

Offshore Renewable Energy Development Plan II: Non-Technical Summary of the Strategic Environmental Assessment



An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications



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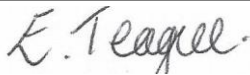
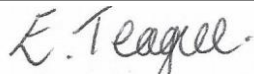






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1 Introduction

Ireland has one of the best offshore renewable energy resources in the world and with a maritime area of approximately 490,000 square kilometres or, in the region of seven times the size of the country's landmass, the future opportunity for Ireland to develop this is immense. As a result of Ireland's location at the Atlantic edge of the European Union (EU), Ireland has more offshore energy potential than most other countries in Europe.

The Department of the Environment, Climate and Communications (DECC) is preparing the Offshore Renewable Energy Development Plan II (ORED II) for Ireland to update the original ORED I published in 2014. ORED II is a national, sectoral document intended to provide strategic guidance for the enduring sustainable deployment of offshore renewable energy. The supporting Strategic Environmental Assessment (SEA) which is summarised within this Non-Technical Summary (NTS) Report is being carried out on behalf of the Sustainable Energy Authority of Ireland (SEAI) on behalf of the DECC.

1.1 What is Strategic Environmental Assessment?

Strategic Environmental Assessment (SEA) is a method of ensuring environmental considerations are broadly evaluated and integrated into a public plan, programme or strategy. The SEA process aims to integrate a high level of protection of the environment into a public plan, programme or strategy, and to integrate the consideration of the environment into the preparation and adoption of these plans, with a view to promoting sustainable development.

1.2 What is 'Appropriate Assessment'?

Under the European Union (EU) Birds and Natural Habitats Directives, where a relevant plan or project may have a likely significant effect (LSE) on a European protected nature conservation site either alone or in combination with other plans or projects and which is not directly connected to the management of the site, then an Appropriate Assessment (AA) of the implications of the plan or project on the potential for that site to achieve its' conservation objectives should be undertaken.

An AA has been carried out for ORED II and is reported in a separate set of documents. Key findings relevant to this SEA are also summarised in this NTS.

2 Description of OREDP II

ORED II updates OREDP I which was published in 2014 and which set out key principles, actions and enablers needed to harness offshore renewable energy. OREDP II takes account of significant developments in policy, legislation and regulation and the availability of additional marine data since the publication of OREDP I (and its interim review in 2018).

ORED II is being brought forward as part of the development and implementation of a new integrated forward planning framework of/for Marine Planning for/in Ireland. It is intended to provide the evidence base to support the identification of areas most suitable for the sustainable development of offshore renewable energy in Ireland's maritime area, which will happen at later stages in the planning framework (**Figure NTS1**).

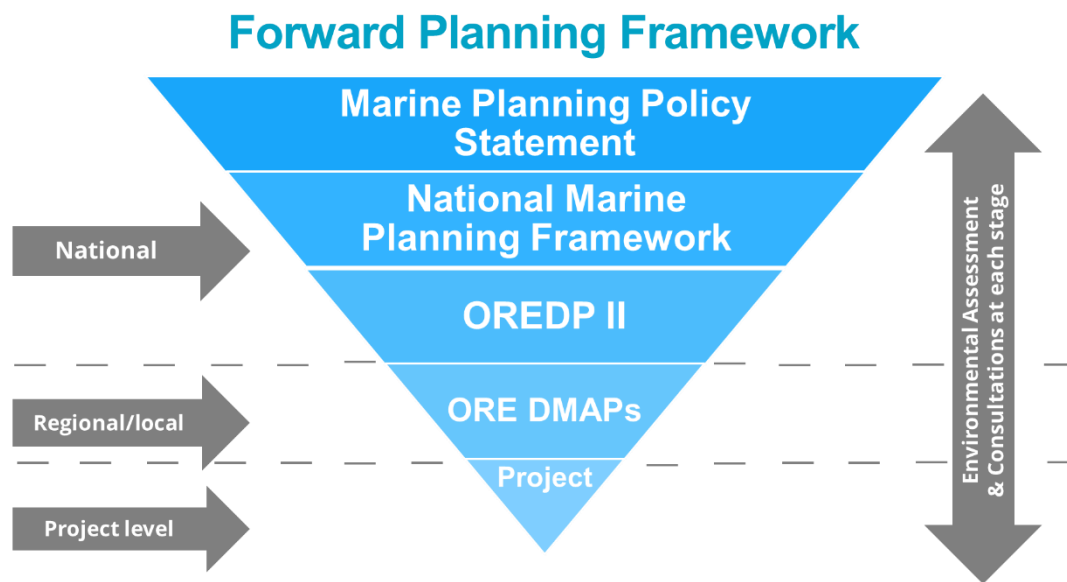


Figure NTS1: Forward Marine Planning Framework for Ireland

ORED II has three main objectives:

Objective 1: *Assess the resource potential for offshore renewable energy in Ireland's maritime area.*

Objective 2: *Provide an evidence base to facilitate the future identification of Broad Areas most suitable for the sustainable deployment of ORE in Ireland's maritime area.*

Objective 3: *Identify critical gaps in marine data or knowledge and recommend prioritised actions to close these gaps*

OREDP II is intended to provide an enduring evaluation of resource potential and is expected to include a review programme a minimum of 5 years after OREDP II is first published.

OREDP II covers a preliminary study area comprising Ireland's Exclusive Economic Zone (EEZ) which extends up to 200 nautical miles (NM) (370 km) from Ireland's coastline. Within this, an initial review of resource capacity has identified areas anticipated to have appropriate resource potential to accommodate each of the four technology types considered by the OREDP II. These are shown in **Figure NTS2**.

