



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE &
PLANNING

GRID IMPLEMENTATION PLAN 2023-2028 FOR THE ELECTRICITY TRANSMISSION SYSTEM IN IRELAND

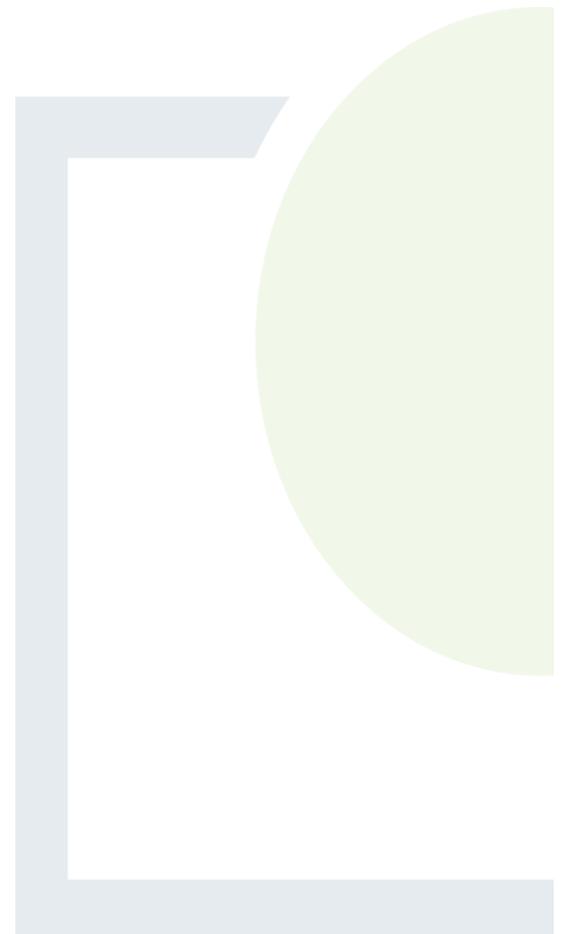
**Strategic Environmental Assessment (SEA)
Scoping Report**

Date: December 2022

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Executive Summary

EirGrid plc. (EirGrid) is the national electricity Transmission System Operator (TSO). In its role as TSO in Ireland, EirGrid operates and maintains a safe, secure, reliable, economical and efficient transmission system. EirGrid develops key infrastructural projects - High Voltage (110, 220, 275, and 400 kV) - which are vital for the socio-economic development of the State, with due regard for the environment. The Electricity Supply Board (ESB), as the Transmission Asset Owner (TAO), is charged with constructing the transmission assets as specified by the TSO. ESB also has the role of Distribution System Operator (DSO).

In 2021, EirGrid was designated as the system operator and asset owner of Ireland's offshore electricity transmission system, with ownership resting with EirGrid at all stages of the phased transition, regardless of whether the grid has been developed by individual renewable energy projects or EirGrid.

Electricity supply is essential, and a reliable electricity network is the means by which we move electricity around the country. The transmission system is the backbone of the power system; efficiently delivering large amounts of power from where it is generated to where it is needed, safely and reliably. The development of transmission network infrastructure is therefore, of national strategic importance.

EirGrid previously published the *GRID25* strategy in 2008, which was then replaced by the *Your Grid, Your Tomorrow: Ireland's Grid Development Strategy* (2016). To date, there have been two iterations of GRID Implementation Plans (IPs) following publication of these strategies, the latest of which is the 2017-2022 Plan. The Grid IP 2023-2028 will be the third IP, which will sit under EirGrid's *Shaping Our Electricity Future* Roadmap 2030.

The particular projects to be delivered under the forthcoming Grid IP will be set out in EirGrid's latest Transmission Development Plan (TDP) 2022-2032, once published in 2023.

This Strategic Environmental Assessment (SEA) Scoping Report forms part of the Strategic Environmental SEA process. SEA is a legal requirement for certain plans and programmes under EU Directive (2001/42/EC) on the Assessment of Effects of Certain Plans and Programmes on the Environment. The SEA process can be defined by four stages as follows:

- Stage 1 – Screening: deciding whether an SEA is required or not;
- Stage 2 – Scoping: establishing the spatial and temporal scope of the SEA and a decision-making framework that can be used to evaluate impacts;
- Stage 3 – Identification, Prediction, Evaluation and Mitigation of Potential Impacts; and
- Stage 4 – Consultation, Revision and Post-Adoption. This includes the implementation of statutory SEA monitoring.

Formal Screening for SEA of the forthcoming IP was deemed not to be required as the IP clearly requires SEA under the Irish regulations transposing Directive 2001/42/EC¹. SEA² is required to be undertaken on the Plan. Therefore, we are now at Stage 2 of the SEA process.

¹ Article 9(1) of No. 435 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended)

² SEA is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt it.

This SEA Scoping Report outlines information on the IP, including the need for the IP, its geographical area and overall objectives. The Scoping Report is required to facilitate statutory consultation to ensure that the approach proposed for the SEA is appropriate. A copy of this report has been made available to the statutory environmental authorities and a number of other interested stakeholders, including public participation networks. It is also available on the EirGrid Group website at:

<https://www.eirgridgroup.com/about/in-the-community/environment/sea-and-aa-of-grid-implem/index.xml>.

To assist with consultation, the SEA Scoping Report includes questions (set out below) about the IP, SEA processes and the approach being adopted by EirGrid. Comments and responses in relation to the proposed approach (not limited to the questions outlined below) are invited from the scoping consultees so that these may be considered in preparing the IP and the SEA documents.

SEA Scoping Questions	
1	Do you have comments that you would like EirGrid to consider in the preparation of their next draft Implementation Plan (IP); which will be published for consultation mid-2023?
2	Do you have any comments on the Strategic Environmental Assessment (SEA) or Appropriate Assessment (AA) processes?
3	Are there particular organisations that should be consulted with regard to the IP, SEA and/or AA?
4	Has the study area been adequately defined?
5	Are there any additional themes that should be considered?
6	Do you have any comments on the description of the baseline environment?
7	Are there any other environmental issues in the study area that should be considered within the SEA; or are there any issues which should not have been scoped out?
8	Do you know of any other relevant plans, policies and programmes (PPPs) that should be considered? (Please provide details and sources).
9	Do you have any comments on the Strategic Environmental Objectives (SEOs)?
10	Do you have any comments on the SEA Methodology, Alternatives being considered and/or the structure of the SEA report?

Comments should be logged on EirGrid’s Consultation Portal (linked in box below), and will be considered during the assessment stage. Comments should be returned by 29th January 2023. The consultation portal will be live from 7 December 2022.

For any other matters relating to this SEA scoping report, the contact point for this document is shown below.

Name:

Robert Fennelly, EirGrid Planning and Environmental Unit, Public Engagement, Chief Infrastructure Office.

SEA Consultation Portal:

<https://consult.eirgrid.ie/consultation/strategic-environmental-assessment-eirgrid-grid-implementation-plan-2023-2028-sea-scope-consultation>

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1. INTRODUCTION

1.1 Background

EirGrid is reviewing the existing Grid Implementation Plan (IP) 2017-2022 for the Electricity Transmission System in Ireland and will prepare a new Grid IP 2023-2028 (IP). The conclusions of the SEA monitoring report of the previous plan were central to the review process and will actively influence the new plan.

The scope of the IP aligns with the definition of an energy plan³; therefore, Strategic Environmental Assessment (SEA)⁴ is required to be undertaken on the Plan⁵.

This SEA Scoping Report communicates and defines the scope of the environmental issues considered by the SEA along with the information and methods which will be used to address these issues, as per the SEA Guidelines⁶. This scoping report will be updated and amended in view of all relevant responses to the SEA consultations with environmental authorities.

1.1.1 Legislative Context for SEA

SEA is required under the EU Council Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive)⁷. Their purpose is to enable plan-making authorities to incorporate environmental considerations into decision-making at an early stage and in an integrated way throughout the IP-making process and to:

- Identify, evaluate and describe the likely significant effects on the environment of implementing the IP;
- Ensure that identified adverse effects are communicated, mitigated and that the effectiveness of mitigation is monitored.
- Identify beneficial (and neutral) effects, and to ensure these are communicated; and
- Provide opportunity for stakeholder and public involvement.

³ within the provisions of Article 9(1) of No. 435 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended)

⁴ SEA is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt it.

⁵ by the Planning and Development (SEA) Regulations (as amended)

⁶ Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment Guidelines for Regional Authorities and Planning Authorities (DEHLG, 2004), Page 18: "It is recommended that at the end of the scoping procedure, the plan-making authority should prepare a brief scoping report of its conclusions as to what information is to be included in the environmental report, taking account of any recommendations from the environmental authorities."

⁷ Transposing Irish Regulations (the European Communities Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No 435 of 2004) as amended by S.I. No. 200 of 2011 (European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011) and S.I. No. 201 of 2011 (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011) respectively.



1.2 Overview of the SEA and AA Processes

1.3 Guidelines and Legislation

The EU Directive (2001/42/EC) on the assessment of the effects of certain plans and programmes on the environment, herein referred to as the 'SEA Directive', established the statutory need for SEA as part of the development of certain plans and programmes.

In accordance with the overall aim of the SEA Directive, an SEA of the IP is required to:

Provide for a high level of protection to the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development....

(SEA Directive, Article 1)

The EirGrid IP 2023-2028 will be the third Grid Implementation Plan, the previous plan (which was subject to SEA) was published in 2017.

The SEA process can be defined by four stages, all of which include some level of consultation with stakeholders and the public (Figure 1-1). These stages are defined as:

- Stage 1 – Screening: deciding whether and SEA is required, or not;
- Stage 2 – Scoping: establishing the spatial and temporal scope of the SEA and a decision-making framework that can be used to evaluate impacts;
- Stage 3 – Identification, Prediction, Considerations of Alternatives, Evaluation and Mitigation of Potential Impacts; and
- Stage 4 – Consultation, Revision and Post-Adoption. This includes the implementation of statutory SEA monitoring.

Once scoping (Stage 2) is complete; the next stage (SEA environmental report) will inform the development of the IP. The SEA environmental report and reports related to the Appropriate Assessment process (details provided below) will be the main written output of the SEA process and will present information on the environmental assessment and likely environmental issues related to the implementation of the IP.

1.3.1 SEA Screening

Stage 1 (Screening) is not required as the IP conforms to Article 9(1) of No. 435 of the European Regulations 2004 and therefore requires SEA regardless of scope.

1.3.2 SEA Scoping

We are currently at Stage 2 of the SEA process (Scoping) which involves consultation with stakeholders and the general public. Key elements of the SEA ER will include the consideration of alternatives and the design of mitigation and monitoring measures.

The purpose of this SEA Scoping Report is to:

1. Outline the proposed Plan (IP);



2. Describe the environmental characteristics of the Study Area and to present the initial understanding of the key environmental issues relating to the IP;
3. Propose a framework of SEA Strategic Environmental Objectives (SEOs) to inform the next stage of the SEA process;
4. Outline the potential external influences on the IP;
5. Set out a draft SEA methodology;
6. Set out how reasonable alternatives to the IP will be defined and assessed through SEA;
7. Explore potential interrelationships; and
8. Seek feedback from stakeholders (statutory and non-statutory) on the above.

Scoping does not include all of the detailed baseline information to be considered during the SEA; however, some preliminary baseline information has been identified and described within this report, in particular such that the level of detail for the SEA can be agreed. Potential sources of baseline information are set out below to be discussed with stakeholders (through consultation responses and workshop attendance - detailed below) and any further information which may be relevant will be requested to inform the next stage of the SEA. Any data gaps experienced will be filled where possible and reported in Stage 3 of the SEA (the Environmental Report). The consultation process for the SEA Scoping stage is outlined in Section 1.4.

1.3.3 Appropriate Assessment

Screening for Appropriate Assessment (AA), and possibly subsequent stages of assessment, will be undertaken alongside the preparation and adoption of the IP. AA is an assessment process focusing on potential effects related to European Sites - which form the Natura 2000 network - these sites have been designated or proposed for designation by virtue of their ecological importance. The Habitats Directive⁸ requires, inter alia, that plans, and programmes undergo Screening for AA and if necessary, AA, to establish the likely or potential effects arising from implementation on the IP. If AA Screening concludes effects are deemed to be significant, potentially significant or uncertain then the IP must undergo Stage 2 AA.

⁸ Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

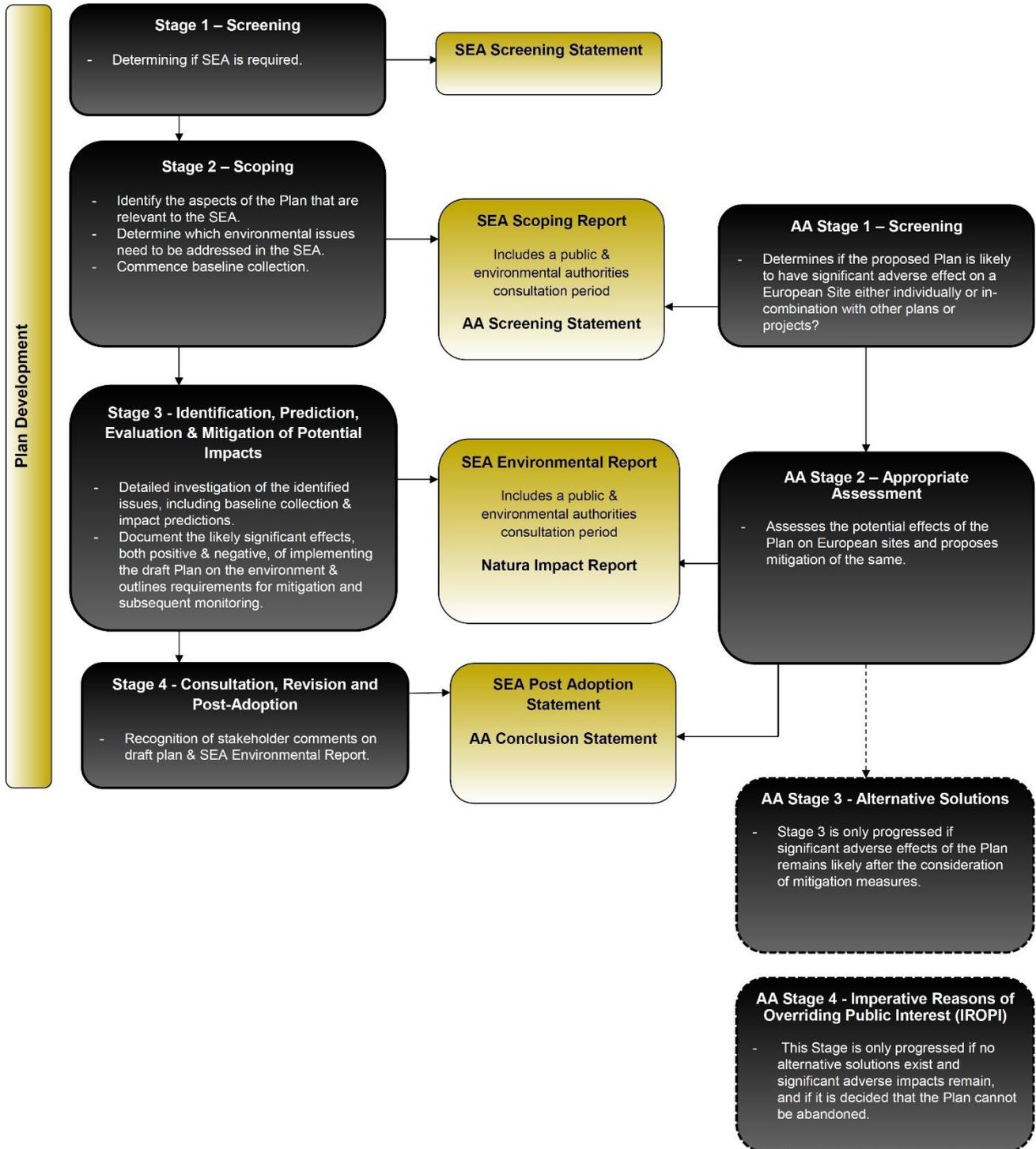


Figure 1-1: SEA and AA Stages and Key Deliverables (source - EirGrid's SEA of the 2017-2022 IP)

1.3.4 Outcomes of the SEA and AA Processes

The SEA and AA processes will facilitate the integration of environmental considerations into the IP, including policies and objectives contributing towards environmental protection and management and sustainable development; and the integration of environmental considerations into the policies and objectives included as part of the IP.



1.4 Scoping and consultations with environmental authorities

As part of the SEA scoping process, environmental authorities⁹ specified under the Planning and Development (SEA) Regulations (as amended) are being notified that a submission or observation in relation to the scope and level of detail of the information to be included in the SEA Environmental Report can be made to EirGrid. This draft report will, alongside ongoing data collection and any SEA Scoping submissions made by environmental authorities, inform the preparation of a final SEA Scoping Report.

EirGrid endeavour and intend to comply with the EirGrid Stakeholder Engagement Plan when preparing the IP. In 2021 EirGrid published a Stakeholder Engagement Plan¹⁰; the principles of this plan are to:

- Involve stakeholders early in the process so they can influence plans;
- Provide information in plain English that is accessible;
- Provide enough time for people to contribute their views;
- Offer clear opportunities for engagement and ways to influence the decision-making process;
- Explain decisions that need to be taken and factors that influence those decisions; and
- Communicate with everyone engaging with EirGrid and explain how feedback shaped our approach.

