Shannon Technology and Energy Park (STEP) Power Plant

Environmental Impact Assessment Report - Volume 2

Chapter 01 Introduction

Shannon LNG Limited

April 2024

Delivering a better world

Prepared for:

Shannon LNG Limited

Prepared by:

AECOM Ireland Limited
4th Floor
Adelphi Plaza
Georges Street Upper
Dun Laoghaire
Co. Dublin A96 T927

T: +353 1 238 3100
aecom.com

Table of Contents

Figures

Tables

1. Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by AECOM Ireland Limited (herein referred to as "AECOM") on behalf of Shannon LNG Limited (herein referred to as "the Applicant"), an Irish owned subsidiary of New Fortress Energy (NFE) Inc.

The Applicant is seeking planning permission for a Combined Cycle Gas Turbine (CCGT) gas-powered power plant capable of 600 MW of electricity generation, 120 MWh (1-hr) Battery Energy Storage System (BESS), Above Ground Installation (AGI), and associated plant, equipment and infrastructure which will be known as the Shannon Technology and Energy Park Power Plant (STEP Power Plant) (herein referred to as the "Proposed Development"). The Site of the Proposed Development (herein referred to as "the Site") is located between Tarbert and Ballylongford, Co. Kerry.

This EIAR should be read in conjunction with all the particulars of the planning application, refer to **Section 1.4**. Full details on the background, Site history and the Proposed Development is provided in **Chapter 02** (Description of the Proposed Development) and the Planning Statement submitted with this planning application.

The Proposed Development formed part of the application, ABP Ref No. ABP-311233-21, for a 10-year permission for a Strategic Infrastructure Development (SID) comprising a power plant, battery energy storage system, regasification unit, jetty and onshore receiving facilities, and an AGI, which was refused by An Bord Pleanála (ABP) ("the Board") on 15th September 2023, and is currently subject to Judicial Review proceedings. The Proposed Development is an efficient, fast responding, stand-alone project that will deliver urgently needed electricity generation capacity and will support renewables.

1.1 Background

The *Climate Action Plan 2024*[1] commits Ireland to becoming a carbon-neutral economy by no later than 2050. To reach the 2050 milestone, a series of five-year carbon budgets, setting out a carbon reduction trajectory for Ireland, are to be embedded into law. While total annual gas demand will fall under the Climate Action Plan, peak day gas demand will increase as gas will be the only backup to intermittent renewables from 2030. The Climate Action Plan 2024 notes that Ireland will require at least 2 GW of new flexible gas-fired generation by 2030.

Shannon LNG Limited (the Applicant) was awarded a capacity contract on 28th March 2023, from EirGrid, to deliver an urgently needed 353 MW of electricity generation capacity by no later than 1st October 2026, or any subsequent date approved by the regulator. The Proposed Development is necessary to deliver Ireland's *Climate Action Plan 2024* policies and support renewables. It will facilitate all remaining oil and coal fired power stations to be decommissioned and to be replaced with the efficient, fast responding Power Plant which is necessary to back up intermittent renewables. Over the last few years, EirGrid have consistently warned of an increasing tightness between electricity supply (i.e. generation) and electricity demand. EirGrid have noted that most new power plants that were

[1] Climate Action Plan 2024 (CAP24) is the third annual update to Ireland's Climate Action Plan 2019.

expected to come online over the coming years to satisfy increasing demand for electricity have now abandoned their contracts with EirGrid to deliver this power generation capacity**Error! Bookmark not defined.**.

Specifically, in 2023, 455 MW of power plant have exited their contracts. This is in addition to 630 MW which had exited between 2018 and 2023.

The resulting capacity constraints have forced EirGrid and the Commission for Regulation of Utilities (CRU) to intervene directly in the market by procuring almost 700 megawatts (MW) of temporary emergency generation, which will cost the state more than €1 billion euros[2].

Eirgrid Chief Executive Officer, Mark Foley before the Oireachtas Joint Committee on Environment and Climate Change on 22nd March 2022 stated that "*Ireland will need 2,000 MW of dispatchable gas generation by the end of 2026, which will backstop the system and ensure that there is sufficient security of supply, while removing old fossil-intensive plants in the system".*

The Applicant is seeking planning permission for the Proposed Development (a CCGT gas-powered power plant capable of 600 MW of electricity generation, a 120 MWh (1-hr) BESS and associated infrastructure), on a site located between Tarbert and Ballylongford, Co. Kerry.