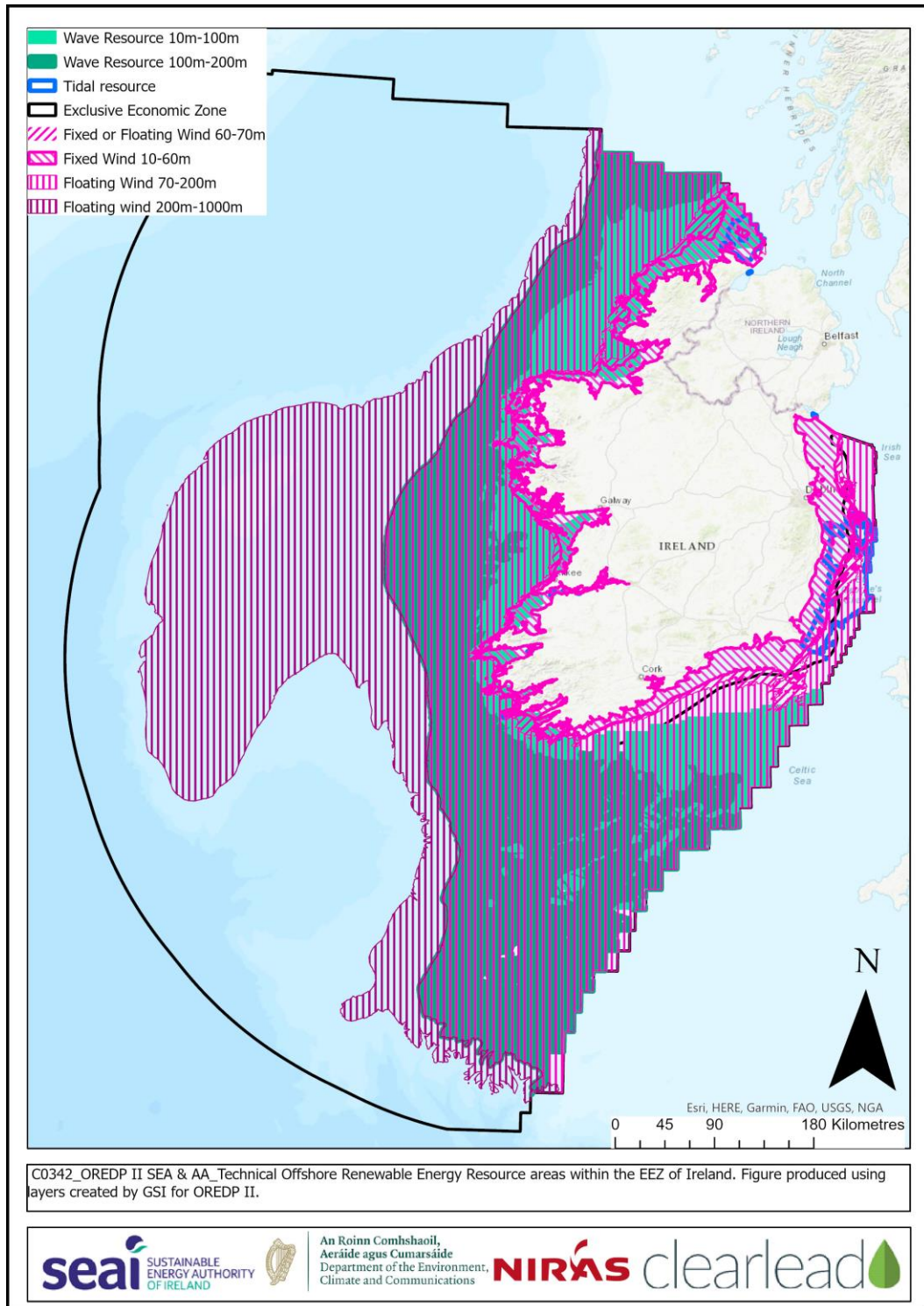


Figure NTS2: Renewable Energy Resource Potential in Ireland's EEZ

2.1 Offshore Renewable Energy (ORE) Technologies

Four potential ORE technology types are considered within the OREDP II:

- **Offshore Wind Power:** Offshore wind power refers to the generation of electricity through wind turbines, usually configured into wind farm arrays, in bodies of water usually at sea.
 - **Bottom-Fixed Offshore Wind:** Each individual offshore wind turbine in an array comprises a fixed foundation structure in relatively shallow water, a support tower and rotor blade assembly. Foundation design and footprint is site-specific and is likely to depend on many parameters such as water depth, seabed geological conditions, and environmental factors.
 - **Floating Offshore Wind (FLOW):** A floating wind turbine is an offshore wind turbine mounted on a floating structure that allows the turbine to generate electricity in water depths where fixed foundation turbines may not be technically or economically feasible.
- **Wave Energy Technology:** Wave energy converters capture kinetic (wave motion) and potential energy (wave height) from ocean waves and swells to generate electricity.
- **Tidal Stream Technology:** Tidal currents are caused by the gravitational forces of the sun and the moon, and are particularly concentrated in narrow bodies of water, such as around islands or inlets. Tidal stream devices convert the kinetic energy of a moving water current into electricity.

ORED II considers the offshore ORE infrastructure/arrays only, although this does include a in-principle requirement for inter-array cabling and for offshore substation infrastructure. Export cabling, terrestrial infrastructure and/or grid connection requirements are not directly covered by the ORED II, as these are considered in separate Plans and Policies covering the strategic upgrade and provision of these supporting facilities. They are considered within the assessment of potential cumulative effects.

2.2 Relationship with other Plans and Programmes

ORED II represents one of a number of inter-related plans and policies which together will deliver an integrated plan-led enduring regime to govern decision-making for the delivery of offshore renewable energy in Ireland.

This planning regime (which ORED II is a part of) is itself influenced by and must be consistent with a broad range of policies and commitments at all levels.



As part of this SEA a review of the relationship between OREDP II and many of these other plan and policy commitments has been completed to ensure compliance and consistency at the broadest possible level.

3 The Environmental Baseline

Environmental information and characterisation of Ireland's marine area has been collated for the following environmental areas which is consistent with SEA topics used within the SEA.