1.4.1 Stakeholder Consultation on the IP

In line with SEA regulations this SEA Scoping Report will be issued to the statutory Environmental Authorities¹¹:

- Department of Agriculture, Food and the Marine;
- Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media;
- Department of the Environment, Climate and Communications;
- Department of Housing, Local Government and Heritage; and
- Environmental Protection Agency
- Northern Ireland Environment Agency (NIEA) (transboundary related);
- Ministry of the Environment (ministère de l'environnement, de l'énergie et de la mer) (transboundary-related);
- National Assembly for Wales (transboundary related); and
- The Countryside Council for Wales (transboundary related).

In addition to the above statutory Environmental Authorities, EirGrid will seek to engage by emailing details of the consultation portal and process to the following stakeholders (in alphabetic order):

⁹ The following authorities are statutory consultees: Department of Agriculture, Food and the Marine; Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media, Department of the Environment, Climate and Communications; Department of Housing, Local Government and Heritage; and Environmental Protection Agency.

¹⁰ EirGrid (2021) Stakeholder engagement plan <https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Draft-Stakeholder-Engagement-Plan-2021.pdf>

¹¹ Recent governmental changes may require amendments to the exact name convention of these environmental authorities. The EPA have recommended that until a Departmental Circular is issued with the new names of the Departments, that the existing circular is to be used.



- An Taisce;
- Birdwatch Ireland;
- Bord na Móna (BNM);
- Coastwatch;
- Coillte;
- Department of Agriculture, Environment and Rural Affairs (Northern Ireland);
- Department of Enterprise, Trade and Employment;
- Department of Transport;
- Department of Public Expenditure and Reform;
- ESB;
- Fáilte Ireland;
- Gas Networks;
- Geological Survey of Ireland (GSI);
- Geological Survey of Northern Ireland (GSNI);
- Industrial Development Authority (IDA);
- Inland Fisheries Ireland (IFI);
- Inland Waterways Association of Ireland (IWAI);
- Irish Whale and Dolphin Group;
- Landscape Alliance Ireland;
- Local Authorities;
- Marine institute;
- Office of Public Works (OPW);
- Regional Authorities¹²;
- Rte. (Réseau de Transport d'Électricité - French Transmission System Operator);
- Sustainable Energy Authority of Ireland (SEAI);
- Teagasc;
- Tourism Ireland;
- University College Cork - Sustainable Energy Research Group; and
- Wind Energy Ireland
- University College Dublin - Electricity Research Centre.

A workshop will be held during the scoping period (at the midpoint of the SEA Scoping - as per request from the EPA¹³) with key stakeholders on the development of the IP and the SEA Scoping stage. All comments received from the statutory and non-statutory stakeholders on this SEA Scoping Report will be considered during the next stage of the SEA and the IP development.

¹² Eastern and Midland Region. Northern and Western Region. Southern Region.

¹³ pers. comms. EPA 9th November 2022



1.4.2 Public Consultation

EirGrid understands that the public also have an important role to play in helping us identify all the key issues relating to the IP, and we are keen to hear what the public think. EirGrid will consult with a variety of local, regional, and national public, civic, and community groups. In keeping with the existing public engagement strategy, EirGrid will use their digital Consultation Portal to optimize timely engagement, and minimize time required for the public to input. A copy of this report will be made available to the public via the EirGrid’s website (www.eirgridgroup.com).

The following key questions are posed for your consideration and comment on review of this SEA Scoping Report.

SEA Scoping Questions	
1	Do you have comments that you would like EirGrid to consider in the preparation of their next draft Implementation Plan (IP); which will be published for consultation mid-2023?
2	Do you have any comments on the Strategic Environmental Assessment (SEA) or Appropriate Assessment (AA) processes?
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4	Has the study area been adequately defined?
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6	Do you have any comments on the description of the baseline environment?
7	Are there any other environmental issues in the study area that should be considered within the SEA; or are there any issues which should not have been scoped out?
8	Do you know of any other relevant plans, policies and programmes (PPPs) that should be considered? (Please provide details and sources).
9	Do you have any comments on the Strategic Environmental Objectives (SEOs)?
10	Do you have any comments on the SEA Methodology, Alternatives being considered and/or the structure of the SEA report?

A seven week period has been agreed in principle with the EPA (EirGrid comms. with EPA 9th November 2022). Consultation is being undertaken throughout the IP development and SEA process to ensure that the knowledge, experience and views of stakeholders and the general public are considered. This is important at all stages of the development of the IP and SEA. Further opportunities to input to the development of the IP and SEA will be detailed on the EirGrid consultation portal.

Comments should be returned by 26th January 2023. Comments should be made via the EirGrid Consultation Portal, to which the Scoping Report is uploaded. Comments will be considered during the assessment stage. For any other matters, the contact point is provided below.

Contact Name:
 Robert Fennelly, EirGrid Planning and Environmental Unit, Chief Instructure Office

SEA Consultation Portal:
<https://consult.eirgrid.ie/consultation/strategic-environmental-assessment-eirgrid-grid-implementation-plan-2023-2028-sea-scope-consultation>



2. EMERGING DETAILS TO BE CONTAINED WITHIN THE DRAFT IMPLEMENTATION PLAN

2.1 Overview

The scope of this IP will have three defined aspects due to the development of the sector and evolving role of EirGrid nationally during the lifetime of the forthcoming IP:

- Onshore development of the grid network;
- Offshore development of the grid network; and
- Temporary emergency generation development.

It is recognised that the likely environmental envelope of potential effects for each of the 3 aspects will be different given the spatial scope and nature of any associated developments. These three elements or aspects are expanded below where relevant - in the context of EirGrid's role.

2.2 Context setting background to EirGrid's Role and the Implementation Strategy

EirGrid is the national electricity Transmission System Operator (TSO). In its role as TSO in Ireland, EirGrid operates and maintains a safe, secure, reliable, economical and efficient transmission system. EirGrid develops key infrastructural projects - High Voltage (110, 220, 275, and 400 kV) - which are vital for the socio-economic development of the State, with due regard for the environment. The Electricity Supply Board (ESB), as the Transmission Asset Owner (TAO), is charged with constructing the transmission assets as specified by the TSO. ESB also has the role of Distribution System Operator (DSO).

Electricity supply is essential, and a reliable electricity network is the means by which we move electricity around the country. The transmission system is the backbone of the power system; efficiently delivering large amounts of power from where it is generated to where it is needed, safely and reliably. The development of transmission network infrastructure is therefore, of national strategic importance.

EirGrid previously published the GRID25 strategy in 2008 which was then replaced by the Your Grid, Your Tomorrow: Ireland's Grid Development Strategy (2016). To date there have been two iterations of Grid Implementation Plans the latest of which is the 2017-2022 IP. The Grid IP 2023-2028 will be the third IP, which will sit under the Shaping Our Electricity Future Roadmap published by EirGrid in 2021¹⁴.

The current Transmission Development Plan (TDP) 2021-2030 lists the committed projects and projects under development for the enhancement of the Irish transmission network over the coming ten years. The next TDP (2023-2032) will be developed in advance of, and in parallel with the IP¹⁵. Committed projects are those that have received EirGrid capital approval and are in Steps 4-6 of EirGrid's six-step process for developing the grid and these projects are detailed in Chapter 5 of the TDP. The projects which are in the development stages are those which have not yet received capital approval and are in Steps 2-3 and these projects are detailed in Chapter 6 of the TDP.

¹⁴ <https://www.eirgridgroup.com/the-grid/shaping-our-electricity-f/>

¹⁵ Following instruction from the Commission for the Regulation of Utilities in April 2022, EirGrid did not develop a 2022 version of the TDP, instead moving straight to the preparation and development of the 2023 TDP. This arose due to prioritisation on the impact of Russia's invasion of Ukraine and corresponding impacts on Irish energy prices and security of supply challenges



The TDP addresses needs identified in the Tomorrow's Energy Scenarios System Needs Assessment and candidate reinforcements presented in Shaping Our Electricity Future. These are brought through EirGrid's six-step process for developing the grid. Inherent in this is the government target to achieve at least 70% and up to 80% electricity from renewable energy sources (RES-E) by 2030.

The planning areas within Ireland are divided into Nomenclature of Territorial Units for Statistics (NUTS) which have 3 levels; NUTS 1 is the Republic of Ireland boundary, NUTS 2 are the regional boundary areas (Figure 2-1) and NUTS 3 which are divided into 8 zones (Figure 2-2).

The electricity industry directly employs thousands of people. At its core is the high-voltage transmission grid, a state-owned asset that is operated by EirGrid. The Grid network is a meshed system of 400 kV, 275 kV, 220 kV and 110 kV transmission lines and associated substations (Figure 2-3). Over the lifetime of the previous IP there have been a number of additional and upgrades to the existing grid network (Figure 2-5, Figure 2-6).



Figure 2-1: NUTS 2 Planning Areas



Figure 2-2: NUTS 3 Planning Areas



Figure 2-3: International infrastructure showing the interconnectors (Source: EirGrid)

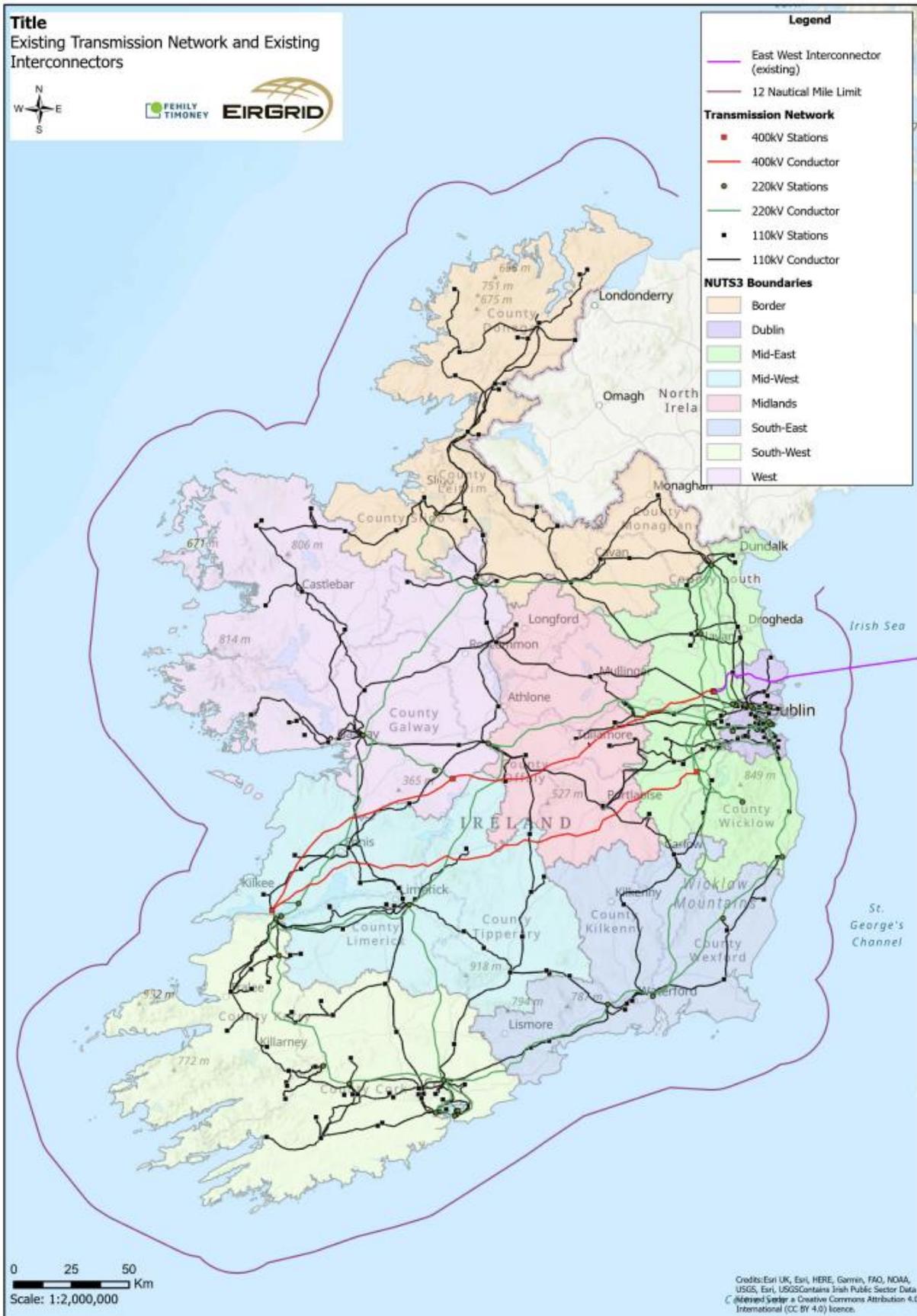


Figure 2-4: The National Transmission System at a national scale showing the existing network (Source: EirGrid)

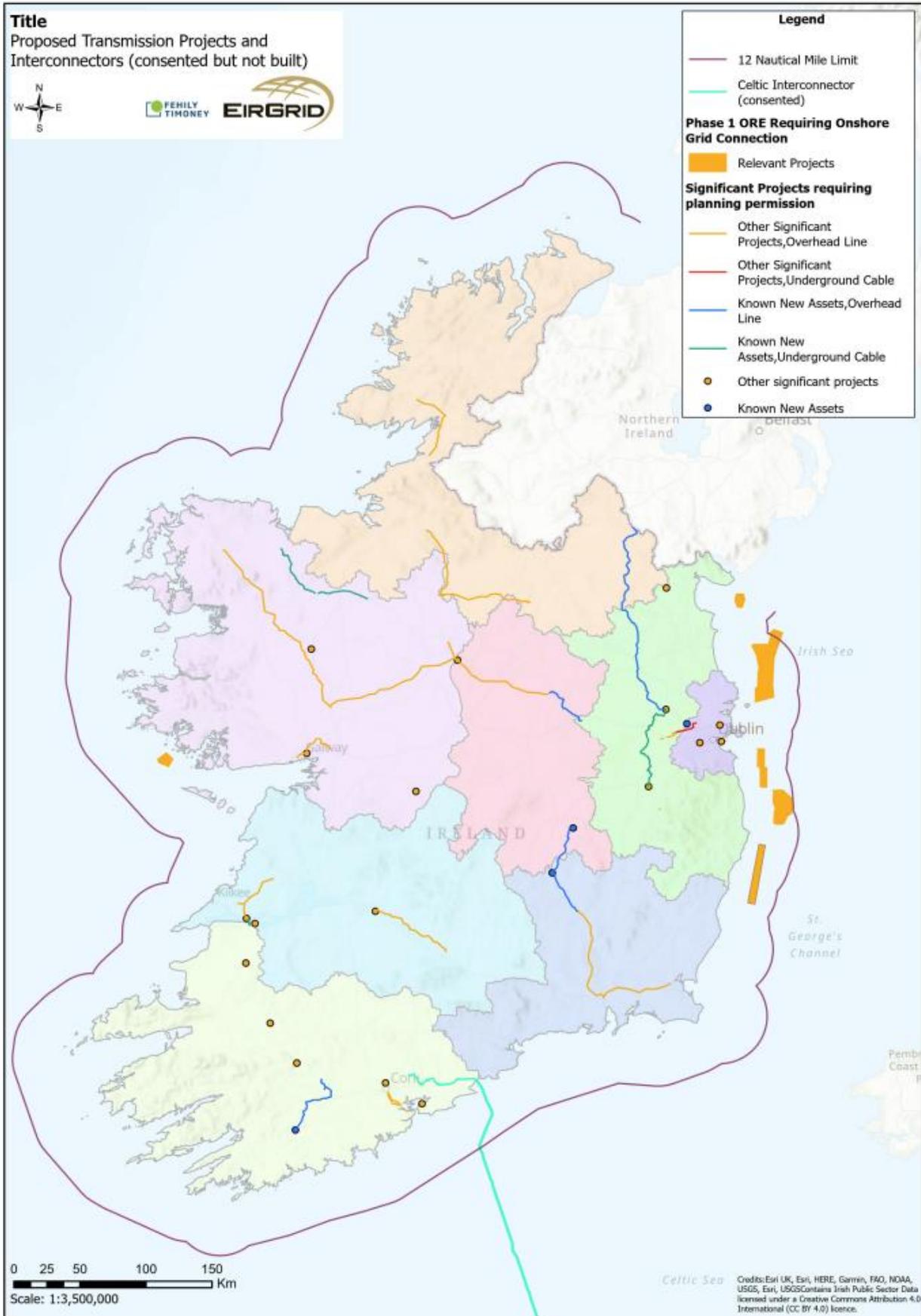


Figure 2-5: Future projects relevant to the IP at a national scale (Source: EirGrid)



2.3 Changes to EirGrid's Role with regard to the draft Implementation Strategy

In 2020, EirGrid¹⁶ was designated by the Irish Government as "the system operator and asset owner of Ireland's offshore electricity transmission system, with ownership resting with EirGrid at all stages of the phased transition, regardless of whether the grid has been developed by individual renewable energy projects or EirGrid. Transmission system assets to be owned by EirGrid will include the high voltage transmission circuits and associated onshore and offshore transmission infrastructure connecting offshore generation sites to the existing onshore transmission system, as well as any necessary offshore reinforcements to accommodate electricity flows".

