. Developers should not publicise applications in the local or national press, until their application has been checked and accepted by officials.**
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Appendix 5

Offshore Renewable Energy Strategic Action Plan 2012-2020

Project Level Mitigation Strategy

Introduction

1. The Environmental Report and the Habitats Regulations Appraisal of the draft Offshore Renewable Energy Strategic Action Plan (ORESAP) identified a number of project level mitigation measures for each potential Resource Zone in NI waters. In order to comply with the SEA and HRA Directives, these measures have been built into the final ORESAP 2012-2020 published in March 2012⁵. A specific action point within the ORESAP was the development of a Project Level Mitigation Strategy by DETI and NIEA (now the DOE Marine Division) to draw these measures together as a reference guide for regulators, developers and stakeholders for the consents and licensing process. This document fulfils that requirement.

2. The mitigation measures proposed within the SEA⁶ and HRA⁷ represented best practice guidance at that time. However, it was acknowledged in the ORESAP that with the ongoing development of the offshore renewable sector, increased deployment of devices, ongoing survey and research work leading to increased knowledge of its interactions with the marine environment and other marine users, such measures may be superseded. As DETI and DOE wish to ensure that the most relevant and appropriate measures are identified to avoid/ minimise impacts on the environment or other marine users, the measures drawn together here form the basis of consideration for each project and will be supplemented by further ongoing guidance etc. Specific measures and conditions will be set by DOE Marine Division as part of the detailed consideration of each individual project depending on its particular characteristics and those of its proposed location.

⁵ [http://www.offshoreenergy.co.uk/Data/NI%20Offshore%20Renewable%20Energy%20Strategic%20Action%20Plan%202012-2020%20\(March%202020\).PDF](http://www.offshoreenergy.co.uk/Data/NI%20Offshore%20Renewable%20Energy%20Strategic%20Action%20Plan%202012-2020%20(March%202020).PDF)

⁶ www.offshoreenergy.co.uk

⁷ http://www.detini.gov.uk/28646_ni_hra_final_v4__2__4_.pdf

3. While the focus of The Crown Estate Offshore Renewable Energy Leasing Round, announced in October 2012, is on an area within the Offshore Wind Resource Zone off the East Coast and areas within the Tidal Resource at Rathlin Island and Torr Head, this document includes all the Resource Zones identified in the SEA.

4. The remainder of this document includes the basic mitigation measures included within the ORESAP and a section for each Resource Zone setting out the summary of potential effects and mitigation measures from the SEA and HRA.

DETI and DOE

May 2014

Appendix 5

Offshore Renewable Energy Strategic Action Plan 2012-2020

Project Level Mitigation Strategy

Introduction

1. The Environmental Report and the Habitats Regulations Appraisal of the draft Offshore Renewable Energy Strategic Action Plan (ORESAP) identified a number of project level mitigation measures for each potential Resource Zone in NI waters. In order to comply with the SEA and HRA Directives, these measures have been built into the final ORESAP 2012-2020 published in March 2012⁸. A specific action point within the ORESAP was the development of a Project Level Mitigation Strategy by DETI and NIEA (now the DOE Marine Division) to draw these measures together as a reference guide for regulators, developers and stakeholders for the consents and licensing process. This document fulfils that requirement.

2. The mitigation measures proposed within the SEA⁹ and HRA¹⁰ represented best practice guidance at that time. However, it was acknowledged in the ORESAP that with the ongoing development of the offshore renewable sector, increased deployment of devices, ongoing survey and research work leading to increased knowledge of its interactions with the marine environment and other marine users, such measures may be superseded. As DETI and DOE wish to ensure that the most relevant and appropriate measures are identified to avoid/ minimise impacts on the environment or other marine users, the measures drawn together here form the basis of consideration for each project and will be supplemented by further ongoing guidance etc. Specific measures and conditions will be set by DOE Marine Division as part of the detailed consideration of each individual project depending on its particular characteristics and those of its proposed location.

⁸ [http://www.offshoreenergy.co.uk/Data/NI%20Offshore%20Renewable%20Energy%20Strategic%20Action%20Plan%202012-2020%20\(March%2020\).PDF](http://www.offshoreenergy.co.uk/Data/NI%20Offshore%20Renewable%20Energy%20Strategic%20Action%20Plan%202012-2020%20(March%2020).PDF)

⁹ www.offshoreenergy.co.uk

¹⁰ http://www.detini.gov.uk/28646_ni_hra__final_v4__2__4_.pdf

3.. The remainder of this document includes the basic mitigation measures included within the ORESAP and details from the Offshore Wind Resource Zone setting out the summary of potential effects and mitigation measures from the SEA and HRA.

Basic mitigation measures included in the ORESAP from the SEA and conclusions from the HRA.

Activity	Potential causes of effects	Basic mitigations
Survey	Noise Physical disturbance Vessel activity	<p>Design of an appropriate survey methodology to provide required data whilst avoiding excessive habitat/species disturbance; plan to be produced to the satisfaction of statutory consultees and regulators.</p> <p>Where there is evidence that this would mitigate adverse effects on sensitive species, timing of survey work to avoid sensitive life-cycle stages where possible (e.g. avoiding geotechnical surveys in diadromous fish migration seasons).</p> <p>It is also recommended to read the JNCC guidelines¹¹ on minimising the risk of injury to marine mammals from noise produced during seismic surveys.</p>

¹¹ JNCC, 2010. *JNCC guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys*. JNCC, Marine Advice, Aberdeen.

Activity	Potential causes of effects	Basic mitigations
Device installation/ decommissioning (including repowering)	Noise	<p>Where there is evidence that this would mitigate adverse effects on sensitive species, timing of piling activities to avoid sensitive life-cycle stages (e.g. diadromous fish migration seasons).</p> <p>Minimise, where possible, use of high noise emission activities.</p> <p>Where appropriate, use full sound insulation on plant and equipment design.</p> <p>If piling is undertaken use techniques such as soft start and/or Acoustic Deterrent Devices (ADD).</p> <p>Use of bubble curtains (expensive and only effective in shallow water).</p> <p>Use of mammal observers and Passive Acoustic Monitoring (PAM) system to facilitate implementation of exclusion zone during noisy activities (500m zone recommended by JNCC). The exclusion zone should take into consideration breeding and migration cycles.</p> <p>Where projects are being undertaken close together, so that cumulative effects of construction noise may occur, this should be mitigated through appropriate timings of activities.</p> <p>It is also recommended to read the JNCC guidelines¹² on minimising the risk of injury to marine mammals from piling noise.</p>
Device installation/		

¹² JNCC, 2010. *Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise*. JNCC, Marine Advice, Aberdeen.

Activity	Potential causes of effects	Basic mitigations
decommissioning (including repowering) (Cont'd)	Sediment mobilisation	<p>Suspended sediment dispersion modelling at the project stage. Minimise dredging.</p> <p>Use device installation method that minimises sediment re-suspension (device dependent).</p> <p>Carry out work in appropriate tidal conditions to minimise spatial extent of effect</p> <p>Avoid siting devices in areas where sediment transport pathways are modelled as highly sensitive to change.</p> <p>Micrositing of devices to avoid sensitive habitats/species or areas of sediment contamination, where sediment re-mobilisation could result in toxic effects or smothering.</p>
	Physical habitat disturbance	Careful site selection avoiding sensitive sites for devices.

Activity	Potential causes of effects	Basic mitigations
	Toxic contamination	<p>Use low toxicity materials.</p> <p>Minimise contact of potentially harmful materials with water.</p> <p>Minimise quantity of potentially harmful materials used.</p> <p>Carry out potentially hazardous operations under appropriate weather/tide conditions.</p> <p>Avoid device/infrastructure placement within 500m of areas of known sediment contamination.</p> <p>Carry out pre-installation bottom surveys.</p> <p>Use installation methods that minimise disturbance of sediments.</p> <p>Avoid sensitive time periods for local receptors.</p> <p>Risk assessment and contingency planning.</p> <p>If munitions are encountered Crown Estates (2006) guidance <i>Dealing with munitions in marine aggregates</i> should be followed.</p>
Device installation/ decommissioning (including repowering) (Cont'd)		

Activity	Potential causes of effects	Basic mitigations
	Vessel activity	<p>Enforce speed limits for vessels used in construction and establish a code of conduct to avoid disturbance to marine mammals both during construction activities and in transit to the construction area if entering areas of high animal abundance.</p> <p>Implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).</p> <p>Use of Best Practicable Environmental Option (BPEO) vessel anchoring/positioning methodology and implementation of an appropriate Pollution Event Contingency Plan.</p>
		<p>There is the potential for ducted (or cowled) propellers to cause fatal injuries to seals¹³; vessels with this type of propeller are in widespread use but use of such propellers for dynamic positioning of vessels during wind farm construction may present particular risks to seals. There are no clear cut generic mitigation measures for this and mitigation measures (e.g. use of marine mammal observers) should be drawn up on a site-specific basis to the satisfaction of the relevant authorities.</p>
	Changes in coastal processes	<p>Modelling the effects on coastal processes should form part of pre-project activities to optimise location.</p>
	Minimising collision risks for animals and birds	<p>Where possible avoid installation activities at night if bird collision is identified as a risk (birds are more vulnerable to collisions at night due to lighting of work areas and consequent attraction of birds).¹⁴</p>

¹³ Thompson, D., Bexton, S., Brownlow, A., Wood, D., Patterson, T., Pye, K., Lonergan, M., & Milne, R., 2010. *Report on recent seal mortalities in UK waters caused by extensive lacerations*. Report produced by the Sea Mammal Research Unit, St Andrews.