- The physical environment including metocean conditions, hydrographic features, geology and sediments and coastal vulnerability;
- The water environment including both chemical and biological characteristics;
- Climate and air quality, including climate change, greenhouse gas emissions, carbon sequestration (storage of carbon in plants and sediments), ocean acidification and air quality emissions;
- Marine pollution including underwater sound, marine litter and electromagnetic fields (EMF);
- Biodiversity, including designating sites, quality interests (QIs) and species, seabed habitats, fish, marine mammals, bats, reptiles, birds, plankton, non-indigenous species and marine ecosystems;
- Cultural heritage including protected sites, submerged landscapes and wrecks;
- Landscape and seascape;
- Population and human health, including employment, health and leisure; and
- Material assets, including tourism, mineral exploitation and mining, defence, aquaculture, commercial fishing, marine infrastructure and exploration, ports, shipping and navigation and other marine industries.

For each topic, the suitability of available baseline information was reviewed for consideration at this strategic level. In many cases localised or partial data sets were gathered, and whilst not of sufficient spatial coverage and/or resolution to be useful to inform this level of strategic planning, were highlighted as having the potential to make valuable contribution to decision making at lower tier assessments. Data gaps were also identified.

4 Summary of how the SEA was carried out

SEA is a systematic process to evaluate the potential environmental consequences of proposed plans or programmes and to ensure environmental issues are fully integrated and addressed at the earliest appropriate stage of decision making. SEA aims to achieve a high level of protection of the environment and to promote sustainable development within plan making. An overview of the SEA process is set out within **Figure NTS3**.

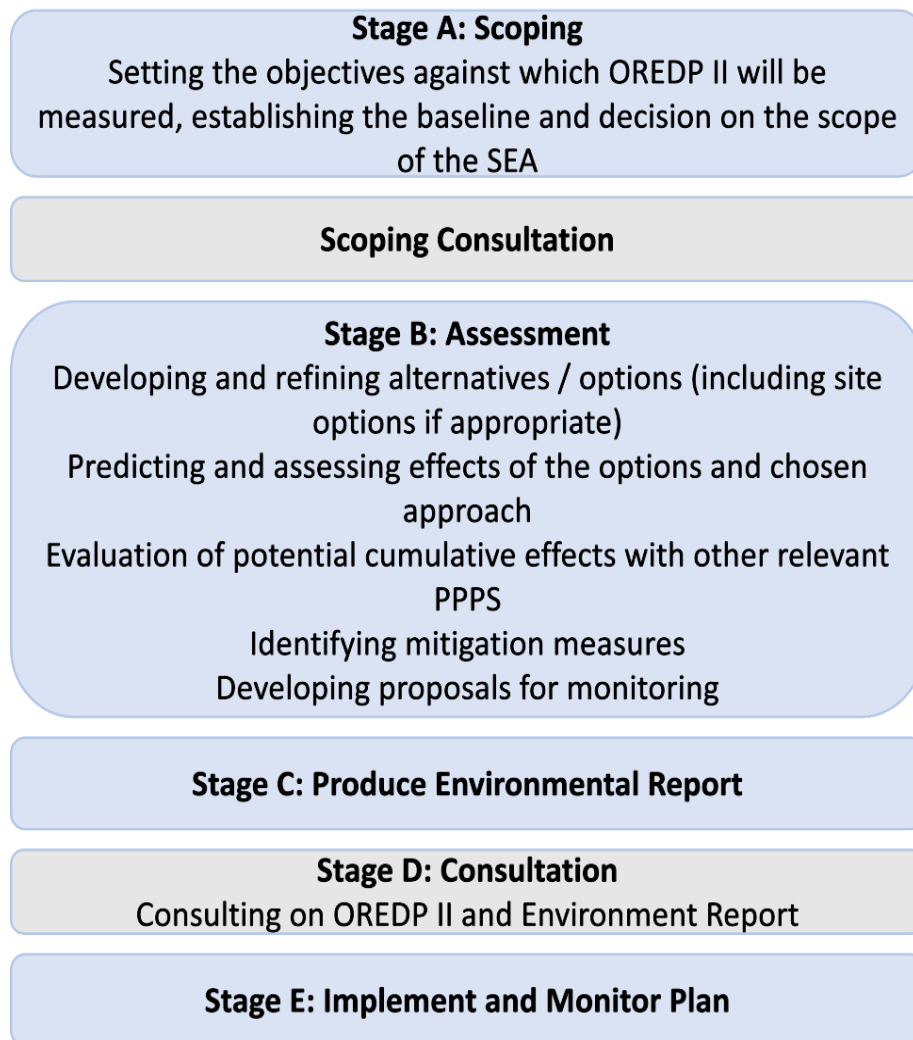


Figure NTS3: Summary of the SEA process

4.1 Stage A: Scoping

Scoping the SEA focused on collecting baseline information, identifying environmental issues and establishing the main scope and objectives and interactions to be addressed in the SEA. Identification of other relevant plans and programmes was also carried out to understand the OREDP II's relationship with the policy and regulatory framework, including environmental considerations that need to be taken into account. Environmental topics considered within the SEA were also identified as this stage.

An SEA Scoping Report was issued stakeholders for consultation on 23 April 2022 to 27 May 2022. The scoping report was also made available for public review on SEAI website¹ on 25 April 2022. A copy of the Scoping Report is available online at: [OREDPII-SEA-Scoping-Report.pdf \(seai.ie\)](https://seai.ie/OREDPII-SEA-Scoping-Report.pdf).

4.2 Stage B: Assessment Methodology

The SEA has followed best practice (EPA, 2021) and provides a bespoke environmental evaluation of the emerging OREDP II. The steps that have been followed during the assessment are summarised in the flowchart shown in **Figure NTS4**. An OREDP II-specific SEA framework defining a series of SEA objectives, Indicators and Targets was developed and applied throughout². A qualitative approach was applied to the description and assessment of effects through applying a defined set of assessment criteria³

¹ [OREDPII-SEA-Scoping-Report.pdf \(seai.ie\)](https://seai.ie/OREDPII-SEA-Scoping-Report.pdf)

² The full SEA framework for Objectives, Indicators and Targets applied is set out within the main Environment Report (see gov.ie/OffshoreEnergyPlan).