2.4 Purpose and Scope of the GRID Implementation Plan 2023-2028

2.4.1 Need for the Plan

The IP identifies the best current understanding of those parts of the transmission system that are envisaged as likely to be developed over the next five years and identifies the issues, policies and objectives that will be addressed in developing the Grid. In this way it establishes the parameters and criteria for the underlying processes by which subsequent decisions will be made. This is particularly relevant with respect to the demand for offshore energy developments and emergency power generation.

The development of the Irish electricity sector is guided by several national and European Union (EU) policy and strategic objectives. These objectives guide investment in the Irish transmission network and are summarised as follows:

- Ensuring the security of electricity supply;
- Ensuring the competitiveness of the national economy; and
- Ensuring the long-term sustainability of electricity supply in the country.

In order to achieve the 2030 renewable ambition, EirGrid are developing a programme of work called Operational Pathways to 2030. The key objectives of the Operational Pathways to 2030 Programme are as follows:

- Increase the instantaneous amount of non-synchronous RES that can be accommodated on the Irish and Northern Irish power system in a safe and secure manner to 95%+ SNSP on an enduring basis;
- Identify the technical challenges that make the 95%+ SNSP target challenging to achieve, and provide incentives for the industry to invest in developing new technologies to address these;
- Remove barriers to entry and enable the integration of new technologies at scale; and
- Develop and implement operational policies and tools in the control centres to ensure the new technologies are utilised effectively;
- Clarify the system technical needs, both now and projected for the future;
- Review the Grid Code and Distribution Code and bring forward modifications, as appropriate;

¹⁶ EirGrid. 2021. EirGrid Stepping up with New Off-Shore Role in Support of the Government's Climate Action Ambitions: Available at <https://www.eirgridgroup.com/newsroom/tao-for-offshore-assets/>



- Establish if the existing system services arrangements will provide the reliable performance required for a system operating with increased levels of RES;
- Design new services if needed, determine appropriate valuation of these services and develop new or revised payment structures that foster a continued focus on performance and where appropriate drive investment;
- Develop a new commercial framework for procurement of system services, taking effect from 1 May 2023;
- Design and implement an auction system (assuming that the new system services procurement arrangements will be based on competitive auctions) and a settlement system in time for go live of the new arrangements;
- Publish the standards that service providers will need to adhere to and monitor the performance of service providers against these standards on an ongoing basis;
- Develop a framework for flexible network management that will seek to incentivise the supply and demand sides to provide flexible network services and alleviate network congestion;
- Identify technical scarcities, system needs and operational needs, both now and projected for the future;
- Establish what new/enhanced operational systems and control centre tools for power system operation with increased levels of variable non-synchronous RES, increased levels of demand and an evolved network;
- Design specifications for new control centre systems and tools, if needed;
- Revise and develop new operational policies to assist in operating the power system with new system services provision capabilities, and the new operational systems and tools;
- Train our people on the new operational policies and tools that will be implemented during the programme;
- Reach agreement with the DSOs on the scope of works throughout this programme;
- Develop an implementation plan based on the agreed scope;
- Agree and implement a 2030 TSO-DSO operating model with the DSOs; and
- Foster a partnership between the TSOs and DSOs that ensures that the needs of both distribution and transmission systems, and ultimately the needs of consumers, are met.

EirGrid - within the plan provisions - will also explore the feasibility of providing temporary emergency generation development where requirements of the grid exceed capacity¹⁷. EirGrid have identified a potential generation gap of 700MW for the winter of 23/24, in the absence of any mitigation measures being implemented. The Security of Supply Programme of actions contains a number of both demand and supply-side mitigation measures that are anticipated to address this gap. To address the challenge, the CRU, incorporating the recommendations of EirGrid and in conjunction with the Department of Environment, Climate and Communications (DECC), developed a programme of actions to be delivered by this group in the coming months and years. The processes in this regard will be developed within the IP as well as the SEA ER.

¹⁷ The CRU Security of Supply Programme of Actions was published in September 2021 in response to EirGrid's most up to date All Island Generation Capacity Statement 2021, that identified a potential capacity shortfall, if no action is taken, for the winter periods of 2022/23 to 2024/25.



2.4.2 Objectives of the IP

The overall objectives of the IP are:

- To realise the vision for grid development set out in EirGrid’s Grid Development Strategy the Shaping Our Electricity Future Report 2030 and the Transmission Development Plan (TDP) 2021-2030;
- To review the IP prepared in 2017 and to update it in the context of the Grid Development Strategy, the Shaping Our Electricity Future Report 2030 the policies of the forthcoming TDP 2022-2032, and policies, processes and approaches that have been developed in the interim;
- To examine the successes and challenges encountered in the previous IP and to integrate the lessons learned into the new IP; the existing SEA Monitoring Programme can inform this process;
- To identify and discuss the strategic environmental, social, technical, project development, planning and consenting matters, as well as consultation/engagement opportunities, pertinent to the implementation of the Grid Development Strategy, the Shaping Our Electricity Future Report 2030, and forthcoming TDP 2022-2032; and to draft policies and objectives that will ensure their appropriate consideration in grid development activities undertaken during the IP period; and
- To articulate a strategy for regional grid development based on the Grid Development Strategy, the Shaping Our Electricity Future Report 2030 and forthcoming TDP 2022-2032 and separately to list transmission infrastructure projects that are envisaged as likely to be developed during the plan period, as set out in EirGrid’s forthcoming TDP 2022-2032.

2.4.3 IP Geographical Scale

The IP area covers the Republic of Ireland (ROI). Ireland is delineated into Nomenclature of Territorial Units for Statistics (NUTS) areas; at the highest level NUTS1 there is the national boundary subdivided into three regional assemblies (NUTS2), which are subdivided further into 8 smaller planning areas (NUTS3).

While the IP is for the Republic of Ireland, there are existing interconnectors with the UK through both Northern Ireland and Wales specifically the 500 MW Moyle Interconnector between Auchencrosh in Ayrshire and Ballycronan More in County Antrim, and the 500 MW East West Interconnector from Meath to Schotten (Wales).

Furthermore, the MW Celtic Interconnector from Claycastle Co. Cork to Brittany in France has been granted and is moving to development phase. Finally, the 500 MW Greenlink Interconnector from Wexford to Pembrokeshire (Wales) is also under construction. Therefore, the IP and SEA will have regard where relevant and or appropriate to the transmission network in the UK and France.

Due to EirGrid's new role in the context of marine transmission infrastructure, the IP and the associated SEA will be considering the marine environment. The geographic scope could extend to the full EEZ; therefore, the SEA study area¹⁸ as defined in Figure 2-7.

¹⁸ Policies and objectives within the IP will apply to any future development within the EEZ which arises on foot of the IP.

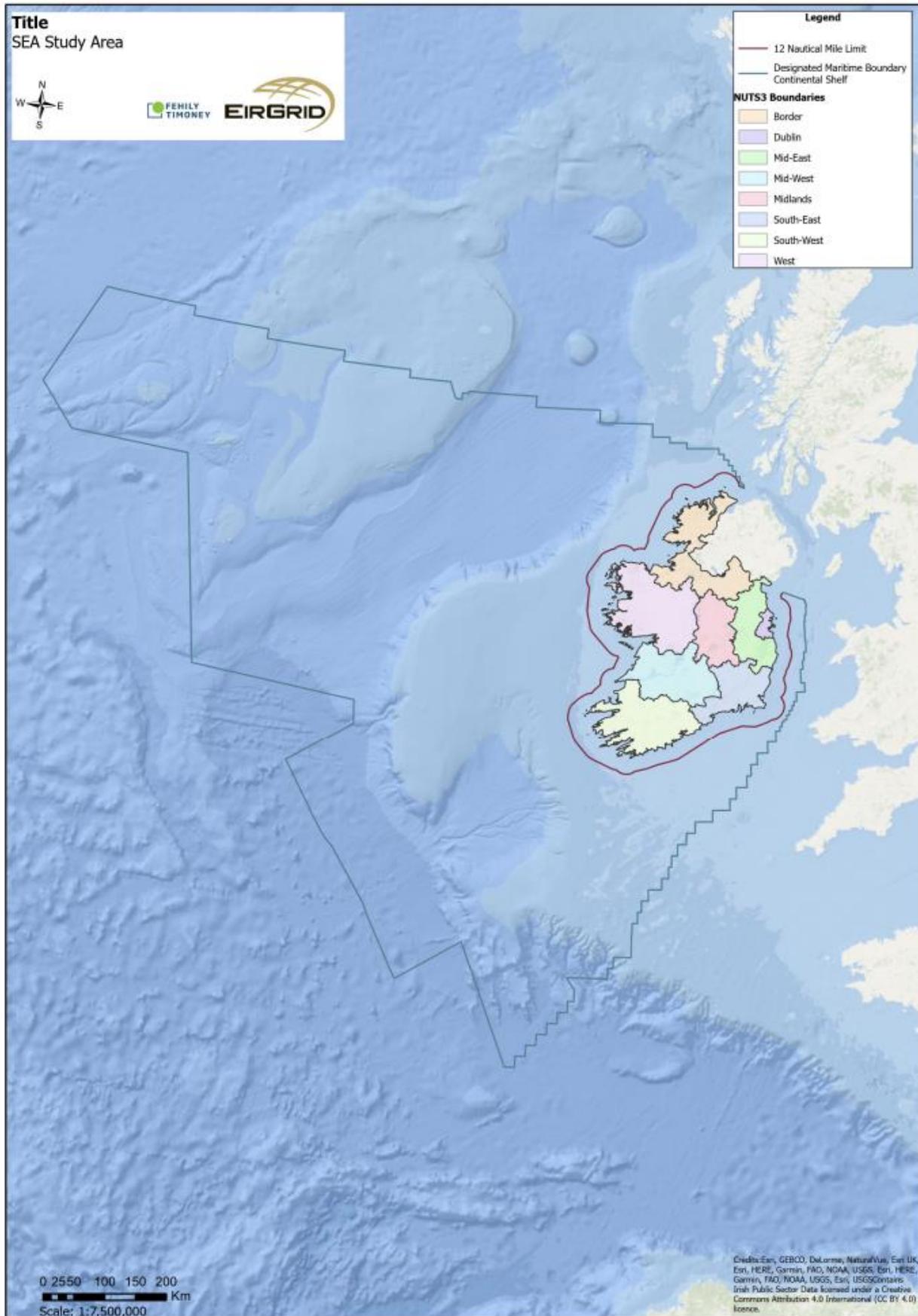


Figure 2-7: SEA Study Area



2.4.3.1 *Transboundary Effects*

The SEA directive requires that where the IP has potential for transboundary environmental effects these must be addressed within the SEA. EirGrid is the Irish TSO in the ROI. The development of the NI transmission networks is provided for by the Transmission Development Plan for Northern Ireland (TDPNI) which is subject to SEA by SONI.

Consultation will be undertaken with all relevant international agencies as appropriate, noting the existing and consented interconnectors as described above in this regard

2.4.4 The IP Temporal Scale

The IP will be published in the latter half of 2023 and will cover the five year period from 2023 up to 2028. It is currently anticipated that a consultation period of twelve weeks will occur to gather feedback on the IP and SEA documents.

2.5 Progress since the Grid Implementation Plan 2017-2022 and associated SEA/AA

EirGrid have continued to develop and improve the national grid producing annual Transmission Development Plans (TDPs) which have all been subject to Environmental Appraisal Reports (for compliance with the SEA of the Grid IP 2017-2022) and submitted to the CRU along with the TDP. These reports track the development of the processes and infrastructure within the national Grid.

Furthermore, EirGrid have been undertaking SEA Monitoring in consultation with the EPA and are currently developing an online interactive 'story-map' to ensure the monitoring results are easily accessible. EirGrid are also exploring the use of dashboarding, to share metrics on ongoing SEA monitoring data.

EirGrid have implemented mitigation measures from the SEA of the 2017-2022 IP; EirGrid have a strategic corporate commitment to review and update EirGrid's Evidence-Based Environmental Studies (EBES) in 2023 and 2024. EirGrid also continues to produce relevant guidelines including:

- EirGrid marine addendum to Ecology Guidelines for Electricity Transmission Projects (in press at time of writing);
- EirGrid 2020. Ecology Guidelines for Electricity Transmission Projects - A Standard Approach to Ecological Impact Assessment of High Voltage Transmission Projects;
- EirGrid. 2019. The Electricity Grid and Your Health: Answering your questions.

These Guidelines are based on evidence from the literature base and/or field studies to provide practical guidance to practitioners, consultants, and competent authorities in the planning and design of transmission infrastructure from the perspective of a particular environmental topic.

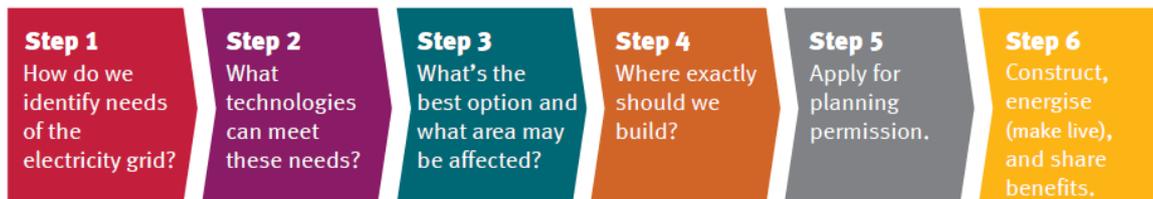
Further details on the progress of all SEA Environmental Mitigation Measures (EMMs) will be outlined in the IP and the SEA Environmental Report at the next stage of the process, in addition to SEA Monitoring Reports to be produced at key milestones in the upcoming 2023-2028 IP cycle.



2.5.1 Transmission Development Process

The existing transmission development framework (summarized in 'Have Your Say', 2017¹⁹) followed by EirGrid is under constant review - The current transmission development process is outlined below.

The approach comprises a 6-step Framework for Grid Development that provides an “end-to-end” structure for all grid projects. It ensures an appropriate balance between technical, economic, environmental, social and community considerations, with significant provision for stakeholder engagement at all stages. The 6-step Development Framework is set out below, and will be further detailed in the IP and the SEA Environmental Report.



2.5.2 Public Engagement

EirGrid places social acceptance at the heart of its process development framework. Since adoption of the 2017-2022 IP, EirGrid has published a new Public Engagement Strategy (2021).

EirGrid’s Public Engagement team has grown since the 2017 IP. In addition to the four Agricultural Liaison Officers, it now includes five EirGrid Community Liaison Officer roles to engage with communities and identify key concerns which may require project mitigations (e.g. re-routing of transmission infrastructure).

In 2022, EirGrid published an enhanced Community Benefit Policy²⁰ as part of its new Public Engagement Strategy. Implementation of the policy, provide direct benefits to communities who are closest to new transmission infrastructure. Funding is provided under three streams: community, sustainability, and biodiversity. Specific requirements for applicants under each stream were being developed at the time of writing; for example, biodiversity projects funded by the scheme will align with the Community Foundation for Ireland Guidance for Community Biodiversity Action Plans.

Funds, which are proportional to the scale of the project, support local good causes, help communities transform their area, and provide the opportunity to each community to become or remain a ‘sustainable energy community’. The community benefit scheme becomes live once a project receives planning permission.

In 2022, EirGrid embarked on a year-long series of citizens roadshow events to inform local communities on EirGrid’s plans to future-proof the electricity grid and provide information including microgeneration, retrofitting grants, and regional development issues.

The roadshows follow on from the 2021 Shaping Our Electricity Future consultation programme during which EirGrid sought views and inputs from all sectors of society and industry about grid development. The Community Benefit Scheme becomes live once a project receives planning permission.

¹⁹ https://www.eirgridgroup.com/__uuid/7d658280-91a2-4dbb-b438-ef005a857761/EirGrid-Have-Your-Say_May-2017.pdf

²⁰ EirGrid. 2021. Community Benefit Policy: Available at <https://www.eirgridgroup.com/site-files/library/EirGrid/209130-EirGrid-Community-Benefit-Policy-A4-Report-final.pdf>



3. PRELIMINARY BASELINE & KEY ENVIRONMENTAL ISSUES

3.1 Introduction

This section of the Scoping Report describes the preliminary baseline environment of the study area which will be incorporated into the SEA process.

The SEA Environmental Report that will accompany the IP on public display will include information on the state of the environment within the defined study area (Figure 2-7), including maps of individual environmental components, environmental sensitivity mapping and a description under the topics identified by the SEA Directive and transposing Regulations (i.e. biodiversity and flora and fauna, population and human health, soil, water, air and climatic factors, material assets, cultural heritage, landscape and the interrelationship between these factors). The SEA Environmental Report will consider the zone of influence for the IP and will include baseline information beyond the IP boundary for certain environmental components e.g. European Sites and the status of shared water bodies.

Information provided in this section is based on readily available baseline data from web-based searches and Geographic Information Systems (GIS) information. A key resource which will be used throughout the SEA process is the EPAs SEA Spatial Information Sources Inventory²¹.

There are a number of Evidence-Based Environmental Studies (EBES) studies which have been undertaken by EirGrid – these are listed in Appendix I. These studies focus primarily on the potential impacts from overhead line projects; but their findings will be relied on - where relevant - throughout the SEA process.

3.2 Population, Human Health and the Economy

3.2.1 Population

A review of the current population trends in Ireland shows that the population has gone from approximately 4.76 million in 2016 to 5.12 million people in 2022 - this is an increase of 7.5% - as per the Central Statistics Office (CSO) census data 2022²²; population growth rates vary at each local authority level but show overall increases (Table 3-1). In 2021 64% of people live in urban areas which contrasts with 46.4% in 1961.