¹⁴ Jones, J. and Francis, C.M., 2003. The effects of light characteristics on avian mortality at lighthouses. *J. Avian Biol.*, **34**, 328-333.

Activity	Potential causes of effects	Basic mitigations
Device operation	Scour	<p>Careful site selection to minimise scour.</p> <p>Use of appropriately designed/located scour protection for device bases or anchors.</p>
	Physical habitat disturbance	<p>Careful site selection and assessment of effects.</p> <p>Avoid device placement in sensitive areas/features.</p>
	Operational noise	<p>Use full sound insulation on plant where appropriate.</p> <p>Noise from operating turbines can be reduced by using isolators. However this has not been tested over the long term or to account for cumulative effects.</p>
	Maintenance vessel activity	<p>Design for minimum device maintenance.</p> <p>Enforce speed limits for vessels used in maintenance and establish a code of conduct to avoid disturbance to marine mammals both during maintenance activities and in transit to the construction area if entering areas of high animal abundance.</p> <p>Implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).</p> <p>Compliance with all relevant regulations including COLREGS.</p> <p>Use of Best Practicable Environmental Option (BPEO) vessel anchoring/positioning methodology and implementation of an appropriate Pollution Event Contingency Plan.</p>

Activity	Potential causes of effects	Basic mitigations
Device operation (Cont'd)	Decrease of water flow	Careful site selection and assessment of effects on water flow.
	Contamination	<p>Minimise use of antifoulants</p> <p>Use of non-toxic antifoulants.</p> <p>Design devices to minimise leakage of pollutants.</p> <p>Carry out potentially hazardous operations under appropriate weather/tide conditions.</p> <p>Minimise use of sacrificial anodes.</p> <p>Use of low toxicity grout.</p> <p>Minimise contact of grout with water.</p> <p>Minimise quantity of grout used.</p> <p>Risk assessment and contingency planning.</p>

Activity	Potential causes of effects	Basic mitigations
	Minimising collision and other risks for animals and birds	<p>Design device for minimal impact.</p> <p>Improve the visibility of rotating tidal device blades through lighting and/or colour for minimising fish collision.</p> <p>Use Acoustic Deterrent Devices where benefit of such devices can be demonstrated.</p> <p>Tidal turbine blades should not be shiny (diving birds may mistake them for fish.)</p> <p>Use of protective netting or grids.</p> <p>Consider siting wind turbines close together to minimise the area accommodated by a wind farm, grouping turbines to avoid alignment perpendicular to main bird flight paths and providing corridors (up to a few kilometres wide) between groups of turbines to allow passage by birds.</p> <p>Soften collision by adding smooth and/or softer edges.</p> <p>Consideration should be given to whether any surface platforms have moving parts that could cause injury.</p>
Device operation (Cont'd)	Barrier to movement	<p>Do not site devices in particularly sensitive areas – e.g. migration routes, feeding, breeding areas.</p> <p>Protect against entrapment by incorporating escape hatches into device design.</p> <p>Avoid placing devices in constrained waterways where it could block or cause a significant perceptual barrier to marine mammals.</p>

Activity	Potential causes of effects	Basic mitigations
Cable installation/ decommissioning	Physical habitat disturbance Sediment mobilisation Toxic contamination Noise Vessel activity	<p>Selection of cable landfalls to avoid adverse effects on European and Ramsar sites.</p> <p>Micrositing of cables to avoid particularly sensitive coastal / intertidal / subtidal habitats, areas particularly important for bird interest features and areas of known contamination where sediment re-mobilisation could result in toxic effects.</p> <p>Where there is evidence that this would mitigate adverse effects on sensitive species, timing of cable installation activities to avoid sensitive life-cycle stages (e.g. diadromous fish migration seasons, bird breeding/overwintering periods).</p> <p>Intertidal cabling works undertaken at low tide to reduce the level of resuspension and transport of sediments.</p> <p>Careful planning of terrestrial site access to avoid sensitive habitats on the upper shore (e.g. vegetated shingle) and employment of appropriate mitigation measures to reduce impacts on these habitats.</p>
		Use of appropriate installation techniques to avoid adverse impacts on intertidal / coastal habitat features.
		<p>Where cable trenching in the intertidal is unavoidable, backfilling of trenches to reduce the potential for sediment remobilisation and facilitate recovery of benthic communities</p> <p>Use of cable laying techniques most appropriate to the nature of the intertidal / subtidal substrate to avoid excessive sediment mobilisation.</p>
		Enforce speed limits for vessels used in construction and establish a code of conduct to avoid disturbance to marine mammals both during construction activities and in transit to the construction area if entering areas of high animal abundance.

Activity	Potential causes of effects	Basic mitigations
		Implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).
		Use of Best Practicable Environmental Option (BPEO) vessel anchoring/positioning methodology and implementation of an appropriate Pollution Event Contingency Plan.
		Suspended sediment dispersion modelling at the project stage.
		There is the potential for ducted (or cowled) propellers to cause fatal injuries to seals ¹³ ; vessels with this type of propeller are in widespread use but use of such propellers for dynamic positioning of vessels during wind farm decommissioning and cable installation may present particular risks to seals. There are no clear cut generic mitigation measures for this and mitigation measures (e.g. use of marine mammal observers) should be drawn up on a site-specific basis to the satisfaction of the relevant authorities.
Cable operation	Electromagnetic fields Scour	Burial of cables to an appropriate depth where this is considered necessary to mitigate effects on electrosensitive species, including <i>Salmo salar</i> ¹⁵ . Cable protection in the intertidal / subtidal area (e.g. burial, scour protection, pinning over bedrock) to reduce excessive scour.

¹⁵ Gill, A.B. & 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.

Conclusions from the HRA of the ORESAP

Conclusions regarding habitats

The overall conclusion of the HRA is that the ORESAP will have no adverse effect on integrity of any sites through effects on habitat interest features or habitats that support birds, subject to:

- Inclusion in the ORESAP and enforcement of all mitigation measures in the basic mitigation measures table above ;
- Inclusion in the ORESAP and enforcement of project specific mitigation to protect the biological communities Skerries and Causeway cSAC;
- Inclusion in the ORESAP and enforcement of project specific mitigation to protect intertidal mudflats and sandflats which are supporting habitat for bird interest features of Carlingford Lough SPAs and Ramsar site and Outer Ards SPA and Ramsar site.

In the case of wind power development in Resource Zone on the East Coast, the following mitigation measure will be added to the ORESAP.

- To be in accordance with this action plan and for permission to be granted, detailed proposals, including applications for marine consents in principle, for the development of wind power generation in Resource Zone Wind 2, East Coast, must demonstrate that the turbines are located so as not to cause changes in tidal currents that will cause adverse effects on intertidal mud and sand flats that are supporting habitat for the bird interest features of Carlingford Lough SPAs and Ramsar site or Outer Ards SPA and

Conclusions regarding species

The overall conclusion of the HRA is that, subject to inclusion in the ORESAP and enforcement of all mitigation measures identified in the table above, the ORESAP will have no adverse effect on integrity of any sites through effects on species interest features other than birds.

In the case of certain bird species that are interest features of SPAs or Ramsar sites, further work will be required at project level to establish the behaviour of birds at the proposed development location, in order that wind power development can be designed in such a way as to ensure that there is no adverse effect on integrity of any of the particular SPAs or Ramsar sites. Thus, further HRA work will be required at

project level and if this shows that such a design cannot be achieved at any particular location within a wind resource zone, then the proposed development will not be permitted at that location. To ensure that the ORESAP can be delivered without adverse effects on integrity, the following mitigation measure will be included in the ORESAP.

- To be in accordance with this action plan and for permission to be granted, detailed proposals, including applications for marine consents in principle, for the development of wind power generation must demonstrate that the adequate site-specific studies have been undertaken (including bird survey work where appropriate), so that it can be shown that the design and location of the development project is such that there will be no effects on birds sufficient to cause adverse effects on integrity of the bird interest features of any European or Ramsar site, either alone or in combination with other plans or projects.