³ The assessment criteria applied is set out within the main Environment Report (see gov.ie/OffshoreEnergyPlan).

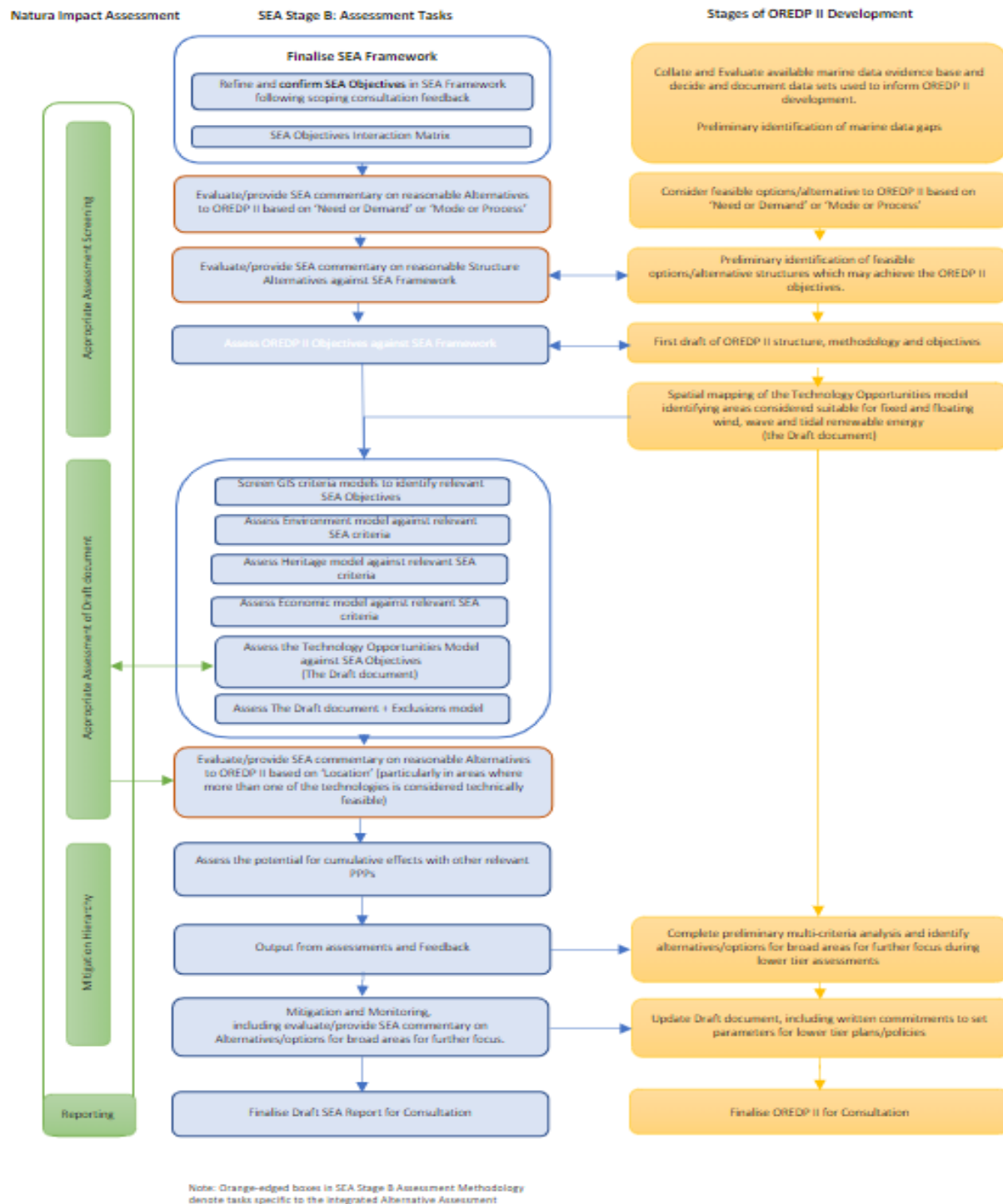


Figure NTS4: OREDP II and SEA Stage B: Assessment Methodology Summary Flowchart

4.3 Stage C: Environment Report

The Environment Report which documents the SEA for OREDP II covers the requirements set out within the SEA Regulations. A considerable amount of material has been generated as part of the SEA process and relevant documents are available at the following website: gov.ie/OffshoreEnergyPlan.

4.4 Stage D: Consultation on Draft OREDP II and Environment Report

The SEA is documented within the Environment Report which sits alongside the draft OREDP II and both will be put out for national consultation with the public, including coastal, marine and Island communities in early 2023. A detailed Communications and Consultation Plan for this consultation has been developed and is explained in a separate document (available at gov.ie/OffshoreEnergyPlan). Following this consultation it is expected that OREDP II will be published along with finalised SEA and AA Reports in mid-2023.

4.5 Stage E: Implementation/Monitoring of the OREDP II

Monitoring the effects of the OREDP II will be the responsibility of DECC guided by a monitoring programme to be included in the SEA Adoption Statement.

4.6 Stakeholder Engagement

DECC is working closely with other Departments, Agencies and Stakeholders to adopt an inclusive approach to the development of the ORE sector. OREDP II preparation involves engagement and input from stakeholders across the public sector, academia, industry, coastal, marine and Island communities, and environmental groups.

4.7 Difficulties encountered

The OREDP II is a national level spatial strategy. It seeks to provide a framework for subsequent assessment for offshore renewable energy within the overarching marine planning framework, including the creation of offshore renewable energy designated maritime area plans. Lower tier assessments may subsequently address site or project-specific details and cannot directly result in the development of new projects.

The exact location and nature of new activities will also depend on offshore renewable energy designated maritime area plans, market forces and development applications being received. This results in uncertainty when predicting the effects of activities at this strategic level.

The SEA has considered the suitability of available information taking into account current knowledge and methods of assessment; the contents and level of detail in the OREDP II; its stage in the decision-making process and the extent to which certain matters can more appropriately be considered at different assessment levels.

