Offshore Renewable Energy Development Plan (OREDP)

Strategic Environmental Assessment - SEA Statement
# Table of Contents

## 1 Introduction ................................................................................................................................................. 2
  1.1 Introduction .............................................................................................................................................. 2
  1.2 Offshore Renewable Energy Development Plan (OREDP) .......................................................... 2
  1.3 Progress to Date ......................................................................................................................................... 3
  1.4 Final Documentation ............................................................................................................................. 4
  1.5 SEA Statement Requirements ............................................................................................................. 4
  1.6 Structure of SEA Statement ................................................................................................................ 4

## 2 SEA: Process and Key Findings .................................................................................................................. 5
  2.1 Introduction .............................................................................................................................................. 5
  2.2 Legislative Requirements ..................................................................................................................... 5
  2.3 SEA Process ............................................................................................................................................. 5
    2.3.1 SEA Screening ................................................................................................................................. 5
    2.3.2 Scope of the SEA ............................................................................................................................. 5
    2.3.3 SEA Issues/Subjects ....................................................................................................................... 6
    2.3.4 Socio-Economic Impacts .............................................................................................................. 7
    2.3.5 Scoped Out SEA Issues ................................................................................................................ 7
    2.3.6 Transboundary Effects ................................................................................................................ 8
    2.3.7 Informing the Preparation of the Offshore Renewable Energy Development Plan (OREDP) ........ 8
    2.3.8 Assessment Limitations ................................................................................................................. 9
  2.4 Assessment Method .............................................................................................................................. 10
  2.5 Technologies ........................................................................................................................................... 10
  2.6 Offshore Renewable Energy Resource .............................................................................................. 10
  2.7 Assessment Areas .................................................................................................................................. 11
  2.8 Key Findings of the Assessment ......................................................................................................... 11
    2.8.1 Key Findings from Parts 1 and 2 of the Assessment ................................................................. 11
    2.8.2 Key Findings from Parts 3: Cumulative Assessment – Testing OREDP Development Scenarios .... 13
    2.8.3 Cumulative Effects: Other Plans and Programmes .................................................................... 17
  2.9 Mitigation .................................................................................................................................................. 18
  2.10 Monitoring ............................................................................................................................................. 18

## 3 Natura Impact Statement (NIS): Process and Key Findings ........................................................................ 19
  3.1 Introduction .............................................................................................................................................. 20
  3.2 Regulatory Context .................................................................................................................................. 20
  3.3 Appropriate Assessment Approach and Method .................................................................................... 21
    3.3.1 Introduction ..................................................................................................................................... 21
    3.3.2 Screening ......................................................................................................................................... 22
  3.4 Potential Effects of the OREDP ............................................................................................................. 23
  3.5 Summary of Interest Features in Relation to Sites and Assessment Areas ......................................... 24
  3.6 Key Findings from the NIS .................................................................................................................. 29
    3.6.2 Summary of Results from the Assessment of LSE without and with Project Level Mitigation Measures ....... 24
  3.7 Sites at Risk ............................................................................................................................................. 32
  3.8 Cumulative and In-Combination Effects ............................................................................................... 38
  3.9 Plan and Project Level Mitigation Measures ......................................................................................... 39
    3.9.1 Project Level Mitigation Measures ............................................................................................. 39
    3.9.2 Plan Level Mitigation Measures ................................................................................................. 39
  3.10 Conclusions from the NIS ................................................................................................................ 41

## 4 Consultees .................................................................................................................................................. 43

## 5 Summary of Responses on the Draft OREDP ......................................................................................... 44
  5.1 Summary of Responses on the Draft OREDP ..................................................................................... 44

## 6 Summary of Responses on the SEA and NIS .......................................................................................... 55
  6.1 Introduction .............................................................................................................................................. 55
6.2 Extent of Transboundary Consultation

7 Incorporating the Findings from the SEA and NIS into the OREDP

7.1 Introduction

7.2 Links between the SEA, Appropriate Assessment and Preparation of the OREDP

7.3 How the Findings from the SEA and NIS were used to inform the preparation of the OREDP

7.3.1 SEA and NIS Technical Steering Group

7.3.2 Consultation with DCENR

7.3.3 Testing Development Scenarios

7.3.4 Developing ‘Actions’ for inclusion in the OREDP (based on results from the SEA)

7.3.5 Developing ‘Actions’ for inclusion in the OREDP (based on results from the NIS)

7.4 How the responses received from consultation have been used to inform the preparation of the OREDP

8 Monitoring Framework

8.1 Introduction

8.2 Focus of the Monitoring Framework

8.3 Proposals for Monitoring Implementation of the OREDP and Delivery of the Actions

8.3.1 Monitoring the Implementation of these Actions

8.4 Proposals for Monitoring the Environmental Effects of Implementing the Plan

8.4.1 Challenges with Identifying Specific Indicators and Targets

8.4.2 Marine Strategy Framework Directive (MSFD) (Information from Chapter 5 of the SEA ER)

8.4.3 Other Indicators/Proposals for Monitoring

9 Conclusion
1 Introduction

1.1 Introduction

This SEA Statement has been prepared on behalf of the Department of Communications, Energy & Natural Resources (DCENR) under the direction of the Sustainable Energy Authority of Ireland (SEAI) as part of the Strategic Environmental Assessment (SEA) of the Offshore Renewable Energy Development Plan (OREDP) for Ireland. This document provides a summary of the key findings from both the SEA and the Natura Impact Statement (NIS) prepared as part of the Appropriate Assessment, and responses received from consultation on the SEA Environmental Report and NIS. The document also sets out how the key findings from the SEA and NIS and responses from consultation have been taken into account in the preparation of the final OREDP. This SEA Statement also includes proposals for monitoring the implementation of the OREDP.

1.2 Offshore Renewable Energy Development Plan (OREDP)

Ireland has a landmass of around 90,000 square kilometres, but a sea area of around 10 times that size, at 900,000 square kilometres. Ireland’s position at the Atlantic edge of the EU gives an almost unparalleled offshore energy resource, with suitable conditions available for the development of the full range of current offshore renewable energy technologies. With a vision of “Our offshore renewable energy resource contributing to our economic development and sustainable growth, generating jobs for our citizens, supported by coherent policy, planning and regulation, and managed in an integrated manner”, the OREDP will provide a framework for the sustainable development of Ireland’s offshore renewable energy resources.

The OREDP identifies the opportunity for Ireland of realising the potential of our offshore energy resources for increasing indigenous production of renewable electricity, thereby contributing to reductions in our greenhouse gas emissions, improving the security of our energy supply and creating jobs in the green economy. The implementation of the OREDP, led by DCENR, will be mechanism through which government action across the environmental, energy policy and economic development dimensions will be coordinated to support the offshore renewable energy sector to reach commercial viability.

The OREDP consists of two parts – 1 and 2. Part 1 contains two sections and Part 2, five. Part 1 sets out the broader context for the development of Ireland’s offshore wind and ocean renewable energy sectors, and the current state of play with regard to the range of policy areas that must be coordinated in order to create the conditions necessary to support the development of these sectors. There are a wide range of government departments, agencies and state bodies that are critical enablers for offshore wind and ocean energy development by virtue of their responsibility for areas such as marine permitting, development planning, grid development, research funding and business development. A key output from the OREDP is the identification of ways to ensure the optimal coordination of all of these players. Part 1 goes on to identify the next steps that must be taken to support the sustainable realisation of the economic potential of Ireland’s offshore renewable energy resources. While Sections 1 and 2 of Part 1 set out the opportunity, policy context and next steps for the OREDP, Part 2 clearly presents the findings of the SEA and AA processes. These findings will form the basis for the implementation of the OREDP and for all policy actions arising from it, thus forming an integral part of the plan. Part 2 sets out key information as follows:

- Section 1 – Overview of SEA and AA processes
- Section 2 – Overview of key findings from the SEA and AA processes
- Section 3 – Plan Level Mitigation Measures
The Government has adopted the OREDP on the basis that the findings of the SEA and AA processes are fully embedded in the OREDP and its implementation, thus ensuring the efficacy of the OREDP as a framework for the sustainable economic development of our marine renewable energy resources.

Working in conjunction with existing structures, such as the Marine Coordination Group (chaired by the Minister for Agriculture, Food and the Marine), an Offshore Renewable Energy Steering Group (ORESG) will be established to oversee the implementation of the OREDP. Chaired by DCENR, the ORESG will have representation from the Departments of Environment, Community and Local Government (DECLG), Enterprise, Jobs & Innovation (DEJI), Agriculture, Food & the Marine (DAFM), Defence, Transport, Tourism & Sport (DTTAS), along with the Marine Institute, the Environmental Protection Agency (EPA), the National Parks & Wildlife Service (NPWS) and the Sustainable Energy Authority of Ireland (SEAI), and the offshore renewable energy industry. The ORESG will also consult with other marine users in the course of its work. The Group will report to the Minister for Communications, Energy & Natural Resources. Both the OREDP and the Strategic Environmental Assessment (SEA), carried out for the OREDP, will be reviewed before end 2017.

The ORESG will oversee the implementation of the OREDP through 3 workstreams:

- **Environment** – to ensure energy input to the new planning and consent architecture for development in the marine area (led by Department of Environment, Community & Local Government) and to take forward the findings and recommendations of the Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) carried out for the OREDP, to ensure robust environmental monitoring of offshore renewable energy development.

- **Infrastructure** – to support delivery of grid and port infrastructure (in the context of Grid 25 and the National Ports Policy), upon which the development of the offshore renewable energy sector is critically dependent.

- **Job creation** – the coordination of existing RD&D support for emerging ocean energy technologies, developing a supply chain for offshore renewable energy, exploring opportunities for international collaboration, working with State development agencies to attract investment, the introduction of an initial market support scheme for ocean energy (wave and tidal) and linking to on-going work to put in place an Intergovernmental Agreement for the export of renewable energy to the UK as a route to market for electricity generated by offshore wind.

In this way the OREDP will also provide critical input for planning decisions in the marine environment and the development of marine spatial planning in Ireland.

### 1.3 Progress to Date

Following the initial Scoping Report and consultation in October 2009, the full SEA Environmental Report was issued along with the draft OREDP at the end of October 2010. The Natura Impact Statement, to inform the Appropriate Assessment, was issued in March 2011. All three documents were made available for public and stakeholder consultation on the SEAI and DCENR websites until June 2011.

During the consultation period four workshops were held at various locations around Ireland. These included:

- Cork – Monday 15 November 2010
- Galway – Tuesday 16 November 2010
- Dublin – Thursday 18 November 2010
- Donegal – Friday 19 November 2010
The format of the workshops included two presentations, one on the OREDP and one on the SEA, followed by a series of round table discussion sessions.

A full list of the organisations/stakeholders that provided submissions during the consultation process, along with a summary of those submissions and responses to those submissions is provided in chapter 4, 5 and 6 of this document. Following the consultation process, a revised version of the Natura Impact Statement was prepared, and additional information added to the SEA Environmental Report, which is published in the SEA Environmental Report Addendum. These documents are available on the DCENR website (www.dcenr.gov.ie/Sustainable+Renewable+Energy+Division/).

1.4 Final Documentation

This SEA Statement comprises the final document prepared as part of the SEA process. The main aim of this document is to summarise how the findings from the SEA and the Appropriate Assessment has been used to inform the preparation of the final OREDP.

The final OREDP was published on the 7 February 2014. This document was accompanied by the following:

- SEA Statement – Appendix I
- SEA Environmental Report (Volumes 1 to 4) – Appendix II
- SEA Environmental Report Addendum – Appendix III
- Natura Impact Statement (revised 2013) - Appendix IV

1.5 SEA Statement Requirements

In order to satisfy the legal requirements of Directive 2001/42/EC ‘Assessment of Certain Plans and Programmes’ (SEA Directive) and the EC Environmental Assessment of Certain Plans and Programmes Regulations 2004 (S.I. 435/2004) the Responsible Authority (DCENR) is required to produce an SEA Statement. The SEA Statement must be produced as soon as is reasonably practicable after the adoption of the plan, programme or strategy (PPS) to provide specified information to Consultation Authorities and the public.

With regard to providing information, the Responsible Authority must inform the Consultation Authorities of the adoption of the plan (OREDP) and send a copy, as adopted, along with the SEA Statement. The SEA Statement is required to include details of how the findings from the SEA have been integrated into the development of the plan, how comments received from public consultation have also been taken into account in the plan, reasons for choosing the plan as adopted and measures to monitor significant environmental effects.

1.6 Structure of SEA Statement

The structure of this SEA Statement is summarised below:

- Chapter 1: Introduction
- Chapter 2: Summary of key findings from the SEA
- Chapter 3: Summary of the key findings from the Natura Impact Statement (NIS)
- Chapter 4: List of respondents
- Chapter 5: Summary of responses from consultation on the Draft OREDP
- Chapter 6: Summary of responses from consultation on the SEA and NIS
- Chapter 7: Integrating findings from the SEA and NIS and consultation responses into the final version of the OREDP.
- Chapter 8: Monitoring
2 SEA: Process and Key Findings

2.1 Introduction

The following provides an overview of the SEA process and the key findings from the assessment of the developments scenarios presented in the draft OREDP.

2.2 Legislative Requirements

The SEA of the OREDP was carried out in accordance with the following legislation and guidance:

- Environmental Protection Agency (EPA) SEA Guidance ‘Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland’ (EPA 2003).

2.3 SEA Process

2.3.1 SEA Screening

The OREDP, which was the subject of the SEA, includes scenarios for the development of offshore renewable energy in Irish waters up to 2030, including an initial review in 2017 and a full review in 2020. It was therefore identified that, in accordance with the SEA Directive and Regulations, an SEA was required on the basis that:

- The OREDP has been prepared for energy related development.
- The OREDP contains scenarios for the development of offshore renewable energy, which could, in some areas off the coast of Ireland give rise to significant adverse effects.
- The OREDP has been prepared by the Department of Communications, Energy and Natural Resources (DCENR) for adoption at a national level.

2.3.2 Scope of the SEA

The proposed scope of the SEA was set out in a scoping report that was prepared by SEAI, on behalf of DCENR, in July 2009 for consultation. Responses from scoping consultation were presented in Chapter 4 of the Environmental Report. Further information on the responses received during scoping is available on the SEAI website http://www.seai.ie/Renewables/Ocean_Energy/. The responses from the scoping consultation process informed the overall scope of the SEA which included:

- Timescale for the SEA and OREDP is 2030 with an initial review in 2015 and a full review in 2020.
- Focus of the SEA was the assessment of scenarios for the development of up to 4,500MW from offshore wind and 1,500MW from wave/tidal.
- The SEA Study Area included:
  - All Irish waters from the Mean High Water Mark out to the 200m water depth contour off the west and south west coast of Ireland and the Irish Exclusive Economic Zone (EEZ) off the north, east and south east coast of Ireland.
  - The study area included a number of Assessment Areas which cover the main areas of resource identified for offshore wind, wave and tidal energy.
- The SEA Assessment Areas included:
- Areas below Mean High Water Mark that encompass the main areas of resource for offshore wind (fixed and floating), wave and tidal energy, although potential effects above the Mean High Water Mark were also considered for particular SEA issues/subjects e.g. seascape.
- Fixed foundation structures (offshore wind, wave and tidal) to 60m depth.
- Floating wind structures to a distance of 100km from the shoreline - this distance reflects the upper length limit of Alternating Current (AC) cable technology. For greater distances (beyond 100km) Direct Current (DC) cables would be required with convertor stations on land to convert to AC. For the purpose of the SEA it was therefore assumed that most developments up to 2030 would seek to maximise near shore resources where AC cable technology can be used before exploiting areas of deeper water (beyond 100m). However, this will be reviewed at 2020.
- Tidal stream velocities of 1.2m/s or greater.

- The assessment considered:
  - Potential effects of scenarios for developing up to 4,500 MW of offshore wind and 1,500 MW of wave and tidal energy irrespective of commercial viability or other economic constraints.
  - Spatial distribution of suitable areas for development independently of the existing onshore power transmission grid.
  - Areas within Natura 2000 sites or areas protected under other national or international instruments.

### 2.3.3 SEA Issues/Subjects

Table 2.1 below lists the main environmental issues (and associated SEA subjects for assessment) that were covered by the SEA. This list was derived from the SEA Directive and was refined to make it relevant to the marine and coastal environment of Ireland. The main environmental issues were identified through the authors’ knowledge of the SEA process, the requirements of the SEA Directive and EC SEA Regulations 2004, the EPA SEA Guidance (2003) and an understanding of the potential affects that offshore wind, wave and tidal energy developments could have on the environment.

**Table 2.1: SEA Environmental issues/subjects covered by the SEA of the OREDP**

<table>
<thead>
<tr>
<th>SEA Directive Environmental Issues</th>
<th>Relevant SEA Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, Soil (Sediment)</td>
<td>Bathymetry and hydrography</td>
</tr>
<tr>
<td></td>
<td>Geology, geomorphology and sediment processes</td>
</tr>
<tr>
<td></td>
<td>Water and sediment quality</td>
</tr>
<tr>
<td>Biodiversity, Flora and Fauna</td>
<td>Protected sites</td>
</tr>
<tr>
<td></td>
<td>Benthic ecology</td>
</tr>
<tr>
<td></td>
<td>Fish and shellfish</td>
</tr>
<tr>
<td></td>
<td>Birds</td>
</tr>
<tr>
<td></td>
<td>Marine mammals</td>
</tr>
</tbody>
</table>
### SEA Directive Environmental Issues

<table>
<thead>
<tr>
<th>Relevant SEA Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine reptiles</td>
</tr>
<tr>
<td>Energy (noise and EMF)</td>
</tr>
<tr>
<td>Marine and coastal archaeology and wrecks</td>
</tr>
<tr>
<td>Commercial fisheries, shell fisheries and aquaculture</td>
</tr>
<tr>
<td>Ports, shipping and navigation</td>
</tr>
<tr>
<td>Recreation and tourism</td>
</tr>
<tr>
<td>Aviation</td>
</tr>
<tr>
<td>Military activity</td>
</tr>
<tr>
<td>Noise environment</td>
</tr>
<tr>
<td>Oil and Gas infrastructure</td>
</tr>
<tr>
<td>Cables and pipelines</td>
</tr>
<tr>
<td>Aggregates, dredging and disposal areas</td>
</tr>
<tr>
<td>Seascapes</td>
</tr>
<tr>
<td>Renewable energy</td>
</tr>
<tr>
<td>Gas storage areas</td>
</tr>
</tbody>
</table>

#### 2.3.4 Socio-Economic Impacts

The SEA did not cover socio-economic impacts. The SEA did assess the potential effects on different marine sectors and users of the sea in terms of the potential for disruption to activities and physical displacement from certain areas within Irish waters. However, it did not use any economic or monetary values to quantify the potential effects of the disruption or displacement of marine activities.

#### 2.3.5 Scoped Out SEA Issues

Air Quality was scoped out of the SEA as it was determined at the scoping stage that atmospheric emissions from offshore wind and marine renewable energy developments are likely to be minimal and therefore unlikely, at a strategic level to have a significant effect on air quality. However, effects on climate are included in the SEA.
2.3.6 Transboundary Effects

Given the location of Ireland and its surrounding waters, the SEA also took into consideration potential transboundary effects on the following areas:

- Northern Ireland territorial waters.
- Scotland territorial waters (mainly waters off the coast of Argyll and Bute (Peninsula of Kintyre and Isle of Islay)).
- Isle of Man territorial waters.
- UK territorial waters (mainly off the west coast of Wales).

Further detail on potential transboundary issues is included in Chapter 13 of the Environmental Report on cumulative effects associated with other plans, programmes and developments.

2.3.7 Informing the Preparation of the Offshore Renewable Energy Development Plan (OREDP)

The main focus of the SEA was to test the development scenarios for up to 4,500MW of offshore wind and 1,500MW of wave and tidal energy within Irish waters as set out in the OREDP. There were three development scenarios presented in the OREDP. These ranged from low to high and summarised in Table 2.2 below:

- **Low**: This scenario consists of the 800MW of offshore wind to receive a grid connection offer under Gate 3. It also includes 75MW of wave and tidal development, which is included in the Table 10 modelled scenario in the National Renewable Energy Action Plan (NREAP).
- **Medium**: This scenario consists of 2030MW of offshore wind, which comes from the Table 10 non-modelled scenario of the NREAP (broadly based on the combination of offshore wind projects with either foreshore lease or grid connection) and the 500MW of wave and tidal energy in the same table (the Government’s 2020 ocean energy target).
- **High**: This scenario consists of 4,500MW of offshore wind and 1,500MW of wave and tidal current. These figures come from the SEA Scoping Report.