Figure 3-12 shows the settlement patterns within Ireland. The existing transmission network avoids the majority of urban areas; however, they clearly interact in and around the main urban areas due to the function of the transmission grid to carry electricity from where it is generated to where it is required (EBES Study 9).

Household energy use nationally is derived predominantly from natural gas and oil heating. Considerations will have to be made in relation to any potential changes to these demands on foot of COVID19 and the shift towards working from home and/or remote working dynamics.

²¹ Environmental Protection Agency. 2022. SEA Spatial Information Sources: Available at https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.epa.ie%2Fpublications%2Fmonitoring--assessment%2Fassessment%2Fstrategic-environmental-assessment%2FSEA_Spatial_Information_Sources_Updated_May2022.xls&wdOrigin=BROWSELINK

²² Central Statistics Office. 2022. Census Data 2022: FP004 Preliminary Population as per Member of Dáil Éireann and Percentage Change 2016-2022: Available at <https://data.cso.ie/>



Table 3-1: Population of Administrative Counties - between 2016 and 2022 (Source: CSO, 2022²³)

Council Area	Change 2016-22 %
Carlow	+8.8%
Cavan	+6.6%
Clare	+7.2%
Cork City	+5.9%
Cork County	-14% ²⁴
Donegal	+4.5%
Dublin City	+6.1%
Dún Laoghaire-Rathdown	+7.1%
Fingal	+11.2%
Galway City	+4.4%
Galway County	+7.6%
Kerry	+5.1%
Kildare	+11.0%
Kilkenny	+4.5%
Laois	+8.2%
Leitrim	+9.5%
Limerick City and County	+5.4%
Longford	+14.1%
Louth	+7.9%
Mayo	+5.2%
Meath	+12.9%
Monaghan	+5.6%
Offaly	+6.0%
Roscommon	+8.4%
Sligo	+6.5%
South Dublin	+7.5%
State	+7.6%
Tipperary	+5.1%
Waterford City and County	+9.4%
Westmeath	+8.0%
Wexford	+9.2%
Wicklow	+9.2%

²³ Central Statistics Office. 2022. FP003 - Preliminary Population 2022 (cso.ie) [Data \(cso.ie\)](https://www.cso.ie/en/data)

²⁴ It is important to note that this apparent population decline is actually due to a functional change in the Cork City boundary which was extended to include areas such as Ballincollig.



3.2.2 Health

Overall, the health of the population is generally ‘Good’ to ‘Very Good’ based on the CSO (2020²⁵). From In-patient and day case with principal diagnosis and Average length of Hospital Stay CSO statistics from 2021²⁶, respiratory diseases (14%) were the most prevalent conditions for all ages followed by circulatory diseases (12%), Injury and poisonings (12%), external causes (12%) and neoplasms (9%).

Table 3-2: Self Perceived Health Survey (Source: CSO, 2020²⁷)

Age range	Good or Very good	Fair	Bad or Very Bad
15-24	94%	5%	1%
25-34	93%	6%	1%
35-44	91%	6%	2%
45-54	87%	10%	3%
55-64	78%	16%	6%
65-74	71%	22%	7%
75+	60%	30%	10%
Average	48%	13%	2%

Independent and authoritative international panels of scientific experts have reviewed studies on possible health effects from EMFs. These have concluded, based on the weight of the evidence available, that the power frequency electric and magnetic fields encountered in normal living and working conditions do not cause adverse health effects in humans when properly designed and constructed. These form the basis for guidelines published by the International Council on Non-Ionising Radiation Protection (ICNIRP) with regard to EMF, to which EirGrid and ESB Networks have strict regard in the design and operation of the transmission system.

²⁵ Central Statistics Office. 2020. IH210 Self Perceived Health Survey Data as at 2019: available <https://data.cso.ie/>

²⁶ Central Statistics Office. 2020. DHA67 - In-Patient and Daycase with Principal Diagnosis and Average Length of Hospital Stay (cso.ie)

²⁷ Central Statistics Office. 2020. IH210 Self Perceived Health Survey Data as at 2019: available <https://data.cso.ie/>



Figure 3-1: Major Settlement Patterns within Ireland (Source: OSI)



3.2.3 Economy

From 2015, there have been indicators that the Irish economy is recovering as the GDP has grown by 5.2%. In 2012, the unemployment rate rose to its highest rate, 15%, since the recession began in 2008 and as of October 2022, unemployment was down to 4.4% (approximately 117,500 Persons) (CSO, 2022)²⁸. Additionally, Ireland's GDP growth by approx. 13.6% in 2021²⁹. Transmission infrastructure is considered as a key component for sustainable economic development. This shows that the transport sector has the high demand for energy as well as residential and industry and therefore require key considerations in relation to interactions with the grid.

EirGrid have produced two EBES (EBES 1 EMF and 9 Settlement & land use) of direct relevance to Population, Human Health and the Economy; and 2 have indirect relevance (EBES 8 Noise and 10 Landscape & visual). The outcomes of the EBES will be used in the development of EirGrid projects and considered throughout the SEA process.

3.2.4 Key issues Relating to the IP

The key issues in relation to Population, Human Health and the Economy are as follows:

- Population and development growth will potentially influence the energy requirement within Ireland;
- Settlement patterns influence the location of transmission development projects;
- The construction of transmission infrastructure can cause disruption to the local community, such as noise, dust, disruption to services/utilities and traffic etc.;
- Public perception of transmission development proposals;
- Potential impact to energy supply to industry services (e.g. fisheries, tourism etc.);
- Perceived risk and associated anxiety issues related to grid development; and
- Potential visual effect of transmission lines, see also Section Landscape, Seascape and Visual Amenity Landscape, Seascape and Visual Amenity.

3.2.5 Scoping Conclusion

Population increases are seen as a key driver for the IP so this aspect is scoped in to the SEA assessment. Health and economy are potentially impacted by the IP as indicated in the key issues relating to the IP and are therefore both also scoped into the SEA assessment.

3.3 Biodiversity, Flora and Fauna

The SEA will consider available information on designated sites of conservation interest as well as protected species, ecological connectivity and non-designated habitats which have high ecological value. There are a number of considerations for nature conservation designations in Ireland at an International, European and national level including:

²⁸ Central Statistics Office. 2022, [Monthly Unemployment October 2022 - CSO - Central Statistics Office](#)

²⁹ World Bank. 2021. GDP growth (annual %) - Ireland [GDP growth \(annual %\) - Ireland | Data \(worldbank.org\)](#)



- UNESCO³⁰ (United Nations Educational, Scientific and Cultural Organisation) World Heritage and Biosphere sites [currently 2 sites nationally and a further 4 sites on a tentative list];
- Special Areas of Conservation³¹ (SAC)³² [currently 407 sites nationally];
- Special Protection Areas³³ (SPAs)³⁴ [currently 158 sites nationally];
- RAMSAR sites³⁵ (Designated as Wetlands of International Importance) [currently 45 sites nationally];
- National Heritage Areas³⁶ (NHAs) [currently 148 sites nationally] and proposed National Heritage Areas (pNHAs)³⁷ [currently 1089 nationally];
- Wildfowl Sanctuaries³⁸ [currently 68 sites nationally];
- Other designations such as Salmonid Waters^{39 40}, Freshwater Pearl Mussel⁴¹ (FWPM) Catchments and Nature Reserves⁴² [currently 76 sites nationally];
- OSPAR Marine Protected Areas⁴³ [currently 19 sites proposed];
- Marine Protected Areas⁴⁴ [as these sites are not yet designated - Recommendations of the MPA Advisory Group Report (2020) along with recommendations of Fair Seas Sites⁴⁵]; and
- CORINE Landcover⁴⁶;

Additionally, the SEA will consider non designated sites for impacts with regard aspects such as:

- Ecological connectivity and networks - such as coastal systems, riparian habitats, hedgerow and other blue and green infrastructure networks.;
- Waterbodies (marine and inland), woodlands, wetlands, peatlands and marine⁴⁷ data; and
- Other sites of high biodiversity value or ecological importance such as semi-natural habitats in NPWS national surveys (native woodlands, reef systems, tidal habitats, grasslands, peatlands etc.).

³⁰ [UNESCO Sites in Ireland - HeritageMaps.ie - data.gov.ie](https://www.data.gov.ie/dataset/69699)

³¹ [Designated site data | National Parks & Wildlife Service \(npws.ie\)](https://www.npws.ie/Designated-site-data)

³² [Habitats Directive \(1992/43/EEC\) - habitats and species listed in Annex I and II](https://www.npws.ie/Habitats-Directive-1992-43-EEC)

³³ [Designated site data | National Parks & Wildlife Service \(npws.ie\)](https://www.npws.ie/Designated-site-data)

³⁴ [Birds Directive \(2009/147/EEC\)](https://www.npws.ie/Birds-Directive-2009-147-EEC)

³⁵ [Ramsar Sites - Datasets - data.gov.ie](https://www.data.gov.ie/dataset/69699)

³⁶ [Natural Heritage Areas \(NHA\) | National Parks & Wildlife Service \(npws.ie\)](https://www.npws.ie/Natural-Heritage-Areas-NHA)

³⁷ [pNHA Site Synopsis Portfolio \(npws.ie\)](https://www.npws.ie/pNHA-Site-Synopsis-Portfolio)

³⁸ [Wildfowl Sanctuaries | National Parks & Wildlife Service \(npws.ie\)](https://www.npws.ie/Wildfowl-Sanctuaries)

³⁹ [Register of Protected Areas - Salmonid Water Regs Table - Datasets - data.gov.ie](https://www.data.gov.ie/dataset/69699)

⁴⁰ Salmonid waters are designated and protected as under the European Communities (Quality of Salmonid Waters) Regulations 1988 (SI No. 293 of 1988). Designated Salmonid Waters are capable of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

⁴¹ [Habitat and Species data | National Parks & Wildlife Service \(npws.ie\)](https://www.npws.ie/Habitat-and-Species-data)

⁴² [Nature Reserves in Ireland | National Parks & Wildlife Service \(npws.ie\)](https://www.npws.ie/Nature-Reserves-in-Ireland)

⁴³ [OSPAR Convention to Protect the Marine Environment of the North East Atlantic, Ireland committed to establishing marine protected areas to protect biodiversity](https://www.data.gov.ie/dataset/69699)

⁴⁴ [gov.ie - Marine Protected Areas \(www.gov.ie\)](https://www.data.gov.ie/dataset/69699)

⁴⁵ [FS_full_report_pages.pdf \(fairseas.ie\)](https://www.fairseas.ie/FS_full_report_pages.pdf)

⁴⁶ [Land cover is the observed physical cover, as seen from the ground or through remote sensing, including for example natural or planted vegetation, water and human constructions which cover the earth's surface.](https://www.data.gov.ie/dataset/69699)

⁴⁷ [Ireland's Marine Atlas](https://www.data.gov.ie/dataset/69699)



The SEA harnesses available data sources including those from the National Parks and Wildlife Service, the EPA’s Framework National Ecological Network for Ireland, National Biodiversity Data Centre (NBDC) and CORINE land cover mapping. Additionally the SEA will make use of the EBES relevant to ecology (EBES 3: Bats, EBES 4: Habitats, EBES 5: Birds, and EBES 6: Water Quality & Aquatic Ecology. EirGrid have also prepared the Ecological Guidelines for Electricity Transmission Projects: A standard approach to Ecological Impact Assessment of High Voltage Transmission Projects in 2020.

An independent Appropriate Assessment process will be undertaken alongside the SEA; the emerging findings of this assessment process will inform the SEA following the EPA’s 2013 Integrated Biodiversity Impact Assessment - Streamlining AA, SEA and EIA Processes: Practitioner’s Manual. The existing grid network overlaps with a range of designated sites with extensive lengths of transition networks within (see Table 3-3) which can be seen in Figure 3-23 and Figure 3-34.

Table 3-3: Length of the existing transition network within protected sites

	SAC		SPA		NHA		pNHA	
	Distance in km	% of Line	Distance in km	% of Line	Distance in km	% of Line	Distance in km	% of Line
110kV	82,170	0.92	102,401	1.15	20,798	0.233764	96,495	1.08
220kV	36,388	1.10	31,397	0.95	1,421	0.043247	28,495	0.86
400kV	4,552	0.62	29,351	4.0	5,362	0	5,426	0.74
Total	135,865	0.90	174,086	1.16	27,581	0.18453211	133,635	0.89

As well as considerations related to European sites - a focus will be placed on protected species outside of these designations such as bats⁴⁸, breeding birds⁴⁹, badgers⁵⁰ etc. as well as all species listed within the Flora (Protection) Order, 2022 (S.I. No. 235 of 2022)⁵¹. Ecological connectivity and networks will be a key consideration along with invasive species - particularly those listed on the Third Schedule to the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I.477/2011].

⁴⁸ The Habitats Directive (1992/43/EEC) and Birds Directive (2009/147/EEC) provides legal protection for habitats and species of European importance. The overall aim of the Habitat and Birds Directives are to maintain or restore the “favourable conservation status” of habitats and species of European Community Interest. These habitats and species are listed in the Habitats and Birds Directives (Habitats Directive as above and Directive 2009/147/EC on the conservation of wild birds) with Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated to afford protection to the most vulnerable among them. These two designations are collectively known and referred to as European sites. Articles 6(3) and 6(4) of the Habitats Directives set out the decision-making tests for plans and projects likely to affect such sites. Article 6(3) establishes the requirement for AA. These requirements are implemented in the Republic of Ireland by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) and the Planning and Development Act 2000 (as amended). Further to the requirements of considerations related to European sites protected Annex IV of the Habitats Directive identifies priority species which are afforded protection in their own right - these include all Irish species of bats. Bats are also protected under the Irish Wildlife Acts, 1976 and 2000.

⁴⁹ Irish Wildlife Acts, 1976 (as amended)

⁵⁰ Irish Wildlife Act 1976 (as amended) and Bern Convention Appendix III

⁵¹ Which gives legal protection to 68 species of vascular plants 65 species of bryophytes in the Republic of Ireland (25 liverworts and 40 mosses). The current list of plant species protected by Section 21 of the Wildlife Acts is set out in the Flora (Protection) Order, 1999 (as amended).

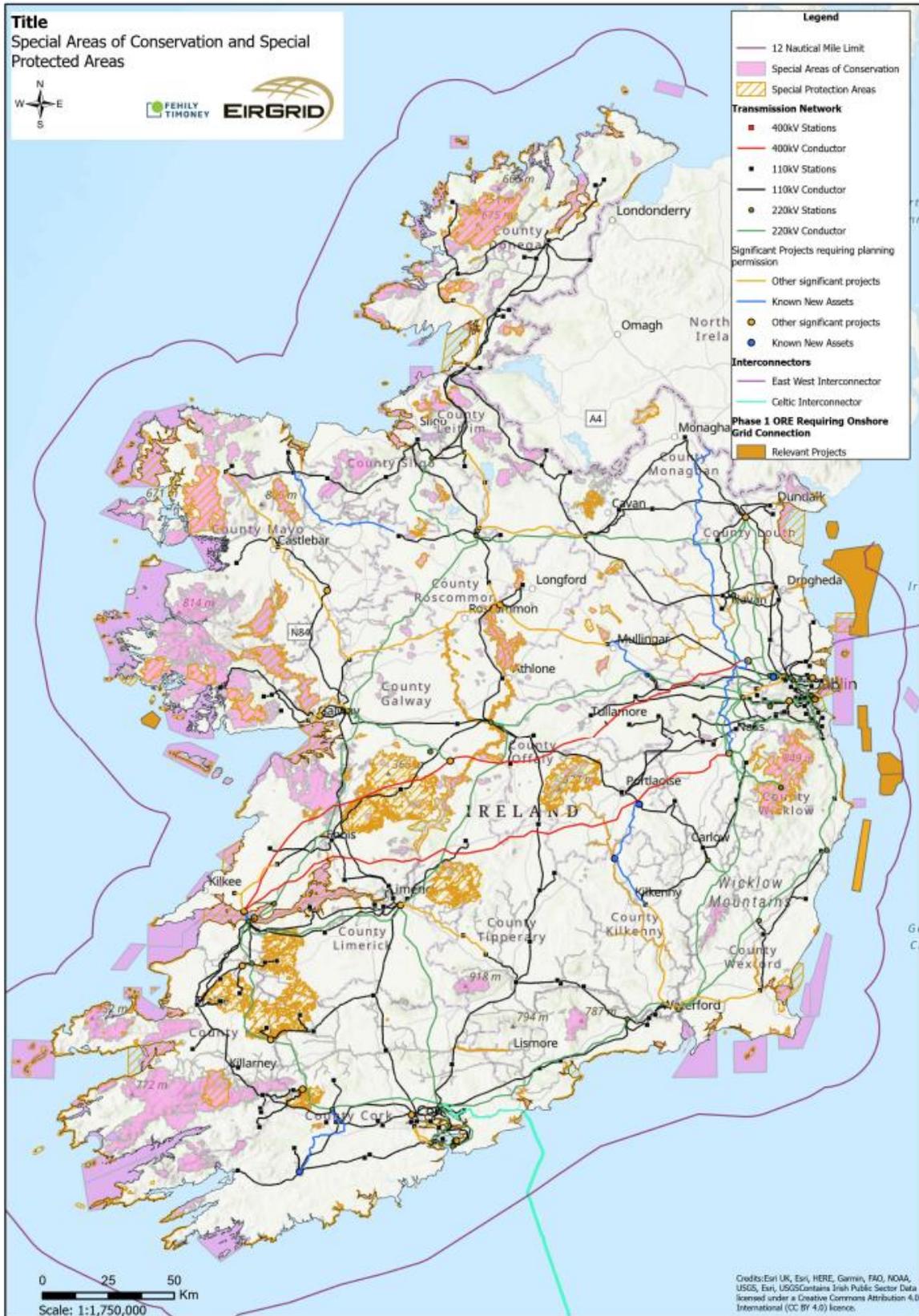


Figure 3-2: Special Areas of Conservation and Special Protection Areas in Ireland (Source: NPWS) overlaid with the existing grid network



Figure 3-3: Natural Heritage Areas and proposed Natural Heritage Areas in Ireland (Source: NWPS) overlaid with the existing grid network



3.3.1 Key Issues Related to the IP

The key considerations in relation to Biodiversity, Flora and Fauna are as follows:

- Route selection and classification criteria are in the development of the IP due to the largely linear nature of the developments associated with the IP.
- The potential for effects to the marine environment - particularly with respect to noise impacts⁵² - to ranging patterns of mobile species and benthic communities around sea cabling;
- The potential for effects on non-designated biodiversity features e.g. important habitats and species outside designated sites - particularly with regard to fragmentation, barriers to movement and displacement;
- The potential for effects on protected areas: National and European sites (e.g. SAC, SPAs, RAMSAR), National sites (e.g. NHAs) and other Natural Heritage Sites and Conservation Interest Sites e.g. refuge for fauna or flora, wildfowl reserves;
- The requirement for ecological protection can pose restrictions to existing/future transmission development;
- The potential to spread invasive species; and
- Potential for biodiversity enhancement.