With inclusion of this mitigation measure, delivery of the ORESAP will result in no adverse effects on the integrity of any European or Ramsar site.

Section 10

East Coast (Wind Resource Zone 2) - Summary of Potential Effects								
Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Bathymetry	The information presented in this chapter has been used to inform the results of the assessment. No specific impacts on bathymetry are expected.							
Geology, geomorphology and sediment processes	Changes in seabed morphology	Installation	Export cable trenching Devices using seabed foundations e.g. piled devices	Wind	Significant adverse	<p>The east and south east coast of Northern Ireland experiences low to moderate fetch limited wave energy conditions. The offshore seabed morphology is characterised as a deep water mud basin. Close to the shore, the seabed is composed of coarse and fine sand. The coastline is dominated by dissipative sand beaches with well defined ridge and runnel systems in the intertidal zone. Longshore transport is towards the north east along the coast. Scour effects could alter the seabed morphology.</p> <p>The physical presence of devices on the seabed, could cause localised scour and hydrodynamic changes. It is estimated that such changes will extend up to 50 m from devices and is therefore localised to the vicinity of the device array, but will be effective for the operational life of the device.</p>	Careful site selection is key to keeping impacts to a minimum. Effects of wind turbine bases on the tidal current and wave regime should be model-tested for sediment transport impacts as part of pre-project activities.	Negligible

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Changes in coastal processes	Operation	Presence of device foundations	Wind	Negligible	<p>Alteration to the hydrodynamics could potentially interrupt the sediment transport processes along the coastline, possibly inducing deposition in the vicinity of the devices while increasing erosion down coast of the wind farm.</p> <p>Any offshore wind farms located near to the coast could interrupt the sediment transport processes along the coast. This could potentially have a significant adverse impact on the coastal geomorphology further along the coast.</p> <p>Wind Resource Zone 2 is located between 1 and 11km offshore of the coast, and therefore impacts on coastal processes could occur for wind farms sited closest to the coastline.</p>	<p>The degree of potential impacts depends on the process (floating or fixed structures), how closely individual devices are spaced, and how far offshore the devices are located.</p> <p>Careful site selection is key to keeping impacts to a minimum. Impacts at the coastline will be reduced with increasing distance from the shore, subject to more detailed studies and modelling to better understand impacts at the coast.</p> <p>Modelling the effects on coastal processes should form part of pre-project activities to optimise location.</p>	Negligible
Seabed Contamination and Water Quality	Accidental Contamination (hydraulic fluids or vessel cargo/fuel)	Installation Operation	Hydraulic fluids Vessel fuel	Wind	Significant adverse	<p>There is potential for accidental contamination from devices and vessels to occur as a result of collision, storm damage or device failure.</p> <p>Any accidental spillage of slick forming chemicals could be carried into Dundrum Bay, where the effects on water quality will be greater than those in open waters. Therefore, although the likelihood of accidental contamination from devices is low, should it occur, the potential effects in this area would be of adverse significance.</p>	<p>Effects associated with contamination from devices could be reduced through careful design, contingency measures for device failure/component failures.</p> <p>Effects associated with contamination from fuel oil spills could be reduced through good practice and implementation of SOPEP (Shipboard Oil Pollution Emergency Plan)</p>	Negligible

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Disturbance of contaminated sediment	Installation Decom	Devices using seabed foundations e.g. piled devices Cable trenching	Wind	Negligible to Significant adverse	<p>There are two active dredging spoil disposal sites within and two immediately adjacent to, Wind Resource Zone 2. These potential areas of contamination could therefore be disturbed by seabed activities. Any contaminated material released is likely to be widely dispersed and diluted and the effect on open sea water quality is likely to be of negligible significance.</p> <p>Munitions migrated from the Beaufort's Dyke dumping ground or relict from wartime activities may be encountered. Disturbance could result in significant adverse effects.</p>	<p>Available mitigation includes avoidance of potentially contaminated seabed areas (dredging areas - 500m buffer).</p> <p>Identification and avoidance of areas of munitions contamination through site survey at the project stage.</p> <p>If munitions are encountered Crown Estates 2006 (Dealing with munitions in marine aggregates) should be followed.</p>	Negligible
Protected Sites and Species	Impacts on protected sites	Installation Operation	Marine devices	Wind	Negative – significant adverse	<p>The only protected sites within Wind Resource Zone 2 are the outer Ards ASSI, SPA and Ramsar site. Whilst there are a few areas where potential Annex I habitats for rocky reef and also for sandy sediment in <20m water are found within the zone, no part of the area currently under consideration for designation as a marine SAC. Closer to the coastline, is the Murlough SAC, and also the Outer Ards SPA, Ramsar site and ASSI.</p> <p>Impacts on protected sites could mainly occur as a result of export cable installation, impacts could have a significant adverse effect on protected sites, through physical disturbance and loss of substratum, to impacts upon the species supported in the protected area – of particular importance the seabirds. However, if sensitive areas are avoided, impacts could be negligible on protected sites and species.</p>	<p>Impacts on protected areas could be mitigated by careful site selection avoiding sensitive sites for devices and export cables (i.e. existing and proposed protected sites).</p> <p>Impacts may still arise through indirect impacts on sediment movements during installation and operation, and would need to be assessed in more detail at the project stage.</p> <p>Possible mitigation measures relevant to the specific interest features of the sites and their seasonal and other sensitivities are described elsewhere in this table for the relevant topic areas.</p>	Negligible

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Impacts on protected species	Installation Operation	Marine device	Wind	Significant adverse	Wind Resource Zone 2 overlaps partly with the Murlough SAC which is designated to protect fixed dunes, but also contains Annex II species, seals. The zone also borders areas important for seabirds, as shown by their designation as SPA and Ramsar sites. In addition, marine mammals, fish and shellfish are found throughout the region, as are important benthic species. The potential effects on these receptors are discussed in the relevant sections of the table below.	See sections below on benthic ecology, fish and shellfish, seabirds and marine mammals.	Negative to Negligible
Benthic and Intertidal Ecology	Smothering	Installation Decom	Devices using seabed foundations e.g. piled devices Cable trenches	Wind	Negative	Wind Resource Zone 2 is located across an area of sublittoral sand and gravel habitat which grades into deep sea mud habitat further offshore. Disturbed sediments should be dispersed rapidly especially in areas with higher tidal flow with only localised impacts associated with displaced sediment. Many of the benthic species associated with this habitat will be adapted to living in a perturbed environment. Smothering impacts will be localised to the immediate vicinity of the seabed disturbing activities during installation.	The potential effects on benthic ecology can be reduced through avoidance (careful site selection) . Potential effects on unknown benthic habitats will need to be assessed through site survey at the project stage.	Negligible
Benthic and Intertidal Ecology	Contamination – from sediment disturbance	Installation Decom	Devices using seabed foundations e.g. piled devices Cable trenching	Wind	Negligible	There is a potential for contaminated sediment from spoil dumping sites to be remobilised during seabed disturbing installation works. It is likely that any habitats with the potential to be adversely affected by contamination from these sites have already been subject to disturbance during the original dredging and deposition of material. Furthermore dredged sediment deposited at disposal sites in the area is thought to be relatively uncontaminated. Fine contaminated material will be diluted and dispersed, settling over a wide area with negligible effect on the benthic and intertidal ecology. Coarse material will be rapidly redeposited within the immediate area of installation operations.	The potential effects on benthic ecology can be reduced through avoidance (careful site selection) . Avoidance of areas of known potential contamination for seabed disturbing works. Potential effects on areas of unknown benthic habitat will need to be assessed through site survey at the project stage.	Negligible