<table>
<thead>
<tr>
<th>Development Scenarios to 2030</th>
<th>Low Scenario (MW)</th>
<th>Medium Scenario (MW)</th>
<th>High Scenario (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>800</td>
<td>2,300</td>
<td>4,500</td>
</tr>
<tr>
<td>Wave and Tidal</td>
<td>75</td>
<td>500</td>
<td>1,500</td>
</tr>
</tbody>
</table>

With regard to informing the development of the OREDP, the main objective of the SEA was to identify where development is most likely to occur, identify the potential environmental constraints in those areas and, taking potential environmental effects/constraints into account, assess the levels of development that could occur in a certain area (Assessment Area). The levels of development that could occur in a certain area were then reviewed against the development scenarios to determine which of the scenarios could be achieved without any likely significant adverse effects on the environment. In summary the SEA:
- Identified whether it is possible to achieve the development scenarios set out in the OREDP.
- Identified broad areas for development, acknowledging that within those broad areas there are likely to be a number of data and knowledge gaps, therefore potential effects on certain receptors may be unknown.
- Identified where further information/data is required in order to determine the significance of potential effects on certain environmental receptors e.g. site or area specific surveys/studies, and what would need to be taken into account as part of a project level Environmental Impact Assessment (EIA) for development in certain areas.

### 2.3.8 Assessment Limitations

The main limitations relating to the SEA included:

- Range of technologies and device types - with a number of wave and tidal technologies still emerging/being developed.
- Data and information gaps – in relation to the distribution, abundance etc of certain key environmental receptors.
- Knowledge gaps in relation to how different technologies/device types interact with the environment and how certain receptors respond to different devices.

The main exclusions from the SEA are summarised in Table 2.3 below.

#### Table 2.3: SEA Exclusions

<table>
<thead>
<tr>
<th>Inside of Scope of the SEA</th>
<th>Outside the Scope of SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential environmental effects will be identified and assessed at a strategic level.</td>
<td>Effects will not be assessed at a project specific level. The SEA also does not replace the need for project level EIAs to be carried out.</td>
</tr>
<tr>
<td>The SEA will provide baseline information pertinent to the strategic issues associated with the potential development of offshore renewable energy.</td>
<td>The SEA will not replace the need for developers to collect detailed project specific baseline data.</td>
</tr>
<tr>
<td>The SEA will inform the development and implementation of the OREDP.</td>
<td>The SEA will not specifically address issues of grid development policy, socio-economic development, or policy relating to consent procedures but will cross refer to other work where relevant.</td>
</tr>
<tr>
<td>The SEA will help identify areas where there may be opportunities for, or environmental constraints against, development.</td>
<td>The SEA will not demarcate specific sites or areas for development or avoidance but will identify the technical issues leading to constraints or opportunities</td>
</tr>
<tr>
<td></td>
<td>The SEA will not examine the commercial viability of development or provide cost benefit analysis.</td>
</tr>
</tbody>
</table>
2.4 Assessment Method

The approach applied to the assessment of the effects of offshore wind, wave and tidal energy developments on the marine and coastal environment of Ireland comprised three parts:

- **Part 1:** Generic environmental effects (Chapter 10 of the Environmental Report).
- **Part 2:** Detailed assessment of specific Assessment Areas (Chapter 11 of the Environmental Report).
- **Part 3:** Cumulative assessment (Chapters 12 and 13 of the Environmental Report).

**Part 1** of the assessment (Generic Assessment) was non-spatial. This part of the assessment focused on providing a description of the potential effects that different offshore renewable energy technologies and devices characteristics could have on the main environmental receptors covered by the SEA. This was based on existing research, knowledge and information and covered the entire study area, including areas outside the Assessment Areas described below.

**Part 2** of the assessment focused on assessing the likely effects of the different technologies and device characteristics on key environmental receptors within and associated with (e.g., mobile species) each of the six Assessment Areas (an analysis of tidal energy in the Shannon Estuary was included as area 5a within assessment area 5 – West Coast).

**Part 3** assessed the cumulative effects of the development scenarios presented in the OREDP by testing different amounts of development (in terms of megawatts (MW) or amount of electricity they could produce), on the key environmental receptors known to be present within/or associated with the main ‘Assessment Areas’ within the study area. Part 3 also included an assessment of cumulative effects of other plans and programmes and marine developments.

Further detail on the assessment methodology is presented in Chapter 6 of the Environmental Report.

2.5 Technologies

The SEA focused on assessing the potential effects of developing, at a commercial scale, offshore wind, wave and tidal stream technologies in Irish waters.

The assessment was based on the key characteristics of different device types such as position in the water column and method of attachment to the seabed. A review of the technologies and associated device characteristics is provided in Chapter 7 of the Environmental Report.

2.6 Offshore Renewable Energy Resource

As part of the SEA it was also necessary to identify the offshore renewable energy resource (wave, tidal and offshore wind) available within the defined study area (Irish waters). This included a review of the unconstrained (theoretical) resource and the technical resource which takes into account factors such as water depth, sea bed conditions and other technical constraints such as shipping lanes, military areas and disposal sites.

The main areas of resource (theoretical and technical) were mapped using GIS. In general the assessment identified that there is a huge potential resource of offshore wind and wave energy in the waters around Ireland, in particular off the west coast where the prevailing westerly winds and wave fetch (distance of open water over which waves are formed) are strongest. There also some smaller, more discrete areas of tidal resource. These are mainly located off the east coast and northwest coast around Donegal. Tidal resource was also identified in the Shannon Estuary.

However, most of the resource identified is purely theoretical, in that whilst it exists, a large proportion of it cannot be exploited for a number of reasons, mainly relating to the technical feasibility and economic viability of harnessing energy from such extreme, harsh and challenging environments. However there are a number of locations off the coast of Ireland where there are potential opportunities for exploiting the available offshore wind, wave and tidal resources.
2.7 Assessment Areas

In order to make the study area more manageable and provide more detail and focus to the assessment of cumulative effects the study area was split into six Assessment Areas (with an analysis of tidal energy in the Shannon Estuary was included as area 5a within assessment area 5 – West Coast). These areas were based on the extent of available resource (theoretical and technical) for offshore wind, wave and tidal (Chapter 8 of the Environmental Report), operational parameters (Chapter 7 of the Environmental Report), feedback from developers and other stakeholders and a review of current developments patterns and noted interest in areas for future development.

The Assessment Areas listed below extend out from the coast (mean high water mark) to a distance of 100km from shore. This reflects the upper length limit of Alternating Current (AC) export cable technology. For distances greater than 100km Direct Current (DC) cables will be required, with convertor stations on land to convert to AC).

Table 2.4: Assessment Areas

<table>
<thead>
<tr>
<th>Assessment Area</th>
<th>Technology</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wind</td>
<td>East Coast - North</td>
</tr>
<tr>
<td>2</td>
<td>Wind &amp; Tidal(^1)</td>
<td>East Coast - South</td>
</tr>
<tr>
<td>3</td>
<td>Wind(^2)</td>
<td>South Coast</td>
</tr>
<tr>
<td>4</td>
<td>Wind &amp; Wave</td>
<td>West Coast - South</td>
</tr>
<tr>
<td>5</td>
<td>Wind &amp; Wave</td>
<td>West Coast</td>
</tr>
<tr>
<td>5a</td>
<td>Tidal</td>
<td>Shannon Estuary</td>
</tr>
<tr>
<td>6</td>
<td>Wind &amp; Wave &amp; Tidal(^1)</td>
<td>West Coast - North</td>
</tr>
</tbody>
</table>

Note 1: Wave resource is not considered in Assessment Area 3, as although there is some resource in this area it was considered to be too far offshore for development within the timeframe of the SEA. It was decided to only focus on wave resources in the more accessible near shore areas on the southwest, west and northwest coast where developer interest is predicted to be initially focused (Assessment Areas 4, 5 and 6).

Note 2: Only those areas of significant tidal resource suitable for the development of commercial tidal arrays were considered in the assessment. It is recognised that there are a number of smaller discrete areas of tidal resource around the Irish coast. However, due to their scale these areas were only considered to be more suitable for demonstration or test projects rather than full scale commercial developments. The exception to this is the Shannon Estuary where both developers and local authorities have indicated that there is interest in the development of a commercial scale tidal array in this area.

2.8 Key Findings of the Assessment

2.8.1 Key Findings from Parts 1 and 2 of the Assessment

Based on information presented in Chapter 10 of the Environmental Report, Generic Effects, and Chapter 11: Part 2 Assessment Area Assessment, the following potential effects were identified for each of the subject areas/receptors covered by the SEA. This includes effects relating to the following phases of development:

- Marine survey and investigations.
- Installation and construction of wind, tidal or wave technology including cabling and onshore infrastructure.
- Operation of wind, tidal and wave technology plus cable infrastructure.
- Maintenance and repair work to devices (including cabling).
- Decommissioning and structure removal (or safe abandonment).

Table 2.6: Summary of Potential Effects on SEA Receptors in Irish Waters.

<table>
<thead>
<tr>
<th>Summary of Potential Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Soil and Sediment: Geology, Geomorphology, Sediment Processes and Water Quality</strong></td>
</tr>
<tr>
<td>Seabed scouring (devices with structures attached to the seabed)</td>
</tr>
<tr>
<td>Energy extraction from waves and tidal stream (wave and tidal devices)</td>
</tr>
<tr>
<td>Accidental contamination from all technologies and vessels as a result of storm damage or failure or collision.</td>
</tr>
<tr>
<td><strong>Biodiversity, Flora and Fauna: Fish, Shellfish, Marine Mammals, Seabirds and Marine Reptiles</strong></td>
</tr>
<tr>
<td>Loss or damage to habitats (devices with structures attached to the seabed).</td>
</tr>
<tr>
<td>Damage to non-mobile species (all technologies).</td>
</tr>
<tr>
<td>Suspended sediment and increased turbidity</td>
</tr>
<tr>
<td>Smothering</td>
</tr>
<tr>
<td>Disturbance of contaminated sediment</td>
</tr>
<tr>
<td>Scouring</td>
</tr>
<tr>
<td>Creation of artificial reefs</td>
</tr>
<tr>
<td>Changes in wave exposure</td>
</tr>
<tr>
<td>Changes in tidal flow</td>
</tr>
<tr>
<td>Species disturbance</td>
</tr>
<tr>
<td>Species displacement and habitat avoidance/exclusion</td>
</tr>
<tr>
<td>Marine noise</td>
</tr>
<tr>
<td>Collision risk (above surface)</td>
</tr>
<tr>
<td>Collision risk (below surface)</td>
</tr>
<tr>
<td>Barriers to movement</td>
</tr>
<tr>
<td>Food availability</td>
</tr>
<tr>
<td>Fishing exclusion areas</td>
</tr>
<tr>
<td>Toxic effects</td>
</tr>
<tr>
<td>EMF</td>
</tr>
<tr>
<td><strong>Cultural Heritage Including Archaeological Heritage</strong></td>
</tr>
<tr>
<td>Damage or loss of archaeological remains/historical features (marine and coastal)</td>
</tr>
<tr>
<td>Effect on setting of archaeological features and historic remains (coastal)</td>
</tr>
<tr>
<td><strong>Commercial Fisheries, Shellfisheries and Aquaculture</strong></td>
</tr>
<tr>
<td>Direct disturbance of commercial fishing grounds</td>
</tr>
<tr>
<td>Long term displacement from fishing grounds</td>
</tr>
<tr>
<td>Recovery of fish stocks</td>
</tr>
<tr>
<td>Disturbance and smothering to fish farms (shell and fin fisheries)</td>
</tr>
</tbody>
</table>
## Summary of Potential Effects

| Population and Human Health: Ports, Shipping and Navigation | Reduced navigational safety  
Reduced access to ports  
Increased navigational safety |
|-----------------------------------------------------------|------------------------------------------------------------------|
| Population and Human Health: Recreation and Tourism      | Direct disruption to recreational activities (marine and coastal)  
Indirect effects on recreational assets/features e.g. bathing water quality |
| Population and Human Health: Aviation and Military Exercise | Aviation collision risk  
Radar interference  
Disruption to military activities |
| Population and Human Health: Dredging and Disposal Areas  | Access restrictions to existing dredging and disposal sites  
Sterilisation or restricted access to potential aggregate dredging or extraction areas |
| Population and Human Health: Landscape and Visual        | Effects on seascape character and quality |
| Material Assets: Oil and Gas Infrastructure and Cables     | Direct damage to cables and oil and gas pipelines  
Access restrictions to “Licensing Option” and “Exploration Licence” areas |
| Climate: Renewable Energy Developments and Gas Storage    | Positive effects on combating climate change  
Sterilisation of gas storage areas |

### 2.8.2 Key Findings from Parts 3: Cumulative Assessment – Testing OREDP Development Scenarios

The main focus of the cumulative assessment was to assess the extent to which varying amounts of development (offshore wind, wave and tidal) (expressed in levels of electricity production or mega watts (MW)), could be accommodated within each of the assessment areas and across the entire study area without likely significant adverse effects on the environment or other marine users/activities.

The results from the assessment were then reviewed to determine the extent to which the amounts (MW) of development identified would contribute towards achieving the scenarios for developing 4,500MW from offshore wind and 1,500MW from wave and tidal energy in Irish waters as set out in the OREDP.

### 2.8.2.1 Approach to the Cumulative Assessment of the OREDP Development Scenarios

The approach to assessing potential cumulative effects in the Assessment Areas is illustrated in Figure 2.1 below:
2.8.2.2 Overview of Results from the Cumulative Assessment (Assessment Areas)

Table 2.7 below provides a summary of the main results of the cumulative assessment in terms of the potential amounts of development (MW) that could be accommodated within each of the Assessment Areas without likely significant adverse effects on the environment. It should be noted that the figures for the Shannon Estuary have been revised in response to feedback from consultation. The figures presented below reflect information included in the Addendum to the Environmental Report.

Table 2.7: Cumulative Assessment

<table>
<thead>
<tr>
<th>Assessment Area</th>
<th>Fixed Wind (MW)</th>
<th>Wave (MW) 10 to 100m</th>
<th>Wave (MW) 100m to Tidal* (MW)</th>
<th>Floating Wind**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>Water Depth</td>
<td>200m Water Depth</td>
<td>(MW)</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------</td>
<td>------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>1: East Coast (North)</td>
<td>1200 to 1500***</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2: East Coast (South)</td>
<td>3000 to 3300****</td>
<td>-</td>
<td>750 to 1500</td>
<td>-</td>
</tr>
<tr>
<td>3: South Coast</td>
<td>1500 to 1800</td>
<td>-</td>
<td>-</td>
<td>6000</td>
</tr>
<tr>
<td>4: West Coast (South)</td>
<td>600 to 900</td>
<td>500 to 600</td>
<td>3000 to 3500</td>
<td>-</td>
</tr>
<tr>
<td>5: West Coast</td>
<td>500</td>
<td>5000</td>
<td>6000 to 7000</td>
<td>-</td>
</tr>
<tr>
<td>5a: Shannon Estuary</td>
<td>-</td>
<td>-</td>
<td>Limited potential</td>
<td>-</td>
</tr>
<tr>
<td>6: West Coast (North)</td>
<td>3000 to 4500</td>
<td>7000 to 8000</td>
<td>6000 to 7000</td>
<td>750 to 1500</td>
</tr>
<tr>
<td><strong>Total Development Potential (MW)</strong></td>
<td><strong>9800 to 12500</strong></td>
<td><strong>12500 to 13600</strong></td>
<td><strong>15000 to 17500</strong></td>
<td><strong>1500 to 3000</strong></td>
</tr>
</tbody>
</table>

* = the tidal resource is based on tidal stream technologies only and does not include tidal barrages.

** = although there is a large potential floating offshore wind resource this is still very much an emerging technology. It is therefore unlikely that this technology would be developed at a commercial scale by 2020.

*** = The development potential in Assessment Area 1 takes into account the proposed Oriel Windfarm (330MW) and the northern section of Dublin Array (approx 150MW).

**** = The development potential in Assessment Area 2 takes into account the approved Arklow Bank Windfarm (520MW) and Codling Bank (1,100MW) and the southern part of the proposed Dublin Array windfarm (approx 214MW) which is due to receive a grid connection offer in the Gate 3 process.

(·) = Limited technical resource available. These areas may contain potential resource for each of the technologies. However, the resource assessment has concluded that for technical reasons e.g. water depths/distances from shore etc, the resource that is available is unlikely to be developed in the timescale of the OREDP (e.g. by 2030).

Wave energy was split between the shallower (10m to 100m depth) and deeper water resource (100m to 200m depth). It is likely that initial wave development which would occur in the main timeframe of the OREDP e.g. 2015 to 2025 is likely to occur in the shallower areas which tend to be located closer, with deeper waters being exploited in the longer term e.g. 2025 to 2030 and beyond.

The figures (MW) included in Table 2.7 above indicate the amounts of development that could potentially be accommodated within an area without likely significant adverse effects on the environment. These figures are not ‘caps’ on the total level of development that could occur. They simply reflect the results from the assessment of cumulative...
effects. There are still a number of uncertainties/unknowns. Consequently there is potential that with increased certainty e.g. filling of data and information gaps that these levels of development (MW) in an area could increase or decrease.

More detail on the results from the cumulative assessment including the Assessment Matrices is presented in Chapter 12 of the Environmental Report and Section 7 of the Non-Technical Summary.

2.8.2.3 Conclusions from the Cumulative Assessment (Assessment Areas)

Overall, the scenario for offshore wind set out in the OREDP is to develop 4,500MW by 2030. This includes both fixed and floating wind. Based on the results from Chapter 11 of the ER (the assessment of the assessment areas) and the assessment of cumulative effects (Chapter 12 of the ER) it has been identified that in total there is potential to develop between 9,200MW and 12,000MW from fixed wind and at least 27,000MW from floating wind.

Based on these figures, it would appear that it would therefore be possible to achieve the scenario for 4,500MW from wind by 2030. However, there are a number of factors that need to be taken into consideration with regard to these figures. These include:

- **Areas with greatest potential for fixed offshore wind development are Assessment Areas 1, 2 and 6, the east coast and the west coast (north) respectively.**
- **Opportunities for offshore wind off the south and west coast (Assessment Areas 3, 4, and 5) are significantly constrained by water depth which drops to more than 60m depth within a few meters from the shore. Consequently developments in these areas would have to be located closer to the coastline increasing the risk for interactions with/adverse effects on shipping and navigation, seascape (e.g. Skellig Micheal WHS), protected sites and other sensitive receptors e.g. breeding bird and seal colonies. Consequently opportunities for development in these areas without likely significant adverse effects on the environment are limited.**
- **East and North West coast is much shallower, increasing the potential to find alternative sites to avoid protected sites and sensitive receptors and to site developments further offshore particularly off the North West coast. The main constraints in these areas relate to shipping and navigation, protected sites and associate sensitive receptors (birds, marine mammals, fish and reptiles) although the abundance of these is less on the east coast than the west coast. Potential effects on commercial fisheries are a key consideration in all areas, and are likely to be more significant in constrained areas such as the east coast.**
- **Assessment Areas 4, 5 and 6 (the west coast) have the greatest potential for floating wind developments which are less constrained by water depth. This increases the potential for siting developments further offshore away from protected sites, sensitive receptors and other marine activities in coastal areas, although there may still be adverse effects on receptors present in offshore areas (e.g. cetaceans, fish and seabirds).**
- **However, floating wind is still an emerging technology. Therefore although there is significant potential for the development of this technology in Irish waters, its overall contribution towards achieving the scenarios for 2020 and 2030 set out in the OREDP may be limited. Taking this into account it is likely that the 4,500MW scenario identified in the OREDP would have to be met with fixed wind developments in Assessment Areas 1, 2 and 6.**
- **There is potential for the 4,500MW scenario to be met entirely with development in Assessment Area 6. However, although the Grid25 plan acknowledges that new infrastructure and transmission network reinforcements will be provided along the west coast, precise detail on the future availability of grid connections and capacity in this area is currently unknown and could therefore prove to be a limiting factor in developing off the North West coast.**
- **The 4,500MW scenario could also potentially be achieved entirely with fixed wind developments off the east coast (total identified potential for Areas 1 and 2 is between 4,200MW and 4,800MW) providing no significant adverse effects are identified at the project stage for example in terms of shipping and navigation and nature conservation.**
- **Of the potential 4,200MW to 4,800MW, there is already 2,314MW either consented or due to receive a grid connection offer in the Gate 3 process. It is therefore likely that there would be limited additional development required in this area to achieve the 4,500MW scenario.**
In terms of wave and tidal energy, the scenario set out in the OREDP is to develop 1,500MW by 2030. The results from the assessment conclude that overall the potential developable wave resource, in both shallow (10m to 100m depth and deeper water (100m to 200m depth) is significant, totalling between 27,500MW and 31,100MW across all areas, with at least 12,500MW in shallower waters. In comparison, the overall potential tidal energy resource is much more constrained, ranging between 1,500MW to 3,000MW across Assessment Areas 2 and 6 and deeper water (100m to 200m depth) is significant, totalling between 27,500MW and 31,100MW across all areas, with at least 12,500MW in shallower waters. In comparison, the overall potential tidal energy resource is much more constrained, ranging between 1,500MW to 3,000MW across Assessment Areas 2 and 6.