3.3.2 Scoping Conclusion

Biodiversity resources have the potential to be impacted by the IP and are therefore scoped in to the SEA assessment.

3.4 Landscape, Seascape and Visual Amenity

There are six areas designated and recognised as nationally important landscapes within Ireland. All of these are National Parks; Ireland has no Areas of Outstanding Natural Beauty.

There is a National Landscape Strategy for Ireland 2015-2025, published by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRG) in 2015; however, there is currently no published national level landscape mapping for Ireland. The Planning and Development (Amendment) Act 2010 defines the term 'landscape' which will be used in the SEA. Moreover, the Marine Institute have published a Regional Seascape Character Assessment for Ireland (2020)⁵³.

In addition, many Local Authorities have incorporated landscape designation into their Development Plans in the form of protected views, prospects, landscape conservation areas and scenic routes etc. Similar to LCAs, there is no national standardised approach for designating these landscape features/sites.

⁵² Environmental Protection Agency. 2013. Mapping the spatio-temporal distribution of underwater noise in Irish Waters STIVE - available at [STRIVE-121-Mapping-the-spatio-temporal-distribution-of-underwater-noise-in-Irish-Waters.pdf](https://www.epa.ie/publications/default.aspx?category=2&id=121) (epa.ie)

⁵³ Marine Institute (2020) Regional Seascape Character Assessment for Ireland: Available at https://emff.marine.ie/sites/default/files/bluegrowth/PDFs/final_seascape_character_assessment_report_with_annexes.pdf



EirGrid have produced EBES 10: Landscape & Visual of direct relevance to Landscape and Visual Amenity. These maps and data will be updated and refined throughout the SEA process according to the current Corine Map data - and informed by the county specific Landscape Character Assessments (where available). The existing landscape baseline is not expected to change significantly in the immediate future; however, the push for wind energy developments both onshore and offshore could shift the baseline at a local context. All of which will be included within the iterative SEA process as the IP is developed.

The SEA assessment of landscape will utilise information from the following sources:

- EirGrid environmental sensitivity mapping;
- Marine Institute Seascape character and assessment resources⁵⁴
- The National Landscape Strategy for Ireland;
- Tree Preservation Orders;
- Forest cover/Indicative Forest Strategies⁵⁵;
- County Development Plans;
- County Landscape Character Assessments; and
- EBES 10: Landscape & Visual.

3.4.1 Key Issues Relating to the IP

The key issues in relation to Landscape and Visual Amenity are as follows:

- Effects of transmission infrastructure on areas of designated landscape quality and scenic views etc.;
- Grid development options can be constrained by the need to protect the landscape character and features;
- Sensitivity of the landscape to change from transmission infrastructure; and
- Visual intrusion on receptors from transmission infrastructure both onshore and offshore.

3.4.2 Scoping Conclusion

Landscape, Seascape and Visual Amenity has the potential to be impacted by the IP and is therefore scoped in to the SEA assessment.

⁵⁴ <https://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4450>
<https://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4451>
<https://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4452>
<https://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4453>

⁵⁵ Department of Agriculture, Food and the marine



3.5 Cultural Heritage - Archaeological and Architectural

Archaeological sites are legally protected⁵⁶. One of the primary sources of information for known archaeological features is the Record of Monuments and Places (RMPs)⁵⁷. The RMP is an inventory of sites and areas of archaeological significance. There are 150,800 recorded monuments on the RMP and over 138,800 of these relate to archaeological monuments (NMS, 2020). The locations of the known archaeological sites will be detailed as required at the next stage the SEA process.

Local authorities compile and maintain the RPSs⁵⁸, these RPSs are listed in the County Development Plans, but are not available in digital map format for some County Council's. Consultation with the relevant Local Authorities will take place during the next stage of SEA process to obtain further details of these RPSs as required to undertake the assessment. It is acknowledged that the register of protected structures documented in CDPs may not represent all Ministerial recommended sites/structures which are included in the National Inventory of Architectural Heritage (NIAH)⁵⁹. The purpose of the NIAH is to identify, record, and evaluate the post-1700 heritage of Ireland and there are over 50,000 listings on the NIAH in Ireland (DAHRRG, 2022). These provisions include underwater archaeological heritage⁶⁰.

The DCHG has developed Heritage Ireland 2030⁶¹ plan, published in November 2020, serving the purpose of informing decision-making process. Architectural Conservation Areas⁶² (ACAs) are designated for their special characteristics and distinctive features. ACAs in Ireland are detailed in the various County and Local Area Development Plans (some of which are pending designation). Consultation with the relevant Local Authorities will be undertaken during the next stage of the SEA process to obtain further details of these ACAs as required to undertake the SEA.

There are two registered⁶³ UNESCO World Heritage Sites in Ireland:

- Brú na Bóinne - Archaeological Ensemble of the Bend of the Boyne in Co. Meath; and
- Skellig Michael off the coast of Co. Kerry.

Moreover, EirGrid have produced a number of EBES of direct and indirect relevance to Cultural Heritage - Archaeology and Architectural (EBES 2: Cultural Heritage, EBES 9: Settlement & Land Use, EBES 10: Landscape & Visual). EBES No. 2 has informed the guidance document: Cultural Heritage Guidelines for Electricity Transmission Projects which is utilised in the development of EirGrid projects.

The SEA assessment of Cultural Heritage - Archaeological and Architectural will utilise information from the following sources:

⁵⁶ National Monuments Acts 1930 (as amended), the National Cultural Institutions Act 1997 (as amended) and the Planning and Development Act 2000 (as amended)

⁵⁷ Data available at <https://data.gov.ie/dataset/national-monuments-service-archaeological-survey-of-ireland>

⁵⁸ under Section 51 of the Planning & Development Act 2000 (as amended).

⁵⁹ Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 (as amended) Data available at <https://data.gov.ie/dataset/national-inventory-of-architectural-heritage-niah-national-dataset>

⁶⁰ Department of Housing, Local Government and Heritage. 2015. Advice to the Public on Ireland's Underwater Archaeological Heritage

⁶¹ Available at <https://assets.gov.ie/216635/dc419679-e615-415b-a707-118ce4411501.pdf>

⁶² Designated under Section 81 of the Planning & Development Act 2000 (as amended)

⁶³ With 4 sites suggested on the tentative list of proposed sites.



- The Department of Arts, Heritage Regional, Rural and Gaeltacht Affairs⁶⁴ (including underwater archaeology such as wreck data⁶⁵);
- National Monuments Service (including the Underwater Unit);
- Built Heritage and Architectural Policy Section (the NIAH)⁶⁶;
- County Development Plans;
- Heritage Council;
- UNESCO;
- EirGrid Evidence Based Environmental Studies.

3.5.1 Key Issues Relating to the IP

The key issues in relation to Cultural Heritage are as follows:

- The potential impact of the construction of transmission infrastructure on archaeological and architectural heritage, including risk of encountering UXO in the marine environment;
- The potential impact on the setting of archaeological and architectural heritage due to the permanent presence of transmission infrastructure; and
- Grid development options can be constrained by the need to protect the character of areas of existing archaeological and architectural resources.

3.5.2 Scoping Conclusion

Archaeological, Architectural and Cultural Heritage has the potential to be impacted by the IP and is therefore scoped in to the SEA assessment.

3.6 Geology and Soils

3.6.1 Geology

The topography of Ireland varies greatly, comprising of a low-lying central limestone plain that is surrounded by coastal mountains. The mountains to the north-west (Galway, Mayo and Donegal) and east (Wicklow Mountains) are comprised of granite. The north-east of Ireland is covered in a basalt plateau and to the south, the mountains run in an east-west direction and is largely composed of a red sandstone rock, see Figure 3-45.

As part of the Irish Geological Heritage (IGH) Programme, a partnership between GSI and the NPWS, the GSI have identified important geological and geomorphological sites which could be conserved as NHAs. Until designation is confirmed, these sites are classified as Irish Geological Heritage Sites (IGHS). There are over 900 IGHS identified around Ireland.

⁶⁴ Department of Arts, Heritage and the Gaeltacht

⁶⁵ <https://www.archaeology.ie/underwater-archaeology/wreck-viewer>

⁶⁶ Data available at <https://data.gov.ie/dataset/national-inventory-of-architectural-heritage-niah-national-dataset>



3.6.2 Soils

Subsoils in Ireland are made up of glacial and post-glacial sediments. Glacial till makes up the majority of subsoil, while other subsoils found in Ireland are sand and gravel, lake deposits, alluvium and peat.

Soil in Ireland is regarded as generally good quality in terms of its physical, chemical and biological indicators. However, soil is increasingly under pressure from population growth and land use changes such as agriculture, erosion, afforestation and overgrazing. Agricultural activity has had a huge impact on soil in Ireland, where the excessive use of fertilizer (i.e. phosphorus) has adverse impacts on water quality. Soil contamination can also occur from leakages, spillages from industry, old mining sites and landfills. Diffuse pollution will usually arise from primary activities such as agriculture, forestry and horticulture. Marine sediments are primarily rock, coarse sediment and mixed sediment; where mud sediments are present these areas tend to have higher levels of biodiversity (which will be regarded in the biodiversity section of the SEA).

There is no legislation solely directed to soil protection in Ireland. In 2006, the European Commission (EC) developed a Soil Thematic Strategy that aims to protect soils and ensure the sustainable use of soils across Europe. A Soil Framework Directive had been proposed, but in 2014 this was withdrawn.

In Ireland, peatland areas comprise 20.6% of our land area (An Taisce, 2022). Peatlands include blanket bogs, raised bogs, fens and wet and dry heath. The main threats to peatland areas in Ireland are peat extraction, habitat changes, invasive alien species, nutrient pollution and climate change (Teagasc, 2016). The loss and degradation of peatlands can affect biodiversity, flooding and climate change (carbon sinks).

EirGrid have undertaken a specific EBES on soils and geology (EBES 7: Soils & Geology).

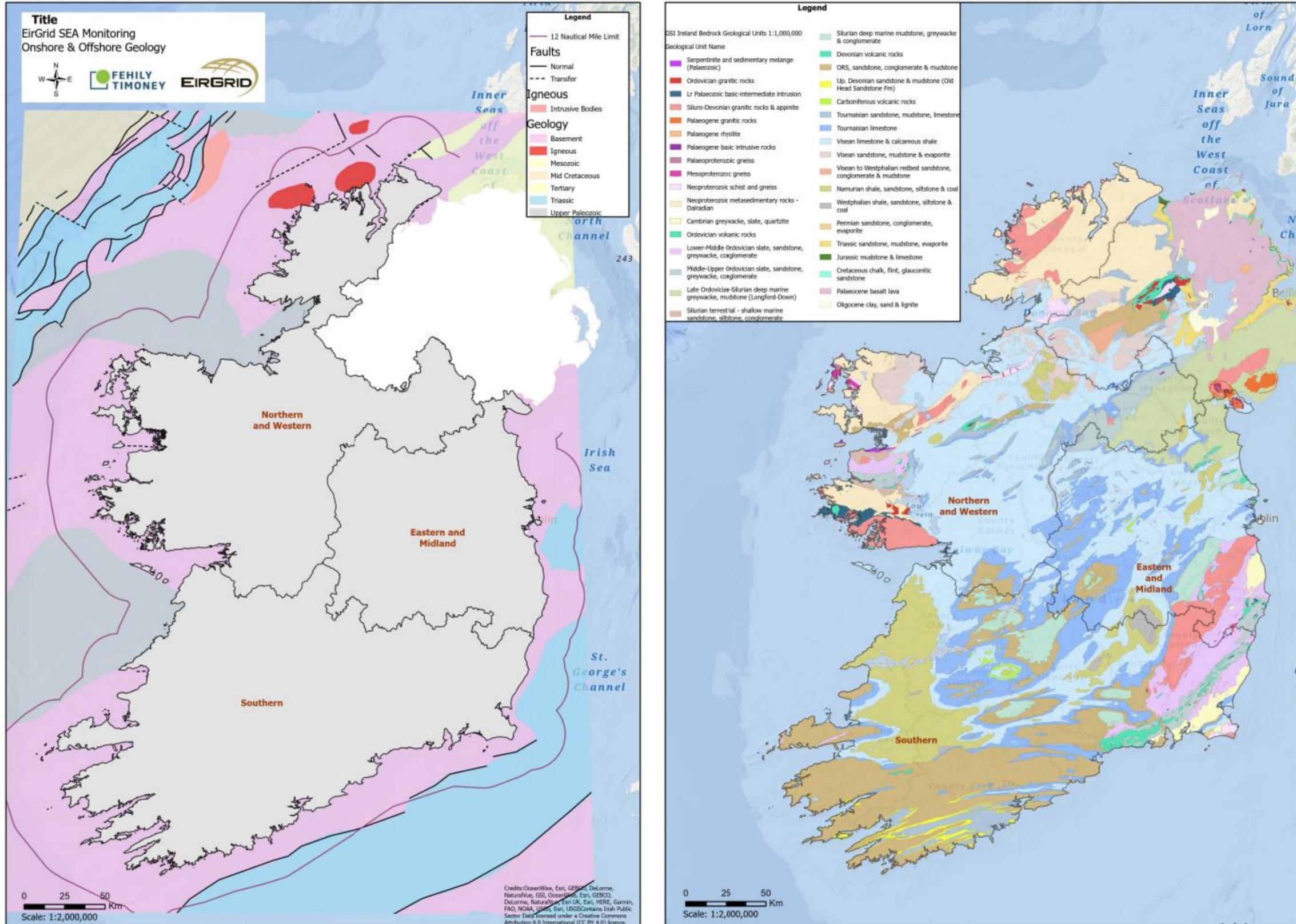


Figure 3-4: Geology of Ireland (Source: GSI)



The SEA of Geology and Soils will utilise information from the following sources:

- GSI;
- Teagasc;
- Infomar⁶⁷;
- EPA; and
- EBES 7: Soils & Geology.

3.6.3 Key Issues Relating to the IP

The key issues in relation to Geology and Soils are as follows:

- Potential for impacts on geological features (such as karst) or geological designations;
- Potential for impacts on soil resources and offshore sediment transport;
- Potential impacts to soils (land) vulnerable to erosion; and
- Potential for unearthing contaminated material.

3.6.4 Scoping Conclusion

Geology has been scoped into the SEA because of the potential effects to geological features and heritage, such as karst features, from the IP. Soil has been scoped into the assessment, as the IP has potential to affect soil resources.

3.7 Land Use

Information on land use in Ireland can be obtained from the CORINE Land Cover (CLC) inventory and Ireland's Marine Atlas⁶⁸. These data sources have archives which document land use change as well as existing land use.

Planning and land use policy over twenty years was reviewed as part of EirGrid EBES No. 9. This study demonstrated that Development Plans in the 1990s displayed a varied awareness of the importance of transmission infrastructure. However, by the mid-2000s, plans referred to the grid and renewable energies, as well as to protection of sensitive landscapes and residential amenity. Since the mid-2000s, ESB clearance distances have been articulated in Development Plans and some Development Plans⁶⁹ now typically refer to specific transmission projects within their functional areas⁷⁰. EirGrid have produced a number of publications of relevance to land use:

- EBES 9: Settlement & Land Use - this study examined the effects of the construction and presence of high voltage transmission infrastructure on patterns of settlement and land use in Ireland;
- Your Grid, Your Views, Your Tomorrow. Responding to Agriculture Concerns (2015); and
- Your Grid, Your Views, Your Tomorrow. Responding to Equine Concerns (2015).