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Accidental Contamination (hydraulic fluids or vessel cargo/fuel)	Installation Operation	Hydraulic fluids Vessel fuel	Wind	Significant adverse	<p>There is potential for accidental contamination from devices and vessels to occur as a result of collision, storm damage or device failure. The water depth is such that small spillages (< 1tonne) are unlikely to affect the benthos. Similarly small spillages from wind 1 are unlikely to come ashore. Large spillages have the potential to have a significant adverse effect, particularly on the intertidal ecology of the adjacent shoreline coastline, including within Strangford Lough, Dundrum Bay and Carlingford Lough.</p> <p>Therefore, although the likelihood of accidental contamination from devices is low, should it occur, the potential effects on benthic and intertidal ecology would be of adverse significance.</p>	<p>Effects associated with contamination from devices could be reduced through careful design, contingency measures for device failure/component failures.</p> <p>Effects associated with contamination from fuel oil spills could be reduced through good practice and implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).</p> <p>Potential effects on areas of unknown benthic habitats will need to be assessed through site survey at the project stage.</p>	Negligible
	Substratum loss	Installation Operation	Devices using seabed foundations e.g. piled devices Cable trenching	Tidal Wave Wind	Significant adverse	<p>All benthic communities can be expected to be sensitive to removal of their habitat. The long term loss of substratum due to the presence of devices that are attached to the seabed will therefore have a potentially significant adverse effect on any rare or important benthic habitats, such as those listed in the UKBAP and protected under the Habitats Directive.</p>	<p>Effects on benthic ecology from substratum loss can be reduced through avoidance (careful site selection). However, it may not be possible for this impact to be significantly reduced at this location.</p> <p>Potential effects on areas of unknown benthic habitats will need to be assessed through site survey at the project stage.</p>	Negative – significant adverse
Fish and Shellfish	Smothering	Installation Decom	Devices using seabed foundations e.g. piled devices Cable trenching	Wind	Negative	<p>Wind Resource Zone 2 contains shellfish populations of lobster, edible crab, <i>Nephrops</i> and velvet crab. Strangford Lough itself is also known to contain cockles and whelks, whilst scallops are distributed throughout the Wind Resource Zone 2. These species live on, near or in the bottom sediments of the seabed. Sprat is also known to spawn in the area.</p> <p>These species range from low to high sensitivity to smothering, although this impact will be localised to the immediate vicinity of seabed disturbing activities and limited to during installation.</p>	<p>For devices that require piling, and cable trenching, potential effects could be mitigated by avoiding installation during the spawning and nursery seasons of the species mentioned, and by avoiding key shellfish areas.</p>	Negative

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Marine noise	Installation Decom	Devices using seabed foundations e.g. piled devices	Wind	Unknown	<p>High levels of noise such as during pile installation may cause physiological or displacement effects to marine fish although the extent to which this may occur is unknown. In particular, herring and cod are known to be highly sensitive to noise and may be able to detect piling noise up to 80km. Both species are present in the study area and therefore may be present Wind Resource Zone 2, although herring generally only occurs in coastal waters (0 to 20m). It is expected that noise levels from piling and the removal of piled devices will be greater than those generated by operational devices, and although pile driving only occurs during installation the effects may last for longer than the piling activities as fish may not immediately return to the area.</p> <p>There is potential for noise from operational devices to lead to longer term species displacement which could increase pressures on fish populations in other locations and force fish into predator habitats.</p>	The potential effects of noise from piling could be reduced through undertaking studies to determine site specific noise effects, and/or avoiding piling activities during sensitive spawning periods.	Unknown
		Operation	Turbines/flexing joints/device components				No specific mitigation measures have been identified	Unknown
	Collision risk	Operation	Turbines/moving part of devices / mooring chains and cables	Wind	Unknown	<p>There is potential risk that all mobile fish species could collide with turbines or moving parts of submerged devices. Larger animals (such as basking sharks (UKBAP species)), and pelagic species are considered to be of greater risk. Basking shark and other pelagic fish species are present throughout the study area, and will be present within Wind Resource Zone 2. However, due to uncertainties with data and knowledge on the interactions between fish and devices, the potential significance of collision risk effects is unknown.</p>	Potential effects associated with collision risk and fish could be reduced through device design e.g. use of protective nets or grids. Devices could also be sited to avoid sensitive areas e.g. migration routes, spawning and nursery grounds.	Unknown

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Fish and Shellfish	Accidental Contamination (hydraulic fluids or vessel cargo/fuel)	Installation Operation	Hydraulic fluids	Wind	Significant adverse	There is potential for accidental contamination from devices and vessels to occur as a result of collision, storm damage or device failure. Small spillages are likely to have a negligible impact. Large spillages, particularly where they impinge on the coastline or enter Strangford Lough could have a significant adverse impact.	Effects associated with contamination from devices could be reduced through careful design, contingency measures for device failure/component failures. Effects associated with contamination from fuel oil spills could be reduced through good practice and implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).	Negligible
	Habitat exclusion	Operation	Devices that occupy seabed/water column	Wind	Unknown	The presence of devices in the water could lead to habitat exclusion. Devices may exclude fish from a suitable feeding habitat by providing a physical or perceptual barrier, or producing noise that results in avoidance behaviour. It is not possible to determine the potential significance of this effect. The presence of offshore wind arrays may also have a positive effect on fish populations through fish stock recovery, should certain types of fisheries be excluded from the array.	No specific mitigation identified	Unknown
	Substratum loss	Installation Operation	Devices using seabed foundations e.g. piled devices Cable trenching	Wind	Significant adverse	The area contains key shellfish areas for lobster, edible crab and velvet crab. Strangford Lough itself is also known to contain cockles and whelks, whilst scallops are distributed throughout Wind Resource Zone 2. These species live on, near or in the bottom sediments of the seabed. Sprat, cod and <i>Nephrops</i> are also known to spawn in the area, whilst nursery areas for <i>Nephrops</i> , haddock, whiting and herring and cod overlap with the Wind 2 zone. The effect of substratum loss could therefore potentially be of adverse significance.	The potential effects of substratum loss on shellfish and benthic spawners could be reduced by avoiding sensitive areas e.g. key shellfish grounds or spawning grounds	Negative - Negligible

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Fish and Shellfish	Barrier to movement	Operation	Device foundations	Wind	Unknown	Some species, such as Atlantic salmon, trout and eels spend part of their lifecycle in freshwater and part at sea. Migration between these two waterbodies is important for the survival of the species. The zone may be used by these species accessing the rivers Moneycarragh and Shimna, located on the adjacent coastline, which are known to contain populations of salmon and sea trout. The presence of wind devices could present a barrier to migration, although the exact impacts on fish species is unknown.	No specific mitigation identified	Unknown
Fish and Shellfish	EMF impacts	Operation	Inter-turbine and export cables	Wind	Unknown - negligible	Current research indicates that certain species of elasmobranchs are likely to be able to detect the level of electric field that will be generated by a typical renewable array power cable, but the field would not cause an avoidance reaction. Atlantic salmon, eels and Sea Trout are believed to be sensitive to magnetic fields. However, the level of impact associated with inter-turbine arrays will be more concentrated than those for export cables. There is no evidence to indicate that existing cables have caused any significant effect on migration patterns of these species. However, the significance of potential effects cannot be adequately quantified on the basis of current information.	Cable burial, where possible to minimise field effect at the seabed. Cable configuration and orientation can reduce field strength	Unknown - negligible

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Marine Birds	Physical disturbance	Installation Decom	Vessels and equipment used for installation and decommissioning	Wind	Significant adverse to Negative	Physical disturbance is of particular importance in terms of breeding colonies as high levels of physical disturbance could lead to species displacement (short-term to long-term). Physical disturbance is also important in terms of foraging and loafing at sea. Wind Resource Zone 2 is important for seabirds, as The Outer Ards SPA and Ramsar site has a component site within the zone identified, and Strangford Lough SPA is in close proximity. For this reason, birds will be using the area for foraging and loafing. The effect of physical disturbance has been assessed as negligible significance for breeding colonies and negative significance for feeding and loafing areas which extend beyond the delineation of the SPA protection.	Effects on breeding bird colonies could be reduced by avoiding sensitive sites e.g. SPAs and to restricting installation to avoid the most sensitive seasons e.g. breeding and moulting. In some parts of the zone site specific surveys may be required at the project level to identify the presence of key foraging hotspots and or loafing areas and to aid site selection.	Negligible
	Marine noise	Installation Decom	Devices using seabed foundations e.g. piled devices	Wind	Unknown	Based on studies of bird behaviour on land it is evident that they have acute hearing. However, there is limited understanding of birds ability to hear underwater. Therefore, it is not possible to determine the level of significance of noise effects on marine birds.	No specific mitigation identified	Unknown
		Operation	Turbines/flexing joints/device components					
Accidental Contamination (hydraulic fluids or vessel cargo/fuel)	Installation Operation	Hydraulic fluids	Wind	Significant adverse	There is potential for accidental contamination from devices and vessels to occur as a result of collision, storm damage or device failure. All seabirds are sensitive to hydraulic fluid and fuel oil contamination. In addition wading birds within the Strangford Lough SPA, and Outer Ards SPA and Ramsar site may experience negative effects. Therefore, although the likelihood of accidental contamination from devices is low, should it occur, the potential effects on marine birds would be of adverse significance.	Effects associated with contamination from devices could be reduced through careful design, contingency measures for device failure/component failures. Effects associated with contamination from fuel oil spills could be reduced through good practice and implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).	Negligible	