5 Identification of the OREDP II Alternatives

Alternatives to OREDP II have been considered through a three-part process of:

- Identifying reasonable alternatives,
- Assessing and comparing those alternatives on a consistent basis, and
- Explaining the choice of the preferred alternative(s) and setting out an alternative hierarchy.

The consideration of alternatives lies at the heart of the SEA process and sets out the ‘storyline’ of the OREDP II development through an alternatives hierarchy as summarised in **Figure NTS5** below.

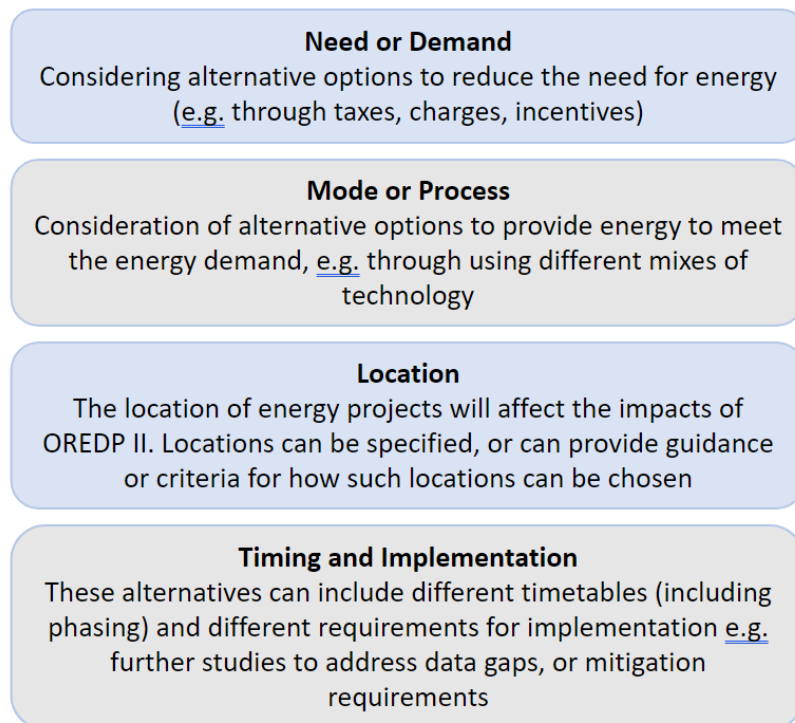


Figure NTS5: Alternative Assessment Hierarchy

The process identified the following alternatives in the hierarchy

5.1 Mode or Process

The OREDP II considers the following alternative technologies:

- bottom-fixed offshore wind,

- floating offshore wind,
- wave energy converters, and
- tidal stream devices.

The OREDP II identifies parts of Ireland's marine area which are considered potentially technologically suitable for each of these technology types. In certain areas, these parameters overlap and more than one technology type may be suitable for deployment.

5.2 Location

Following initial identification of areas of interest for each technology type, the OREDP II provides a framework using a number of criteria to identify potential 'Broad Areas' which will be subsequently refined as part of the DMAP process, initially for the potential deployment of Floating Offshore Wind technology. A provisional application of this framework has identified three broad areas, identified as 'North-West,' Mid-West' and 'Celtic Sea East' as indicated on **Figure NTS6** and likely areas for future focus are indicated by hatching.

5.3 Timing and implementation

The purpose of the OREDP II is to provide strategic guidance for the sustainable deployment of offshore renewable energy as part of the enduring regime and to provide a framework for subsequent assessment when defining DMAPs.