⁶⁷ [Seabed and Sediment Data | Infomar](#)

⁶⁸ Available at <https://atlas.marine.ie/#?c=53.9108:-15.9082:6>

⁶⁹ Such as the Cork County Development Plan (2022-2028) Objective ET 13-23: Celtic Interconnector

⁷⁰ This is the result of the EirGrid Planning and Environmental Unit engaging on CDP consultations

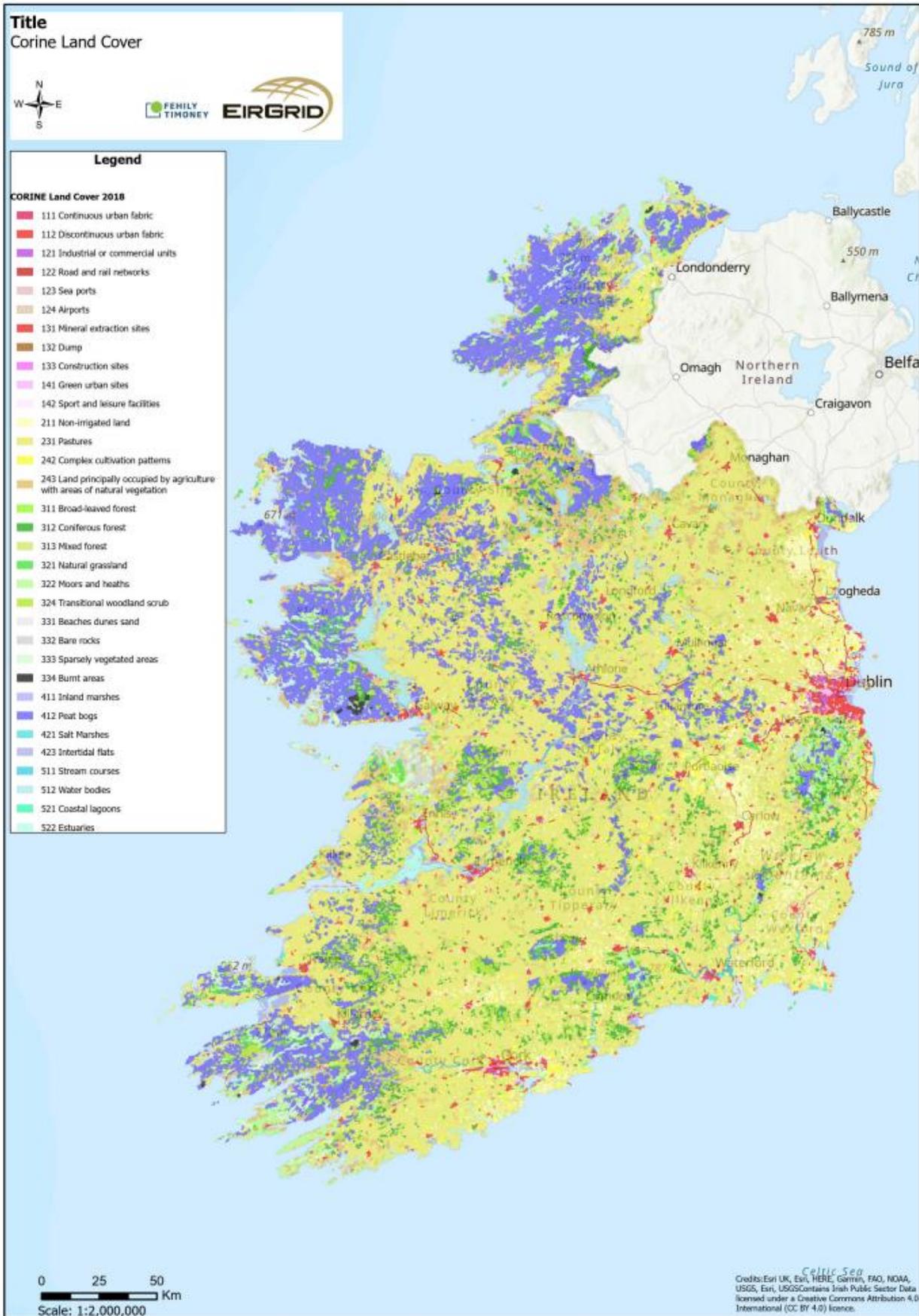


Figure 3-5: Land Use of Ireland (Source: EPA-CORINE November 2022)



The CORINE database is the dominant land use database; however, some sectors have additional spatial data resources such as forestry. The Forestry Service have produced a GIS based Forest Inventory Planning System (FIPS) to act as an aid in the long-term spatial planning of national forest, and to provide guidance to forestry grants. Additional sources of further land use data include the NPWS⁷¹.

The SEA process will consider land use impacts - utilising data from sources such as:

- CORINE Land Cover Database;
- Teagasc;
- EPA;
- NPWS;
- Forest Service;
- Bord na Mona;
- Marine Institute;
- Sea Fisheries Protection Authority (SFPA);
- GSI data; and
- EBES 9: Settlement & Land Use.

3.7.1 Key Issues Relating to the IP

The key issues in relation to land use are as follows:

- Potential constraints on sea fisheries, both during construction and operation of infrastructure projects associated with the IP; and
- Potential constraints on other sections such as agricultural, forestry and fisheries; primarily related to construction and operation of infrastructure projects associated with the IP.

3.7.2 Scoping Conclusion

Land use has been scoped into the assessment, as developments have the potential to affect to various sectors.

3.8 Air Quality and Noise

3.8.1 Air

The Air Quality in Ireland report 2021 prepared by the EPA identifies that:

- Air quality in Ireland is generally good, however, there are concerning localised issues that are impacting negatively on the air we breathe.

⁷¹ Sources such as the Lesser Horseshoe Bat Species Action Plan 2022-2026, Draft National Peatland Strategy, Draft Raised Bog SAC Management Plan, and Draft Raised Bog NHAs Review.



- Air quality monitoring results in 2021 show that fine particulate matter mainly from burning solid fuels in our homes, and nitrogen dioxide (NO₂) mainly from road transport, remain the main threats to good air quality.
- EPA monitoring shows that fine particulate matter (PM_{2.5}) and Nitrox Oxide (NO₂) levels are within the current EU legal limits, however these pollutants exceed the World Health Organization (WHO) (2021) guidelines⁷².

Under the Clean Air for Europe Directive [Directive 2008/50/EC], EU member states must designate "Zones" for the purpose of managing air quality. There are four such zones in Ireland as follows:

- Air Zone A: Dublin conurbation;
- Air Zone B: Cork conurbation;
- Air Zone C: Other cities and large towns; and
- Air Zone D: Rural Ireland.

3.8.2 Noise

The EEA⁷³ states that "environmental noise can be defined as unwanted or harmful outdoor sound". The EU Noise Directive (2002/49/EC) relates to the assessment and management of environmental noise⁷⁴. This Directive called for the development of strategic noise maps and action plans for major roads, railways, airports and cities. To date these have been produced for the road network only.

EirGrid have produced one EBES of relevance to Noise (EBES 8: Noise); which found that the results from the 110 kV and 220 kV overhead line surveys present strong evidence that lines of these voltages are not likely to result in significant noise impacts in their vicinity. The noise study on the 400 kV overhead line provided evidence which showed that these lines can produce localised significant 'corona'⁷⁵ noise effects under certain conditions (especially at night under humid or wet conditions). This evidence was consistent with other literature on the subject was reviewed in EBES 8: Noise. There is evidence of spatio-temporal effects of noise within the marine environment⁷⁶ which will need to be considered within the SEA. A, in addition to impacts of noise on marine mammals under Biodiversity.

The SEA will consider Air Quality and Noise using data from the following sources:

- EPA;
- WHO; and

⁷² World Health Organization. 2021. WHO global air quality guidelines: particulate matter (PM_{2.5} and PM₁₀), ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide. World Health Organization. <https://apps.who.int/iris/handle/10665/345329>. License: CC BY-NC-SA 3.0 IGO

⁷³ EEA. 2022. Noise Data Briefing

<https://www.eea.europa.eu/soer/2015/europe/noise#:~:text=Environmental%20noise%20can%20be%20defined,of%20exposed%20humans%20and%20wildlife>.

⁷⁴ This was transposed into Irish national legislation via the Environmental Noise Regulations (S. I. No. 140 of 2006).

⁷⁵ Audible noise associated from high voltage transmission lines – generally heard as crackling and hissing

⁷⁶ Environmental Protection Agency. 2013. Mapping the spatio-temporal distribution of underwater noise in Irish Waters STIVE - available at [STRIVE-121-Mapping-the-spatio-temporal-distribution-of-underwater-noise-in-Irish-Waters.pdf](https://www.epa.ie/publications-and-reports/other-reports-and-publications/STIVE-121-Mapping-the-spatio-temporal-distribution-of-underwater-noise-in-Irish-Waters.pdf) (epa.ie)



- EBES 8: Noise.

3.8.3 Key Issues Relating to the IP

The key issues in relation to Air Quality and Noise are as follows:

- Transmission developments, particularly during the construction phase, may have a temporary negative impact on air quality and create noise pollution; and
- High voltage transmission infrastructure has associated noise outputs - note there is no above ground noise associated with underground cabling.

3.8.4 Scoping Conclusion

Air Quality and Noise have the potential to be impacted by the IP as outlined in the key issues relating to the IP, and both are therefore scoped in to the SEA assessment.

3.9 Water

The EU Water Framework Directive (2000/60/EC) establishes a framework for the protection of both surface and groundwater. Transposing legislation outlines the water protection and water management measures required in Ireland to maintain high status of waters where it exists and to prevent any deterioration in existing water status. The second cycle of the River Basin Management Plan (RBMP) ran from 2018-2021, where separate plans were devised for all eight River Basin Districts (RBDs) with the objective of achieving at least 'good' status for all waters by 2027. The next RBMP 2022-2027 is currently in draft and is likely to be published before the completion of the SEA process for the IP.

EirGrid have produced one EBES of relevance to Water:

- EBES 6: Water Quality & Aquatic Ecology – This study examines the actual effects of high voltage transmission projects on Water Quality and Aquatic Ecology at a number of sites.

Water quality data is collected by the EPA on water quality. The water quality at half (50%) of the monitored river water bodies in Ireland are categorised as being at 'good' and 'high' ecological status. Almost one fifth (18.5%) of monitored river water bodies are in poor or bad status and are severely polluted. There has been a 1% decline in the ecological health of monitored river water bodies since the 2013-2018 period. The majority of Ireland's population live on or near the coast and this creates pressure for transitional waters. New data recently published by the EPA for the period from 2018-2021 will inform the SEA for the IP. Pollution from agricultural runoff (nitrates, phosphates etc.) and urban wastewater pose the biggest threat to transitional and coastal waters.

The EU Groundwater Directive (2006/118/EC) uses a holistic approach to groundwater by addressing the relationships between groundwater, surface water and ecological receptors. Groundwater is considered by its ecological status, which is based on two assessments: chemical and quantitative status. Both of these need to be in good condition for the overall water body to be classified as good.



Flooding, particularly from fluvial and coastal sources, is an increasing problem in Ireland and there have been notable flood events over the last ten years⁷⁷. The OPW is the lead agency tasked with the management of flood risk in the ROI. In 2022, the OPW reviewed their 2016 Flood Risk Management Plans (FRMP). The purpose of each FRMP is to outline the long-term strategy to manage flood risk in Ireland.

The Water assessment will utilise information from the following sources:

- EPA and Marine Institute - WFD Data;
- GSI data on groundwaters, aquifers and bedrock information;
- Catchment Flood Risk Assessment and Management (CFRAM) Study and associated FRMPs (OPW, as reviewed 2022);
- Flood Risk Assessment (FRA) Mapping⁷⁸ (OPW); and
- EBES 6: Water Quality & Aquatic Ecology.

3.9.1 Key Issues Relating to the IP

The key issues in relation to Water are as follows:

- Potential pressures and impacts on water body status from the construction of transmission projects i.e. increased sedimentation, groundwater recharge and accidental spillages etc.

3.9.2 Scoping Conclusion

The IP has the potential to impact on Surface and Groundwater resources. Therefore, water is scoped into the SEA assessment.

3.10 Materials Assets and Infrastructure

National level material assets include transport infrastructure (roads, railways, canals, trams, airports and ports, and including shipping routes), power generation plants and supply networks, water supply, wastewater treatment infrastructure and waste disposal sites among others. Potential opportunities and conflicts will be with these assets will be considered in the SEA. Wastewater and water treatment plants now under the jurisdiction of Irish - subject to Licences by the EPA. Other material assets covered by the SEA include archaeological and architectural heritage (see Section 3.5) natural resources of economic value, such as water, air and soil⁷⁹ (see Sections 3.6, 3.8 and 3.9). Possible links to natural capital and the understanding of ecosystem service flows will be incorporated into the assessment.

⁷⁷ Floodlist (2022) Archive of significant flood events in Ireland - Available at <https://floodlist.com/tag/ireland>

⁷⁸ OPW (2022) Flood risk maps and data platform - Available at <https://www.floodinfo.ie/map/floodmaps/>

⁷⁹ Soil and geological resources will be considered under this topic including with respect to mineral locations and aggregate potential.



3.10.1.1 Energy Related Material Assets and Infrastructure

In 2020, SEAI (2020⁸⁰) published data showing 86% of Ireland's energy came from fossil fuels at that time. Transportation and residential represented the highest resource demand. EirGrid have a smart grid information system which presents live measures of grid performance⁸¹.

The Grid successfully ran at between 70% and 75% variable renewable energy for a total of 232 hours during 2021/2022 trial. EirGrid previously imposed a cap of 70% on the amount of variable renewable generation on the grid at a given time. In April 2022, this has now been raised to 75% following a successful 11-month trial. Under the 2021 Climate Action Plan, the Government has raised the Renewable Energy ambition from 70% of generation, to up to 80%. EirGrid is exploring further changes to operational practices to operate the power system with variable renewable energy levels of up to 95% and with significantly reduced numbers of conventional units online. The figure of 95% will be required to deliver on the Climate Action Plan ambition, within the next Plan cycle.

EirGrid operate the transmission system comprised of 400 kV, 220 kV and 110 kV lines, cables and substations spanning across Ireland. EirGrid also operate the East West Interconnector, a 500 MW High Voltage Direct Current (HVDC) link between the electricity transmission grids of Ireland and Great Britain.

Transmission connected generation includes

- Hydro generation;
- Thermal generation;
- Solar generation;
- Tidal generation;
- Gas generation;
- Pumped storage generation; and
- Wind generation.

The generation of renewable energy has been increasing over the past ten years, with a growth in the number of wind farms (from 5.8% of gross final energy consumption in 2010 to 13.5% of GFC in 2020⁸²). This is an important feature of EirGrid's function both onshore and offshore. The major power generation stations run by the ESB in Ireland include:

- Dublin: North Wall, Poolbeg and Dublin Bay Power;
- Cork: Aghada and Marina;
- Clare: Moneypoint;
- Offaly: West Offaly Power; and
- Longford: Lough Ree Power.

⁸⁰ SEAI. 2020. SEI01 - Energy Balance data resource; Available at <https://data.gov.ie/dataset/sei01-energy-balance-ktoe>

⁸¹ EirGrid (2022) System information - Smart Grid Dashboard <https://smartgriddashboard.com/#all>

⁸² SEAI. 2020. Overall renewable energy share - available at <https://www.seai.ie/data-and-insights/seai-statistics/key-statistics/renewables/>



All traditional power plants are in a process of transition to renewable/sustainable sources to align with the targets in the Climate Action Plan 2021. The SEAI (2021) Strategic Plan⁸³ promotes renewables nationally and sets a framework for considerations. In addition, a number of counties have developed stand-alone County Wind Energy and Renewable Energy Strategies which follow on from strategies outlined in individual County Development Plans. Such plans and strategies outline the distribution of significant wind energy developments granted permission as well as other potential wind energy development areas which will be further detailed as required in the next stage of the SEA process.

There are a number of solar farms proposed throughout Ireland some of which have already received planning permission and some are operational. Energy Storage and other technologies may be more widely used in the future; examples include Battery Energy Storage Systems (BESS).

EirGrid (2022⁸⁴) states - "in the short term the deficits will increase due to the deteriorating availability of power plants, resulting in their unavailability ahead of intended retirement dates. Furthermore, by 2030 there will be significant additional load from the heat and transport sectors as they are electrified, in line with government targets set out in the Climate Action Plan 2021".

The SEA of Material Assets will utilise information from the following sources:

- EPA - marine disposal sites;
- TII;
- Marine Atlas (for shipping port and route data);
- Iarnród Éireann;
- Department of Defence;
- SFPA;
- Ports Authority;
- Irish Wind Energy Association (IWEA);
- Waterways Ireland;
- Irish Water;
- Department of Housing, Local Government, and Heritage⁸⁵;
- SEAI; and
- ESB.

3.10.2 Key Issues Relating to the IP

The key issues in relation to Material Assets are as follows:

- Economic growth and development of infrastructure will increase the energy requirement within Ireland - particularly in the heat and transport sectors as they are electrified;

⁸³ SEAI. 2021. Statement of Strategy 2017-2021: Ireland's energy will be sustainable, secure, affordable and clean; available at https://www.seai.ie/publications/6670_SEAI_Strategy_Report_FA9.pdf

⁸⁴ EirGrid. 2022. Capacity Summary for Ireland 2022-2031: Available at https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid_SONI_Ireland_Capacity_Outlook_2022-2031.pdf

⁸⁵ [Energy Offshore Renewable - Datasets - data.gov.ie](https://data.gov.ie)



- Demands for increased renewable infrastructure and associated connection networks;
- Existing permitted developments which currently require connection on the grid or servicing; and
- Effects of construction on current infrastructure such as road/rail/waterway networks.