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Collision risk	Installation Operation Decom	Installation and decommissioning vessels; Turbines/moving parts of device; mooring chains and cables	Wind	Significant Adverse	<p>The coastline adjacent to Wind Resource Zone 2 is considered to be sensitive for marine breeding birds as in addition to the Outer Ards SPA and Ramsar site (important for breeding Annex I species and migratory species) and the Strangford Lough SPA (also important for Annex I breeding species, migratory species, and a seabird assemblage of ~60,000 birds). There are also several seabird colonies in the vicinity of Wind Resource Zone 2. In addition, the area has been identified as an IBA.</p> <p>Anticipated impacts from siting an offshore wind farm array in an area known to be important for seabirds include direct impacts such as disturbance, habitat loss and collision. Given the proximity of Wind Resource Zone 2 with the SPAs and Ramsar, impacts during installation could be an issue, disturbing habitats and bird species in the area. These impacts would decrease the further offshore the array was sited.</p> <p>However, regardless of where within Wind Resource Zone 2 a offshore wind farm was developed, there is still the issue of collision impacts which would be an impact on any species of seabird using the study area for foraging or loafing, outside of the boundary of the SPA, Ramsar or seabird areas. Collision impacts could be a significant risk if located on a major migration route. However, there is some indication that wind turbines themselves may be barriers to bird movement – instead of flying around the turbines, birds fly around the outside of the cluster, i.e. displaying avoidance behaviour. However this avoidance behaviour could lead to other effects including disruption to ecological links between feeding, breeding and roosting areas.</p> <p>For these reasons, the impact and operation of wind development is considered negative.</p>	<p>During construction appropriate mitigation includes avoidance of sensitive sites and seasons; increasing vessel visibility; avoiding night working</p> <p>Other recommendations include the siting of turbines close together to minimise the area accommodated by a wind farm; grouping turbines so as to avoid alignment perpendicular to main flight paths; and providing corridors (up to a few kilometres wide) between groups of turbines to allow passage by birds.</p>	Negative – negligible

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Marine Birds	Habitat exclusion	Operation	Devices that occupy water surface and water column	Wind	Negative to Significant adverse	Locating devices in areas used for foraging and loafing could result in habitat exclusion and possible species displacement. There is limited information on precise foraging and loafing "hotspots" for different species of marine birds. Birds could be displaced from an area wider than the array site due to their potential avoidance responses. Although birds are mobile and could therefore avoid devices the potential effects of increasing competitive pressures on adjacent populations and energetic costs of site avoidance also need to be considered. This could potentially have a significant adverse effect during the breeding season and a negative significant effect on marine birds at other times of the year, especially if it increased population pressures in other locations.	Without a more detailed understanding on the location of key foraging and loafing habitats, it is difficult to identify appropriate mitigation measures other than to avoid sensitive sites. Studies would be needed at the project level to identify the presence of key foraging hotspots and loafing areas in the development area to aid site selection.	Significant adverse - negative
Marine Mammals	Physical Disturbance	Installation Decom	Vessels and equipment used for installation and decommissioning	Wind	Unknown	Wind Resource Zone 2 is located offshore of Strangford Lough and Murlough SACs, designated for both grey and common seals use the area. Seals from these SACs may therefore be present in the zone of interest. Harbour porpoises and bottlenose dolphins have also been recorded in the area. These are all Annex II species. Increased boat traffic will also increase ambient noise in the area and may disturb marine mammals.	The relative importance of this area for seals and cetaceans is unknown therefore monitoring surveys would be required to design a suitable mitigation plan. The effects of installation activities on seal colonies could be reduced by avoiding the breeding and moulting seasons. Cable routing should be planned to avoid impacting on seal breeding colonies or haul out sites.	Unknown

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Marine Noise	Installation	Devices using seabed foundations e.g. piled devices	Wind	Significant adverse	<p>Piling generates high levels of noise. Studies at wind farms have demonstrated an effect on porpoise distribution during construction with animals displaced up to 15km.</p> <p>Noise can mask signals used by cetaceans to navigate, locate prey, and communicate effectively. Seals and cetaceans can detect piling noise up to a distance of 80km.</p> <p>Behavioural responses and physiological impacts such as temporary or permanent threshold shift in hearing could occur at closer distances. It is also quite possible that these noise sources mask biological relevant signals within the zone of audibility. The potential for noise from piling to affect these marine mammals is therefore considered to be "significant adverse". It is possible that minke whales detect wind farm related noise at considerable distances, (tens of km) during pile driving.</p> <p>Increased shipping associated with installation will also raise ambient noise levels in the area.</p>	<p>At-sea distribution data for seals is unknown for this area. Also cetacean abundance and habitat usage is unknown there fore dedicated marine mammal surveys would be required to identify the most appropriate site for development and to design adequate mitigation measures</p> <p>Seasonal or area restrictions could also be imposed so piling activities would be timed not to coincide with sensitive times such as seal moulting or pupping and porpoise breeding seasons.</p> <p>To mitigate for noise disturbance during piling there are a range of measures including the use of Marine Mammal Observers, exclusion zones, passive acoustic monitoring, pingers, soft starts/ramp up and/or bubble curtains.</p>	Negative-Significant Adverse

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		Phase	Characteristic	Type				
		Operation	Turbines	Wind	Unknown	<p>During operation the turbine can produce low frequency noise and vibrations that can pass into the water column and noise from operational devices can potentially affect seals and cetaceans ability to navigate, locate prey and communicate. Operational noise from wind turbines may be heard by seals and porpoises up to 200m and whilst may not cause hearing damage may affect behaviour. There may be cumulative effects when many turbines are operating together or when combined with operational noise from other renewable devices. Due to lack of baseline data the effect of this is unknown.</p>	Noise from operating turbines can be reduced by using isolators. However this has not been tested over long term and to account for cumulative effects.	Unknown
Marine Mammals	Collision Risk	Installation Decom	Vessels and equipment used for installation and decommissioning	Wind	Negligible	<p>Marine mammals can potentially collide with vessels and equipment used during installation. Increased shipping activity transiting to the area during installation will increase this risk. Generally most fatal injuries arise with collisions with ships travelling over 14kts. Vessels associated with construction activities would usually not be travelling at these speeds.</p>	Enforce speed limits for vessels used in construction and establish a code of conduct to avoid disturbance to marine mammals both during construction activities and in transit to the construction area if entering areas of high abundance.	Negligible
		Operation	Turbines	Wind	Unknown - negative	<p>Collision with wind turbines is negligible for seals and small cetaceans however collision may be a concern for baleen whales such as minkes which may not detect the presence of these in the water and do not have the manoeuvrability of smaller cetaceans. The importance of this area to minke whales is unknown so the collision risk is difficult to quantify.</p>	Consider measures to make turbine foundations more visible to marine mammals could reduce further the risk of collisions.	Unknown - negative

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		Phase	Characteristic	Type				
	Accidental Contamination (hydraulic fluids or vessel cargo/fuel)	Installation Operation	Hydraulic fluids	Wind	Significant adverse	<p>A spillage of diesel, oil lubricants, hydraulic fluids during installation could have an effect on marine mammal health. Offshore wind farms could present a collision risk to shipping. A collision between ships or a ship and a turbine could result in fluid spills which could have serious environmental consequences.</p> <p>Therefore, although the likelihood of accidental contamination from devices is low, should it occur, the potential effects on marine mammals would be of adverse significance.</p>	<p>Effects associated with contamination from devices could be reduced through careful design, contingency measures for device failure/component failures.</p> <p>Effects associated with contamination from fuel oil spills could be reduced through good practice and implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).</p>	Negligible
	Habitat exclusion	Operation	Devices that occupy seabed/water column	Wind	Unknown	<p>The presence of devices in the water could lead to habitat exclusion. Devices may exclude mammals from a suitable feeding habitat by providing a physical or perceptual barrier, or producing noise that results in avoidance behaviour. It is not possible to determine the potential significance of this effect.</p>	No specific mitigation identified	Unknown
	Barrier to movement	Operation	Devices	Wind	Unknown - Significant adverse	<p>Development of wind farms in front of either Murlough or Strangford Lough may cause a barrier effect and restrict marine mammal movement in and out of the Lough. Although Strangford Lough is designated for its seal populations (grey and common) the importance of the wider area for marine mammals is largely unknown. Overall, the movement of marine mammals around the coast of Northern Ireland is unknown so barrier effect is difficult to quantify.</p>	<p>Development should be planned not to reduce potential restrictions to potential movement of animals into or out of sea loughs. However, detailed study would be required to examine marine mammal distribution around the coast in order to fully understand and mitigate for this risk.</p>	Unknown - Significant adverse