Based on these figures, it would appear that the development scenario for 1,500MW for wave and tidal energy could be achieved entirely from wave energy, with a contribution from tidal energy. This is based on:

- Most of the wave resource is located off the west coast. For floating wave devices there is greater potential for siting developments further offshore away from protected sites, sensitive receptors and other marine activities in coastal areas, although there may still be adverse effects on receptors present in offshore areas (e.g. cetaceans, fish and seabirds).
- Consequently, although there is a significant resource, realisation of this potential resource, even achieving the scenario of 1,500MW will not only depend on industry developing this technology to a commercial scale by 2020 with significant progress by 2030, but will also depend on the provision and availability of necessary onshore infrastructure such as grid connections and capacity.
- There is likely to be limited potential for developing commercial scale tidal arrays in the Shannon Estuary due to environment constraints (population of bottlenose dolphin, Annex I habitats and seabirds) and high shipping intensity. However there may be potential for test or demonstration projects or pre-commercial developments.
- There is potential for tidal energy to contribute towards achieving the scenarios of 1,500MW for wave and tidal energy, although potential environmental constraints associated with this technology are generally greater than wave developments due to the close proximity of the resource to the coast. There is more scope for avoiding protected sites and sensitive receptors in Assessment Area 6, although the availability of grid connections in this area is still a consideration.
- Further studies are likely to be required to fully identify the opportunities for tidal energy in Assessment Areas 2, 6 and the Shannon Estuary due to the potential for tidal developments in coastal/nearshore areas to have likely significant adverse effects on marine mammals, reptiles, fish and birds (diving and pursuit) due to potential collision risk (on migratory routes or in feeding areas) and possible habitat exclusion.

### 2.8.3 Cumulative Effects: Other Plans and Programmes

In addition to assessing the cumulative effects of offshore wind, wave and tidal developments in Irish waters the SEA also looked at the potential cumulative effects that could occur as a result of implementing the OREDP in association with other relevant statutory instruments, plans and programmes that relate specifically to Ireland. In terms of the plans, programmes and developments assessed, it was identified that potential transboundary and in-combination effects are most likely to occur in relation to the Northern Ireland ORESAP and the potential cumulative effects on seascape, nature conservation and shipping and navigation resulting from a number of offshore wind developments around Lough Foyle and Carlingford Lough.

Other potential cumulative effects relate mainly to plans/programmes involving offshore renewable energy development in the Irish Sea/Channel e.g. development off the coasts of Wales and the Isle of Man and in the Liverpool Bay Offshore Wind Round 3 Zone and of the west coast of Scotland. The main effects identified relate to reduced navigational safety due to main shipping channels being constrained and potential effects on marine mammals, fish and reptiles in terms of disturbance and displacement from surveying and device installation activities, possible habitat exclusion, and the combined effects of marine noise on cetaceans (behavioural and physical) from surveying activities and during device installation and operation from a number of developments located in Irish and surrounding waters. Depending on the location of developments associated with the different plans this could also possible barriers to movement for marine mammals, reptiles and fish that migrate or transit along the Irish channel. There are also likely to be cumulative effects...
on commercial fisheries where displacement from a number of traditional fishing grounds leads to increased pressure on fishing grounds/resources elsewhere.

2.9 Mitigation

The results from the assessment indicated that there is potential to achieve the higher level scenario presented in the OREDP for the development of 4,500MW from offshore wind and 1,500MW from wave and tidal energy without likely significant adverse effects on the environment. However, there were important qualifications to this conclusion, primarily associated with data and information gaps in relation to the marine environment and from limited knowledge on the effects of certain technologies and types of devices on specific sensitive receptors. Further detail on the main data, information and knowledge gaps identified in the SEA is provided in Chapter 14 of the Environmental Report.

Taking those qualifications into account, it was necessary as part of the SEA process to identify appropriate mitigation measures/actions to avoid, reduce or offset any potential significant adverse effects on the environment, and to monitor any unforeseen effects on the environment. As part of the SEA a number of Plan Level Actions were identified which focus on mitigating the potential environmental effects resulting from the implementation of the OREDP. These actions were subject to consultation as part of the SEA and the draft OREDP. In addition to these actions there are also a number of specific project level mitigation measures which have been integrated into the overall assessment of effects.

- **Plan Level Mitigation Measures**: These actions that are incorporated into the plan (OREDP) in order to avoid, reduce or offset and monitor significant adverse effects. These relate to strategic level measures that have been identified as being appropriate for the scenarios for the development of offshore renewable energy, as set out in the draft OREDP, to be achieved in a way that avoids or minimises potential adverse effects on the environment and monitors potential unforeseen effects.

- **Suggested Project Level Mitigation Measures**: These are measures that are not necessarily directly incorporated into the plan but are recognised as good practice and it is assumed that these would be incorporated into future projects. It is recognised that the OREDP cannot guarantee that these measures will be implemented. However, it is considered reasonable to assume that these measures would be implemented by a responsible developer and they are likely to be necessary in order to achieve development consent/Foreshore Leases at the project level. Further detail on the specific project level mitigation measures is provided in Chapter 15 of the Environmental Report.

The original Plan Level Actions as set out in the Environmental Report and the draft OREDP are presented below. The revised and updated sets of actions that have been included in the final OREDP are presented in Chapter 3. These revised actions reflect comments received from consultation on the SEA and the draft OREDP and work carried out on the NIS.

2.10 Monitoring

As part of the SEA Directive and the EC Environmental Assessment of Plans and Programmes Regulations 2004 (S.I.435/2004) there is a requirement for the responsible authority (in this case DCENR) to monitor the significant effects of the implementation of the plan (OREDP) for which the assessment has been carried out.

With regard to this SEA, requirements for monitoring in accordance with the SEA Directive and SEA Regulations have been integrated into the OREDP under Measure 3 set out above. Proposals for monitoring are provided in Chapter 8 of this SEA Statement. Further information on monitoring was also provided in Chapter 16 of the Environmental Report.
### Original Mitigation Measures (published in the draft OREDP)

#### Collaboration and Coordination:

- **1:** Development of a mechanism for greater coordination between all state bodies concerned to improve the effectiveness of the delivery of the OREDP as policy develops. This could include an enhanced role for the existing multi-body Ocean Energy Steering Committee (now to be known as the Offshore Renewable Energy Steering Group - ORESG).
- **2:** Collaborative working with the existing Ocean Energy Advisory Group to assist/advise SEAI and DCENR with taking forward the OREDP.

#### SEA Monitoring Requirements:

- **3:** In accordance with Article 17 of the SEA Regulations 2004, the group identified in the mechanism for enhanced co-ordination in measure 1 shall ensure the significant environmental effects of the implementation of the plan are monitored. This will ensure that unforeseen adverse effects are identified at an early stage and that appropriate remedial action is taken as required.

#### Addressing Data, Information and Knowledge Gaps:

- **4:** DCENR and SEAI, in the context of the offshore renewable energy sector, should collaborate with the lead authorities on the MSFD and other statutory requirements that are taking forward requirements relating to collation, management and dissemination of data and information collected for the marine environment so that data is made publicly available so that it may be taken into account by those developers and bodies involved in the siting, design, consenting and permitting of individual projects.

#### Consenting and Permitting:

- **5:** Future foreshore consenting processes by the relevant authorities should take into account the broad findings and assessment of this SEA and AA in terms of location and constraints.
- **6:** The foreshore consent process should require developers to put in place appropriate monitoring programmes to assess the effects of their development.
- **7:** The foreshore consenting authority should consider the application of an incremental (the ‘deploy and monitor’) approach as part of the scaling up of offshore renewable energy developments.

#### Guidance and Advice:

- **8:** The project level mitigation measures/EIA Guidance prepared as part of the SEA should be incorporated into National EIA Guidance for offshore renewable energy developments.
- **9:** Development and maintenance of a GIS database tool to inform the Foreshore Consenting process, led by the Marine Institute.
3.1 Introduction

In addition to the SEA it was also necessary for DCENR to carry out an Appropriate Assessment of the OREDP. This involved carrying out an appraisal of the potential effects of the OREDP on the interest features of European sites, the findings of which were presented in a Natura Impact Statement (NIS). The information presented in the NIS, including a summary of the initial screening phase and the subsequent and more detailed appraisal, were then used to inform the Appropriate Assessment of the final OREDP made by DCENR.

3.2 Regulatory Context

Under the provisions of S.I. No. 94/1997 - European Communities (Natural Habitats) Regulations, 1997 (as amended), which translate the requirements of the Habitats Directive 1992 and Birds Directive 1979 into Irish law, a 'competent authority' (in this context the plan-making body, DCENR), is required to undertake an Appropriate Assessment of any plan or project (where the plan does not relate directly to management of the site), and where the plan or project is likely to have a significant effect on a Natura 2000 site, in relation to the site's conservation objectives.

The plan-making body can only agree to the plan after having ascertained that the plan will not adversely affect the integrity of any Natura 2000 site, unless in exceptional circumstances, the provisions of Article 6(4) of the Habitats Directive are met. Article 6(4) provides for the situation that if in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, the plan must nevertheless be carried out for imperative reasons of overriding public interest (IROPI), where compensatory measures must be implemented.

The Natura 2000 sites that have to be considered include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Such consideration extends to candidate or proposed sites, or extensions to existing sites, all of which are afforded the same level of protection as fully adopted sites. Therefore, with regard to the OREDP an Appropriate Assessment is required in relation to such protected sites where the plan will cause 'Likely Significant Effects', and forms a material consideration in the finalisation of the plan.

The legislation, as well as guidance published by the Department of Environment, Community and Local Government (DECLG), makes it clear that a plan or project which may affect a Natura 2000 site cannot be approved until the Appropriate Assessment has been concluded and the findings of the Appropriate Assessment used to influence or change the plan or programme, where appropriate.

As noted on the National Parks and Wildlife Service (NPWS) website it is the responsibility of the Regulatory Authorities in Ireland to ensure that the provisions of the legal requirements set out in the Habitats Directive (and other legislation and conventions) are adhered to in the delivery of their statutory functions. In their role as Statutory Consultee with regard to this Appropriate Assessment the NPWS has provided observations and advice concerning the delivery of the relevant national and international obligations for marine conservation with regard to the OREDP.

In terms of offshore renewable energy developments, under the current marine licensing regime, developers are required to obtain consent from the Foreshore Section of DECLG to develop the seafloor below the high water line of a medium tide under the 1933 Foreshore Act. In consenting these developments all Regulatory Authorities concerned have a legal obligation to ensure that operations or activities that are likely to have significant effect on the protected habitats and/or species in a SAC are subject to an appropriate assessment. It should also be noted that the NPWS is also the Regulatory Authority for specified activities not otherwise licensable by other bodies (i.e. for activities requiring

---

1 The original Birds Directive has since been replaced by Directive 2009/147/EC comprising the consolidated (or 'codified') version of Council Directive 79/409/EEC which originally came into force in 1979 and was amended on a number of occasions before being replaced by the current version.

2 Specifically this is a requirement of Article 6(3) of the Habitats Directive.

3 DECLG (December 2009) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities

4 http://npws.ie/marine/marinelicensing/ (22/08/2013)
consent as listed for each designated site). The legal obligations arising from nature conservation legislation must be applied by all such Authorities.

Article 12 of the Habitats Directive and Regulation 23 of S.I. 94 of 1997 further requires that the requisite measures are taken to establish a system of strict protection for the animal species listed in Annex IV of the Directive. This includes all cetaceans (whales, dolphins and porpoise) and seals occurring in Irish waters (Exclusive Economic Zone). To date, 24 species of cetacean have been recorded in Irish waters. These include six species of baleen whale and eighteen species of toothed whale, including five species of beaked whale. There are also two species of seal present in Irish waters, the Common seal and Grey seal. Further information on the distribution of marine mammals in Irish waters is provided in Chapter 6.

Under Article 4 of the Habitats Directive, SACs must be proposed for two species of cetacean (Bottlenose dolphin and Harbour porpoise) and both species of seal (Common and Grey). Under the Wildlife (Amendment) Act 1976-2005, all cetaceans and seals are protected species listed on the 5th Schedule. Under this Act, Natural Heritage Areas (NHAs) may be established to protect habitats and species. Whilst some terrestrial and coastal NHAs may encompass adjacent marine areas, no NHAs have been established for marine mammals to date.

Under the OSPAR Convention to Protect the Marine Environment of the North East Atlantic, Ireland is committed to establishing Marine Protected Area to protect biodiversity (i.e. OSPAR MPAs). No legislation is currently used in Ireland to legally underpin protected areas to fulfil commitments under international conventions. Therefore, since the creation of OSPAR MPAs would not afford any legal protection to the relevant areas on their own, Ireland established a number of its SACs as OSPAR MPAs. Two of these, Roaringwater Bay and Islands MPA and Blasket Islands MPA were submitted for the Harbour Porpoise.

The protection afforded to marine mammals in Ireland is summarised below:

<table>
<thead>
<tr>
<th>Species</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harbour porpoise</td>
<td>Annex II of the Habitats Directive</td>
</tr>
<tr>
<td></td>
<td>Annex IV if the Habitats Directive</td>
</tr>
<tr>
<td></td>
<td>Protected species of the Wildlife (Amendment) Act</td>
</tr>
<tr>
<td></td>
<td>OSPAR List of Threatened and Declining Species and Habitats</td>
</tr>
<tr>
<td>Bottlenose dolphin</td>
<td>Annex II of the Habitats Directive</td>
</tr>
<tr>
<td></td>
<td>Annex IV of the Habitats Directive</td>
</tr>
<tr>
<td></td>
<td>Protected species of the Wildlife (Amendment) Act</td>
</tr>
<tr>
<td>All Cetaceans</td>
<td>Annex IV of the Habitats Directive</td>
</tr>
<tr>
<td></td>
<td>Protected species of the Wildlife (Amendment) Act</td>
</tr>
<tr>
<td>Grey and Common Seal</td>
<td>Annex II of the Habitats Directive</td>
</tr>
<tr>
<td></td>
<td>Protected species of the Wildlife (Amendment) Act</td>
</tr>
</tbody>
</table>


3.3 Appropriate Assessment Approach and Method

3.3.1 Introduction

The overall aim of the NIS was to undertake a focused assessment to ascertain whether the OREDP is likely to have a significant effect on the integrity of any European site, in terms of interest features and relevant conservation objectives.

http://www.npws.ie/marine/marinemammals/ (22/08/2013)
The assessment was undertaken in accordance with the published EC Methodological Guidance on the Provision of Article 6(3) and 6(4) of the Habitats Directive (2001) and the European Commission Guidance Managing Natura 2000 sites (2000). In addition, reference has been made to the approach set out in DECLG Guidance 2009 referred to earlier as well as other recently published guidance.\(^6\)

In accordance with the guidance the assessment was undertaken in two stages:

- Screening
- Appropriate Assessment

3.3.2 Screening

The purpose of screening was to identify which sites (Natura) could be affected by the OREDP and activities associated with the OREDP (in this case offshore renewable energy developments) and therefore whether there is potential for likely significant effects on these sites. Screening was undertaken in three stages:

- **Stage 1**: Identification of all Natura 2000 sites located in Ireland and adjacent jurisdictions e.g. Northern Ireland and UK waters. This included marine and terrestrial sites.
- **Stage 2**: Review of all Natura sites (Irish sites and transboundary sites) to identify those containing features that could be affected by offshore renewable energy developments e.g. birds, marine mammals, marine and coastal Annex I habitats etc.
- **Stage 3**: Geographic review of all Natura 2000 sites with interest features that could be affected by offshore renewable energy developments in Irish waters (as part of the OREDP).

The results from screening identified that from 690 Natura sites reviewed there was potential for likely significant effects on 360 sites located within Ireland and Northern Ireland (marine and terrestrial). These sites were taken forward for more detailed assessment as part of the Appropriate Assessment.

3.3.3 Appropriate Assessment

Where the screening assessment determined potential for a likely significant effect on a site the site was screened in and taken forward to the Appropriate Assessment which is detailed in the report. This stage of the process provides the information needed in the form of a NIS by the DCENR, as the competent authority, for them to be to be able to undertake the Appropriate Assessment of the OREDP.

The assessment identified the risk for a likely significant effect on the interest features of the Natura sites that were screened in from the potential effects of plan. These were also considered in-combination with other plans and projects of a similar spatial nature and where a risk of a likely significant effect has been identified. This process is outlined below and the overall process is illustrated in Figure 3.1.

- Identification of the interest features of the Natura 2000 sites potentially affected by the plan and their geographical relationship with the plan area including interest features that occur outside a site boundary (i.e. in relation to indirect effects on habitats or sessile species or effects on mobile species). These included:
  - Habitats (grouped by similar habitat types)
  - Marine Mammals;
  - Migratory Fish;
  - Otters;
  - Bats; and

---

- Birds (differentiating between seabirds and other birds).

- Discussion of the sensitivity of the interest features to the potential effects identified and considers potential impacts and pathways relating to likely activities associated with the OREDP, such as physical loss or damage, non-physical disturbance, and toxic/ non-toxic contamination effects, that may interact with or affect the interest features identified as being sensitive; and

- Indication of the likelihood (or risk) of significant effects that the activities associated with the OREDP will have on interest features of the European sites, taking into account likely OREDP activities and the sensitivity of those features, bearing in mind the precautionary principle.

Figure 3.1: Methodology

3.4 Potential Effects of the OREDP

The main activities associated with the OREDP were identified as offshore renewable energy developments (offshore wind, wave and tidal energy). The potential effects associated with these activities are summarised below.
There are a number of generic activities that are likely to occur as a result of implementing the OREDP. These include:

- Marine survey and investigations.
- Installation and construction of wind, tidal or wave technology including cabling.
- Operation of wind, tidal and wave technology plus cable infrastructure.
- Maintenance and repair work to devices (including cabling).
- Decommissioning and structure removal (or safe abandonment).

As a consequence of the above activities the following effects may result:

- Loss or damage to habitats.
- Damage to non-mobile species.
- Suspended sediment and increased turbidity
- Smothering
- Disturbance of contaminated sediment
- Scouring
- Creation of artificial reefs
- Changes in wave exposure
- Changes in tidal flow
- Species disturbance
- Species displacement and habitat avoidance/exclusion
- Marine noise
- Collision risk (above surface)
- Collision risk (below surface)
- Barriers to movement
- Food availability
- Fishing exclusion areas
- Toxic effects
- EMF

A summary of these effects, the technologies they relate to, likely sensitive receptors and phase of the development when these effects are likely occur is provided in Table 5.1 of the NIS. A detailed description of each of the potential effects listed above is also provided in Chapter 5 of the NIS.