3.10.3 Scoping Conclusion

The IP has the potential to impact on material assets and infrastructure and both are therefore, scoped in to the SEA.

3.11 Tourism and Recreation

Tourism and recreation are influenced by a range of factors in Ireland. International tourism has increased in recent years; in 2015 the Wild Atlantic Way Operational Programme was launched and the global brand success resulted in infrastructure demands to previously less trafficked areas. Fáilte Ireland are currently developing their four brand strategies⁸⁶ which will define the spatial scope and spread of future tourism developments within Ireland. At a county level, county councils have developed and are developing Tourism Strategies; e.g., County Clare Tourism Strategy 2030. Moreover, tourism activities related to the marine environment may have associated impacts; the interactions between the IP and existing marine pressures such as this will require careful consideration. Cultural Heritage sites in Ireland also support heritage-related tourism and recreation, see Section 3.5. Landscape is also an important aspect in term of Tourism, see Section 3.4.

EirGrid have produced a number of publications of relevance to Tourism and Recreation:

- Your Grid, Your Views, Your Tomorrow. Responding to Tourism Concerns (2015);
- EBES 2: Cultural Heritage, EBES 9: Settlement & Land Use and EBES 10: Landscape & Visual.

3.11.1 Baseline Information Sources for the SEA

The assessment of Tourism and Recreation will utilise the follow information sources:

- Department of Transport, Tourism and Sport;
- CSO;
- Recreational sailing groups and ferry operators;
- Fáilte Ireland; and
- National Trails Office.

3.11.2 Key Issues Relating to the IP

The key issues in relation to Tourism and Recreation are as follows:

⁸⁶ Wild Atlantic Way, Dublin's a Breath of Fresh Air, Ireland's Ancient East and Ireland's Hidden Heartlands



- Transmission development may have the potential to restrict or reduce the quality of resources important for recreation and/or tourism including angling facilities, boating activities and/or associated resources;
- Demand for tourism infrastructure and associated power loadings could interact with the tourism sector.

3.11.3 Scoping Conclusion

Tourism has the potential to be impacted by the IP and is therefore scoped into the SEA assessment.

3.12 Climate Change

The recent Climate Action and Low Carbon Development (Amendment) Act 2021 (as amended) was established to provide for the approval of plans by the Government in relation to climate change. This aims at pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050. Irelands Climate Action Plan 2021 sets out Irelands National targets in this regard; moreover, Ireland has an Electricity & Gas Networks Sector Climate Change Adaptation plan⁸⁷ prepared under the National Adaptation Framework which set targets for EirGrid such as:

- EirGrid and ESB Networks will undertake an in-depth analysis of local, regional and system level flexibility requirements, and modify their own approaches and procedures to facilitate demand flexibility, to drive down costs to the consumer and provide the necessary flexibility to meet the needs of the energy transition to 2030;
- EirGrid will carry out further grid, operational and market studies to understand any additional measures, beyond current plans, to facilitate reduced sectoral emissions ceilings and, therefore, support annual renewable electricity share of up to 80%;
- The CRU and EirGrid will ensure an adequate level of conventional dispatchable generation capacity, to guarantee security of electricity supply, by publishing annually the levels of conventional dispatchable generation capacity required in each of the following 10 years. The CRU will ensure through market mechanisms, or other means, sufficient existing and conventional dispatchable generation capacity is available to meet the levels they set;
- EirGrid will develop a Power System Operational Policy Change Roadmap, setting out how power system operational policy will need to evolve to facilitate the integration of high levels of intermittent, non-synchronous renewable generation, including the reduction or removal of minimum generation constraints and increasing System Non-Synchronous Penetration (SNSP)
- EirGrid will evolve the operational tools and policies to facilitate the integration of interconnection, both in development and interconnectors yet to be identified; and
- EirGrid and ESB Networks will undertake analysis and implement the necessary measures to facilitate the integration of power generation technologies, including hybrid power plants. A framework to facilitate zero-carbon system services will be put in place as soon as possible to enable delivery of the 2030 targets.

⁸⁷ Department of the Environment, Climate and Communication (2019) Electricity & Gas Networks Sector Climate Change Adaptation Plan <https://assets.gov.ie/77095/15ef9327-168a-439e-8ef5-8aaa11934471.pdf>



The generation of renewable energy has been increasing over the past ten years, with a growth in the number of wind farms (from 5.8% of GFC in 2010 to 13.5 of GFC in 2020⁸⁸). The Government's Climate Action Plan 2021 includes a target 51% reduction in overall greenhouse gas emissions by 2030; setting Ireland on a path to reach net-zero emissions by no later than 2050. However, there are additional challenges related to these targets - as the EirGrid 2022⁸⁹ states that "by 2031, 28% of all electricity demand is expected to come from data centres and other large energy users".

Future changes in climate and associated impacts on sea level, rainfall patterns/intensity and river flow will influence flooding frequency and extent in the future. Local Authorities in compliance with the Regional Planning Guidelines are attempting to adopt sustainable flood risk strategies in areas likely to be at risk of flooding in the future in the context of climate change and changing weather patterns. Changes to climate could lead to an increase in flooding events in Ireland. The OPW has undertaken a number of Flood Risk Management Studies for different River Basin Districts (RBDs) in Ireland. These studies have identified the areas which are most at risk and future management plans have been advised; these are adopted by the OPW. In some cases, mitigation measures will involve the construction of physical flood defences. The SEA will consider data related to climate from the following sources:

- The Department of Communications, Climate Action and Environment;
- EPA; and
- CFRAM Studies⁹⁰.

3.12.1 Key Issues Relating to the IP

The key issues in relation to Climate Change are as follows:

- The IP will contribute to the targets, set out in the Climate Action Plan 2021;
- The location of the future transmission network (existing or planned) should consider flood risk and location of proposed flood defence schemes;
- All policies and objectives within the Electricity & Gas Networks Sector Climate Change Adaptation Plan relevant to EirGrid must be implemented; and
- The potential impact of changes in climate including flooding and temperature increases should be factored into the IP.

3.12.2 Scoping Conclusion

The IP will deliver renewable energy targets; therefore, Climate Change is scoped in to the SEA.

⁸⁸ SEAI. 2020. Overall renewable energy share - available at <https://www.seai.ie/data-and-insights/seai-statistics/key-statistics/renewables/>

⁸⁹ EirGrid. 2022. Capacity Summary for Ireland 2022-2031: Available at https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid_SONI_Ireland_Capacity_Outlook_2022-2031.pdf

⁹⁰ Office of Public Works (2021) Catchment-based Flood Risk Assessment and Management (CFRAM) Programme www.gov.ie - CFRAM Programme (www.gov.ie)



3.13 Transboundary Effects

3.13.1 Discussion of Transboundary Effects

There are existing interconnectors with the UK through both Northern Ireland, England, Scotland, Wales and France; the Celtic Interconnector to mainland Europe has been consented and is likely to be developed within the lifetime of the IP. The 500 MW Greenlink Interconnector from Wexford to Pembrokeshire (Wales) is also under construction.

3.13.2 Key Issues Relating to the IP

- Potential effects from developments which arise due to the implementation of the IP such as interconnectors which could include effects to Northern Ireland, England, Scotland, Wales and France.

3.13.3 Scoping Conclusion

Transboundary effects are scoped in the SEA, as there is potential for effects to Northern Ireland, England, Scotland, Wales and France related to the IP.

3.14 Summary of Key Environmental Issues

The key environmental issues identified in the scoping process relevant to each environmental theme are summarised below.

Table 3-4: Summary of Environmental Issues Relevant to the Development of the IP

Theme	Summary of Environmental Issues	Scope
Population, Human Health & the Economy	<ul style="list-style-type: none"> • Population and development growth will potentially influence the energy requirement within Ireland; • Settlement patterns influence the location of transmission development projects; • The construction of transmission infrastructure can cause disruption to the local community, such as noise, dust, disruption to services/utilities and traffic etc.; • Public perception of transmission development proposals; • Potential impacts to energy supply to industry services (e.g. fishing industry, tourism etc.); • Perceived risk and associated anxiety issues related to grid development; • Potential visual effect of transmission lines, see also Section Landscape, Seascape and Visual Amenity Landscape, Seascape and Visual Amenity. 	Population - IN Human Health - IN Socio-Economic - IN
Biodiversity, Flora & Fauna	<ul style="list-style-type: none"> • Route selection and classification criteria are a key consideration in the development of the IP due to the largely linear nature of the developments associated with the IP. • The potential for effects to the marine environment - particularly with respect to noise impacts or impacts to ranging patterns of vagile species or benthic communities around sea cabling; • The potential for effects on non-designated biodiversity features e.g. important habitats and species outside designated sites - particularly with regard to fragmentation, barriers to movement and displacement; 	IN



Theme	Summary of Environmental Issues	Scope
	<ul style="list-style-type: none"> The potential for effects on protected areas: National and European sites (e.g. SAC, SPAs, RAMSAR), National sites (e.g. NHAs) and other Natural Heritage Sites and Conservation Interest Sites e.g. refuge for fauna or flora, wildfowl reserves; The requirement for ecological protection can pose restrictions to existing/future transmission development; The potential to spread invasive species; and Potential for biodiversity enhancement. 	
Landscape, Seascape & Visual Amenity	<ul style="list-style-type: none"> Effects of transmission infrastructure on areas of designated landscape quality and scenic views etc.; Grid development options can be constrained by the need to protect the landscape character and features; Sensitivity of the landscape to change from transmission infrastructure; and Visual intrusion on receptors from transmission infrastructure. 	IN
Cultural Heritage - Archaeology & Architectural	<ul style="list-style-type: none"> The potential impact of the construction of transmission infrastructure on archaeological and architectural heritage, including risk of encountering UXO in the marine environment; The potential impact on the setting of archaeological and architectural heritage due to the permanent presence of transmission infrastructure; and Grid development options can be constrained by the need to protect the character of areas of existing archaeological and architectural resources. 	IN
Geology & Soils	<ul style="list-style-type: none"> Potential for impacts on geological features (such as karst) or geological designations; Potential for impacts on soil resources and offshore sediment transport; Potential impacts to soils (land) vulnerable to erosion; and Potential for unearthing contaminated material. 	Geology - IN Soils - IN
Land Use	<ul style="list-style-type: none"> Potential constraints on sea fisheries, both during construction and operation of infrastructure projects associated with the IP; and Potential constraints on other sections such as agricultural, forestry and fisheries; primarily related to construction and operation of infrastructure projects associated with the IP. 	Land use - IN
Air Quality & Noise	<ul style="list-style-type: none"> Transmission developments, particularly during the construction phase, may have a temporary negative impact on air quality and create noise pollution; and High voltage transmission infrastructure has associated noise outputs - note there is no above ground noise associated with underground cabling. 	Noise - IN Air Quality - IN
Water	<ul style="list-style-type: none"> Potential pressures and impacts on water body status from the construction of transmission projects i.e. increased sedimentation, groundwater recharge and accidental spillages etc. 	IN
Material Assets & Infrastructure	<ul style="list-style-type: none"> Economic growth and development of infrastructure will increase the energy requirement within Ireland - particularly in the heat and transport sectors as they are electrified; Demands for increased renewable infrastructure and connection networks; Existing permitted developments which currently require connection on the grid or servicing; and Effects of construction on current infrastructure such as road/rail/waterway networks. 	IN
Tourism & Recreation	<ul style="list-style-type: none"> Transmission development may have the potential to restrict or reduce the quality of resources important for recreation and/or tourism including angling facilities, boating activities and/or associated resources; 	IN



Theme	Summary of Environmental Issues	Scope
	<ul style="list-style-type: none"> • Demand for tourism infrastructure and associated power loadings could interact with the tourism sector. 	
Climate Change	<ul style="list-style-type: none"> • The IP will contribute to the renewable energy targets, as set out in the Climate Action Plan 2021; • The location of the future transmission network (existing or planned) should consider flood risk and locations of proposed flood defence schemes; • All policies and objectives within the Electricity & Gas Networks Sector Climate Change Adaptation Plan relevant to EirGrid must be implemented; • The potential impact of changes in climate including flooding and temperature increases should be factored into the IP. 	IN
Transboundary Effects	<ul style="list-style-type: none"> • Potential effects from developments which arise due to the implementation of the IP such as interconnectors which could include effects to Northern Ireland, England, Scotland, Wales and France. 	IN



4. SEA OBJECTIVES

4.1 Introduction

Strategic Environmental Objectives (SEOs) are methodological measures which facilitate the development of targets against which the environmental effects of the IP can be tested. In this section draft SEOs are set out under a range of environmental topics and can be used as standards against which the provisions of the IP can be evaluated in order to help identify areas in which potential significant adverse impacts may occur. The use of these objectives ensures that following this scoping stage, the SEA focuses only on those issues that are most relevant and significant to the IP and the Study Area.

4.2 Proposed SEA Objectives

The proposed SEA objectives presented here in draft form are set out in Table 4-1. These objectives build upon the SEA objective used for the previous IP and will be further refined and developed during the study, including in response to comments received on this SEA Scoping Report. The finalised SEOs, targets and indicators will be presented in the SEA Environmental Report produced for the next stage of the SEA.

Table 4-1: DRAFT Strategic Environmental Objectives

Environmental Component	Strategic Environmental Objective
Overall	O1: Ensure, where appropriate, that lower level plans and projects contribute to overall environmental monitoring processes within EirGrid.
Population, Human Health & the Economy	PHH1: Minimise the proximity of development to concentrations of population in order to reduce actual and/or perceived environmental effects.
Biodiversity, Flora & Fauna	B1: Ensure compliance with Habitats and Birds Directives with regard to protection of European Sites and Annexed habitats and species ⁹¹ .
	B2: Support Article 10 of the Habitats Directive with regard to the management of features of the landscape which - by virtue of their linear and continuous structure or their function as stepping stones (designated or not) - are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species.
	B3: To avoid, or minimise of significant impacts on semi-natural habitats, species, environmental features or other sustaining resources in designated national sites and to comply with the Wildlife Acts 1976-2012 with regard to listed species
	B4: Go beyond biodiversity protection to deliver biodiversity enhancement, wherever possible, in response to the biodiversity emergency
Landscape & Visual Amenity	L1: Avoid or, minimise impacts to statutory landscape designations, including those in the land use plans of planning authorities.
	L2: Avoid or minimise adverse visual effects on residential receptors.

⁹¹ 'Annexed habitats and species' refer to those listed under Annex I, II & IV of the EU Habitats Directive and Annex I of the EU Birds Directive.



Environmental Component	Strategic Environmental Objective
Cultural Heritage - Archaeology & Architectural	CH1: Avoid impacts upon archaeological heritage (including entries to the RMP) and architectural heritage (including entries to the RPS and NIAHs).
Geology and Soils	GSL1: Avoid or minimise effects on mineral resources or soils.
Land use	LU1: Avoid or minimise effects on existing land use.
Water	W1: Maintain and/or improve, the quality and status of surface waters.
	W2: Maintain and/or improve, the chemical and quantitative status of groundwaters.
	W3: Prevent impact upon the WFD status of surface waters and groundwater in line with the requirements of the WFD.
	W4: Comply as appropriate with the provisions of the Flood Risk Management Guidelines.
Material Assets & Infrastructure	MAI1: Avoid or minimise effects on built/amenity assets and infrastructure
	MAI2: Avoid or minimise effects on effects upon existing and (where known) planned infrastructure.
Tourism & Recreation	TR1: Avoid or minimise effects upon tourism and recreation amenities.
Climate Change	CF1: Delivery of the necessary grid infrastructure to facilitate Up to 80% of electricity from renewable sources by 2030



5. THE CONSIDERATIONS WITHIN THE SCOPE OF THE SEA

5.1 Relationship with other plans and programmes - Cumulative effects

The IP will be nested in a hierarchy of plans, programmes, etc. that relate to all energy sector, namely grid infrastructure and TEG; therefore, collaborative communication with all relevant stakeholders will be key. The SEA Environmental Report will provide details on the relationship between the IP and other plans and programmes. The IP must comply with relevant higher-level strategic actions and may, in turn, guide lower-level strategic actions. The SEA and AA will take account of EirGrid's obligation to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies – the achievement of the objectives of the regulatory framework for environmental protection and management.

In considering the relationship with legislation and other plans and programmes it is important to note that the IP will be implemented within an area that has existing plans and programmes for a range of sectors (e.g. land use, transport, energy and water management) at a range of levels (e.g. national, river basin district, regional, county and local) that are subject to SEA and AA.

The findings of the environmental assessments of higher and lower tier plans (e.g., those of the Regional Spatial and Economic Strategy, all CDPs and where relevant LAPs) will be considered.

5.2 Consideration of Potential Significant Environmental Effects

As the IP emerges the SEA will identify, describe and mitigate likely significant environmental effects of implementation. Considerations will be given to all policies including those which provide for development, change of role of EirGrid within the marine environment, the development of emergency generation and continuance and intensification of use; the SEA will consider the full range of likely significant environmental effects⁹², including effects occurring at construction as well as operational stages.