A pre-application consultation request was submitted to the Board (24 April 2023) for determination of SID status (ABP-316518-23), and the Board determined that the Proposed Development constitutes SID on 15th November 2023. Refer to **Section 1.4.**

1.1.1 The Applicant

Shannon LNG Limited, trading as Shannon LNG, having its registered address at 32 Molesworth Street, Dublin 2, D02 Y512, is a subsidiary of New Fortress Energy Inc. (NASDAQ: NFE). The 243 hectare (ha) site, on which the Proposed Development is located, was purchased in December 2021 by NFE Shannon Holdings Limited, a subsidiary of New Fortress Energy (NFE).

1.1.2 Overview of the EIAR

This EIAR is provided in accordance with the EU EIA Directive 2011/92/EU, as amended by EIA Directive 2014/52/EU (assessment of the effects of certain public and private projects on the environment) and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018), in order to inform the consideration of the Application and provide the Board with the environmental information that must be taken into account when determining the Application. As noted above, the Proposed Development meets the threshold for SID.

This chapter of the EIAR provides an overview of the Proposed Development, the Environmental Impact Assessment (EIA) methodology, structure of the EIAR, consultation undertaken and the names and qualifications of the lead contributors to the EIAR. When referring to the construction and operation of the Proposed Development throughout the EIAR, the future tense has been used; for example, '*the Proposed Development will be located…, will consist of ….*' Etc., this is with the understanding that all aspects of the development are subject to the necessary statutory permits and consents and does not in any way presume approval.

[2] Available at: https://www.businesspost.ie/news-focus/power-down-state-cap-on-data-centres-puts-billions-of-euro-at-risk/

This EIAR includes a consideration of alternatives and identifies the likely significant effects arising from both the construction, operational and decommissioning phases of the Proposed Development. Where likely significant effects have been identified, mitigation and monitoring measures have been proposed to avoid, prevent, reduce or offset the effects. In addition, the likely cumulative effects of the Proposed Development have been assessed, where appropriate. **Section 1.10** outlines the structure of the EIAR.

1.1.3 Difficulties Encountered

There were no significant difficulties encountered during the preparation of this EIAR, however where difficulties were encountered for the technical EIAR chapters, they have been identified and discussed in their relevant chapters.

1.2 Main Objectives of the Proposed Development

The main objectives of the Proposed Development are to:

1. Provide 600 MW of fast acting flexible thermal generation capacity to the Irish electricity market.
2. Provide a 120 MWh (1-hr) Battery Energy Storage System (BESS) to participate in the electricity ancillary services market.
3. To ensure that Shannon LNG's award of a capacity contract on 28th March 2023 from EirGrid to deliver 353 MW of electricity generation capacity is delivered at the Site by no later than 1st October 2026, or any subsequent date extension approved by the Regulator.
4. To support the provisions of recent national policies with respect to security of electricity supply, including the *Climate Action Plan 2024*, the *National Energy Security Framework 2022*, the government's *Policy Statement on Security of Electricity Supply 2021* and the recently published '*Energy Security in Ireland to 2030'* which all point to the need for a significant uplift in the delivery of flexible gas-fired power generation capacity to 2030.

1.3 The Proposed Development

1.3.1 Location of the Site

The Site is located 4.5 km from Tarbert and 3.5 km Ballylongford in Co. Kerry. The application Site boundary (red line) encloses an area of approximately 41 ha and is entirely owned by the Applicant. The Site is in pasture, comprising primarily improved grassland with some wet grassland adjacent to the Shannon Estuary. The field boundaries predominantly consist of hedgerows with small drainage ditches and a small section of the Ralappane Stream is located in the southernmost part of the Site, refer to **Figure 1.1**.

The Site has been identified as a Strategic Development Location (Strategic Development Location H: Tarbert-Ballylongford landbank in the Shannon Integrated Framework Plan 2013-2020 (SIFP), the Regional Spatial and Economic Strategy (RSES) for the Southern Region 2020, the Kerry CDP 2022-2028, and the Listowel Municipal District Local Area Plan 2020, refer to **Chapter 04** (Policy, Energy and Planning) for further details. The recently published, 8th July 2023, Shannon Estuary Economic Taskforce also supports the Site as suitable for energy developments.