3.5 Summary of Interest Features in Relation to Sites and Assessment Areas

A summary of the main interest features included in the NIS assessment (Annex I and II habitats and species), and the distribution of SAC sites containing these interest features in respect to each of the Assessment Areas is provided in Table 3.1 below. Detail on the distribution of SPA sites is provided in Table 3.2. Further detail the sensitivity of these interest features (based on current information and knowledge) to the potential effects discussed in Chapter 5 of the NIS is provided in Chapter 6 of the NIS: Assessment of LSEs WITHOUT Mitigation.
<table>
<thead>
<tr>
<th>Assessment Area</th>
<th>Number of SACs with Annex I Habitats</th>
<th>Marine Mammals</th>
<th>Migratory Fish</th>
<th>Otter</th>
<th>Bats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>Lambay Island (grey seals)</td>
<td>River Boyne and River Blackwater</td>
<td>River Boyne and River Blackwater</td>
<td>No sites</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>No SACs</td>
<td>Slaney River Valley</td>
<td>Slaney River Valley</td>
<td>No sites</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>Saltee Island (grey seal)</td>
<td>No sites</td>
<td>No sites</td>
<td>No sites</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>Roaringwater Bay and Islands (grey seal and harbour porpoise)</td>
<td>Kenmare River (harbour seal)</td>
<td>Blasket Islands (grey seal and harbour porpoise)</td>
<td>No sites</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
<td>Inishbofin &amp; Inishshark (grey seal)</td>
<td>Slyne Head Islands (grey seal)</td>
<td>Duvillian Island (grey seal)</td>
<td>Mweelrea/Sheeffry/Erriff Complex</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>Horn Head and Rinclevan (grey seal)</td>
<td>Slieve Tooey/Tomore Island/Loughros Beg Bay (grey seal)</td>
<td>West of Ardara/Maas Road</td>
<td>West of Ardara/Maas Road</td>
</tr>
<tr>
<td>Assessmen Area</td>
<td>Number of SACs with Annex I Habitats</td>
<td>Marine Mammals</td>
<td>Migratory Fish</td>
<td>Otter</td>
<td>Bats</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-------</td>
<td>------</td>
</tr>
</tbody>
</table>
| Adjacent | 37 | - Glengarriff Harbour and Woodland (4) (harbour seal)  
- Galway Bay Complex (5) (harbour seal)  
- Killaloe Bay/Moy Estuary (6) (harbour seal)  
- Ballysadare Bay (5) (harbour seal)  
- Cummeen Strand/Drumcliff Bay (Sligo Bay (6) (harbour seal)  
- Lough Eske and Ardnamona Wood (6)  
- Castlemaine Harbour (4)  
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment (4)  
- Lough Melvin (6)  
- Unshin River (6)  
- Newport River (5)  
- Blackwater River (3)  
- Bandon River (3&4) | - Glengarriff Harbour and Woodland (4)  
- Galway Bay Complex (5)  
- Castlemaine Harbour (4)  
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment (4)  
- Lough Melvin (6)  
- Unshin River (6)  
- Newport River (5)  
- River Barrow & River Nore (3)  
- Blackwater River (3) | - Glengarriff Harbour and Woodland (4)  
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment (4)  
- Cloonee and Inchiquin Loughs, Uragh Wood (4)  
- Glengarriff Harbour and Woodland (4)  
- Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment (4)  
- Cloonee and Inchiquin Loughs, Uragh Wood (4) |
| Within 30km of Assessmen Area | 8 | - Donegal Bay (Murvagh) (2&3) (harbour seal)  
- Blackwater River (Kerry) (4)  
- Lough Corrib (5)  
- Owenduff/Nephin Complex (5)  
- Lough Gill (6)  
- Maumturk Mountains (5)  
- Connemara Bog Complex (5)  
- Cloghernagore Bog and Glenveagh National Park (6)  
- Lower River Suir (2&3)  
- River Barrow & River Nore (3) | - Blackwater River (Kerry) (4)  
- Dromore Woods and Loughs (5)  
- Moyree River System (5)  
- Lough Corrib (5)  
- Owenduff/Nephin Complex (5)  
- Ross Lake and Woods (5)  
- Lough Carra/Mask Complex (5)  
- East Buren Complex (5)  
- Lough Gill (6)  
- Connemara Bog Complex (5)  
- Cloghernagore Bog and Glenveagh National Park (6)  
- Lower River Suir (2&3)  
- Leannan River (6)  
- Lough Swilly (6)  
- River Moy (5,6) | - Blackwater River (Kerry) (4)  
- Dromore Woods and Loughs (5)  
- Oneen Mountain (5)  
- Moyree River System (5)  
- Curraghchase Woods (5)  
- Caherglassaun Turlough (5)  
- Lough Corrib (5)  
- Lough Fingall Complex (5)  
- Ross Lake and Woods (5)  
- Lough Carra/Mask Complex (5)  
- East Buren Complex (5)  
- Leannan River (6) |
<table>
<thead>
<tr>
<th>Assessment Area</th>
<th>Number of SACs with Annex I Habitats</th>
<th>Marine Mammals</th>
<th>Migratory Fish</th>
<th>Otter</th>
<th>Bats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leannan River (6)</td>
<td>River Finn (6)</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.2 below provides a summary of the distribution of SPAs sites in Ireland (and adjacent areas) in relation to the OREDP SEA Assessment Areas and the species of bird associated with those sites based on information from NPWS (June 2011).

**Table 3.2: SPA Site Distributions**

<table>
<thead>
<tr>
<th>Assessment Area</th>
<th>Number of SPA Sites</th>
<th>Number of SPAs containing seabirds etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Area 1: (East Coast North)</td>
<td>11</td>
<td>Five sites designated for seabird species. Three of these sites include cormorant, one contains puffin. Three sites (one of which is also designated for seabirds) contains tern species. The remaining sites are mainly designated for waterfowl and waders.</td>
</tr>
<tr>
<td>Assessment Area 2: (East Coast South)</td>
<td>5</td>
<td>Of the five sites, two contain terns and two contain Red throated divers. One site also contains cormorants.</td>
</tr>
<tr>
<td>Assessment Area 3: South Coast</td>
<td>15</td>
<td>There are six sites designated for breeding seabird populations. Five contain cormorant, one of which also contains puffin (Saltee SPA). One site contains Red throated diver.</td>
</tr>
<tr>
<td>Assessment Area 4: West Coast (south)</td>
<td>9</td>
<td>Most sites in Area 4 are designated for seabirds (seven). One also contains terns. Four of the sites are designated for puffin.</td>
</tr>
<tr>
<td>Assessment Area 5: West Coast (Mid)</td>
<td>16</td>
<td>There are 11 SPAs designated for breeding seabird populations. Two of the sites contain puffin, two contain cormorant and two contain terns. Also seven sites for barnacle goose.</td>
</tr>
<tr>
<td>Assessment Area 6: North West (Donegal)</td>
<td>13</td>
<td>Four sites in this area are designated for seabirds. Two contain puffin and one contains cormorant. There is also one site (not seabird) designated for terns. Other sites are mainly waterfowl and waders. Also seven sites for barnacle goose.</td>
</tr>
<tr>
<td>Adjacent to Assessment Areas</td>
<td>33 (highest proportion of sites adjacent to an area is associated with Assessment Area 6. These include inshore sites or sites in Northern Ireland).</td>
<td>Of the sites in adjacent to the assessment areas, seven sites are designated for seabirds, six of which contain cormorants and two contain terns. There are a further four sites (non seabird) designated for terns and two sites containing Red throated divers.</td>
</tr>
<tr>
<td>Within 30km of Assessment Areas</td>
<td>37 (highest proportion of sites within 30km of an assessment area relates to Assessment Areas 5 and 6. Most sites relate to inshore wetland/freshwater sites)</td>
<td>Most of the sites within 30km of the sites contain waterfowl or wader species. There are also some crakes, rails and birds of prey.</td>
</tr>
<tr>
<td>Greater than 30km from Assessment Areas</td>
<td>26 (Most sites are more than 30km from all assessment areas (inshore sites) or from Assessment Areas 1, 5 and 6 (Northern Ireland sites).</td>
<td>Some of the inshore sites contain crakes and rails, birds of prey or waterfowl and waders. There are some seabird sites associated with adjacent areas e.g. Northern Ireland sites.</td>
</tr>
</tbody>
</table>
3.6 **Key Findings from the NIS**

Potential effects of offshore renewable energy developments on the key interest features of the Natura 2000 sites were assessed both with and without project level mitigation. The following provides a summary of the main findings from the assessment of LSE with and without mitigation. A summary of the main results are provided in Tables 3.3a and 3.3b below.

### 3.6.1.1 Risk of LSE on Annex I Habitats

The assessment identified that for reefs and large shallow inlets and bays, even with the implementation of appropriate project level mitigation there is still a medium risk of LSE occurring as a result of direct damage to or loss of habitats from the installation of offshore renewable energy developments in areas where sensitive habitats are present. There is also a medium risk of LSE on large shallow inlets and bays associated with increases in suspended sediment and turbidity and potential smothering effects. However, it is likely that these effects will be temporary in nature. There is also a medium risk that changes in the wave regime could have LSE on certain habitats and species associated with submerged sea caves.

There is also a low to medium risk of LSE on coastal lagoons, sandbanks and estuaries associated with direct habitat loss or damage and smothering and suspended sediment/turbidity. However, it is likely that potential effects on coastal lagoons and estuaries will be minimal as most developments are expected to occur in areas further offshore where these habitats are less likely to be present. This is particularly relevant for estuaries which, with the exception of the Shannon Estuary, are excluded from the study area. Effects on sandbanks from scouring can be reduced with the use of scour protection. Other effects such as habitat loss, suspended sediment and smothering are expected to be short term and temporary in nature.

There is also a low to medium risk of LSE from indirect effects associated with the installation of devices e.g. from increased turbidity and suspended sediment and changes in tidal flow or wave energy regime. There may also be some direct effects on intertidal and coastal habitats from the installation of export cables and other associated infrastructure. However, with the implementation of appropriate mitigation e.g. route selection studies and surveys etc to identify the location of sensitive habitats in relation to cable routes, LSE on these habitats will be avoided.

The conclusions relating to large shallow inlets and bays and reefs reflect the high level nature of the assessment and the high level of uncertainty surrounding the type of development that may occur in a certain area and the precise location of any future development. The assessment also identified that the most significant effects on habitats and mobile species associated with SACs and some SPAs are likely to occur as a result of direct damage or harm. Any potential LSE on these interest features could therefore be avoided by preventing development in the sites containing these features.

It is also important to note that the interest features for which a certain site is designated e.g. reefs, may not be present throughout an entire site. There is potential that the interest feature for which a site is designated is present outside the main area that may be of interest for a developer, or that the interest features located within a site are less sensitive to different types of offshore renewable energy technology that could occur in that area e.g. wave and tidal developments are likely to have different effects due to differences in key characteristics such as methods of attachment to the seabed. Consequently, it is not possible to conclude that development within a protected site (SAC or SPA) would definitely have an LSE on the actual interest feature(s) for which the site has been designated and therefore may not affect the integrity or conservation objectives of that site, although the likelihood of an LSE occurring is much higher.

These limitations in terms of the lack of knowledge on where development would occur, what that development would comprise, and therefore the likely effect on protected sites was recognised in the SEA (see Chapter 2) and has also been acknowledged in the OREDP. Although results from the Strategic Environmental Assessment (SEA) identified that it is possible for the development scenarios set out in the OREDP to be achieved without developing within Natura sites (SACs and SPAs), it is acknowledged that there is significant potential resource located within a number of protected sites which individual developers may, at some point, seek permission to exploit.
The SEA and the OREDP therefore did not conclude that development would not be permitted within these protected sites. However, both documents (SEA ER and the NIS) do clearly state that ‘**development should not take place within Natura 2000 sites unless it can be comprehensively demonstrated at the project level that there would be no LSE on the integrity and conservation objectives of the site**’.

These findings are reflected in the plan level actions (plan level mitigation) (see Section 3.9 below) and project level mitigation which identifies that further assessment work (e.g. surveys, monitoring and research) would be required as part of any individual development taken forward following implementation of the OREDP in order to ascertain whether there would be a LSE on the interest features for which the SACs in Irish and Northern Ireland waters have been designated.

### 3.6.1.2 Risk of LSE on Marine Mammals

The results from the assessment of LSE on marine mammals reflected the levels of uncertainty associated with limited knowledge and understanding on how marine mammals (seals and cetaceans) interact with operational offshore renewable energy development, in particular wave and tidal devices, and how they are affected by noise from piling and other physical disturbance during the installation, maintenance and decommissioning of devices.

The assessment concluded that there is still a medium risk of LSE on seals and cetaceans from disturbance during device installation, displacement, marine noise and possible collision risk. This conclusion reflects the uncertainty associated with wave and tidal devices, especially as they are scaled up from current demonstration and testing phases through to larger commercial scale developments. Similarly, further work is required to fully understand the potential for noise, disturbance, displacement, habitat exclusion and the risk of collision associated with a number of commercial scale developments to create barriers to the movement of mammals along migration routes and transit between foraging areas, breeding grounds and haul out sites (seals).

The findings from the assessment and the project level mitigation measures presented in Chapter 7 of the NIS, reflect these limitations in current levels of understanding of the interactions between offshore renewable energy developments and marine mammals. Due to the nature and behaviour of mobile species there are also limitations in the certainty with which individual species belong to populations for which certain SAC sites have been designated. In order to identify whether certain individual mammals belong to a particular resident population it would be necessary to carry out detailed tagging and monitoring exercises throughout Irish and Northern Ireland waters (and possibly UK waters).

In conclusion, due to the limitations discussed above, it was not possible as part of the NIS to conclude at a strategic level that there would be no LSE on marine mammals (including cetaceans protected under Article 12 of the Habitats Directive) or the integrity and conservation objectives of the sites where marine mammals are interest features. Taking this into account it was identified as being necessary for the OREDP to include specific actions requiring developers to **comprehensively demonstrate at the project level that there would be no LSE on the integrity and conversation of objectives of a Natura site**. This includes interest features that are present outside a site boundary.

Depending on the location and type of individual developments, this is likely to involve detailed surveys, tagging and monitoring exercises and further research, as well the implementation of a number of project level mitigation measures listed in Chapter 7 of the NIS. If at the project level it is not possible to ascertain that there would be no LSE on the integrity and conversation objectives of Natura site where marine mammals are an interest feature and individual cetaceans species, or developers are unable to clearly demonstrate how specific mitigation measures would be implemented to avoid LSE on marine mammals, then individual projects would not be permitted to be taken forward unless it was demonstrated that there were Imperative Reasons of Overriding Public Interest (IROPI). This is reflected in the actions included in the OREDP.
### 3.6.1.3 Risk of LSE on Migratory Fish

The results from the assessment concluded that following the implementation of mitigation there is a low to medium risk of LSE on Atlantic salmon. This is mainly related to the potential for commercial scale offshore renewable energy developments creating barriers to the movement of Atlantic salmon along key migratory routes and gaining access to freshwater habitats (rivers). Again, at this stage it is not possible to conclude that there would be no LSE on Atlantic salmon due to the level of uncertainty surrounding the precise location and type of development that is likely to occur.

However, with the implementation of appropriate project level mitigation measures such as carrying out siting studies to establish whether an area is located on/intercepts a salmon migration route, or to avoid siting developments in locations that would block or partially restrict entrances to rivers and estuaries, it would be possible at the project stage for LSE on Atlantic salmon to be avoided. These requirements are reflected in the actions included in the OREDP which require developers to comprehensively demonstrate at the project level that there would be no LSE on the integrity and conversation of objectives of a Natura site. Where developers are unable to demonstrate that there would be no LSE developments would not be permitted unless IROPI was demonstrated.

### 3.6.1.4 Risk of LSE on Bats and Otters

The assessment concluded that there is a low risk of activities associated with the OREDP having an LSE on bats or otters. Otters in general occupy nearshore habitats which extent out to 1km offshore. It is likely that most of offshore renewable energy developments would be located in areas further offshore limiting the potential for direct interaction with otters and their habitat. There is potential for interactions between otters and cabling activities and the installation of other supporting coastal infrastructure. However, any LSE would be avoided through the implementation of appropriate mitigation measures at the project level such as routing studies to avoid otters and their habitat. The requirement for these project level mitigation measures to be implemented appropriately is reflected in the actions included in the OREDP.

In terms of bats, it is acknowledged that bat species are potentially affected by changes in air pressure created by the movement of wind turbine blades. Although these potential effects have been studied for a number of onshore wind farms, there is still limited evidence relating to the effects of offshore wind farms, mainly attributed to the limited activities of bats in offshore locations. The SEA identified that the areas of greatest potential for offshore wind developments were off the east coast or north coast of Ireland where shallower water depths meant developments could be located further offshore to reduce potential effects on seascape character and coastal/nearshore protected sites and species. It may be necessary at the project stage to survey bat activities along the coast in these areas to determine whether bats are likely to be present in offshore areas. However, for the purpose of the NIS, it was assumed that bat activities are generally restricted to coastal movements or around harbours or possible migration routes across short distances of open water, rather than offshore activity.

### 3.6.1.5 Risk of LSE on Birds

As with marine mammals, there is still limited information and understanding on how certain bird species, in particular pursuit feeders and diving birds interact with offshore renewable energy developments, especially devices with moving parts such as turbines that are submerged below the surface. There are also a number of limitations relating to gaps in data and information on the location of certain habitats such as offshore foraging and loafing areas.

Taking these limitations into account the assessment concludes that, taking into account mitigation, there is a medium risk of LSE on birds from direct effects (collision risk) and a low to medium risk of LSE in with respect to indirect effects e.g. disturbance, noise and habitat exclusion. These results reflect the strategic nature of this assessment and the lack of information on the precise type and location of development that is likely to occur as the OREDP is taken forward.
As with marine mammals, the issue with marine birds is that they often occupy habitats outside the boundaries of the SPA site for which they are designated as an interest feature. Consequently, it is not possible to avoid potential LSE by avoiding a site, although this would help to reduce potential effects on breeding populations in some areas. Avoidance of the areas adjacent to sites would also help to reduce the potential for LSE on some species, particularly ones known to forage in nearshore areas. However, the effects on species that occupy habitats further offshore are still unknown.

As identified in Chapters 6 and Table 8.4 of the NIS, not all bird species are sensitive to offshore renewable energy developments. Therefore whilst the SEA identified that the development scenarios set out in the OREDP could be achieved by developing the areas of resource located outside protected SPA sites, if the SPA sites do not contain bird species that are sensitive to offshore renewable energy developments then these sites may not need to be avoided.

As identified in the OREDP, given the current levels of uncertainty relating to the interactions between birds and offshore renewable energy developments and limitations in information and data on the location of offshore habitats (used by interest features) it will be necessary for further work to be carried out at the project level to determine whether there would be any LSE on birds. This additional work is likely to include surveys, monitoring and further research as set out in the mitigation measures included in Chapter 7 of the NIS. Where potential LSE on birds are identified at the project level it will be the responsibility of the developer to clearly demonstrate how these potential effects will be avoided (through the implementation of appropriate mitigation measures and project design) before a development can be permitted. Where it is not possible to demonstrate that there would be no LSE, developments would not be permitted unless the project was considered to be IROPI.

3.6.2 Summary of Results from the Assessment of LSE without and with Project Level Mitigation Measures

A summary of the main results from the assessment of LSE with and without mitigation is provided in Tables 3.3a and 3.3b below.
Table 3.3a: Summary of LSE Without and With Mitigation for Annex I Habitats, Marine Mammals and Migratory Fish.