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Marine Mammals	EMF impacts	Operation	Inter-turbine and export cables	Wind	Unknown - negligible	<p>The underlying assumption that cetaceans have ferromagnetic organelles capable of determining small differences in relative magnetic field strength remains a complicated, understudied and unproven field of science (Basslink, 2001), with only circumstantial evidence.</p> <p>Cetaceans cross cables constantly, and there is no apparent evidence that existing electricity cables have influenced migration of cetaceans. However further study is thought warranted by the scientific community in this field (Gill <i>et al.</i>, 2005). It should also be borne in mind that the level of impact associated with inter-turbine arrays will be more concentrated than those for export cables.</p>	<p>Cable burial, where possible to minimise field effect at the seabed.</p> <p>Cable configuration and orientation can reduce field strength</p>	Unknown - negligible
Marine Reptiles	Collision Risk	Installation Decom	Vessels and equipment used for installation and decommissioning	Wind	Unknown	<p>The importance of the coast of Northern Ireland to marine turtles is unknown but there have been sightings of leatherback and loggerhead turtles. Turtles have been seen near Strangford Lough. There is no information on the effects of wind farm construction on marine turtles so the risk is difficult to quantify.</p> <p>There is no information on the effects of wind farm operation on marine turtles so the risk is difficult to quantify.</p>	Possible mitigation includes planning installation to take place at times when there are fewer turtles present or avoid potential migration routes.	Unknown
		Operation	Turbines/moving parts of device; mooring chains and cables	Wind	Unknown			Unknown
	Accidental Contamination (hydraulic fluids or vessel cargo/fuel)	Installation Operation	Hydraulic fluids	Wind	Significant adverse	<p>A spillage of diesel, oil lubricants, hydraulic fluids could have an effect on turtle health. Offshore wind farms could present a collision risk to shipping. A collision between ships or a ship and a turbine could result in an oil spill which could have serious environmental consequences. Therefore, although the likelihood of accidental contamination from devices is low, should it occur, the potential effects on marine reptiles would be of adverse significance.</p>	<p>Effects associated with contamination from devices could be reduced through careful design, contingency measures for device failure/component failures.</p> <p>Effects associated with contamination from fuel oil spills could be reduced through good practice and implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).</p>	Negative

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		Phase	Characteristic	Type				
Bats	Collision Risk	Operation	Turbines	Wind	Unknown	<p>The presence of bats in offshore locations (off the east coast of Northern Ireland) is unknown. The potential interactions between bats and wind turbines and associated potential effects is also unknown due to a lack of data and research in this area</p>	Unknown	Unknown
Marine and coastal archaeology and wrecks	Effects on submarine historic environment	Installation	Piling, dredging, placing structures on seabed, cables, coring	Wind	Significant adverse to Negative	<p>Dundrum Bay and the adjacent waters are in a depositional zone and preservation of archaeological sites by burial is favoured under these conditions. There also are numerous recorded wreck sites along the adjacent coastline and within Wind Resource Zone 2.</p> <p>There is potential for the installation of wind devices and export cables to impact submarine archaeology through direct disturbance of known and unknown sites on the seabed, or through changes to sediment movements causing an artefact to become buried and preventing later discovery.</p> <p>There is also a potential positive impact associated with development related seabed survey providing additional data for inclusion in the archaeological record of the area.</p>	<p>Follow NIEA and Crown Estates 2007 JNAPC code of conduct and guidance note for the offshore renewable energy sector.</p> <p>Carry out seabed investigations in preferred site locations prior to device installation. Avoid sites of interest and exclusion zones for protected sites.</p>	Negligible
	Effects on coastal and terrestrial historic environment	Installation	Cables, shoreline devices	Wind	Significant adverse to Negative	<p>There are a large number of terrestrial sites of archaeological and heritage interest in this area including scheduled sites of coastal defences and sites of prehistoric human occupation. Locally and regionally important archaeological remains and sites (NMRS) are present along the coast and within Strangford Lough. Numerous listed buildings are also present on the coastline adjacent to the area, including the historical monuments Dundrum Castle, located within Dundrum Bay and Jordan's Castle which is located at Ardglass.</p> <p>Cable installation in the vicinity of these protected sites could cause direct destruction of archaeologically important features.</p>	<p>The main form of mitigation is to avoid protected and other sites of interest. In addition to desk based studies it will be necessary to carry out field walkovers in preferred site locations to determine need for site investigations (geophysical surveys/trial trenching) in consultation with NIEA and Local Authorities. With respect to cabling there is considerable opportunity to avoid or reduce effects. The siting and design of shoreline devices will be important in determining their residual impact.</p>	Negative to negligible

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Commercial Fisheries	Direct disturbance of fishing grounds	Installation Decom	Devices using seabed foundations e.g. piled devices Cable trenching	Wind	Negative to Significant adverse	<p>Commercial shellfish areas are most sensitive to direct disturbance as shellfish are generally much less mobile than fin fish. Inshore finfish grounds are also sensitive to direct disturbance as these are generally exploited by small vessels which are less able to exploit alternative grounds. Key commercial species in Wind Resource Zone 2 are <i>Nephrops</i>, king scallop, lobster, crab, herring, cod, haddock and whiting. There is also an important seed mussel area adjacent to the Ards peninsula at Skullmartin.</p> <p>Wind Resource Zone 2 coincides directly with the main trawling areas for <i>Nephrops</i> and whitefish, and overlaps to some degree with scallop dredging, lobster/crab potting and herring drift netting areas. Development will therefore have a potentially negative significant effect on these fishing grounds. In terms of commercial fisheries this effect could potentially be of adverse significance.</p>	<p>In terms of direct disturbance to commercial shellfisheries and fin fisheries, the effects could be minimised by avoiding key commercial fishing grounds, and key seasons such as the period of mussel seed settlement (Feb-Apr; Sept).</p> <p>The effects could also be minimised by using procedures and structures that minimise the area of seabed disturbed for turbine foundations.</p>	Negative - negligible
	Temporary displacement from traditional fishing grounds	Installation Decom	Vessels, installation equipment and devices	Wind	Negative	<p>Inshore fishing grounds tend to be more constrained than offshore areas. Temporary displacement from these areas may lead to the concentration of fishermen in smaller areas, fishermen being unable to fish for short periods or fishermen being displaced to alternative, possibly less productive fishing grounds. Key commercial species in Wind Resource Zone 2 are <i>Nephrops</i>, king scallop, lobster, crab, herring, cod, haddock and whiting. Temporary displacement will potentially have a negative significance effect on commercial fisheries.</p>	<p>Effects associated with the temporary displacement of traditional fishing grounds can be reduced by avoiding key commercial fishing grounds or by phasing construction activities to specific areas within Wind Resource Zone 2.</p> <p>Liaison with the fishing community to keep them informed of installation operations is also key to managing the level of this impact.</p>	Negative - negligible

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Long term displacement from traditional fishing grounds	Operation	Devices that occupy water surface, water column and seabed	Wind	Negative to Significant adverse	<p>All types of commercial fisheries could be affected by long term displacement from traditional fishing grounds. The potential effects could be of adverse significance for spatially constrained inshore fisheries and for bottom trawl and dredge fisheries which may be restricted by cable routes. Conversely, long term exclusion of mobile gear from the area could be of benefit to fish stocks in the wider area.</p> <p>The key bottom trawl fisheries in Wind Resource Zone 2 are <i>Nephrops</i>, cod, haddock and whiting. King scallops are exploited by mechanical dredging gear; lobster and crab by static potting gear. The effects of long term displacement on inshore fisheries (see above) could be of adverse significance. The effects of long term displacement of offshore and beam trawler/dredging fisheries could be of negative significance. Use of rock armour, if required for cable protection, could introduce an obstruction for trawling activity, but could also create new habitat which could have a positive impact of fish stocks.</p>	The long term displacement of commercial fisheries (shellfish and fin fish) could be reduced or avoided by avoiding key commercial fishing grounds or by spacing of turbines at wide enough intervals to permit use of mobile fishing gear.	Significant adverse - negligible
Mariculture	Smothering	Installation Decom	Devices using seabed foundations e.g. piled devices Cable trenching	Wind	Negligible	<p>Carlingford Lough, Strangford Lough and Dundrum Bay are important areas for shellfish production, notably bottom grown mussel and Pacific oyster. The Ards peninsula at Skullmartin is a key area for seed mussel. Any significant and prolonged rise in suspended solids could have a significant adverse on these areas. However, increases in suspended sediment is expected to be short term and localised to the immediate vicinity of the seabed disturbing works. Intrusion of sediment plumes into aquaculture areas would therefore only result if the export cables were routed in the immediate vicinity. There could therefore be a negligible impact from wind energy development.</p>	Should cable trenching work be undertaken within these areas, impacts could also be reduced by using procedures that minimise the mobilisation of suspended solids such as plough installation.	Negligible