5.3 Alternatives

The SEA Directive requires the SEA process to identify and describe 'reasonable alternative' means of achieving the strategic goals of the IP. The reasons for selecting (a) the alternatives and (b) the preferred alternative will be documented, together with a description of how this assessment of alternatives was undertaken. Alternatives will be assessed against the environmental objectives established for the key aspects of the environment likely to be significantly affected and clear justification for the selection of the preferred alternative/combination of alternatives will be provided. This assessment will be presented in the Environmental Report and where relevant, in the SEA Statement (Stages 3 and 4 of the SEA process).

As the IP has three distinct facets (onshore TSO, offshore TSO & TSA, and the development of temporary emergency generation) The consideration of alternatives will be undertaken for all three facets. Alternatives presented here as draft will be considered during the development of the IP and at a minimum include consideration of the following:

- Alternative 1 – No plan option – strategic development is ad hoc (essentially a do nothing scenario from a plan making/SEA perspective);

⁹² These effects include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects.



- Alternative 2 – Strategy option: no plan but reference to provisions of the existing Grid Implementation Strategy, Shaping our Electricity Future, and/or the CRU Consultation on forthcoming TDP 2022-2032; and
- Alternative 3 – Preparation of and adherence to specific policies and objectives for Grid Development having heed to all relevant policy documents bringing together a coherent unified approach.

All of the alternatives will be assessed on a scale of relative effects on the SEOs to determine if there are positive, negative, neutral or uncertain outcomes. This assessment process can result in mixed effects outcomes.

5.4 Mitigation

Measures to contribute towards environmental protection and sustainable development will be recommended by the SEA for integration into the IP where necessary. Mitigation measures will address all types of significant adverse environmental effects, including those arising from cumulative effects. Mitigation measures will consider any suggestions in the submissions from environmental authorities.

5.5 Monitoring

The SEA will submit a monitoring framework to EPA and NPWS for review in Q1 2023. The monitoring framework will commence immediately once agreement with the detail and scope; monitoring will be influenced by conclusions of the previous monitoring report, which is available on EirGrid website. Emerging guidance from the EPA will be considered in this regard. Where relevant monitoring programmes will include action-based thresholds to alleviate environmental impacts identified.



6. NEXT STEPS

6.1 Plan Development and SEA Environmental Report

The process of SEA for the IP starts with consultation with the statutory Environmental Authorities in Ireland, and the transboundary statutory consultees in the form of this SEA Scoping Report. Consultation will also be carried out with non-statutory stakeholders as outlined in Section 1.4.

This SEA Scoping Report will be revised and the feedback from the consultation process will feed in the next stage of the SEA which involves the development of the IP policies and objectives. During this process the SEA and AA will look at the potential effects including cumulative effects of the IP and feedback iteratively into its development. This stage will take place from now until early 2023.

6.2 The SEA Environmental Report

The Environmental Report in Stage 3 will form the main written output of SEA process and as such will present information on the environmental assessment and likely environmental issues related to the implementation of the IP.

The outcomes of the assessment stage (Stage 3) and recommended approach will be presented in the IP and Environmental Reports. These are due to be published in the latter half of 2023 for a twelve-week consultation period.

The final Plan is intended to be published by end-2023. EirGrid will publish a post adoption SEA Statement alongside the final Plan setting out how the SEA and any consultation responses have influenced the IP.

6.3 Further Information

Contact Name:

Robert Fennelly, EirGrid Planning and Environmental Unit, Public Engagement, Chief Infrastructure Office.

SEA Consultation Portal:

<https://consult.eirgrid.ie/consultation/strategic-environmental-assessment-eirgrid-grid-implementation-plan-2023-2028-sea-scope-consultation>



7. APPENDIX I - EVIDENCE BASED ENVIRONMENTAL STUDIES

- EBES. Study 1: EMF. This study examined the potential human health impacts of EMF;
- EBES. Study 2: Cultural Heritage. This study examined the effects of high voltage electricity infrastructure on archaeological, architectural and cultural heritage;
- EBES. Study 3: Bats. This study examined the effects of the construction and operation of high voltage electricity transmission projects on bat activity in Ireland;
- EBES. Study 4: Habitats. This study examined the actual effects of the construction and presence of high voltage transmission lines on Ireland's habitats;
- EBES. Study 5: Birds. This study examined the effects of existing high voltage transmission projects at a number of sites on bird activity and behaviour;
- EBES. Study 6: Water Quality & Aquatic Ecology. This study examined the actual effects of high voltage transmission projects on water quality and aquatic ecology at a number of sites;
- EBES. Study 7: Soils & Geology. This study examines the actual effects of high voltage transmission projects on soils and geology at a number of sites. The finding of this study informs aspects of projects related to soils and geology considerations;
- EBES. Study 8: Noise. This study examined the actual noise effects of the presence of high voltage transmission infrastructure in Ireland;
- EBES. Study 9: Settlement and Land Use. Settlement & Land Use - This study examined the effects of the construction and presence of high voltage transmission infrastructure on patterns of settlement and land use in Ireland; and
- EBES. Study 10: Landscape & Visual. This study examined the actual visual and landscape effect of the presence of transmission infrastructure over a range of typical landscapes.



8. APPENDIX II - LIST OF ABBREVIATIONS

Abbreviation	Explanation
AA	Appropriate Assessment
ACAs	Architectural Conservation Areas
BNM	Bord na Móna
CER	Commission of Energy Regulation
CFRAM	Catchment Flood Risk Assessment and Management
CIP	Capital Investment Plan
CLC	CORINE Land Cover
CO2	Carbon Dioxide
CSO	Central Statistics Office
DAA	Dublin Airport Authority
DAFM	Department of Agriculture, Food and the Marine
DAHG	Department of Arts, Heritage and the Gaeltacht
DAHRRG	Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
DECLG	Department of the Environment, Community and Local Government
DECNR	Department of Energy, Communications and Natural Resources
DEHLG	Department of Environment, Heritage and Local Government
DSO	Distribution System Operator
EAG	Environmental Advisory Group
EAR	Environmental Appraisal Report
EBES	Evidence Based Environmental Studies
EC	European Commission
EEA	European Economic Area
EEC	European Economic Communities
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
ELIG	Environmental Law Implementation Group
EMF	Electromagnetic Fields
EMM	Environmental Mitigation Measure
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
ETS	Emissions Trading Scheme
EU	European Union



Abbreviation	Explanation
FIPS	Forest Inventory Planning System
FRMP	Flood Risk Management Plan
FWPM	Freshwater Pearl Mussel
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GSI	Geological Survey Ireland
GSNI	Geological Survey of Northern Ireland
HSE	Health Service Executive
HVDC	High Voltage Direct Current
IDA	Industrial Development Authority
IFI	Inland Fisheries Ireland
IGH	Irish Geological Heritage
IGHS	Irish Geological Heritage Sites
IP	Implementation Plan
IRBD	International River Basin District
ITS	Irish Transmission System
IWAI	Inland Waterways Association Ireland
IWEA	Irish Wind Energy Association
JNCC	Joint Nature Conservation Committee
kV	Kilovolt
LCAs	Landscape Character Areas
MW	Megawatt
NDP	National Development Plan
NBP	National Biodiversity Plan
NPF	National Planning Framework
NHA	National Heritage Area
NIAH	National Inventory of Architectural Heritage
NIEA	Northern Ireland Environment Agency
NIR	Natura Impact Report
NLS	National Landscape Strategy
NOx	Nitrous Oxides
NPWS	National Park and Wildlife Service
NSDB	National Soil Database



Abbreviation	Explanation
NSS	National Spatial Strategy
OPW	Office of Public Works
OREDP	Offshore Renewable Energy Development Plan
OSI	Ordinance Survey Ireland
PAH	Polycyclic Aromatic Hydrocarbons
PFRA	Preliminary Flood Risk Assessment
pNHA	Proposed National Heritage Area
PM	Particulate Matter
PMO	Programme Management Office
PPP	Plans, Policies and Programmes
RBD	River Basin District
RBMP	River Basin Management Plan
RMPs	Record of Monuments and Places
ROI	Republic of Ireland
RPSs	Record of Protected Structures
RTE	Reseau de transport d'électricité
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEAI	Sustainable Energy Authority in Ireland
SEF	Strategic Environmental Framework
SEOs	Strategic Environmental Objectives
SFM	Sustainable Forest Management
SHARP	Sustainable Healthy Agri-Food Research Plan
SONI	System Operator in Northern Ireland
SPAs	Special Protection Areas
TAO	Transmission Asset Owner
TDP	Transmission Development Programme
TII	Transport Infrastructure Ireland
TSO	Transmission System Operator
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
WAW	Wild Atlantic Way
WFD	Water Framework Directive
WHO	World Health Organisation



9. APPENDIX III - GLOSSARY

Term	Description
Administrative Area	A portion of a country or other region delineated for the purpose of administration.
Afforestation	The planting or seeding of trees in an area previously devoid of trees.
Alluvium	A deposit of clay, silt, and sand left by flowing floodwater in a river valley or delta, typically producing fertile soil.
Annex I	List of designated habitats which have been afforded protection under the Habitats Directive.
Annex II	List of protected species which have been afforded protection under the Habitats Directive.
Appropriate Assessment	Comprehensive ecological impact assessment of a plan or project. AA examines the direct and indirect effects of the IP the IP or project, either individually or in-combination with other plans and projects on Natura 2000 sites.
Architectural Conservation Areas	An Architectural Conservation Area is a place, area, group of structures or townscape of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or that contributes to the appreciation of a Protected Structure, and whose character should be preserved.
Baseline Condition	The prevailing environmental condition in the absence of a programme or plan.
Birds Directive	Outlines measures necessary to protect all of the 500 wild bird species naturally occurring in the European Union.
Bord Bia	Irish state agency with the aim of promoting sales of Irish food and horticulture both abroad and in Ireland itself. It acts as a link between Irish producers and their customers worldwide.
Bord na Móna	Utility company service provider encompassing electricity, heating solutions, resource recovery, water, horticulture and related services.
Catchment	The total area of land that drains into a watercourse.
Coillte	Commercial company operating in forestry, land-based businesses, renewable energy and panel products.
County Development Plan	The principal instrument that is used to manage change in land use in a County. These plans outline the objectives and policies to deliver an overall strategy for planning and sustainable development of the area of the Development Plan.
Desilting	The removal of suspended silt from (the water of a stream).
Electromagnetic Fields	Combination of invisible electric and magnetic fields of force. They are generated by natural phenomena like the Earth's magnetic field but also by human activities, mainly through the use of electricity.
Emissions Trading System	International system for trading greenhouse gas emission allowances.
Environmental Impact Assessment Directive	Sets the statutory requirement for member states of the EU to carry out assessments of the environmental impact of certain public and private projects before they are allowed to go ahead.
Erosion	The process of eroding or being eroded by wind, water, or other natural agents.



Term	Description
Fens	An area of low land that is covered wholly or partly with water unless artificially drained and that usually has peaty alkaline soil and characteristic flora (as of sedges and reeds).
Finite Resource	A resource that cannot renew itself at a sufficient rate for sustainable economic extraction in meaningful human timeframes.
Flood Risk Management Plan	These plans set out a range of proposed measures and actions to manage and reduce flood risk within the catchments and coastal reaches covered by each Plan.
Food Harvest 2020	Strategic vision for the agriculture, food and fishing sector up to 2020.
Forest Environmental Scheme	Encourages farmers to combine the establishment of high nature-value woodland with their participation in the Rural Environment Protection Scheme.
Geochemistry	The study of the distribution and amounts of the chemical elements in minerals, rocks, soils, water, and the atmosphere, and the study of the circulation of the elements in nature, on the basis of the properties of their atoms and ions.
Geo-demographic	Data of a specific geographical area which profiles the economic and demographic characteristics of the population living there.
Geological Heritage Site	Areas of geologic features with significant scientific, educational, cultural, or aesthetic value.
Glacial	Relating to, caused by, or deposited by a glacier.
Greenhouse Gas	A gas that contributes to the greenhouse effect by absorbing infrared radiation.
Habitat	The place where an organism or species normally lives and is characterised by its physical characteristics and/or dominant type of vegetation.
Horticulture	Cultivation and management of plants.
Hydro Generation	Electricity generated from the gravitational force of falling or flowing water.
Invasive Species	Non-native plant and animal species which can negatively impact on native species, transforming habitats and threatening whole ecosystems causing serious problems to the environment and the economy.
Kyoto Protocol	International treaty which extends the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits State Parties to reduce greenhouse gases emissions, based on the premises that global warming exists, and man-made carbon dioxide emissions have caused it.
Landscape Character Assessment	The process of identifying and describing variation in character of the landscape.
Milk Quota	Quota introduced in the European Union which helped to cap the expansion of milk production. Applied to milk from cows only. The quota has now been removed.
Mitigation	The implementation of measures designed to reduce the undesirable effects of a proposed action on the environment.
National Biodiversity Plan	Plan outlining a range of measures to secure the conservation, including where possible the enhancement and sustainability of biological diversity in Ireland and worldwide.
National Development Plan	Roadmap to Ireland's future. The IP integrated strategic development frameworks for regional development, for rural communities, for All-Island co-operation, and for protection of the environment with common economic and social goals.



Term	Description
National Framework Policy	Policy serving as the foundation upon which the range of State policies, programmes and interventions for local and community development will be developed and implemented.
Natural Heritage Areas	An area of national nature conservation importance, designated under the Wildlife Act 1976 (as amended), for the protection of features of high biological or earth heritage value or for its diversity of natural attributes.
National Landscape Strategy	Strategy outlining Ireland’s responsibility to comply with the European Landscape Convention. It is a high-level policy framework to achieve balance between the protection, management and planning of the landscape by way of supporting actions.
National Spatial Strategy	National planning framework for Ireland for the next 20 years. The NSS aims to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning.
Natura 2000 Sites	The EU-wide network of SPA and SAC nature conservation sites.
Nutrient Pollution	Excessive input of nutrients, mainly nitrogen and phosphorus in water bodies leading to excessive growth of algae and oxygen depletion.
Organic Matter	Carbon-based compounds found within natural or engineered terrestrial and aquatic environments.
Overgrazing	Excessive level of grazing which damages vegetation and increases the liability of surrounding ground to erosion.
Ozone	A colourless unstable toxic gas with a pungent odour and powerful oxidizing properties, formed from oxygen by electrical discharges or ultraviolet light. It differs from normal oxygen (O ₂) in having three atoms in its molecule (O ₃).
Particulate Matter	A mixture of solid particles and liquid droplets found in the air. Some particles can be seen by the naked eye and others are microscopic.
Physico-chemical	The physical and chemical properties of a substance.
Polycyclic Aromatic Hydrocarbon	A group of chemicals that are formed during the incomplete burning of organic substances.
Raised Bog	Discreet, raised, dome-shaped masses of peat occupying former lakes or shallow depressions in the landscape. Raised bogs in Ireland are mainly found in the midlands.
RAMSAR Site	Wetland site of international importance designated under the RAMSAR Convention on Wetlands of International Importance 1971, primarily because of its importance for waterfowl.
River Basin District	RBDs are natural geographical and hydrological units for water management, as defined by the WFD. River basins are used instead of administrative or political boundaries.
Special Area of Conservation	An area designated in accordance with the EU Directive on the conservation of habitats and wild flora and fauna (92/43/EEC) for the protection of species and habitats of conservation concern within the EU.
Special Protection Area	An area designated in accordance with the EU Directive on the Conservation of Wild Birds (79/409/EEC) for the specific protection of wild birds.
Strategic Environmental Objectives	Methodological measures against which the environmental effects of the Implementation Programme (IP) can be tested.



Term	Description
Sustainable Forest Management	The environmentally appropriate, socially beneficial, and economically viable management of forests for present and future generations.
Thermal Generation	Electricity generated from heat sources including coal, gas, wood waste and geothermal.
Trace Elements	A chemical element present in minute quantities.
Transitional Water	Surface water bodies in the vicinity of a river mouth which are partly saline in character as a result of their close proximity to coastal waters but which are substantially influenced by freshwater flows.
Transmission Grid	An electrical supply distribution network that carries electricity from a power plant to the user.
Transmission System Operator	Entity entrusted with transporting energy in the form of natural gas or electrical power on a national or regional level, using fixed infrastructure.
Transposing Legislation	Primary or secondary legislation adopted by a European country which gives force to a European Union Directive.
UNESCO Biosphere Site	Areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with its sustainable use.
UNESCO World Heritage Site	Sites of outstanding universal value: cultural, natural or mixed.
Urbanisation	The process by which towns and cities are formed and become larger as more and more people begin living and working in central areas.
Water Framework Directive	EU Water Framework Directive 2000/60/EC sets out a system for the integrated and sustainable management of river basins so that the ecological quality of waters is maintained in at least a good state or is restored. The Directive lays down a six-yearly cycle of river basin planning.
Administrative Area	A portion of a country or other region delineated for the purpose of administration.
Afforestation	The planting or seeding of trees in an area previously devoid of trees.
Alluvium	A deposit of clay, silt, and sand left by flowing floodwater in a river valley or delta, typically producing fertile soil.
Annex I	List of designated habitats which have been afforded protection under the Habitats Directive.
Annex II	List of protected species which have been afforded protection under the Habitats Directive.
Appropriate Assessment	Comprehensive ecological impact assessment of a plan or project. AA examines the direct and indirect effects of the IP the IP or project, either individually or in-combination with other plans and projects on Natura 2000 sites.



10. APPENDIX IV - REFERENCES:

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