<table>
<thead>
<tr>
<th>Code</th>
<th>Interest Feature</th>
<th>Risk of LSE Without Mitigation</th>
<th>Risk of LSE With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Medium Risk</td>
<td>High Risk</td>
</tr>
<tr>
<td>1110</td>
<td>Sandbanks which are slightly covered by seawater all the time</td>
<td>Habitat loss and damage&lt;br&gt;Loss/damage to non-mobile species&lt;br&gt;Suspended sediment and increased turbidity&lt;br&gt;Smothering&lt;br&gt;Disturbance of contaminated sediment&lt;br&gt;Changes in wave/tidal regime&lt;br&gt;Toxic effects</td>
<td>Scouring</td>
</tr>
<tr>
<td>1160</td>
<td>Large shallow inlets and bays</td>
<td>Loss/damage to non-mobile species&lt;br&gt;Scouring&lt;br&gt;Creation of artificial reefs</td>
<td>Habitat loss and damage&lt;br&gt;Suspended sediment and increased turbidity&lt;br&gt;Smothering&lt;br&gt;Disturbance of contaminated sediment&lt;br&gt;Changes in wave/tidal regime&lt;br&gt;Toxic effects</td>
</tr>
<tr>
<td>1130</td>
<td>Estuaries</td>
<td>Habitat loss and damage&lt;br&gt;Loss/damage to non-mobile species&lt;br&gt;Scouring&lt;br&gt;Changes in wave/tidal regime&lt;br&gt;Toxic effects</td>
<td>Suspended sediment and increased turbidity&lt;br&gt;Smothering&lt;br&gt;Disturbance of contaminated sediment</td>
</tr>
<tr>
<td>1170</td>
<td>Reefs</td>
<td>Loss/damage to non-mobile species&lt;br&gt;Suspended sediment and increased turbidity&lt;br&gt;Smothering&lt;br&gt;Disturbance of contaminated sediment&lt;br&gt;Scouring</td>
<td>Habitat loss and damage&lt;br&gt;Creation of artificial reefs&lt;br&gt;Changes in wave/tidal regime&lt;br&gt;Toxic effects</td>
</tr>
<tr>
<td>Code</td>
<td>Interest Feature</td>
<td>Risk of LSE Without Mitigation</td>
<td>Risk of LSE With Mitigation</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium Risk</td>
<td>High Risk</td>
</tr>
<tr>
<td>1140</td>
<td>Mudflats and sandflats not covered by seawater at low tide</td>
<td>Loss/damage to non-mobile species</td>
<td>Habitat loss and damage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disturbance of contaminated sediment</td>
<td>Changes in wave/tidal regime</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toxic effects</td>
<td></td>
</tr>
<tr>
<td>1150</td>
<td>Coastal lagoons</td>
<td>Habitat loss and damage</td>
<td>No LSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suspended sediment and increased turbidity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smothering</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disturbance of contaminated sediment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Changes in wave/tidal regime</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toxic effects</td>
<td></td>
</tr>
<tr>
<td>8330</td>
<td>Submerged or partly submerged sea caves</td>
<td>Habitat loss and damage</td>
<td>No LSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Changes in wave/tidal regime</td>
<td></td>
</tr>
<tr>
<td>1310</td>
<td>Salicornia and other annuals colonizing mud and sand</td>
<td>Habitat loss and damage</td>
<td>No LSE</td>
</tr>
<tr>
<td>1320</td>
<td>Spartina swards (Spartinion maritimae)</td>
<td>Habitat loss and damage</td>
<td>No LSE</td>
</tr>
<tr>
<td>1410</td>
<td>Mediterranean salt meadows (Juncetalia maritimae)</td>
<td>Habitat loss and damage</td>
<td>No LSE</td>
</tr>
<tr>
<td>1330</td>
<td>Atlantic salt meadows (Glauco-Puccinellietalia maritimae)</td>
<td>Habitat loss and damage</td>
<td>No LSE</td>
</tr>
<tr>
<td>Marine Mammals</td>
<td></td>
<td>Habitat loss/damage</td>
<td>Species disturbance and displacement</td>
</tr>
<tr>
<td>1364</td>
<td>Grey seal (Halichoerus grypus)</td>
<td>Marine noise</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barrier to movement</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fishing exclusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toxic effects</td>
<td></td>
</tr>
</tbody>
</table>

Marine Mammals
<table>
<thead>
<tr>
<th>Code</th>
<th>Interest Feature</th>
<th>Risk of LSE Without Mitigation</th>
<th>Risk of LSE With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Medium Risk</td>
<td>High Risk</td>
</tr>
<tr>
<td>1365</td>
<td>Harbour (Common) seal (<em>Phoca vitulina</em>)</td>
<td>Habitat loss/damage, Marine noise, Barrier to movement, Fishing exclusion, Toxic effects</td>
<td>Species disturbance and displacement, Collision risk (below surface)</td>
</tr>
<tr>
<td>1351</td>
<td>Harbour porpoise (<em>Phocoena phocoena</em>)</td>
<td>Habitat loss/damage, Barrier to movement, Fishing exclusion, Toxic effects</td>
<td>Species disturbance and displacement, Collision risk (below surface)</td>
</tr>
<tr>
<td>1349</td>
<td>Bottlenose dolphin (<em>Tursiops truncatus</em>)</td>
<td>Habitat loss/damage, Barrier to movement, Fishing exclusion, Toxic effects</td>
<td>Species disturbance and displacement, Collision risk (below surface)</td>
</tr>
<tr>
<td></td>
<td>Other cetacean species in Irish waters</td>
<td>Species disturbance and displacement, Barrier to movement, Toxic effects</td>
<td>Collision risk (below surface)</td>
</tr>
<tr>
<td>1106</td>
<td>Atlantic salmon</td>
<td>Marine noise, Collision risk, Barrier to movement</td>
<td>No LSE</td>
</tr>
</tbody>
</table>

Table 3.3b: Summary of LSE Without and With Mitigation for Birds.
<table>
<thead>
<tr>
<th>Effect</th>
<th>Risk of LSE Without Mitigation</th>
<th>Risk of LSE With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Birds with Medium Risk of LSE</td>
<td>Birds with High Risk of LSE</td>
</tr>
<tr>
<td>Marine noise</td>
<td>Red Throated Diver, Greenland Barnacle Goose</td>
<td>No LSE</td>
</tr>
<tr>
<td>Collision risk (below surface)</td>
<td>Red Throated Diver, Razorbill, Fulmar</td>
<td>Great Northern Diver, Cormorant, Puffin, Shag, Guillemot, Gannet</td>
</tr>
<tr>
<td>Barriers to movement</td>
<td>Greenland Barnacle Goose, Greenland White Fronted Goose, Light Bellied Brent Goose</td>
<td>Red Throated Diver</td>
</tr>
<tr>
<td>Food availability</td>
<td>Great Northern Diver, Storm Petrel, Cormorant, Puffin, Manx Shearwater, Gannet, Sandwich Tern, Roseate Tern, Common Tern, Arctic Tern</td>
<td>No LSE</td>
</tr>
<tr>
<td>Toxic effects</td>
<td>No LSE</td>
<td>No LSE</td>
</tr>
<tr>
<td>Effect</td>
<td>Risk of LSE Without Mitigation</td>
<td>Risk of LSE With Mitigation</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td>Birds with Medium Risk of LSE</td>
<td>Birds with High Risk of LSE</td>
</tr>
<tr>
<td>EMF</td>
<td>No LSE</td>
<td>No LSE</td>
</tr>
</tbody>
</table>
The results from the assessment of the interest features identified whether the key qualifying features are potentially at low, low to medium, medium or high risk of LSE from the activities associated with the OREDP. The conclusions from the assessment identified that, taking into account the project level mitigation measures listed in Chapter 7 of the NIS, none of the interest features are at high risk of LSE, although some interest features are at medium risk of LSE. A summary of the interest features that were identified at being at medium risk of LSE and associated sites is provided in Table 3.4 below.

### Table 3.4: Summary of Sites at Risk

<table>
<thead>
<tr>
<th>Interest Feature</th>
<th>Area 1</th>
<th>Area 2</th>
<th>Area 3</th>
<th>Area 4</th>
<th>Area 5 and 5a</th>
<th>Area 6</th>
<th>Adjacent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annex I Habitats</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large shallow inlets and bays</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Reefs</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>17</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Submerged sea caves</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Marine Mammals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey seal (<em>Halichoerus grypus</em>)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Harbour (Common) seal (<em>Phoca vitulina</em>)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Harbour porpoise (<em>Phocoena phocoena</em>)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bottlenose dolphin (<em>Tursiops truncatus</em>)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seabirds and Terns</td>
<td>7</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>11</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Waterfowl and waders</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>16</td>
</tr>
</tbody>
</table>
3.8 Cumulative and In-Combination Effects

The results from the assessment of cumulative and in-combination effects identified that, taking into account project level mitigation measures but excluding plan level mitigation measures there is potential for LSE on adjacent SAC and SPA sites in Northern Ireland. The assessment also concluded that, although oil and gas explorations are likely to occur in areas outside the main Assessment Areas (area covered by the OREDP) there is a potential risk of cumulative effects on cetaceans, seals, and birds due to disturbance and noise where oil and gas exploration activities (including 2D and 3D seismic surveys) are undertaken at the same time as the surveying and installation of offshore renewable energy development. This is of particular importance for cetaceans that migrate through offshore Irish waters, in particular deeper offshore waters off the western seaboard or Ireland. There is also potential for LSE on resident populations of cetacean located along the west coast (in particular in Assessment Area 5) such as the Lower River Shannon SAC population of bottlenose dolphin.

3.9 Plan and Project Level Mitigation Measures

The following section provides an overview of the plan and project level mitigation measures developed to avoid any the potential for any LSE on Natura 2000 sites in Irish and Northern Ireland waters.

3.9.1 Project Level Mitigation Measures

Based on the initial findings from the NIS a series of project level mitigation measures were identified to reduce, avoid or remedy the risk of LSE occurring. These project level mitigation measures were based on information presented in the SEA (Chapter 15 of the ER) and the suggested amendments and updates which were included in the NIS. The project level mitigation measures are presented in Chapter 7 of the NIS and include measures such as implementation of the Code of Practice for the Protection of Marine Mammals during Acoustic Seafloor Surveys in Irish Waters, avoidance of sensitive sites during site selection, avoidance of sensitive seasons during device installation, use of 'soft start' piling techniques during the installation of piled foundations, surveying (range), modelling (e.g. hydrological process), use of scour protection and a number of measures based on recognised industry good practice and legal requirements.

3.9.2 Plan Level Mitigation Measures

Taking into account the uncertainties and limitations associated with this assessment, the results from the assessment of LSE presented in Chapter 8 of the NIS and the results from the cumulative assessment, it was concluded that it was necessary to identify suitable plan level mitigation measures or actions for inclusion in the OREDP to avoid or prevent any LSE from occurring. These plan level mitigation measures were based on the plan level mitigation measures (Actions) identified in the SEA and included in the draft OREDP. However, there have been some amendments to these Actions which reflect the findings from the NIS and were identified as being necessary to ensure that they are sufficiently robust to prevent the occurrence of any LSE.

The proposed plan level mitigation measures as included in the final OREDP are presented below. The changes that have been made based on the findings from the NIS are highlighted in 'bold'.

39
It should also be noted that the actions listed below are not mutually exclusive in that in order to effectively avoid significant effects it will be necessary for all of the actions listed below to be implemented in a coordinated and joined up way. Some actions are directly relevant to other actions it will therefore not be possible to implement all individual actions in isolation as this will affect or reduce the effectiveness of other actions.

**Collaboration and Coordination:**

- 1: Development of a mechanism for greater coordination between all state bodies concerned to improve the effectiveness of the delivery of the OREDP as policy develops. This could include an enhanced role for the existing multi-body Ocean Energy Steering Committee.
- 2: Collaborative working with the existing Ocean Energy Advisory Group to assist/advise SEAI and DCENR with taking forward the OREDP. The composition of the Ocean Energy Advisory Group should be expanded to include other interests in the marine sector including fisheries and environmental bodies.

**SEA Monitoring Requirements:**

- 3: In accordance with Article 17 of the SEA Regulations 2004, the group identified in the mechanism for enhanced co-ordination in Action 1 shall ensure the significant environmental effects of the implementation of the plan are monitored. This will ensure that unforeseen adverse effects are identified at an early stage and that appropriate remedial action is taken as required.

**Addressing Data, Information and Knowledge Gaps:**

- 4: DCENR and SEAI, in the context of the offshore renewable energy sector, will collaborate with the lead authorities on the Marine Strategy Framework Directive and other statutory requirements that are taking forward requirements relating to research, collation, management and dissemination of data and information collected for the marine environment (including research work on the marine environment being undertaken by the Marine Institute and National Parks and Wildlife Service) to ensure that data is made publicly available so that it may be taken into account by those developers and bodies involved in the siting, design, consenting and permitting of individual projects.
- 5: A combination of filling data gaps at a strategic level (as set out in Action 4), filling data and knowledge gaps at individual project level and filling data gaps through use of the deploy and monitor approach will be pursued. DCENR and SEAI, in the context of their collaboration with lead authorities on the Marine Strategy Framework Directive (MSFD), should endeavour to ensure as much data collection and research as possible on Resource Assessment Areas 5 and 6 which are considered more high risk than other resource assessment areas.

**Consenting and Permitting:**

- 6: Future foreshore consenting processes will take into account the broad findings and assessment of the SEA and this Natura Impact Statement (NIS) in terms of location and constraints.
7: The foreshore consent process will require developers to put in place appropriate monitoring programmes to assess the effects of their development.
8: The foreshore consenting authority will consider the application of an incremental (the ‘survey, deploy and monitor’) approach as part of the scaling up of larger offshore renewable energy developments.
9: All individual projects subject to foreshore consent for development will be required to comprehensively demonstrate that the development would not have a Likely Significant Effect (LSE) on the integrity of a Natura 2000 site. Where it is not possible to conclude that there would be no LSE, the applicant must clearly demonstrate as part of the Foreshore Consent Application process the mitigation measures that will be implemented as part of the project to avoid LSE, detailing how these measures will be implemented. Where there are no options for avoiding LSE the applicant must demonstrate that there are Imperative Reasons of Overriding Public Interest (IROPI) for the project.

Guidance and Advice:
10: The project level mitigation measures/EIA Guidance prepared as part of the SEA Environmental Report will be integrated into the final OREDP (rather than being an Appendix) and will be incorporated into National EIA Guidance for offshore renewable energy developments by the relevant authority. Project level mitigation measures in the OREDP (and in the National EIA Guidance for offshore renewable energy) will incorporate Table 7.1 of this Natura Impact Statement “Suggested Mitigation Measures where there is Potential for LSE.”
11: Development and maintenance of a GIS database tool to inform the Foreshore Consenting process, led by the Marine Institute.
12: As policy develops and evolves, and as the OREDP is implemented, any decisions around levels of development to be pursued and around future foreshore consenting policy, particularly if it is decided to instigate a foreshore leasing round, will take into account in-combination effects. At a project level, the assessment of in combination effects will be an obligatory part of the award of a foreshore lease. The state bodies identified in Action 1 undertake to consider in-combination effects in their decision making as policy evolves. Consultation and liaison between relevant Government Departments nationally and with state bodies in Northern Ireland, Isle of Man and mainland UK will be undertaken and maintained as policy develops, including through such structures as the British Irish Council. In-combination effects will be considered as part of the initial review in 2015 of the OREDP and the full review in 2020 in light of policy development in the interim.

3.10 Conclusions from the NIS
The mitigation measures presented above (and Chapter 11 of the NIS) were developed to ensure that the OREDP will not have a likely significant effect on a Natura site or cetacean species listed under Annex IV of the Habitats Directive.

These mitigation measures focus on improving the coordination and policy development through collaborative working across a number of Government departments and other organisations and state bodies; monitoring the environmental effects of offshore renewable energy projects as they are taken forward to ensure any unforeseen environmental effects are identified and remedied as they emerge; addressing the main data, knowledge and information gaps identified from the SEA and this NIS through collaborative working across departments/organisations and improving the dissemination and management of data; ensuring the findings from the NIS and SEA, requirements for monitoring and proposals for the survey, deploy and monitor approach to development is taken into account as part of the consenting and licensing process; and providing advice on guidance on the development of offshore renewable energy projects including the preparation of EIA and Appropriate Assessment guidance which integrates the project level mitigation measures presented in Chapter 7 of the NIS and Chapter 15 of the SEA ER.
On the basis that these mitigation measures have been integrated into the final OREDP as specific actions for delivery, the assessment concludes that, based on the level of detail presented in the OREDP and the contents of the plan, that the OREDP will not have any LSE on the integrity of any Natura 2000 sites or cetaceans listed on Annex IV of the Habitats Directive.

In order to operationalise the plan level and suggested project level mitigation measures developed as part of this SEA and AA process, consideration of the state of play of their implementation will be an initial task for the Environmental Monitoring working group to be established under the Environmental Work Stream as part of the implementation arrangements for the OREDP. This work will be carried out under the oversight of the ORESG and in close consultation with NPWS.
4 Consultees

The following is a summary of the key organisations/groups/stakeholders that responded to the public consultation on the Offshore Renewable Energy Development Plan (OREDP) Strategic Environmental Assessment (SEA).

- Saorgas
- David Callaghan
- Natural Power
- Multigen Ltd.
- Open Ocean Energy Ltd.
- Fred Olsen Renewables (FOR)
- National Parks and Wildlife Service (NPWS)
- Engineers Ireland West Region
- Marine Renewables Industry Association (MRIA)
- Irish Wind Energy Association (IWEA)
- HMRC (Hydraulics & Maritime Research Centre)
- Warrenpoint Harbour Authority
- Gaelectric
- Limerick Clare Energy Agency
- Aquamarine Power
- DECLG (Department of Environment, Communities and Local Government)
- Department of Finance
- The Marine Institute
- Donegal County Development Board (CDB)
- Environmental Protection Agency (EPA)
- Geological Survey of Ireland
- EirGrid
- John Stafford
- Wexford County Council
- Wavebob
- National Offshore Wind Association of Ireland (NOW)
- Pat Swords
- South East Regional Authority
- ESBI (ESB International)
- The Heritage Council
- Loughs Agency
- Irish South and West Fish Producers Organisation Ltd
- Dalkey Community Council
- Wicklow County Tourism Ltd
- Coastal Concern Alliance
- Commissioner for energy Regulation (CER)
- Birdwatch Ireland
- Department of Agriculture, Fisheries and Food (DAFF)
- Northern Ireland Environment Agency (NIEA)
- Engineers Ireland West Region
- Fáilte Ireland
- Ryan Institute, NUI Galway
- Principle Power
- Tonn Energy
- An Taisce
- Arup
- Clare County Council
- Mid West Regional Authority
- Atlantic Ocean Energy Alliance
- Peter Harte
- Tidal Energy Ltd
- Irish Whale and Dolphin Group (IWDG)
- Leitrim County Council
- Isle of Man Government
- Natural Hydro Energy/Spirit of Ireland

A summary of the responses received is presented in Chapter 5 and 6 of this report.
5 Summary of Responses on the Draft OREDP

The following provides a summary of the main responses received from the public consultation on the OREDP. This feedback has been taken into careful consideration in the identification of the policy actions and enablers and the governance structure, through which the OREDP will be implemented under the oversight of the Offshore Renewable Energy Steering Group (ORESG).

Table 5.1 – Summary of responses on the OREDP
<table>
<thead>
<tr>
<th>Subject</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternatives to the OREDP – no plan</td>
<td>A small number of respondents were of the view that an OREDP was not necessary and that industry can move ahead and deliver an offshore energy sector.</td>
<td>The need for an OREDP to provide the strategic policy and environmental protection framework necessary to inform planning decisions has been clearly identified. Putting such a strategic framework in place is central to both the public interest and the interests of all stakeholders.</td>
</tr>
<tr>
<td>Implementation of the OREDP</td>
<td>Several respondents sought information on how the implementation of the OREDP would be organised</td>
<td>The organisation and governance of the implementation of the OREDP is set out in section 2 of the Plan.</td>
</tr>
<tr>
<td>Clarity on the roles of State bodies</td>
<td>In light of the cross cutting nature of the offshore renewable sector, a number of respondents highlighted the need for clarity on the roles and responsibilities of the various State bodies involved in its implementation, in order to optimise administrative processes around consenting and supports.</td>
<td>Working in conjunction with, existing structures such as the Marine Coordination Group, chaired by the Minister for Agriculture, Food and the Marine, an Offshore Renewable Energy Steering Group (ORESG) will be established to oversee the implementation of the OREDP. Chaired by DCENR, the ORESG will have representation from the Departments of Environment, Community and Local Government (DECLG), Enterprise, Jobs &amp; Innovation (DEJI), Agriculture, Food &amp; the Marine (DAFM), Defence, Transport, Tourism &amp; Sport (DTTAS), along with the Marine Institute, the Environmental Protection Agency (EPA), the National Parks &amp; Wildlife Service (NPWS) and the Sustainable Energy Authority of Ireland (SEAI), and the offshore renewable energy industry. The ORESG will also consult with other marine users in the course of its work. The Group will report to the Minister for</td>
</tr>
<tr>
<td><strong>Communications, Energy &amp; Natural Resources.</strong> In addition, Section 2 of the OREDP sets outs the Policy Actions and Enablers necessary for the sustainable development of the offshore renewable energy sector. A glossary of all organisations involved in the OREDP process has been included in the final OREDP.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Marine Spatial Planning</strong></td>
<td>A number of respondents called for a Marine Spatial Plan to provide information and guidance for development of the offshore renewable sector under the OREDP, and to inform the monitoring of the impact of such development on the marine environment.</td>
<td>It is beyond the scope and remit of the OREDP to be the means by which a Marine Spatial Plan is introduced. However, the initial development, implementation and review of the OREDP, will provide a valuable contribution to the development of Marine Spatial Planning in Ireland.</td>
</tr>
<tr>
<td><strong>Marine Strategy Framework Directive (MFSD)</strong></td>
<td>The identification in the draft OREDP of the MSFD as a key basis for the development of the offshore renewable energy sector was generally welcomed, though the need to take into consider the future impact of the MSFD on the implementation of the OREDP was also highlighted.</td>
<td>State bodies charged with the introduction and implementation of the MSFD will be represented on the ORESG and involved in the working of its Environmental Monitoring Working Group.</td>
</tr>
<tr>
<td><strong>Marine Environment Protection Objectives</strong></td>
<td>It was also suggested that an overview of the marine environmental objectives established at international, EU and national level, which relate to the OREDP, should be listed in the Plan along with an explanation of how they were taken into account in its preparation.</td>
<td>As stated in the OREDP, the plan is grounded on the principle that all development of offshore wind and ocean energy in Irish waters will be fully in line with Ireland’s EU and international environmental obligations and best practice.</td>
</tr>
<tr>
<td><strong>Ensuring the SEA and AA findings inform the OREDP</strong></td>
<td>A number of respondents emphasised the critical importance of incorporating the findings of the SEA, and the subsequent Appropriate Assessment (AA), into the final OREDP, specifically the Plan and Project Level Mitigation Measures developed as a result of the SEA and AA processes. Respondents stressed the importance of these measures being published as part of the OREDP.</td>
<td>The OREDP consists of two parts – 1 and 2. While Sections 1 and 2 of Part 1 set out the opportunity, policy context and next steps for the OREDP, Part 2 clearly presents the findings of the SEA and AA processes. These findings will form the basis for the implementation of</td>
</tr>
</tbody>
</table>
and not solely in the SEA documentation

The OREDP and for all policy actions arising from it, thus forming an integral part of the plan. Part 2 sets out key information as follows:
- Section 1 – Overview of SEA and AA processes
- Section 2 – Overview of key findings from the SEA and AA processes
- Section 3 – Plan Level Mitigation Measures
- Section 4 – Project Level Mitigation Measures
- Section 5 – Overview of Responses to Consultation

The Government has approved the OREDP on the basis that the findings of the SEA and AA are fully embedded in the OREDP and its implementation, thus ensuring the efficacy of the OREDP as a framework for the sustainable economic development of our offshore renewable energy resources.