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Accidental Contamination (hydraulic fluids or vessel cargo/fuel)	Installation Operation	Hydraulic fluids	Wind	Significant adverse	Shellfish are highly sensitive to reductions in water quality caused by hydraulic fluids or tainting from other chemical substances. There is potential for accidental contamination from devices and vessels to occur as a result of collision, storm damage or device failure. Therefore, although the likelihood of accidental contamination from devices is low, the potential effects any significant intrusion of hydraulic fluids into aquaculture production areas could be of adverse significance.	Effects associated with contamination from devices could be reduced through careful design, and contingency measures for device failure/component failures. It should be noted that the quantity of hydraulic fluid in devices is likely to be very small, reducing the potential for significant environmental effects. Effects associated with contamination from fuel oil spills could be reduced through good practice and implementation of SOPEP (Shipboard Oil Pollution Emergency Plan).	Negligible
	Substratum loss	Operation	Devices using seabed foundations e.g. piled devices	Wind	Significant adverse	Wind Resource Zone 2 does not overlap with shellfish production areas. Should cables be routed through marine fish farms this would be an effect of adverse significance.	The key mitigation measure in terms of reducing effects on shellfish farms is avoidance. In practice, consent is unlikely to be achievable to site renewable energy arrays or cables within existing fish farms.	Negligible
Ports, Shipping and Navigation	Displacement of shipping movement	Installation Decom	Safety zones around areas of installation and decommissioning activity	Wind	Significant adverse	The re-routing of vessels to avoid safety zones (during installation), operational devices and decommissioning activity would result in greater transit time and use of fuel with the associated costs to the vessel operator, and could also lead to	The potential for these effects to be reduced would depend entirely upon the ability to site devices in relation to key routes for shipping. Potentially significant adverse effects could be	Negative

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
		Operation	Wind turbines	Wind	Significant adverse	<p>an increase in vessel densities in areas that already have moderate vessel densities. This could lead to increased encounter rates and increased risk of collision.</p> <p>High densities of shipping operate in much of the area, and there are only small areas where intensity is low. The northern section of Wind Resource Zone 2 is located adjacent to the North Channel where shipping intensity is very high. As a result there are a significant number of vessels transiting the zone with large numbers of vessels also travelling to and from the commercial ports of Belfast and Warrenpoint. In addition there will be a significant number of vessels travelling to or from the major fishing ports of Kilkeel, Ardglass and Portavogie. The patterns in shipping density imply the use of distinct shipping routes.</p> <p>Placement of devices in areas of high shipping density could therefore displace shipping into adjacent areas, and would potentially be of adverse significance.</p>	<p>reduced or avoided by siting devices away from areas of high vessel densities. Much of the Wind 2 zone is utilised for shipping however there may be potential for siting devices away from areas of high shipping activity.</p> <p>The scale of potential effect on navigation should be assessed as part of the EIA and the Navigational Risk Assessment (NRA). The assessment should include:</p> <ul style="list-style-type: none"> • A survey of vessels in the vicinity of the proposed development • Full NRA of the likely impact of the development on navigation, taking into consideration MGN 371 (MCA 2008), MGN 372 (MCA 2008b) and the DTI Guidance Methodology for Assessing the Marine Navigational Safety Risks of Offshore Wind Farms (DTI 2005) • Cumulative impact assessment 	
	Decreased trade/supply	Installation Decom	Safety zones around areas of installation and decommissioning activity	Wind	Significant adverse	<p>The deployment of installation and maintenance vessels, presence of devices and decommissioning activity could create temporary to long-term reductions in access to ports and harbours.</p> <p>There are three major fishing ports (Kilkeel,</p>	<p>Site selection for device arrays should take into account the requirement for continued access to port and harbours.</p> <p>Maintain good communications with the relevant ports, and issue the</p>	Negligible

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
		Operation	Wind turbines	Wind	Significant adverse	<p>Ardglass and Portavogie) adjacent to Wind Resource Zone 2. This zone also extends across the entrance to Carlingford Lough, at the head of which the commercial port of Warrenpoint is located.</p> <p>Reduced access to these harbours could have a significant adverse effect on goods transport and accessibility.</p>	appropriate notifications during installation, maintenance, and decommissioning.	
	Reduced visibility	Installation Decom	Vessels and equipment used for installation and decommissioning	Wind	Negative to Significant adverse	<p>Vessels and other equipment used during the installation of devices, and the operational devices themselves could obstruct views of other vessels and navigation features such as buoys, lights and the coastline. This is particularly important in areas of high vessel densities, constrained channels or areas where there is particular dependence on visual navigation aids as reduced visibility increases the risk of collision with other ships and other structures in the water (natural and man made).</p> <p>The effect of reduced visibility will potentially be significantly adverse in Wind Resource Zone 2 due to the high vessel densities and the adjacent entrances to Loughs and ports.</p>	Significant adverse effects associated with reduced visibility can be reduced by avoiding areas of high vessel densities and areas constrained by land e.g. adjacent to the entrances of ports and Loughs.	Negative - Negligible
		Operation	Wind turbines	Wind	Negative to Significant adverse		<p>In busy shipping areas, potential effects may be reduced by minimising the period of installation, the number of vessels required and the area occupied during installation.</p> <p>Any vessels and devices should be lit and marked in accordance with regulations and MCA and Trinity House guidance</p>	
Collision risk	Installation Decom	Vessels and equipment used for installation and Decommissioning	Wind	Significant adverse	<p>Collision risk considers the risk of navigating vessels colliding with vessels and equipment used during installation, maintenance and decommissioning, and the devices themselves once operational. Collision risk also considers the increased risk of collision between navigating vessels. In both circumstances the risk of collision</p>	<p>The risk of collision could be reduced by avoiding areas of high shipping densities and regularly used shipping routes.</p> <p>In busy shipping areas, potential effects may be reduced by minimising</p>	Significant adverse - Negligible	

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
		Operation	Wind turbines	Wind	Significant adverse	<p>is increased in constrained channels and areas with high vessel densities.</p> <p>Wind Resource Zone 2 is not located in a constrained channel but where there are distinct shipping routes and high vessel densities the risk of collision will potentially be significant adverse. Collision risk is also increased in the vicinity to the entrances of ports.</p> <p>The significance of the impact will also increase dependent on the number of arrays which could potentially be present on either side of the channel, restricting potential for vessels using the main shipping lanes to re-route in emergencies.</p>	<p>the period of installation, the number of vessels required and the area occupied during installation.</p> <p>Maintain good communications with the relevant ports, and issue the appropriate notifications during installation, maintenance, and decommissioning.</p>	
Recreation and Tourism	Disturbance to Wildlife	Installation Operation Decom	Installation activities including noise, vessel movements, operation of devices, decommissioning activities	Wind	Negligible	Effects on local tourism would occur where disturbance and/or exclusion from an area overlaps with the locations frequented by visitors and touring vessels. The east coast of Northern Ireland is not considered to be of particular importance for recreational wildlife watching.	None identified.	Negligible
	Safety and Collision Risk	Installation Operation Decom	Presence of new structures in the water	Wind	Negative	The key receptor affected is sailing. Cruising routes of light, medium and heavy recreational use are present in the immediate vicinity of Wind Resource Zone 2. Offshore wind farm developments in this zone could potentially have negative effects on recreational sailing.	Safety measures including lighting and marking and informing users of the locations of devices. Locate devices away from cruising routes. Use alternative devices which lie below the surface of the water to a depth which does not affect sailing.	Negligible
	Access Restrictions	Installation Operation Decom	Structures in the sea reducing or excluding access	Wind	Negative	The key receptor affected is sailing. Cruising routes of light, heavy, and medium recreational use are present in the immediate vicinity of the zone, Offshore wind farm developments in this zone could potential have negative effects on recreational sailing.	Avoid cruising routes. Devices which exclude access to an area will have greater effects than those which allow movement through the array. Use alternative devices which lie below the surface at a depth which does not affect sailing.	Negligible

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Aviation Radar	Radar Interference	Operation	Wind turbines	Wind	Significant adverse	Approximately 150km ² of Wind Resource Zone 2 lies within an NERL “potential to interfere” area and as such there is potential for negative effects on aviation. 4km ² of the zone at the southern most extent lies within the 30km consultation area surrounding Belfast City airport. There is likely to be a negative impact on aviation either from intermittent detections of turbines by air traffic controllers or from “shadowing” where radar signals become weaker behind turbines. In this area there is likely to be a significantly adverse effect on aviation.	Consultation with the CAA and NATS will be required as well as consultations with Belfast City airport. The location of wind turbines should be plotted on there radar and any signals received from that area will not be confused with aeroplanes.	Negligible
Military Exercise Areas	Disruption to general activities	Installation Operation	Wind turbines	Wind	Significant adverse to Negligible	Most of Wind Resource Zone 2 excluding the southern portion lies within the military practice and exercise area X5402 Ardglass. This area is used by the Navy for submarine exercises, aircraft and H.M ships. Dependent on the extent to which the area is used by the navy, significance of this effect could be considered to be significant adverse to negligible.	Consultation with the MOD will be required to enable appropriate site selection in order to reduce or eliminate the risk of interference associated with non-bylawed practice and exercise areas.	Negligible
Disposal Areas	Disruption to access	Installation Operation	All Wind turbines	Wind	Significant adverse	There are four harbour spoil disposal sites within Wind Resource Zone 2. Construction operations and the presence of wind devices have the potential to restrict normal access to these sites.	Avoidance of the sites by approximately 500m can mitigate against the possibility of access to the sites in the area being inhibited for users.	Negligible
Cables and Pipelines	Direct damage	Operation Installation	All wind devices Cables	Wind	Significant adverse	The Manx-Northern Ireland telecommunications cable runs through the centre of the area for 13km. There is also a telecommunications cable (Lanis 2) operated by C&W which runs through the northern edge of the area for 3km. Direct damage to an existing cable would be most likely to occur during installation of device arrays and cables but also could occur maintenance phases. The impact is considered to be significant adverse (should it occur) as domestic and international telecommunications could be seriously disrupted.	A 500m avoidance zone should be employed when selecting sites for marine renewable energy developments (in accordance with ICPC guidelines) and crossing agreements with existing infrastructure should be adhered to. These mitigation measures will eliminate or significantly reduce significance and likelihood of impacts on cables.	No effect