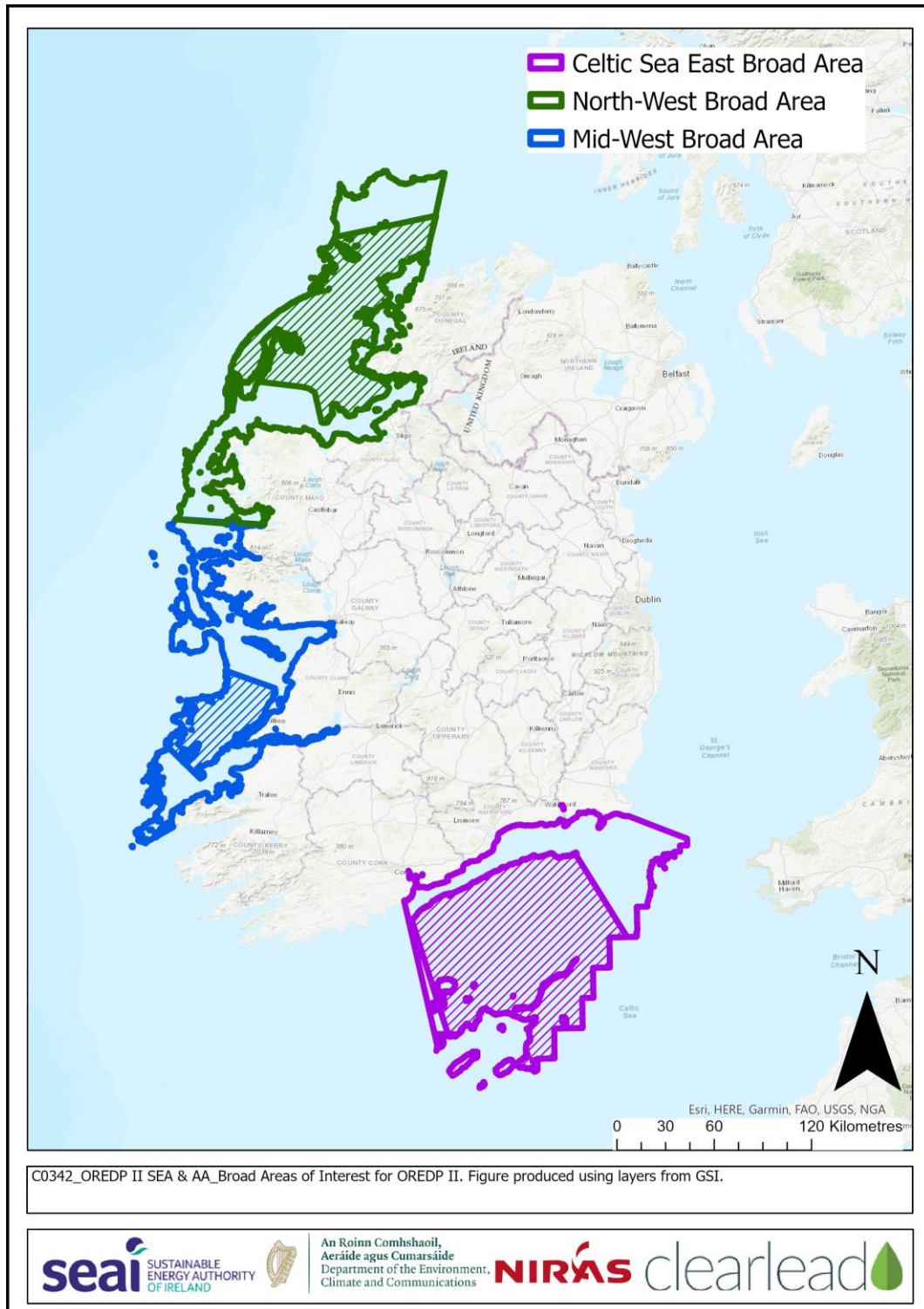


Figure NTS6: Broad Areas of Interest which have been preliminary identified to inform subsequent DMAP development process. Likely areas of focus are depicted by hatching

6 Assessment of OREDP II

The OREDP II objectives were assessed against the SEA objectives.

Overall, effects were considered neutral, minor positive or significant positive.

The objective to assess available resource potential supports the development of alternative energy sources which will have **significant positive effects** on SEA objectives for prioritising renewable energy and reducing greenhouse gas emissions.

The strategy's objective to provide an evidence base and identify data gaps will support sustainable development of ORE resources and consequently help avoid negative impacts on environmental receptors. Potential for higher magnitude **significant positive effects** were identified for receptors where the evidence base is likely to be more extensive at a strategic level, for example through the provision of designations and mapping information. This includes SEA Objectives for biodiversity and designated sites, heritage, landscape, material assets and navigation.

Some effects will occur largely at project level (for example water pollution, air quality, noise pollution, EMF, marine litter) and are not influenced by OREDP II Objectives, these were assessed as **neutral**.

6.1.1 Bottom-Fixed Offshore Wind Technologies

Initial spatial mapping of key technology parameters identified an area of interest considered potentially suitable for bottom-fixed offshore wind covering a total area of 17,670 km² (<60m) with a further potential for 7,494 km² at greater depth (60-70m) within Ireland's EEZ.

Certain material assets within the OREDP II area were considered to represent such significant constraints to development based on economic, and/or safety factors that they are considered incompatible with ORE development at this time, and have been excluded from the OREDP II.

Once these exclusions have been applied the identified area of interest for bottom-fixed offshore wind reduces to a total of 22,235 km².

Given the largely nearshore, (<70m) nature of the area, the area of interest also represents extensive environmental and economic constraints requiring appropriate consideration across the full range of environmental topics covered by the SEA objectives. Recommendations for mitigation have been made within the SEA which aim to ensure that lower tier assessments can confidently be expected to address the range of environmental issues identified within the SEA.

6.1.2 Floating Offshore Wind Technologies (FLOW)

The area of interest for FLOW extends to approximately 126,404 km² (60-200m depth), with a further 83,707 km² between 200-1000m depth. This area of interest covers a large proportion of the Irish Exclusive Economic Zone, with only inshore areas (<60m depth) and outer offshore areas (>1000m) not suitable for development.

Within this area a number of exclusions were applied e.g. high density traffic routes, offshore cables and pipelines, and renewable energy test sites. Environmental sensitivities (e.g. nature conservation designations, high density areas for seabirds and marine mammals) and economic factors (e.g. fishing grounds, areas for oil and gas and potential for marine aggregates) were also considered.

6.1.3 Wave Energy Technologies

The area of interest for wave energy covers an approximate area of 119,289 km². This area of potential covers the Atlantic Ocean to 200m depth.

Similar to floating wind, areas considered technologically suitable for wave energy infrastructure cover an extensive part of Ireland's marine area within which there are number of exclusions (e.g. high density traffic routes, offshore cables and pipelines, renewable energy test sites). In addition, environmental sensitivities (e.g. nature conservation designations, high density areas for seabirds and cetaceans) and economic factors (e.g. fishing grounds, areas of oil and gas and potential for marine aggregates) were also considered.

6.1.4 Tidal Energy Technologies

Unlike other technologies, tidal power opportunities are limited to areas of peak tidal stream which occur only in specific areas, such as in parts of the Irish Sea. The area of interest for tidal energy covers an approximate area of 4,451 km².

There is some overlap with areas identified as Exclusions within the OREDP II, particularly along the Atlantic Coast (e.g. in the Shannon Estuary) and also with areas of designated and/or sensitive habitats and of importance for fish species. Areas identified as of interest for tidal stream technology also overlap with known impact areas for fishing activity as well as other economic activities/material assets (e.g. e.g. shipping and potential for marine aggregates).

Table NTS11 summarises the outcomes of the assessment which has been completed, for all four technology types under consideration.