Planning / foreshore licensing

Comments relating to the need for a more streamlined process for planning and consenting for offshore renewable energy installations made up one of the largest group of responses. Within this, many respondents raised concerns regarding the need for greater efficiency in the foreshore licensing regime. The draft OREDP signalled the intention of the Department of Environment & Local Government (DELG) to revise the foreshore consenting process to ensure greater coherence and clarity in the process.

In the first instance, an OREDP will provide the strategic policy framework which will inform planning decisions on offshore renewable energy projects. The Environment Work Stream, to be established by the ORESG, will ensure energy input to the new planning and consent architecture for development in the marine area (led by Department of Environment, Community & Local Government).

Planning – ‘One Stop Shop’

Several respondents felt that a single entity for dealing with all of the consents necessary for offshore renewable energy installations would be beneficial.

While there are sound legal reasons why various consents must be considered/issued by a number of separate, independent bodies, it is recognised that facilitation of
| Planning – pre-commercial projects | The need for clarity on the approach to planning for pre-commercial ocean energy projects was raised. | The need to facilitate pre-commercial development of devices is recognised as a very important issue for the offshore renewable sector. The practical aspects of this issue will be considered in the Environment Work Stream of the ORESG. However, the introduction in the OREDP of an initial market support scheme for ocean energy provides clarity on the route to market for this sector, which is an important input to planning decision making for these projects. The work of the Environmental Monitoring Group (to be established under the Environmental Work Stream) in operationalising the Plan and Suggested Project Level Mitigation Measures will also be a crucial input. |
| Planning – best practice guidelines | Calls were also made for best practice guidelines for developers and consenting bodies in preparing and considering applications. | In order to operationalise the plan level and suggested project level mitigation measures developed as part of the SEA and AA process, consideration of the state of play of their implementation will be an initial task for the Environmental Monitoring working group to be established under the Environmental Work Stream as part of the implementation arrangements for the OREDP. This work will be carried out under the oversight of the ORESG and in close consultation with NPWS. |
| Planning – consents beyond 12 nautical miles | It was noted that the OREDP study area extends beyond the Irish foreshore (i.e. beyond 12 nautical miles). Consideration is required of the consent structures required for the area out to the 200 mile limit. | The Environment Work Stream, to be established by the ORESG, will ensure energy input to the new planning and consent architecture for development in the marine area (led by Department of Environment, Community & Local Government). |
| Planning – development zones / future leasing rounds | A number of respondents called for the identification of strategic zones for development of the range of currently available offshore technologies to optimise the location and successful development of the different technologies. It was also suggested that such an approach would inform future leasing rounds and marine spatial planning. | The Environment Work Stream, to be established by the ORESG, will ensure energy input to the new planning and consent architecture for development in the marine area (led by DECLG). This legislation will include provision for to enable project developers to seek a maritime option and the designation of renewable energy areas. |
| Deploy and monitor approach | The issue of the ‘deploy and monitor approach’ was raised by a number of respondents, with a range of views expressed. On the one hand, the critical importance of this approach being adopted for all deployment of renewable energy technologies in the marine environment was stressed in light of the data and knowledge gaps acknowledged to exist by the SEA. On the other hand, it was queried how the approach would be reconciled with development objectives for the sector i.e. the scale of developments and their timescales and the attainment of their commercial objectives. In addition, the need to differentiate between the need to maintain deploy and monitor for technologies still at development stage, while recognising that sufficient evidence already exists to allow assessment of the effects of commercially proven technologies (i.e. deploy and monitor would not be required), was highlighted. | In order to operationalise the plan level and suggested project level mitigation measures developed as part of the SEA and AA process, consideration of the state of play of their implementation will be an initial task for the Environmental Monitoring working group to be established under the Environmental Work Stream as part of the implementation arrangements for the OREDP. This work will be carried out under the oversight of the ORESG and in close consultation with NPWS. |
| Public acceptance and community gain | A number of respondents highlighted the critical importance of public acceptance of offshore renewable energy development. Many related this issue to that of ensuring community gain from such projects for the local area in which they are situated, such as retraining. | It is a principle of the OREDP that coordination of the next steps identified in the OREDP with existing government initiatives must be optimal to ensure efficient use of |
for local people to allow them to avail of employment in the sector.

public resources across government departments and their agencies, and efficient and transparent engagement with stakeholders. The OREDP also includes the development of a supply chain for the offshore renewable energy sector, with its potential for significant employment opportunities in construction, operation, maintenance and product development. The development of the renewable energy supply chain has been identified by IDA Ireland and Enterprise Ireland in their Cleantech strategies.

| **Data collection** | A common theme among many submissions was the need for data collection in order to address both the data and information gaps identified by the SEA, and support the sustainable realisation of the commercial potential of the offshore renewable energy sector. The need for clarity on responsibilities for data collection and collation was also highlighted. | In order to operationalise the plan level and suggested project level mitigation measures developed as part of the SEA and AA process, consideration of the state of play of their implementation will be an initial task for the Environmental Monitoring working group to be established under the Environmental Work Stream as part of the implementation arrangements for the OREDP. This work will be carried out under the oversight of the ORESG and in close consultation with NPWS. |
| **Data Sharing** | The facilitation of data sharing and dissemination was another common theme among submissions. | The practical arrangements for this will be an early output of the Environmental Monitoring Working Group. |
| **Research & Development** | A number of submissions highlighted the importance of maintaining research and development for the offshore renewable sector. | The Job Creation Work Stream to be established by the ORESG will ensure coordination of support for R&D for the sector across initiatives |
such as the development of the Atlantic Marine Test Site (AMETS) in Co. Mayo, the Galway and Cork wave test sites, and the Prototype Development Fund administered by SEAI. The need for additional monies for the Prototype Fund has been identified from 2016. Options for an additional €30m in capital funding between 2016 and 2018 will be agreed between DCENR and the Departments of Agriculture, Food & the Marine, Enterprise, Jobs & Innovation and Public Expenditure & Reform, with the consideration of the Cabinet Committee on Economic Infrastructure and the Marine Coordination Group.

| Grid development | The need to plan for future grid connection needs for both pre-commercial and commercial offshore renewable energy projects was an issue raised by many respondents. | It is recognised that the grid is a key enabling factor for the development of the offshore renewable sector. An Infrastructure Working Group will be established as part of the OREDP implementation to ensure full coordination between the sector’s needs and the implementation of Grid 25 and the Gate grid connection process. |
| Ports | The critical need for port infrastructure at strategic points was highlighted in a number of submissions. | The availability of suitable port facilities is recognised in the OREDP as a key enabler of the offshore renewable energy sector. This will be dealt with by the Infrastructure Working Stream in the context of the National Ports Policy 2013. |
| Business development and support | The need to ensure the realisation of the economic potential of the offshore sector was stressed by a number of respondents. | The OREDP identifies the opportunity for Ireland of realising the potential of our offshore energy resources for increasing indigenous production of renewable electricity, |


thereby contributing to reductions in our greenhouse gas emissions, improving the security of our energy supply and creating jobs in the green economy. The implementation of the OREDP, led by DCENR, will be mechanism through which government action across the environmental, energy policy and economic development dimensions will be coordinated to support the offshore renewable energy sector to reach commercial viability and contribute to our economic growth.

<table>
<thead>
<tr>
<th><strong>Export of renewable energy to the UK</strong></th>
<th>A number of respondents sought information on the status of the proposal to develop renewable energy capacity in Ireland dedicated to export to the UK.</th>
</tr>
</thead>
</table>

Offshore wind is a mature technology. While expert advice has indicated that offshore wind will not be required for Ireland to meet its renewable electricity target for 2020, export of renewable electricity to the UK is identified as the potential route to market for the offshore wind sector. Negotiation of an Inter-Governmental Agreement for the export of renewable energy, both offshore and onshore, is ongoing between Ireland and the UK. This issue will be addressed through the Job Creation Work Stream of the OREDP.

Looking out beyond 2020, the objective will be to ensure full facilitation of the offshore wind sector in the context of European energy market integration and cross border infrastructure development, with a view to the sector being in a position to take full advantage of
| **Targets and timescale for the OREDP** | Though the draft OREDP was generally welcomed, a large number of respondents called for firm targets and timescales in the final plan. The need to strengthen the plan with an additional focus on business development was also identified. | The OREDP is designed to facilitate the development of offshore renewable energy across three key pillars – environmental sustainability (sustainable levels of development), technical feasibility (infrastructure) and commercial viability (routes to market). Therefore, the implementation of the OREDP will be focused on delivering the key, concrete, enablers required by the offshore renewable sector to develop, rather than setting targets. Nevertheless, the sustainable development levels identified by the SEA, the level of market support (30 MW) to be given to the ocean energy sector, and the amount of renewable electricity the UK will require to import from Ireland (yet to be known), all provide (or will provide) clear markers for decisions regarding planning consents, infrastructure development and developer business plans. In this way the OREDP provides a clear framework for the sustainable development of Ireland’s offshore renewable energy resource. |
| **Regional cooperation** | Arising from on-going regional cooperation on energy, the trans-boundary consultation required under the SEA process and comments from respondents, the need for a mechanism for regional cooperation within the OREDP has been identified. | Exploration of the potential for international collaboration will be taken forward through the Job Creation Work Stream, which will also provide the mechanism for |
In order to comply with the SEA Directive, it is necessary that the effects of the OREDP on the environment are monitored. In order to operationalise the plan level and suggested project level mitigation measures developed as part of the SEA and AA process, consideration of the state of play of their implementation will be an initial task for the Environmental Monitoring working group to be established under the Environmental Work Stream as part of the implementation arrangements for the OREDP. This work will be carried out under the oversight of the ORESG and in close consultation with NPWS. The first review of the OREDP will be carried out in 2017 and will take account not only of work on the MSFD, but also factors such as, EU policy/legislation on 2030 and offshore energy, European energy market integration and adjustments to the Single Electricity Market, cross border trading opportunities, as well as progress in the sector.

<table>
<thead>
<tr>
<th>Monitoring of the OREDP</th>
<th>In order to comply with the SEA Directive, it is necessary that the effects of the OREDP on the environment are monitored.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of the OREDP</td>
<td>A number of respondents sought information on the review of the OREDP. It was also recommended that the review take into account the evolving work on the MSFD.</td>
</tr>
</tbody>
</table>
6 Summary of Responses on the SEA and NIS

6.1 Introduction

A summary of the main responses received on the SEA Environmental Report and the NIS is provided in Table 6.1 below.

It should be noted that a number of responses suggested specific text changes and data updates. These have not been reproduced in this document as the focus of this is to identify themes/comments on general content and findings from the SEA and NIS. However, where specific changes have been suggested these have been reviewed accordingly and where appropriate have been specifically addressed as part of the preparation of the Addendum to the Environmental Report and final version of the NIS. Other specific comments have been addressed in the preparation of the Final OREDP.

6.2 Extent of Transboundary Consultation

As part of the consultation process, key representative and stakeholders in transboundary locations were also invited to consult on the findings from the SEA and the content of the Draft OREDP. This included consultation with:

- Northern Ireland: Department of Enterprise, Trade and Investment (DETI) & Northern Ireland Environment Agency
- Isle of Man Government: Department of Economic Development
- UK: Department of Energy and Climate Change
- Scottish Government
- Welsh Assembly Government
- French Government
<table>
<thead>
<tr>
<th>Subject</th>
<th>Description</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of the Grid</td>
<td>A number of respondents highlighted the importance of coordinating development of the grid in a way that reflects the proposals in the OREDP including increased capacity to enable additional projects to contribute towards the 2020 targets and beyond and the need for additional infrastructure to take account of the need to facilitate the energy export potential from offshore renewable energy. It should remain flexible to accommodate changes/growth in the offshore renewable industry. There is also a need to look at the cumulative effects on the environment associated with connections to the grid from offshore developments. However, more data is also required to facilitate more comprehensive evaluation of likely impacts in the transitional zone at the land/sea interface.</td>
<td>• SEAI and DCENR will work closely with EirGrid in identifying strategies and options for providing grid infrastructure to enable the development of offshore renewables to meet the 2020 targets and beyond and for the purposes of exporting electricity to the UK and Europe.</td>
</tr>
<tr>
<td>General comments on the SEA ER and NTS</td>
<td>Overall a number of the respondents noted that the SEA was very comprehensive and the NTS was an excellent summary of the results of the SEA. There were a few areas where possible updates were suggested including needing to include findings from the Appropriate Assessment in the ER and needing to provide further clarification on the extent of transboundary consultations. It was also suggested that the constraints maps could be presented as GIS interactive maps with separate layers to make them easier to read.</td>
<td>• Specific amendments and updates to the information presented in the SEA and NIS in relation to Natura 2000 sites and qualifying features have been included in an addendum to the SEA Environmental Report. • As per Action 11 of the plan level mitigation measures, a database of the available datasets is being made available to the public with the assistance of the Marine Institute</td>
</tr>
<tr>
<td>Baseline data</td>
<td>A few responses suggested specific changes or updates to the baseline data presented in the ER. These mainly related to fisheries, marine mammals, seabirds, benthic ecology and landscape/seascape.</td>
<td>Where appropriate, specific sections of the baseline chapter have been updated and presented in the Addendum to SEA ER.</td>
</tr>
<tr>
<td>Consultation including transboundary</td>
<td>In terms of consultation it was felt that there was insufficient consultation with the fishing industry and that there should have been a representative from commercial fisheries on the Steering Group. There was some concern that some organisations had not been made aware of the consultation events e.g. Dalkey Community Council. There is also a need to provide more detail on the nature and extent of transboundary consultations that have been carried out.</td>
<td>Comments with respect to consultation have been noted.</td>
</tr>
</tbody>
</table>
## Data and information gaps (also see comment on Actions in the OREDP above)

As noted with regard to Action 4 on data gaps it is felt that there is a clear need to prioritise strategic data gaps and identify practical and appropriate mechanisms for filing those data gaps. There also needs to be clearer distinctions between monitoring and surveying as these are different processes. It is also suggested that the data gaps listed in the baseline sections of the ER should be indexed and clearly cross reference to the information in Chapter 14 on Data Gaps.

- Comments on data gaps have been noted. These will be explored further as part of the delivery of the Actions included in the OREDP.

## SEA Subjects

A number of specific comments were made in respect to certain subjects covered in the SEA. These related to:

- Waters of national tourism significance. These should be included.
- Need to provide clarity on the term protected sites.
- Chemical composition of the atmosphere and specific effects on the coastal Atmospheric Research Station operated by NUI Galway at Mace Head, Co. Galway.

More emphasis should have been placed on the wider benefits of offshore renewable energy developments in contributing towards reducing CO2 emissions and the effects of this on climate change, in particular with reference to the effects of climate change on the marine environment.

- The comments have been reviewed and have been addressed in the Addendum to the SEA ER where appropriate.

## Assessment of Alternatives

Insufficient coverage of the alternatives to implementing the OREDP. The potential implications of not implementing the OREDP (do-nothing scenario) in terms of environmental, social and economic effects should have been assessed in more detail.