Figure 1.1: Site Location

1.3.2 Overview of the Proposed Development

The Proposed Development will consist of the following components:

- Three (3 No.) blocks of Combined Cycle Gas Turbines (CCGT), each block with a capacity of approximately 200 megawatts (MW) for a total installed capacity of up to 600 MW.
- A 120 MWh (1-hr) Battery Energy Storage System (BESS).
- Above Ground Installation (AGI) compound.
- High voltage 220 kV Gas Insulated (GIS) Substation.
- Auxiliary Boiler.
- Raw water treatment and storage.
- Structural / Architectural Buildings (various).
- Sewerage drainage system.
- Process effluent collection system and sump.
- Firewater storage tanks and fire water pumps.
- Ancillary buildings.
- Secondary Fuel Offloading storage.

Refer to **Figure F2.2** and **F2.4**, Volume 4 of the EIAR, and Planning Drawing Ref: **198291-1GSU-G1003**: Overall Site Arrangement, submitted with this application, for an overview of the Proposed Development:

The Proposed Development will employ CCGT technology, and its design will comply with all relevant national and international codes. The total installed capacity of the Proposed Development will be up to 600 MW. Full details on the Proposed Development are provided in **Chapter 02** (Description of the Proposed Development).

The Proposed Development will provide additional and flexible power generation capacity to support intermittent renewable generation and resolve a predicted generation capacity shortfall, in line with national policy goals. For example, during periods of high wind (renewable) generation, it is expected that the Power Plant would be turned down or off by the system operator (EirGrid) to give priority to renewable power[3].

The Proposed Development will generate power for its own needs and for sale to the market via the national electricity grid exported via a 220 kV connection, which will be subject to a separate planning application. The 220 kV connection has been considered in the cumulative impact assessment within each technical chapter of this EIAR.

On 10th June 2020 the Commission for Regulation of Utilities (CRU) published their decision on the Enduring Connections Policy (ECP) for generators. ECP-2, which set policy for at least three annual batches of connection offers (ECP 2.1, ECP-2.2, and ECP-2.3). An application to connect to the national electrical transmission network via this 220 kV connection was submitted to EirGrid in September 2020. A Connection Agreement for a 600 MW Maximum Export Connection (MEC) was executed with EirGrid on 14th April 2023.

The previously consented 26 km Shannon Natural Gas Pipeline (Planning Reference: PL08.GA0003), once constructed, will facilitate transport of the natural gas between the Site and the national gas network at Foynes. Shannon LNG Limited obtained consent in February 2009 for Natural Gas Pipeline under Section 182C (1) of the Planning and Development (Strategic Infrastructure) Act 2006, as amended.

The Proposed Development has a unique location and flexible design that can easily transition to alternative low carbon fuels, subject to future planning applications and once the technology and public policies are established. The modular Power Plant offers flexibility to incorporate alternative fuels. Refer to New Fortress Energy Inc.'s *'A Step Toward Zero*' policy for further details, **Appendix A1.1**, Volume 4.

The Masterplan for the Shannon Technology and Energy Park (STEP) will integrate the Proposed Development and a (future) Strategic Gas Reserve Facility and a (future) Data Centre Campus, **Figure**

[3] The Power Plant will provide additional and flexible power generation capacity to support intermittent renewable generation and resolve a predicted generation capacity shortfall. The actual operation of the plant will be determined by many factors such as power demand itself, the amount of renewable generation on the system, its bid price into the market compared to other generators and the rules of the grid to ensure priority is given to renewable generation. The Applicant commissioned a detailed market analysis report to consider these issues and model the future operation of the Power Plant from 2023 to 2050. In conclusion, analysis confirmed that the flexibility of the Power Plant, including the BESS, is ideally aligned to support a high renewable market from now to 2050. In particular, the Power Plant offers the market high inertia, very low minimum stable generation, and fast response capability, complementing a renewable energy production profile that aligns with national policy goals.