Table NTS1: Summary of Technology Type Assessments

		Fixed wind		Floating wind		Wave		Tidal	
SEA Objectives		Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation
SEA 1	Protect the quality and character of the seabed and its sediments and avoid significant effects on seabed morphology and sediment transport processes.	Significant Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Significant Negative	Minor Negative
SEA 2	Protect the integrity of coastal and estuarine processes.	Significant Negative	Uncertain	Minor Positive	Minor Positive	Significant Negative	Uncertain	Minor Negative	Minor Negative
SEA 3	Protect, maintain, and improve status of classified water bodies within the OREDP II area in line with requirements of the WFD and MSFD.	Significant Negative	Uncertain	Minor Positive	Minor Positive	Minor Negative	Minor Negative	Minor Negative	Minor Negative
SEA 4	Avoid pollution of the coastal and marine environment.	Minor Negative	Minor Negative	Minor Positive	Minor Positive	Minor Negative	Minor Negative	Minor Negative	Minor Negative
SEA 5	Avoid, prevent or reduce harmful emissions to air, promoting air quality improvements through reduction of emissions As Low as Reasonably Practical (ALARP) (direct emissions).	Minor Negative	Minor Positive	Minor Negative	Minor Positive	Minor Negative	Minor Positive	Minor Negative	Minor Positive
SEA 6	Promote and prioritise use of renewable energy and energy efficiency measures.	Significant Positive	Significant Positive	Significant Positive	Significant Positive	Significant Positive	Significant Positive	Minor Positive	Minor Positive

		Fixed wind		Floating wind		Wave		Tidal	
SEA Objectives		Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation
SEA 7	Minimise emissions of Green House Gases.	Significant Positive	Significant Positive	Significant Positive	Significant Positive	Significant Positive	Significant Positive	Significant Positive	Significant Positive
SEA 8	Promote resilience to Climate Change.	Minor Negative	Minor Positive	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Neutral	Minor Positive
SEA 9	Reduce/prohibit release of marine litter to the marine environment.	Minor Negative	Neutral	Minor Negative	Neutral	Minor Negative	Neutral	Neutral	Neutral
SEA 10	Minimise generation and propagation of manmade noise within the marine environment.	Significant Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Significant Negative	Minor Negative
SEA 11	Promote energy transmission technologies and configurations which seek to minimise EMF within the marine environment.	Minor Negative	Minor Negative	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Uncertain	Uncertain
SEA 12	Preserve, protect, maintain and, where appropriate, enhance biodiversity and ecosystems within OREDP II area.	Significant Negative	Uncertain	Significant Negative	Uncertain	Significant Negative	Uncertain	Significant Negative	Uncertain
SEA 13	Avoid significant impact to EU and National level designated sites, Qualifying Interests and protected species.	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Significant Negative	Minor Negative
SEA 14	Protect known wrecks and historic and cultural features of the OREDP II area.	Significant Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Significant Negative	Minor Negative

		Fixed wind		Floating wind		Wave		Tidal	
SEA Objectives		Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation	Significance without mitigation	Significance with mitigation
SEA 15	Incorporate opportunities to enhance cultural/historic knowledge and understanding.	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
SEA 16	Implement the requirements of the European Landscape Convention through high quality design for the sustainable stewardship of Ireland's landscape and by integrating landscape into Ireland's approach to sustainable development.	Significant Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Neutral	Minor Negative	Minor Negative
SEA 17	Avoid significant impact on human health and wellbeing.	Significant Negative	Minor Positive	Minor Positive	Minor Positive	Minor Negative	Minor Negative	Minor Negative	Minor Negative
SEA 18	Avoid disruption, disturbance or nuisance to local communities.	Minor Negative	Minor Negative	Minor Positive	Minor Positive	Minor Negative	Minor Negative	Minor Negative	Minor Negative
SEA 19	Protect marine material assets (including fisheries, shellfish, military activity and infrastructure) and resources.	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Significant Negative	Minor Negative
SEA 20	Ensure continuity and safety of navigation	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive

6.1.5 Technology Comparison

In certain parts of Ireland's marine area there is potential for different ORE technologies to be developed. The type of technology used in these areas will depend on lower tier assessments (including the DMAP process), project level data, and individual prospective developers.

6.2 OREDP II for Broad Areas

In advance of DMAP preparation at the next stage of the planning framework, the SEA for OREDP II has considered preliminary identification of three initial broad areas of interest within the OREDP II marine area as possible options to be taken forward for further consideration specifically for the potential deployment of FLOW technology (**Table**). The SEA considers these broad areas as possible options for consideration at the DMAP stage and provides information on their comparative environmental performance.

Table NTS2: Comparison of Broad Areas options for FLOW technology

SEA Objectives		North-West		Mid-West		Celtic Sea East	
		Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation
SEA 1	Protect the quality and character of the seabed and its sediments and avoid significant effects on seabed morphology and sediment transport processes.	Minor Negative	Minor Negative	Significant Negative	Minor Negative	Minor Negative	Minor Negative
SEA 2	Protect the integrity of coastal and estuarine processes.	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive
SEA 3	Protect, maintain, and improve status of classified water bodies within the OREDP II area in line with requirements of the WFD and MSFD.	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive
SEA 4	Avoid pollution of the coastal and marine environment.	Minor Positive	Minor Positive	Minor Negative	Minor Positive	Minor Positive	Minor Positive
SEA 5	Avoid, prevent or reduce harmful emissions to air, promoting air quality improvements through reduction of emissions As Low as Reasonably Practical (ALARP) (direct emissions)	Minor Negative	Minor Positive	Minor Negative	Minor Positive	Minor Negative	Minor Positive
SEA 6	Promote and prioritise use of renewable energy and energy efficiency measures.	Significant Positive	Significant Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive
SEA 7	Minimise emissions of Green House Gases	Significant Positive	Significant Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive
SEA 8	Promote resilience to Climate Change	Neutral	Neutral	Minor Negative	Neutral	Neutral	Neutral

SEA Objectives		North-West		Mid-West		Celtic Sea East	
		Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation
SEA 9	Reduce/prohibit release of marine litter to the marine environment.	Minor Negative	Neutral	Minor Negative	Neutral	Minor Negative	Neutral
SEA 10	Minimise generation and propagation of manmade noise within the marine environment.	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative	Minor Negative
SEA 11	Promote energy transmission technologies and configurations which seek to minimise EMF within the marine environment.	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Significant Negative	Minor Negative
SEA 12	Preserve, protect, maintain and, where appropriate, enhance biodiversity and ecosystems within OREDP II area.	Significant Negative	Minor Negative	Significant Negative	Uncertain	Significant Negative	Minor Negative
SEA 13	Avoid significant impact to EU and National level designated sites, Qualifying Interests and protected species.	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Neutral	Neutral
SEA 14	Protect known wrecks and historic and cultural features of the OREDP II area.	Minor Negative	Neutral	Neutral	Neutral	Significant Negative	Minor Negative
SEA 15	Incorporate opportunities to enhance cultural/historic knowledge and understanding.	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
SEA 16	Implement the requirements of the European Landscape Convention through high quality design for the sustainable stewardship of Ireland's landscape and by integrating landscape into Ireland's approach to sustainable development.	Significant Negative	Minor Negative	Significant Negative	Minor Negative	Minor Negative	Minor Negative
SEA 17	Avoid significant impact on human health and wellbeing.	Minor Positive	Minor Positive	Minor Negative	Minor Negative	Minor Positive	Minor Positive