- The SEA doesn’t cover socio-economic effects as this was scoped out early in the process.
<table>
<thead>
<tr>
<th>Subject</th>
<th>Description</th>
<th>Response</th>
</tr>
</thead>
</table>
| Technologies    | In terms of comments on technologies it was noted that whilst the SEA stated that floating wind may not make a significant contribution until after 2020, deepwater technologies are developing rapidly and could be developed before 2020 therefore making more of a contribution to near term and medium term targets. However, it is likely that most offshore wind developments will continue to be located in shallower waters (<60m) in the shorter term. It was also noted that the assessment hadn’t taken into account the proposed 1GW extension for Codling Wind Farm. | ▪ The comments are noted and will be addressed in the OREDP as appropriate.  
▪ The proposed 1GW extension for Codling Wind Farm was not explicitly included in the results of the assessment. As stated in Section 12.8 of the SEA ER it was recognised that there are a large number of applications for offshore wind farm developments in Irish waters at various stages of the consenting process. However, only those that are consented or are due to receive a grid connection in the Gate 3 process where listed explicitly as part of the assessment. |
<p>| Commercial Fisheries | In terms of fisheries it was agreed that further work/assessment would be required at a site specific level to determine likely significance on commercial fisheries. However, the SEA does not cover in sufficient detail the potential positive effects of offshore renewables in particular wave development on fish productivity through the creation of artificial reefs and providing protected areas. This should be included in the assessment. | ▪ Information on the creation of artificial reefs has been included in the NIS and as part of the updated description of potential effects included in the Addendum to the SEA Environmental Report. |</p>
<table>
<thead>
<tr>
<th>Subject</th>
<th>Description</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natura 2000 sites</strong></td>
<td>In terms of the comments relating to Natura 2000 sites there is concern that the conclusions that the high scenario could be achieved by developing outside Natura 2000 sites and the risk that this will set a precedent for no development being permitted within a Natura 2000 site. The plan should clearly state that all projects should be considered on a case by case basis. This is particularly important given that new sites could be designated during the timescale of the OREDP. There is also concern mobile species and important habitats located outside the boundaries of nature conservation sites could still be affected. This needs to also be highlighted in the plan. It was also identified that the correct term to use when discussing potential effects on Natura 2000 sites is to refer to the ‘Favourable Conservation Status’ of a site rather than ‘integrity’ as this is more appropriate in terms of requirements of the Habitats Directive. Species and sites with ‘unfavourable status’ or threatened/vulnerable should be identified and the assessment should identify if these areas/species should be avoided or subject to further survey. There is a need for the assessment of likely effects on Natura 2000 sites to be more specific in terms of potential cumulative and in-combination effects with regard to other marine activities.</td>
<td>Comments have been reviewed and where appropriate reflected in the Addendum to the SEA ER and the updated version of the NIS.</td>
</tr>
<tr>
<td><strong>Seascape Assessment</strong></td>
<td>It was highlighted that the seascape assessment does not take into account the relevance of the European Landscape Convention (ELC). The responses acknowledged that the assessment was limited due to a lack of national and regional guidance in terms of landscape and seascape character areas and suggested that detailed regional seascape assessments should be undertaken. These are considered to be of particular importance for informing the assessment of potential cumulative effects which is often difficult to assess at an EIA level. There was also some concern expressed at the possible creation of exclusion zones or buffer zones along the coast. It is acknowledge that maximising the distance from shore could help to reduce adverse effects on seascape. However, the potential effects on seascape and views vary according to project design and location therefore it is important that individual projects are still assessed on a case by case basis and in accordance with best practice.</td>
<td>Recommendations for undertaking regional level seascape assessments have been acknowledged in the Addendum to the SEA ER. However, it is not the responsibility of the SEA or DCENR through the OREDP to deliver regional level landscape and seascape assessments.</td>
</tr>
<tr>
<td>Subject</td>
<td>Description</td>
<td>Response</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Shannon Estuary</td>
<td>There was significant concern during the conclusion from the SEA that there was no development potential in the Shannon Estuary due to the presence of Natura 2000 sites, shipping and navigation and commercial fisheries. The four local authorities of County Clare, Limerick County Council, Kerry County Council, Limerick City Council with support from Shannon Foynes Port Company and Shannon Development are currently preparing the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary. The SIFP includes options for the development of offshore renewables in the Shannon Estuary. Studies and environmental assessment work carried out in the estuary indicates that there are potential options for developing the tidal resource present in the area. It is urged that the conclusion relating to the development potential of the Shannon Estuary are revisited to take account of more detailed work that has already been carried out in the area.</td>
<td>▪ The assessment of development potential in the Shannon Estuary has been revisited as part of the Addendum to the SEA ER.</td>
</tr>
<tr>
<td>Marine Mammals</td>
<td>The IWDG and NPWS suggested a number of updates to information presented in the ER with respect to marine mammals. These related to baseline data, in particular comments on species abundance and distributions and to the assessment of potential effects. The main area for updates including more detailed assessment of potential effects of noise on marine mammals in terms of disturbance and displacement. There was also a need to consider effects on a range of habitats not just breeding areas.</td>
<td>▪ Specific comments on baseline data which have a direct influence on the conclusions of the assessment have been addressed in the Addendum to the SEA ER.</td>
</tr>
<tr>
<td>Assessment Results</td>
<td>It was acknowledged that it was a high level study based on available information only and no field work. It was also acknowledged that this does not replace the need for project level assessments/EIA. It was suggested that the results may have been easier to understand if the total area (km2) required to achieve the 4,500MW was illustrated on a map. A number of responses highlighted specific points of detail associated with the assessment. These related to a lack of reference to positive effects, need to provide more clarification on habitats and species that are sensitive to smothering and the effects on noise on marine mammals. It was also suggested that more distinction should be provided between the different technologies and the range of effects. In particular the relative benign nature of wave devices should have been highlighted.</td>
<td>▪ Specific comments on results from the assessment have been addressed where appropriate in the Addendum to the SEA ER.</td>
</tr>
<tr>
<td>Subject</td>
<td>Description</td>
<td>Response</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Cumulative Assessment               | There was general agreement with the approach and findings from the cumulative assessment. It was suggested that the SEA and OREDP based on the findings should prioritise areas where early development is likely to occur and priority should be given to providing the necessary infrastructure to enable development in these areas before more technically challenging areas and areas with greater data gaps are exploited. It was also suggested that the cumulative assessment should have considered the cumulative effects associated with providing additional support infrastructure e.g. port and harbour expansions. In terms of the assessment of different levels of development, spacing within developments as well as between developments should have been considered. There is also concern that the size of offshore wind farms (300MW) was too small as some developments may be much larger than this e.g. Codling Bank with its extension would comprise 2GW in total. This would have a significant effect on the overall results in terms of development potential in Assessment Area 2 which considered a higher number of smaller developments. | ▪ Specific comments on prioritising areas for development based on the results of the assessment have been taken into the account in the preparation of the final OREDP.  
▪ Identifying specific areas where initial development could be focused may be more appropriate to be undertaken as part of the preparation of marine plans for certain areas.  
▪ Comments regarding the scale of development in certain locations have been taken into account in the preparation of the final OREDP. |
| Assessment of other plans and programmes including MSFD | Both the OREDP and the SEA acknowledge the importance of the MSFD. However, its potential implication on future offshore renewable energy developments needs to be taken into account. It was also noted that the SEA should have included more information on the baseline data that is already available for the various MSFD GES descriptors. The MSFD GES descriptors could also be used as part of monitoring and help in developing EIA guidance. In terms of other plans and programmes there should have been more consideration of fisheries plans and strategies. | ▪ Comments regarding the MSFD and the use of the MSFD GES descriptors as part of the programme for monitoring have been addressed in the Addendum to the SEA ER. |
| Mitigation measures                  | Opinions on the project level mitigation measures varied in that some respondents felt they were too generic and basic and should be more detailed. There was also a request for the mitigation measures to be more technology specific e.g. coastal modelling isn’t necessarily required for wave devices and the mitigation set out in the SEA ER could be misleading. However, other respondents felt that the mitigation measures should be agreed on a case by case basis and that there is not a default position of a standard set of measures which could be conflicting. Project level mitigation measures should always reflect good practice /guidance and scientific evidence. It was also acknowledged that some of the project level mitigation measures are outside the scope of individual projects e.g. filling of some data gaps. This needs to be identified/clarified in the SEA. | ▪ In relation to noise and EMF, specific reference will be made in the project level mitigation measures included in the OREDP, SEA Addendum and NIS to the NPWS Code of Practice for the Protection of Marine Mammals during Acoustic Seafloor Survey’s in Irish Waters (2007).  
▪ A review of the suggested project level mitigation measures presented in the SEA and OREDP, including coverage, relevance to certain technologies and source of mitigation, has been undertaken. Any specific changes have been incorporated into the final OREDP and the SEA ER Addendum. |
<table>
<thead>
<tr>
<th>Subject</th>
<th>Description</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring</td>
<td>It was suggested that the monitoring section of the SEA could be strengthened by including specific indicators and targets. Due to the current level of data gaps, and scale of the SEA, one option could be to use the MSFD GES Descriptors as indicators. This would also help to integrate the requirements of the MSFD into the SEA and the OREDP.</td>
<td>▪ Options for using the MSFD GES descriptors as part of the monitoring programme have been addressed in the Addendum to the SEA ER.</td>
</tr>
<tr>
<td>Potential effects on Isle of Man territorial waters need to be acknowledged.</td>
<td>It was requested that potential effects on Isle of Man territorial waters are acknowledged in future documents produced by the Ireland Government. Site specific proposals for developments that border the IOM territorial waters also need taking into account especially effects on habitats, species (particularly basking sharks and cetaceans), commercial fisheries and navigation.</td>
<td>▪ An additional Action (Action 12) was included in the draft NIS report which focuses specifically on consultation with relevant Government Departments and other state bodies as plans emerge and offshore renewable energy projects are taken forward. This has been integrated into the final version of the OREDP.</td>
</tr>
<tr>
<td>General comments</td>
<td>In addition to specific comments on the SEA and the OREDP additional information was provided in relation to developments/technologies that could have also been considered in the SEA e.g. CAL Platforms or which may provide future solutions to the storage of electricity from renewable energy developments (Hydro Storage Schemes).</td>
<td>▪ Comments have been acknowledged and will be taken into consideration where appropriate in the preparation of the final OREDP and the Addendum to the SEA ER.</td>
</tr>
<tr>
<td>General comments</td>
<td>In terms of the NIS it is important to note how the AA of the OREDP will influence the final findings of the SEA and inform the Final OREDP. In general the language used in the NIS is more positive than that used in the SEA. However, there is still concern that the assessment and the associated actions in the OREDP are placing too much of a burden on developers to collect and analyse sufficient data to disprove negative effects on Natura 2000 sites. More focus should be placed on prioritising and filling specific/critical data gaps/knowledge gaps at a strategic level to enable the industry to move forward.</td>
<td>▪ Further detail on how the NIS has informed preparation of the final OREDP and the SEA has been included in the final OREDP and the SEA Statement. Comments regarding the prioritisation of filling data gaps and knowledge gaps at a strategic level will be addressed in the finalisation of the Actions included in the final OREDP.</td>
</tr>
<tr>
<td>Screening</td>
<td>Under screening it should state that the conservation objectives are generic and are based on maintaining/restoring the favourable conservation status/condition of the habitats and species for which the sites are selected.</td>
<td>▪ Reference to the use of the term ‘favourable or unfavourable status’ has been acknowledged and where appropriate will be addressed in the final NIS.</td>
</tr>
<tr>
<td>Subject</td>
<td>Description</td>
<td>Response</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| **Potential effects on Natura 2000 sites and qualifying features** | A number of responses included specific comments on the findings from the assessment and information used in the assessment. These related mainly to the following areas:  
  - Type (species), distribution, abundance and behaviours of marine mammals and seabirds  
  - Need to clarify description of potential collision risk on marine mammals – some of the statements need to be backed up more with scientific evidence.  
  - Need to provide additional information on potential sources of marine noise and effects on marine mammals, in particular in terms of disturbance and displacement associated with installation and maintenance activities such as vessel movements etc.  
  - Effects associated with smothering and turbidity  
  - Suggested additional sources of data including the IOSEAs and the DECC Offshore Energy SEA2.  
  - Information on birds needs to be reviewed in light of updated information on SPA citations across Ireland.  
  - Any developments outside Natura sites which may impact on the habitats or species of those sites should also be assessed for direct, indirect and in-combination effects on the sites.  
  - Effects on migration routes of Atlantic salmon associated with tidal resource in Lough Foyle need to be considered.  
  - NIEA have identified two additional possible inshore SACs which were published for public consultation in January 2011. These include the Maidens SAC and the Skerries and Causeway Coast SAC. Both sites include grey seal, harbour seal and harbour porpoise as features of interest. The Skerries and Causeway Coast SAC also includes bottlenose dolphin as an interest feature.  
  - Specific data gaps should be indexed and referenced appropriately.  
  Other observations included:  
  - Need to clearly distinguish between technologies as they have different effects on different species and habitats.  
  - Need to provide additional information on the criteria (low, medium, high) in the assessment tables.  
  - Not clear why there was no ‘unknown’ category as there was in the SEA.  
  - The in-combination effects of future projects arising from the OREDP, the Northern Ireland ORESAP and other UK offshore renewable energy plans will have to be carefully assessed in relation to their impacts on Northern Ireland’s European sites. | In response to a range of comments received on the draft NIS this document was reviewed and amended. All comments received on the NIS were taken into account in the preparation of the final version of the document as appropriate.  
A final version of the NIS has been published with the final OREDP. |
Mitigation measures

It is important that the recommended actions in the OREDP become actual Actions based on findings from the NIS. It should be noted that project level mitigation measures will vary according to project development location and device type. This should be acknowledged in the NIS and the OREDP.

Where there is still uncertainty and data gaps it is noted that the Precautionary Principle should be applied until knowledge gaps have been filled and effects on Natura sites and associated species and habitats are better understood. Therefore no development should occur within Natura 2000 sites.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Description</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitigation measures</td>
<td>It is important that the recommended actions in the OREDP become actual Actions based on findings from the NIS. It should be noted that project level mitigation measures will vary according to project development location and device type. This should be acknowledged in the NIS and the OREDP. Where there is still uncertainty and data gaps it is noted that the Precautionary Principle should be applied until knowledge gaps have been filled and effects on Natura sites and associated species and habitats are better understood. Therefore no development should occur within Natura 2000 sites.</td>
<td>• Specific comments on the Actions were addressed as part of the preparation of the final version of the OREDP. • The suggested project level mitigation measures were reviewed as part of the preparation of the final version of the NIS.</td>
</tr>
</tbody>
</table>
7 Incorporating the Findings from the SEA and NIS into the OREDP

7.1 Introduction

The following provides an overview of how the SEA and NIS were used to inform the preparation of the Final OREDP. Most of the detail in relation to using the findings from the assessments (SEA and NIS) and responses from consultation to inform the preparation of the final OREDP has already been provided in Chapters 2, 3, 5 and 6. This information has not been reproduced in this chapter.

7.2 Links between the SEA, Appropriate Assessment and Preparation of the OREDP

The SEA was carried out in parallel to the preparation of the OREDP as illustrated in Figure 7.1 below. The Natura Impact Assessment (incorporating Appropriate Assessment) was also carried out during the preparation of the OREDP. However, due to a need to have greater clarity on the proposals for mitigation that would be included in the draft and then final OREDP, there was a slight time delay between completion of the SEA process and finalisation of the Natura Impact Statement (NIS) which is required to inform the final Appropriate Assessment of the plan. These variations in timescale are illustrated in Figure 7.1 below, and as a result the final version of the NIS is being published simultaneously with the final OREDP.

Figure 7.1: Links between the SEA, NIS (Appropriate Assessment) and preparation of the OREDP.

7.3 How the Findings from the SEA and NIS were used to inform the preparation of the OREDP

The SEA and NIS informed the preparation of the OREDP in a number of ways:

- Technical steering group liaison and consultation
- Continual liaison with SEAI and DCENR
- Testing development scenarios presented in the OREDP as part of the SEA Assessment
- Developing mitigation measures to avoid, reduce or remedy any likely significant effects identified as part of the SEA or the NIS

### 7.3.1 SEA and NIS Technical Steering Group

The SEA was guided by a Steering Group comprising representatives from a range of stakeholders including:
- Sustainable Energy Authority Ireland (SEAI)
- Environmental Protection Agency (EPA).
- Department of Communications, Energy and Natural Resources (DCENR).
- Department of the Environment, Community and Local Government (DECLG).
- National Parks and Wildlife Service (NPWS).
- Marine Institute.
- National Offshore Wind Association of Ireland (NOW Ireland).
- Marine Renewable Industry Association (MRIA).
- The Irish Environmental Network (IEN).
- Defence Forces.
- Department of Transport Ireland (DOT).
- Fáilte Ireland.
- EirGrid.
- Geological Survey of Ireland (GSI).

The role of the Technical Steering Group was to:
- Provide advice and guidance on the SEA and NIS processes.
- Provide baseline data and other relevant information to inform the SEA and NIS processes where available.
- Undertake technical reviews of draft versions of the SEA assessment and results from the NIS.
- Facilitate open discussions in relation to the main findings from the SEA and NIS and how these could be used to inform the preparation of the OREDP.
- Undertake reviews of the OREDP in light of initial findings from the SEA assessment and provide advice and guidance on how findings from the OREDP can be taken into account.
- Assist with the development of the plan level mitigation measures (Actions) included in the draft OREDP which was subject to consultation.
- Review of the findings of the NIS process and providing guidance on the development of revised Actions for inclusion in the Final OREDP to ensure that the plan does not have any likely significant effects on European sites and associated interest features.

Technical Steering Group meetings were undertaken on a monthly or bi-monthly basis during the main Environmental Assessment part of the SEA process as illustrated in Figure 7.2 above. This facilitated continual provision of technical advice and guidance and enabled issues identified by the SEA to be raised and discussed on a regular basis.
7.3.1 Technical Steering Group Involvement in the Development of OREDP Actions

One of the main activities of the Technical Steering Group was the preparation of the recommended Actions for inclusion in the OREDP. This was undertaken in response to the findings from the SEA which concluded that while it would be possible to achieve the high level development scenario for offshore wind and wave and tidal energy there were still some qualifications/limitations relating to this conclusion, primarily associated with data, information and knowledge gaps. Taking these qualifications and limitations into account it was agreed by the steering group that it was necessary for the OREDP to include specific actions to address these limitations/qualifications in order to ensure that the OREDP does not have any likely significant adverse effects on the environment.

The proposed Actions were developed through open discussion during a specific Steering Group meeting. The Actions were then included in the SEA Environmental Report and the Draft OREDP and subject to consultation.

Following further work on the NIS, the proposed mitigation measures included in the Draft OREDP were then subject to further review by key members of the Technical Steering Group (including NPWS and EPA), SEAI and DCENR to ensure that they were sufficiently robust to prevent/avoid any likely significant effects on European sites and associated interest features resulting from implementation of the OREDP. The revised mitigation measures, which were based on the key findings from the NIS have been included in the final OREDP.

7.3.2 Consultation with DCENR

As a member of the Technical Steering Group, DCENR were present at all Technical Steering Group meetings, a number of which involved discussion on both the SEA and NIS processes and preparation of the OREDP. In addition to the Technical Steering Groups additional consultation was undertaken with SEAI and DCENR throughout the project in the form of telephone conversations, additional meetings, conference calls and email correspondence. Throughout the SEA and NIS process, DCENR were involved in reviewing of findings from both assessments. This included ensuring that the information included in the NIS and SEA Reports and the draft and final OREDP documents was consistent and accurate.

7.3.3 Testing Development Scenarios

The main focus of the SEA was to test the development scenarios for up to 4,500MW of offshore wind and 1,500MW of wave and tidal energy within Irish waters as set out in the OREDP. The purpose of this was to assess, at a strategic level, which of the three development scenarios presented in the OREDP could be achieved without likely significant effects on the environment. This involved identifying where development is most likely to occur, identifying the potential environmental constraints in those areas and, taking potential environmental constraints into account assess the levels of development that could potentially occur in a certain area (defined as Assessment Area). The results from the assessment of the developments scenarios were presented in Chapter 12 of the SEA Environmental Report. Further detail on the approach to testing the developments scenarios and a summary of the main findings from the assessment is provided in Chapter 2 of this report.

7.3.4 Developing ‘Actions’ for inclusion in the OREDP (based on results from the SEA)

Based on the results from the assessment of the Development Scenarios it was concluded that while it would be possible to achieve the high level development scenario for both offshore wind and wave and tidal energy there are a number of qualifications/limitations associated with this conclusion. These mainly relate to data and information gaps, uncertainties and a lack of knowledge on how certain technologies and device types interact with different environmental receptors, and the potential differences of opinion on the accessibility of significance of effects on seascape. The SEA
also identified limitations with connecting offshore renewable energy projects to the onshore grid network, especially in areas where there is currently limited capacity on the network to accommodate increased generation from offshore renewable energy projects or where access to existing grid infrastructure in coastal locations is limited.

Taking these limitations and qualifications into account, in order to ensure that the high level development scenario presented in the OREDP could be achieved without likely significant effects on the environment it was necessary to develop appropriate mitigation measures to avoid, reduce or offset any potential significant effects. In order to comply with the SEA Directive and SEA Regulations, it is necessary for these measures to be fully integrated into the OREDP and implemented/delivered as appropriate. A series of plan level mitigation measures were developed as part of the SEA process. These were included in both the SEA Environmental Report (ER) and the Draft OREDP and were subject to consultation. Further detail on the proposed Actions is provided in Chapter 2 of this Report as well as Chapter 15 of the SEA ER.

7.3.5 Developing mitigation measures for inclusion in the OREDP (based on results from the NIS)

The purpose of the NIS was to assess whether implementation of the OREDP would have likely significant effects on Natura sites (SACs and SPAs) and associated interest features (including those that occur outside the designated site boundaries). The NIS took into account the findings from the SEA including the project level mitigation measures and the plan level mitigation measures that had been identified as part of the SEA process.

The conclusions from the NIS as summarised in Chapter 3 of this report found that due to the limitations associated with data and information gaps and a lack of knowledge of how key receptors (interest features of Natura 2000 sites) interact with certain technologies and device types there is still a certain level of uncertainty associated with the assessment of likely significant effects. Taking this into account the assessment found that, even with the implementation of the range of project level mitigation measures included in both the SEA and NIS (as updated in response to consultation) there was still a medium risk of likely significant effects occurring for some Annex I habitats, marine mammals and some birds.

For the OREDP to be adopted it has to be demonstrated that the plan will not have any likely significant effects on the integrity or conservation objectives of a Natura site. It was therefore necessary to identify suitable measures/actions for avoiding the likely significant effects identified from the first part of the assessment. In order for the NIS to comply with the requirement of the Habitats Directive these measures/actions have to be integrated into the plan and implemented/enforced as part of the delivery of the plan.

As part of the NIS, a review of the actions proposed from the SEA, and therefore already included in the OREDP was undertaken. Whilst the review concluded that the actions were positive it was identified that in order to demonstrate a clear commitment in the OREDP to avoiding any likely significant effects on Natura sites and their associated qualifying features the actions proposed needed to be revised and strengthened. The updated actions are presented in Chapters 3 and 8 of this report, the Final NIS, the SEA ER and the final OREDP.

7.4 How the responses received from consultation have been used to inform the preparation of the OREDP

The responses received from consultation included comments on the SEA Environmental Report, the NIS and the Draft OREDP. A summary of the responses received on the Draft OREDP is included in Chapter 5 of this SEA Statement. Where appropriate the comments raised on the OREDP have been incorporated into/have been taken into account in the preparation of the final plan.

However, it should be noted that some comments received applied to subject matters that were outwith the main scope or purpose of the OREDP and relate to subject matters that are the direct responsibility of DCENR. Therefore, while these comments have been acknowledged as part of the consultation process and reviewed accordingly, there may have been no direct action taken to address the comment directly as part of the OREDP. Where comments relating to subject matters that are outside the scope of the OREDP but have an influence on the overall content and direction of the plan and the way in which it will be delivered, these comments have been addressed accordingly.
A summary of the responses on the SEA ER and the NIS is provided in Chapter 6 of this report. Most of the comments received on the SEA and NIS related directly to information included in the assessment or the results from each of the assessments.