East Coast (Wind Resource Zone 2) - Summary of Potential Effects

Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
	Reduced access	Operation Installation	All wind devices Cables	Wind	Significant adverse	There is potential that the presence of devices in waters close to existing cables could restrict access to the cables for maintenance purposes. The potential significance of this effect could be significant adverse.	A 500m avoidance zone should be employed when selecting sites for marine renewable energy developments (in accordance with ICPC guidelines) and crossing agreements with existing infrastructure should be adhered to. These mitigation measures will eliminate or significantly reduce significance and likelihood of effects on cables.	Negligible
Aggregate extraction	Reduced access	Operation Installation	Wind turbines	Wind	Negligible	There are no existing aggregate dredging areas within Wind Resource Zone 2 however, two areas have been provisionally accepted by the Crown Estate which lie 10nm off of Kikeel and within the area. There is potentially a negative impact from wind turbine installation restricting access to dredging grounds. However, if dredging does take place the impact is seen to be negligible.	A 500m avoidance zone should be employed when selecting sites for marine renewable energy developments (in accordance with ICPC guidelines).	No effect
	Changes to sediment regime	Operation Installation	Wind turbines	Wind	Negative	There are no existing aggregate dredging areas within Wind Resource Zone 2 however, two areas have been provisionally accepted by the Crown Estate which lie 10nm off of Kikeel and within the area. There is potentially a negative impact from dredging areas causing sediment regime changes around turbines. If dredging of this area does take place the impact is deemed negative as sediment changes can affect the structural integrity of turbines and could cause exposure of export cables.	A 500m avoidance zone should be employed when selecting sites for marine renewable energy developments (in accordance with ICPC guidelines). Scour protection could be utilised around turbines to avoid uncovering of pilings or cables linked to the turbines.	No effect
Natural Gas and CO ₂ storage	Presence of devices	Operation	Wind turbines	Wind	Unknown	The installation of piled turbines has the potential to sterilise areas that could have been used for CO ₂ or natural gas storage. There is currently insufficient data to establish potential for use of the marine environment for storage of CO ₂ . Therefore, whilst no sites are currently under consideration for natural gas or CO ₂ storage in this area, the significance of this possible future impact is unknown.	None identified	Unknown

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		Phase	Characteristic	Type				
Landscape/Seascape	Effects on seascape	Operation	Wind turbine arrays of up to 140 m blade height	Wind	<p>Significant Effect to Moderate Effect (between 0 and 15km offshore from the coast)</p> <p>Moderate Effect (between 15km and 26km from the coast)</p>	<p>Offshore Wind Zone 2 extends along the south east coast of Northern Ireland from the Ards Peninsula in the north to Killkeel in the south. The seascape types associated with this stretch of the coastline include:</p> <ul style="list-style-type: none"> • Inner sea lough enclosed by narrow mouth with raised hinterland (associated with Larne Lough) – enclosed, sheltered and tranquil character. Views to the open sea are obscured by surrounding topography. • 3: Sounds at mouth of enclosed sea lough with raised hinterlands – intimate character, small coastal settlements and small harbours, enclosed, inward views, sheltered and tranquil rural character. • 4: Low lying coastal plain – rural, diverse and changeable, large to medium scale, very flat and exposed coastal plains and lowlands with expansive views out to sea. Sandy beaches and curved bays. • 5: Narrow coastal strip with raised hinterland – exposed with elevated dramatic open and expansive views out to sea. 6: Complex indented coast, small bays and offshore islands – changing views from enclosed views associated with indented bays/ inlets to long expansive views from raised headlands and hinterland. • 8: Large bay – distinct seascape comprising very large long sweeping bay with sand dunes backed by flat agricultural land. This rises steeply to the mountain landscape (Mourne Mountains) with plantation forestry to the south. Vast scale landscape with very long open views across the bay and out to sea. 	<p>Potential adverse effects on seascape can be reduced through the sensitive siting of offshore wind farms. Key factors to be considered in locating an offshore wind farm include:</p> <ul style="list-style-type: none"> • Wind farms should not be sited where they appear to block or close the entrance to bays/loughs/narrows/sounds or where they separate a bay from the open sea; • Wind farms should reflect the shape of the coastline and align with the dominant coastal edge; • Wind farms should not be sited where they have the potential to fill a bay. The open, expansive nature of the water surface area should be allowed to continue to dominate; • Wind farms should avoid locations near scattered settlements, as the scale of the array has the potential to dominate the fragmented pattern of the settlement; • Wind farms should be avoided where they conflict with the scale and subtleties of complex, indented coastal forms; • Consideration should be given to locating devices in already industrialised and developed seascapes; 	Moderate Effect

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		Phase	Characteristic	Type				
Landscape/Seascape	Effects on seascape	Operation	Wind turbine arrays of up to 140 m blade height	Wind	<p>Significant Effect to Moderate Effect (between 0 and 15km offshore from the coast)</p> <p>Moderate Effect (between 15km and 26km from the coast)</p>	<p>Parts of this coastline are also covered by a number of designations including:</p> <ul style="list-style-type: none"> • Strangford Lough AONB – designated for its sheltered rolling meadows and woodlands with a drowned drumlin landscape creating a network of small islands. • Strangford Lough Marine Nature Reserve – designated for its wetland importance and for the purpose of conserving marine flora, fauna and geological features of special interest and providing opportunities for the scientific study of marine systems and sub-tidal areas. • Lecale Coast AONB – designated in 1967 for its rolling landscape around the great expanse of Dundrum Bay which contrasts dramatically with the steep Mourne Mountains to the south. • Mourne AONB – designated in 1986 the Mourne Mountains are a national landmark and include Sieve Donard, Northern Ireland’s tallest mountain. Area has been proposed as a National Park. Very distinctive landscape of mountains and open flat coastal plain. <p>Given the varied landscape and seascape types within this area and the varying levels of sensitivity to offshore wind farm developments from medium to high the potential effects in certain locations within 0 to 15km from the coast, could range from significant adverse to negative depending on where wind farms are sited. For example locating an offshore wind farm off the Outer Ards Peninsula, Ballyquintin and Lecale Coast, Tyrella Dunes and Killkeel Coast which are seascape types 4 may only have negative effect whereas development in areas of more sensitive seascape types are likely to have significant adverse effects. Further offshore (between 15km and 26km), potential effects are likely to be reduced to negative/negligible.</p>		Moderate Effect

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Topics where POTENTIAL strategic level negative or significant adverse effects may occur	Description of effect	Device Details			Potential effect significance (without Mitigation)	Key sensitivities and impact description	Mitigation	Residual effect significance (With Mitigation)
		Phase	Characteristic	Type				
Climate	Carbon Impacts	Operation	Wind turbines	Wind	Positive	<p>It is recognised that development of offshore wind farms will contribute towards achieving the Northern Ireland target for 40% energy to be provided from renewable energy sources. In meeting this target the Northern Ireland Assembly will be working towards the wider national, European and international commitment to combat global climate change and reduce the potential associated adverse environmental effects e.g. changing population distributions, species extinction, sea level rise etc.</p> <p>However, whilst seeking to combat climate change there is also a need to respond to it in terms of:</p> <ul style="list-style-type: none"> Protecting the existing environment and increasing its robustness and ability to adapt to climate change Protecting existing and future infrastructure from effects of climate change e.g. increased storm events, flooding and sea level rise 	<p>Ensure that coastal infrastructure is sited in locations that are at lower risk from flooding, sea level rise and storm damage and do not increase the risk of flooding or damage to coastal infrastructure elsewhere.</p> <p>This will require close consultation at the project design stage with the relevant land use planning authority.</p>	Positive
	Carbon Storage	Installation Operation	Wind turbines	Wind	No effect	<p>Based on current available information no existing or proposed carbon or gas storage sites have been identified within this area (Offshore Wind Resource Zone 1) therefore there will be no effect resulting from the development of offshore wind farms.</p>	None required	No effect