SEA Objectives		North-West		Mid-West		Celtic Sea East	
		Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation
SEA 18	Avoid disruption, disturbance or nuisance to local communities.	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive	Minor Positive
SEA 19	Protect marine material assets	Minor Negative	Minor Negative	Significant Negative	Minor Negative	Significant Negative	Minor Negative
SEA 20	Ensure continuity and safety of navigation	Neutral	Neutral	Minor Negative	Neutral	Minor Negative	Neutral

7 Mitigation and Monitoring

Difficulties exist for the SEA in balancing the strategic nature of the OREDP II with the often spatially specific nature of the potential effects. In many cases the SEA recommends a series of guiding commitments to more detailed identification and consideration of key issues at lower tier assessment stage including DMAP and / or individual project level. This is a similar approach to that which was previously taken within OREDP I.

In certain cases though, the SEA has made specific recommendations to refine the areas of interest for particular technologies in order to address particular identified environmental concerns. For example, the SEA recommends further analysis of certain enclosed water bodies such as Loch Swilly and the Shannon Estuary at DMAP stage, to identify areas where development would not be suitable, in order to protect and support SEA objectives particularly relating to the protection of the coastal environment (SEA 1 to 4), coastal communities (SEA 17 and 18) and underwater noise pollution (SEA 10).

The SEA has also made a series of recommendations to ensure mitigation measures identified as part of the Appropriate Assessment in order to protect nature conservation designated areas are appropriately cross referenced and adhered to.

The full list of proposed mitigation is set out within the Environment Report (which can be found at gov.ie/OffshoreEnergyPlan). In addition, Table 23 of the Environmental Report sets out how mitigation suggested by the SEA has been considered and responded to within the OREDP II.

The OREDP II is required to monitor any significant environmental effects during implementation to make sure that any unforeseen adverse effects can be appropriately identified and so that appropriate remedial action is taken as required.

A review of the strategy will be carried out a minimum of 5 years after OREDP II is first published to allow for new technological developments to be taken account of, as well as any evolution of baseline conditions and availability of additional data as the strategy matures. This review should also include a review of lower tier assessment compliance statements to monitor accurate and successful delivery of the OREDP II objectives.

8 Cumulative Assessment

The emerging OREDP II represents one of several inter-related plans, policies and strategies. There is potential for these plans, policies and strategies to combine to have additional ‘cumulative’ effects on the environment.

The results of the cumulative assessment is summarised below:

- National Marine Planning Framework (NMPF) (2021) has cumulative positive effects for environmental, economic and social objectives.
- National Energy and Climate Plan (NECP) 2021 to 2030 (2020) and Climate Action Plan (CAP) 2020 and 2021 provide strong support and cumulative benefit particularly for promoting and prioritising use renewable energy.
- Policies which lead to related energy infrastructure (transmission lines, ports, etc.) have potential for cumulative effects and will require increasingly detailed consideration as planning and policy development continues through lower tier assessments. These include:
 - National Ports Policy (2013);
 - EirGrid – Shaping Our Electricity Future Roadmap (2021);
 - Policy Statements on the Framework for Ireland’s Offshore Electricity Transmission System; and
 - Facilitation of Offshore Renewable Energy by Commercial Ports in Ireland (2021).
- OREDP I (2014) including Phase1⁴ and Phase 2 offshore energy projects will be largely complete, however, if development overlaps with OREDP II, certain cumulative effects may occur. OREDP I commits to reviewing potential for in-combination effects throughout the life of the Plan in light of policy developments. OREDP II maintains this commitment to the consideration of in-combination/cumulative effects based on relevant policy.

⁴ Oriel Wind Park; Dublin Array (2 projects – previously named Bray and Kish Banks); Codling Wind Park, (2 projects – previously named Codling I and Codling extension); Sceirde Wind Farm (Fuinneamh Sceirde Teoranta (Skerd Rocks), North Irish Sea array and Arklow Bank

9 Transboundary Effects

The SEA Report focuses on the identification of potential effects with relation to the defined SEA objectives of the OREDP II within Ireland's marine area. It also acknowledges the potential for OREDP II effects outside Ireland's marine boundaries.

ORED II aims to quantify the resource potential for ORE in Ireland's EEZ. Estimates indicate the theoretical capacity with Ireland's marine area may be significantly more than current aspirations for ORE development. If this is realised, it may offer an opportunity for Ireland not only to meet much of its own domestic needs from such renewable sources, but also to look to future export opportunities to adjacent jurisdictions. However, it is not known at this time whether these would be significant in terms of availability of a resilient renewable energy supply.

As a global level receptor, a reduction in GHG emissions which may be expected as a result of OREDP II would not only bring a positive effect at a national level but also on a transboundary level, across multiple jurisdictions.

As the nearest and adjacent land and marine area and jurisdiction to Ireland's marine area, transboundary effects resulting from the potential proximity of ORE development to Northern Ireland's coastline and marine area may be encountered. This is particularly in relation to coastal processes, classified water bodies, pollution of coastal and marine environment as well as landscape/visual effects. These are likely to be indirect and heavily influenced by individual project design and siting decisions.

Potential for transboundary effects on biodiversity receptors has been identified. Biodiversity receptors including several species of marine mammal and fish are migratory in nature, with their natural foraging and migration ranges extending and crossing over into adjacent jurisdictions.

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