Following a review of the comments received on the SEA and NIS it was concluded that in general the comments received did not change the overall outcome of the assessment in terms of the conclusions that it would be possible to achieve the high level developments scenarios for offshore wind and wave and tidal energy. However, the responses did highlight a number of areas where there were suggested information amendments or updates. These included:

- Updates and amendments to baseline data (both SEA and NIS) mainly in relation to marine wildlife.
- Revisions to the information provided on the generic effects, in particular in relation to potential effects of disturbance, displacement and marine noise on marine mammals.
- Revisions to the results relating to the opportunities for tidal development in the Shannon Estuary. These changes do not directly influence the overall conclusions of the assessment in terms of achieving the development scenarios presented in the OREDP. However, the changes reflect concerns that were raised over the findings from the assessment which concluded that development potential (tidal) in the Shannon Estuary was zero. These results have been amended to reflect that whilst there is a significant tidal resource in the Shannon Estuary, opportunities for developing this resource may be limited (as opposed to zero) due to environmental constraints (area is a designated SAC for Annex I habitats and resident population of bottlenose dolphins), bird interest and heavy shipping movements throughout the estuary.
- Additional information has been included in relation to monitoring the environmental effect of the implementation of the plan (OREDP). Further details on proposals for monitoring are included in Chapter 8 of this SEA Statement.

Most of the suggested amendments and updates to the SEA ER have been addressed in an Addendum to the main ER document. Changes to the NIS were included in a revised version of the NIS Report which is being published alongside this SEA Statement and the final OREDP. Any changes relating to the draft have been included in the final version of the OREDP.
8 Monitoring Framework

8.1 Introduction

It is a requirement of the SEA Directive and the EC Environmental Assessment of Plans and Programmes Regulations 2004 (S.I.435/2004) that the responsible authority (in this case SEAI and DCENR) monitors the significant effects of the implementation of the plan or programme for which it has carried out the assessment. The 2004 Regulations states that the responsible authority ‘shall monitor the significant environmental effects of the implementation of each plan or programme with the purpose of identifying unforeseen adverse effects at an early stage and undertaking appropriate remedial action’. The following is the proposed framework for monitoring the environmental effects of implementing the OREDP. This is based on the information provided in the Environmental Report and its Addendum.

8.2 Focus of the Monitoring Framework

The main focus of a monitoring framework is to set out measures that could be used by SEAI and DCENR to monitor the implementation of the OREDP and the effects that it has on the environment. In terms of the monitoring framework for the OREDP this comprises two parts:

- Monitoring the effects of offshore renewable energy developments on the environment.
- Monitoring delivery of the mitigation measures presented in the OREDP.

The OREDP provides a framework for the development of offshore renewable energy in Irish waters up to 2030 and a longer term vision for the growth of the offshore renewable energy sector in Ireland. It set out specific scenarios for different levels of development ranging from low to high. It also identifies a number of actions to support and facilitate the development of offshore renewable energy in Ireland but which fall out with the remit of the OREDP and therefore will need to be delivered through other plans, programmes or initiatives.

However, the OREDP is not responsible for the physical deployment of individual offshore renewable energy projects as this will be the responsibility of individual developers. Nor is it responsible for the consenting and licensing of individual offshore renewable energy projects, although conformance with the OREDP will be a material consideration in the determination of future consent/licence applications.

Taking this into account it is necessary for the monitoring framework to focus on monitoring the effectiveness of the OREDP in promoting offshore renewable energy development in a way that minimises adverse effects on the environment and other marine users, rather than monitoring individual projects. However, in order to comply with the requirements of the SEA Directive and the SEA Regulations it is still necessary to also monitor the effects of the plan on the environment, in this case changes in the environment caused by the development of offshore renewable energy projects at the levels required to achieve the development scenarios presented in the OREDP.

8.3 Proposals for Monitoring Implementation of the OREDP and Delivery of the Actions

By providing a framework for taking forward offshore renewable energy developments, the OREDP could potentially have adverse effects on marine and coastal environment of Ireland. These potential adverse effects have been assessed as part of this SEA.

The results from the SEA (presented in Chapters 11, 12 and 13) concluded that it would be possible to achieve the high development scenario of 4,500 MW from offshore wind and 1,500MW from wave and tidal energy without likely significant adverse effects on the environment. However, these conclusions are qualified by the fact that in certain locations/areas due to data, information and knowledge gaps, some potential effects are unknown and there is uncertainty over the likely level of significant of a potential effect should it occur.
Addressing these unknowns and areas of uncertainty is therefore a key requirement of the monitoring strategy. A number of mitigation measures (presented as actions (Chapter 15)) have been developed specifically to focus on reducing the potential for the OREDP and individual projects taken forward under the OREDP, to have likely significant adverse effects on the environment. The main aim of these measures is to minimise adverse effects of offshore renewable energy developments on the environment by identifying ways in which the OREDP and future developments can be managed taking into account other sea users and the environmental receptors, increasing the certainty with which the likely significance of potential adverse effects of individual projects can be identified and reducing the number of areas/environmental receptors where potential effects are unknown.

8.3.1 Monitoring the Implementation of these Actions

Each of the actions developed as part of the plan level mitigation (SEA Addendum and Chapter 11 of the NiS) have specific deliverables which would need to be achieved in order reduce the potential for offshore renewable energy developments to have likely significant adverse effects on the environment and other marine users. However, given the strategic nature of the OREDP and the likely timescales involved in the growth and development of offshore renewable energy developments, it is recognised that it will be difficult to set specific timescales against the delivery of each of the individual actions.

It is therefore suggested that, as part of the implementation of the OREDP, there is a five yearly review of the progress made towards achieving the developments scenarios set out in the OREDP. This review would focus on the following:

- What level of development (offshore wind, wave and tidal) has occurred during the review period?
- Have any significant adverse effects been identified as a result of those developments?
- How have the findings of the SEA and AA been integrated into existing consenting and licensing mechanisms?
- What new data, information and knowledge has been collated and obtained during the review period?
- Does the SEA need to be updated to reflect any new data/information that has emerged that could affect/influence longer term proposals for development set out in the OREDP?
- Does the target for 4,500MW from offshore wind and 1,500MW for wave and tidal still appear to be a realistic development scenario for 2020/2030?
- Have new potential areas of developments been identified as a result of new information becoming available?
- Does the SEA need to be updated to review/assess these new areas?
- Has the EIA guidance prepared as an outcome from the SEA been integrated into National EIA Guidance for offshore renewable energy developments?
- What progress has been made in terms of marine planning and how is this assisting with the management of offshore renewable energy developments in certain locations?

8.4 Proposals for Monitoring the Environmental Effects of Implementing the Plan

In addition to monitoring the implementation of the Actions developed to avoid or reduce any potential significant adverse effects on the environment there is also a requirement set out proposals for monitoring environmental change (adverse effects) resulting from the implementation of the OREDP. One of the most recognised approaches to monitoring is to develop a monitoring framework which includes specific indicators of environmental change and targets against which environmental change resulting from the implementation of a plan or programme can be measured.

8.4.1 Challenges with Identifying Specific Indicators and Targets

Both indicators and targets tend to be very specific in that for them to be effective they generally should comprise something measurable against which change over time can be recorded. Indicators should also comprise data or
information that is readily available and is collected in a consistent and reliable manner and should be relevant to the
level of detail presented in the plan. Due to the high strategic nature of the SEA and the OREDP (national level plan),
existing gaps in available baseline data and information and known challenges with obtaining data and information on
the marine environment, it has been identified that there are a number of challenges with identifying specific indicators
and targets for the purpose of monitoring the environmental effects of implementing the OREDP. A summary of these
key challenges is presented below:

- There is limited consistent and robust national level ‘baseline’ data available from which indicators can be
  identified and specific changes induced by offshore renewable energy developments can be measured.

- There are significant challenges with obtaining baseline data relating to the marine environment, in particular at
  a national level, due to the general inaccessibility of the marine environment and subsequent cost and
timescales involved in the collection of suitable information.

- There are opportunities to monitor changes in the environment at a site specific or project level where
  surveying can be undertaken prior to the development being installed and changes to the ‘baseline’ can be
  monitored/measured during device/device development installation and operation. However, this information is
currently not available to monitor wider effects of implementing the OREDP at a national level.

- In the future there may be opportunities to establish ‘regional level’ baseline conditions as part of proposals for
  marine planning for certain areas etc. This may also be informed by monitoring information obtained from
  individual projects. However, the preparation of marine plans is currently outside the scope of the OREDP
  which focused at setting out scenarios for the development of offshore renewable at a national level and does
  not specify exactly where future developments will be located.

- There are a number of activities within the marine environment which may also affect ‘baseline’ conditions for
  example fishing or oil and gas exploration. Without specific indicators to measure changes induced by offshore
  renewable energy developments it is difficult to attribute wider changes in the baseline to these developments.

- Changes in the marine environment are also subject to other influences such as climate change for example
  changes in water temperature and salinity and effects on species abundance and diversity and wider marine
  ecosystems.

- As noted throughout this Environmental Report, there is also a lack of understanding of the potential effects of
  offshore renewable energy developments (in particular wave and tidal developments) on certain marine and
  coastal receptors. Consequently, this further influences the ability to identify suitable indicators or targets for
  inclusion in a monitoring framework as there is still uncertainty as to which aspects of the marine require
  monitoring to identify any unforeseen adverse effects.

Although these limitations exist it has been identified that there may be an opportunity to use the MSFD indicators (GES
Descriptor), supplemented with other high level monitoring proposals (as opposed to specific indicator and targets) to
assist with monitoring the environmental effects of implementing the OREDP at a national level.

8.4.2 Marine Strategy Framework Directive (MSFD) (Information from Chapter 5 of the SEA ER)

The Marine Strategy Framework Directive (MSFD) forms the environmental pillar of the EU’s Integrated European
Maritime Policy 2007, which aims to deliver sustainable development approach for Europe’s oceans and seas through
creating a coherent framework for joined up maritime governance. The European Integrated Maritime Policy 2007 also
includes a comprehensive maritime transport strategy and new ports policy, a European Strategy for Marine Research,
a European Marine Observation and data network and a strategy to mitigate the effects of climate change on coastal
regions.

In the context of the Integrated European Maritime Policy the objective of the MSFD, which was adopted on 17 June
2008, and has now been transposed into domestic legislation, is to enable the sustainable use of marine goods and
services and to ensure the marine environment is safeguarded for the use of future generations.

This Directive aims to achieve good environmental status of the EU’s marine waters by 2020. Under this directive each
member state is required to develop strategies for their marine waters which will define Good Ecological Status (GES), a
detailed assessment of the state of the environment and the presentation of environmental targets and the implementation of a monitoring programme by 2014.

From the above a programme of measures or management actions will be developed by 2015 and implemented by 2016. This is designated to line up with Directive 2000/60/EC (Water Framework Directive). The MSFD extends and builds on the requirements of the Water Framework Directive (WFD) into seas beyond the current WFD limit. Under the WFD member states are required to GES of all controlled waters including estuarine, transitional and coastal waters. Consequently where the MSFD overlaps with the WFD in coastal areas, the latter will continue to take precedence except where the MSFD introduces additional requirements.

The MSFD sets out a number of qualitative descriptors that will be used for determining GES. It has been identified that there is an opportunity to use some of these descriptors to inform the monitoring of environmental effects of the OREDP. Table 16.1 below presents some of the key GES descriptors from the MSFD Directive that have been identified as being most relevant to offshore renewable energy and the OREDP and the focus of this SEA.

8.4.3 Other Indicators/Proposals for Monitoring

The MSFD GES Descriptors only apply to certain SEA subject areas/topics mainly biodiversity and water quality. It is therefore necessary to identify other measures that can be used to monitor the potential effects of implementing the OREDP on other SEA topics/subjects where the assessment identified a potential for likely significant adverse effects. These are included in Table 8.1 below.
**Table 8.1: Monitoring Proposals**

<table>
<thead>
<tr>
<th>Summary of Potential Significant Effects</th>
<th>Suggested MSFD Indicators</th>
<th>Other Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Soil and Sediment: Geology, Geomorphology, Sediment Processes and Water Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seabed scouring (devices with structures attached to the seabed)</td>
<td>GES Descriptor 6</td>
<td>Sea-floor integrity is at a level that ensures the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.</td>
</tr>
<tr>
<td>Energy extraction from waves and tidal stream (wave and tidal devices)</td>
<td>GES Descriptor 7</td>
<td>Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.</td>
</tr>
<tr>
<td>Accidental contamination from all technologies and vessels as a result of storm damage or failure or collision.</td>
<td>GES Descriptor 8</td>
<td>Concentrations of contaminants are at levels not giving rise to pollution effects.</td>
</tr>
<tr>
<td><strong>Biodiversity, Flora and Fauna: Fish, Shellfish, Marine Mammals, Seabirds and Marine Reptiles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss or damage to habitats (devices with structures attached to the seabed).</td>
<td>GES Descriptor 1</td>
<td>Biological Diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.</td>
</tr>
<tr>
<td>Damage to non-mobile species (all technologies).</td>
<td>GES Descriptor 6</td>
<td>Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.</td>
</tr>
<tr>
<td>Species disturbance</td>
<td>GES Descriptor 4</td>
<td>All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.</td>
</tr>
<tr>
<td>Species displacement and habitat avoidance/exclusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers to movement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspended sediment and increased turbidity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smothering</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Biodiversity, Flora</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disturbance of contaminated</td>
<td>GES</td>
<td>Concentrations of contaminants are at levels not</td>
</tr>
</tbody>
</table>

Review of coastal modelling required as part of preparation of coastal management plans or coastal strategies for flood protection to assess influence of offshore renewable energy developments on coastal processes/hydrological regimes.


Review of EPA reports on water quality (Estuaries and Coastal Waters and Bathing Waters).

Percentage of interest features of Nature 2000 sites in a favourable or recovering condition.

No additional specific proposals for
<table>
<thead>
<tr>
<th>Summary of Potential Significant Effects</th>
<th>Suggested MSFD Indicators</th>
<th>Other Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>and Fauna: Fish, Shellfish, Marine Mammals, Seabirds and Marine Reptiles</strong></td>
<td>sediment</td>
<td>Descriptor 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GES Descriptor 9</td>
</tr>
<tr>
<td></td>
<td>Scouring</td>
<td>GES Descriptor 6</td>
</tr>
<tr>
<td></td>
<td>Changes in wave exposure</td>
<td>GES Descriptor 7</td>
</tr>
<tr>
<td></td>
<td>Changes in tidal flow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marine noise</td>
<td>GES Descriptor 11</td>
</tr>
<tr>
<td></td>
<td>Collision risk (above surface)</td>
<td>GES Descriptor 1</td>
</tr>
<tr>
<td></td>
<td>Collision risk (below surface)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food availability</td>
<td>GES Descriptor 4</td>
</tr>
<tr>
<td></td>
<td>Fishing exclusion areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toxic effects</td>
<td>GES Descriptor 8</td>
</tr>
<tr>
<td></td>
<td>EMF</td>
<td></td>
</tr>
<tr>
<td><strong>Commercial Fisheries, Shellfisheries and</strong></td>
<td>Direct disturbance of commercial fishing grounds</td>
<td>GES Descriptor 9</td>
</tr>
<tr>
<td></td>
<td>Long term displacement from</td>
<td></td>
</tr>
</tbody>
</table>

Suggested review of all available baseline data as part of OREDP review process (2020 and 2030) e.g. Conservation Plan for Marine Mammals to identify any changes linked to offshore renewable energy projects.
## Summary of Potential Significant Effects

<table>
<thead>
<tr>
<th>Category</th>
<th>Effects</th>
<th>Suggested MSFD Indicators</th>
<th>Other Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aquaculture</strong></td>
<td>Recovery of fish stocks, Disturbance and smothering to fish farms (shell and fin fisheries)</td>
<td>All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.</td>
<td>specific requirement of the OREDP). Review of landings and VMS data as part of OREDP and SEA review process (2020 and 2030) to identify any significant changes in fishing activities in areas where offshore renewable energy developments present. Although it should be noted these changes could be attributed to a range of factors.</td>
</tr>
<tr>
<td><strong>Population and Human Health: Recreation and Tourism</strong></td>
<td>Direct disruption to recreational activities (marine and coastal), Indirect effects on recreational assets/features e.g. bathing water quality</td>
<td>Concentrations of contaminants are at levels not giving rise to pollution effects.</td>
<td>Changes to the number of Waters designated as being of National Tourism Significance due to offshore renewable energy developments (Waters of National Tourism Significance 2009 (Failte Ireland)).</td>
</tr>
<tr>
<td><strong>Cultural Heritage Including Archaeological Heritage</strong></td>
<td>Damage or loss of archaeological remains/historical features (marine and coastal), Effect on setting of archaeological features and historic remains (coastal)</td>
<td>N/A</td>
<td>No specific strategic level monitoring identified as most potential significant effects are project and site specific. These would have to be monitored at a project level.</td>
</tr>
<tr>
<td><strong>Ports, Shipping and Navigation</strong></td>
<td>Reduced navigational safety, Increased access to ports, Increased navigational safety</td>
<td>N/A</td>
<td>Regional level assessments of navigation risk as part of marine planning (not role of OREDP to deliver marine plans).</td>
</tr>
<tr>
<td>Summary of Potential Significant Effects</td>
<td>Suggested MSFD Indicators</td>
<td>Other Indicators</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td><strong>Aviation and Military Exercise</strong></td>
<td>Aviation collision risk</td>
<td>Consultation with IAA and DoD to review levels of interference with radar and aviation as levels of offshore wind development increases.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Radar interference</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disruption to military activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dredging and Disposal Areas</strong></td>
<td>Access restrictions to existing dredging and disposal sites</td>
<td>No specific strategic monitoring measures identified.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sterilisation or restricted access to potential aggregate dredging or extraction areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Landscape and Visual (Seascape)</strong></td>
<td>Effects on seascape character and quality</td>
<td>Monitor changes to National and Regional Landscape Strategies caused by offshore renewable energy developments. Use project and site specific landscape and seascape assessments to inform wider regional and national scale monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oil and Gas Infrastructure and Cables</strong></td>
<td>Direct damage to cables and oil and gas pipelines</td>
<td>No specific strategic monitoring measures identified.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Access restrictions to “Licensing Option” and “Exploration Licence” areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Climate: Renewable Energy Developments and Gas Storage</strong></td>
<td>Positive effects on combating climate change</td>
<td>Monitor percentage contribution of offshore renewable energy developments to achieving NREAP targets for offshore wind and wave and tidal energy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sterilisation of gas storage areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This SEA Statement provides an overview of the entire SEA and AA processes, including the public consultation process carried on both the SEA and the OREDP. The SEA process in its entirety has fully informed the final OREDP. This is clearly reflected in three crucial elements of the OREDP – its vision, goals and principles.

The vision of the OREDP is of ‘Our offshore renewable energy resource contributing to our economic development and sustainable growth, generating jobs for our citizens, supported by coherent policy, planning and regulation, and managed in an integrated manner’.

Three high goals, of equal importance, have been identified for the OREDP, based on the concept of sustainable development:

- Ireland harnesses the market opportunities presented by offshore renewable energy to achieve economic development, growth and jobs;
- Increase awareness of the value, opportunities and societal benefits of developing offshore renewable energy; and
- Offshore renewable energy developments do not adversely impact our rich marine environment and its living, and non-living, resources,

In light of the diversity of interests and stakeholders involved, the following core principles are set out as being necessary to underpin the work that is required to implement the OREDP and advance the sustainable development of Ireland’s offshore wind and ocean energy resources:

- All development of offshore wind and ocean energy in Irish waters is to be fully in line with EU environmental obligations, best practice, and the Plan and Project Level Mitigation Measures developed as part of the SEA and AA processes carried out for the OREDP.
- The exploitation of our national offshore wind and ocean resources must provide a substantial economic return to Ireland.
- Coordination of the next steps identified in this OREDP with existing government initiatives must be optimal to ensure efficient use of public resources across government departments and their agencies, and efficient and transparent engagement with stakeholders.
- The use of public resources to facilitate the infrastructural development of offshore wind and ocean energy must be cost effective and demonstrate value for money.
- The governance of the OREDP must be in line with best practice, with robust and transparent reporting mechanisms.

All of this is underpinned by the fact that the Government has approved the OREDP on the basis that the findings of the SEA and AA, clearly summarised in Part 2 of the OREDP, are fully embedded in the OREDP and will fully inform its implementation, thus ensuring the efficacy of the OREDP as a framework for the sustainable development of our offshore renewable energy resources.