F1.1, Volume 3. Note – The Strategic Gas Reserve Facility and Data Centre Campus is not included in this application and will therefore be subject to a separate planning application. It is important to note the STEP Power Plant (the Proposed Development) is not functionally dependent on the Strategic Gas Reserve Facility or the Data Centre, *i.e*. the Power Plant can and will operate without the Strategic Gas Reserve Facility or Data Centre.

This is because the Power Plant will make commercial returns from generating and selling power into Ireland's electricity market and also from providing ancillary grid support services, such as inertia. It will also enjoy a revenue stream from its Capacity Contract[4].

The Strategic Gas Reserve Facility, Data Centre Campus, the 220 kV and the medium voltage (10 / 20 kV) cables have been considered as part of the cumulative impact assessment within each technical chapter.

Planning consents were previously granted by the Board for the development of an LNG Terminal (2007) and a Combined Heat and Power Plant (CHP) (2013) on the Site. The current application is a new Strategic Infrastructure Development (SID) application and does not rely on any of the previous planning applications.

The Ballylongford / Tarbert landbank is a suitable location to accommodate and safely operate the Proposed Development. The location offers the following:

- A large unoccupied landbank which is zoned for industrial use.
- Access to high-capacity gas transmission network.
- The ability to get a high voltage export grid connection offer within the generation capacity shortfall time window5.
- Access to high-capacity electricity grid (220 kV or higher) that can export 600 MW without undue system constraint.

[4] The Power Plant was awarded a Capacity Contract from the Single Electricity Market Operator (SEMO) in April 23 to deliver power to the market by October 2026, or any other date as approved by the Commission for Regulation of Utilities (CRU)

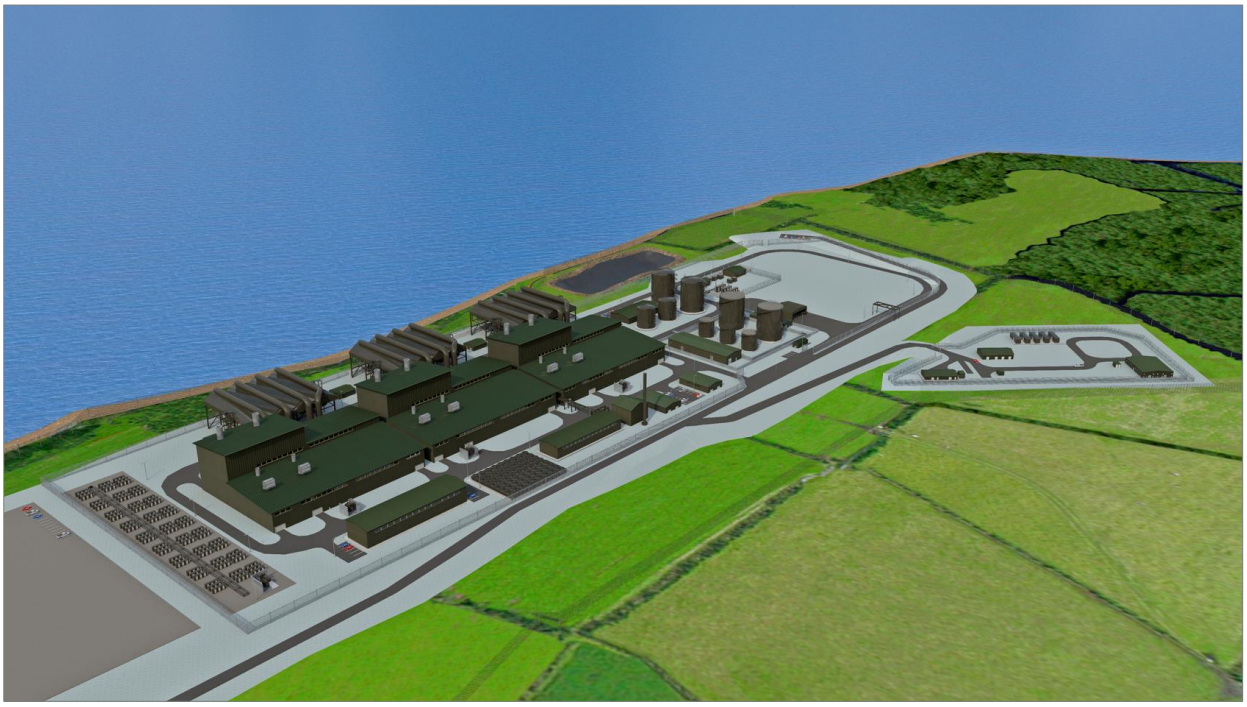

Figure 1.2: Overview of the Proposed Development

1.4 Planning Application

1.4.1 Pre-Planning Consultation

The Applicant, entered into a pre-application consultation process with An Bord Pleanála (ABP) ("The Board") under Section 37B of the Planning and Development Act 2000 (as amended) ("PDA 2000") on 24th April 2023 (ABP Reference ABP-316518-23). A pre-application meeting was held with ABP on 28th September 2023.

The Board served notice on 15th November 2023, and concluded that: *'under Section 37B(4)(a) of the Planning and Development Act 2000 (as amended) that it is of the opinion that the Proposed Development falls within the scope of paragraphs 37A(2) (a), (b) and (c) of the Act. Accordingly, the Board has decided that the Proposed Development would be strategic infrastructure within the meaning of Section 37A of the Planning and Development Act 2000 (as amended). Any application for permission for the Proposed Development must, therefore, be made directly to An Bord Pleanála under Section 37E of the Act'.*

The Board also provided the Applicant with a list of prescribed bodies to be notified of the application for the Proposed Development. Further information on consultations can be found in **Section 1.6**.

1.4.2 Application Stage

Section 37E(1) of the PDA 2000, states that '*an application for permission for development in respect of which a notice has been served under section 37B(4)(a) shall be made to the Board and shall be accompanied by an environmental impact assessment report in respect of the proposed development*'.

The planning application is accompanied by this Environmental Impact Assessment Report (EIAR) (Volumes 1 to 4) and a Natura Impact Statement (NIS).

A website, www.steppowerplant.com containing the application materials will also be available for the duration of the planning process. The Proposed Development will also be subject to a number of licences / permits which are outlined in **Section 1.5**.

1.5 Regulatory Framework

Once operational, the Proposed Development will be regulated by the following bodies:

- Environmental Protection Agency (EPA).
- Commission for Regulation of Utilities (CRU).
- Health and Safety Authority (HSA).
- Local Planning Authority (Kerry Co. Co.).

The Proposed Development will also have to operate within the provisions of a number of codes, such as the EirGrid Transmission Network Grid Code, Single Electricity Market Trading and Settlement Code and potentially the Gas Networks Ireland (GNI) Code of Operations.

1.5.1 Environmental Protection Agency

The EPA is the competent authority for granting and enforcing Industrial Emissions (IE) licences and greenhouse gas (GHG) permits.

The equipment specifications of the Proposed Development are such that it will be required to operate under an IE Licence, to submit annual environmental information and emissions reports to the EPA, and to surrender sufficient EU Allowances to cover its annual emissions under the terms of the EU Emissions Trading System (ETS).

1.5.1.1 Industrial Emission Directive

The Industrial Emissions Directive (IED) (2010/75/EU) came into force on 6th January 2011, as a result of a European Commission (EC) review of European legislation on industrial emissions. The IED replaces seven existing directives namely:

- The Large Combustion Plant Directive (LCPD).
- The Integrated Pollution Prevention and Control Directive (IPPC).
- The Waste Incineration Directive (WID).
- The Solvent Emissions Directive (SED).
- Three existing directives on titanium dioxide.

As noted above, the EPA is the competent authority for granting and enforcing IE licences for specified industrial and agriculture activities listed in the First Schedule to the Environmental Protection Agency Act 1992 (as amended).

An IE licence is required as the Proposed Development entails the carrying out of the following activities:

- Combustion of fuels in installations with a total rated thermal input of 50 MW or more.

The Proposed Development will comply with the requirements of the *EU (Large Combustion Plants) Regulations 2012, S.I. No. 566 of 2012*, under a new IE licence, so that any impacts from emissions to

air, soil, surface water and groundwater and effects on the environment and human health, will be minimised and avoided where possible.

The IE licence will be in place prior to commencement of operations and will be the result of an application process to the EPA, including an EIA process. Sampling and analysis of pollutants will be carried out where required including monitoring of exhaust emissions levels using Continuous Emission Monitoring Systems (CEMS) prior to discharge from the stacks, in accordance with the IE licence.

The Proposed Development will also be operated in line with the plant vendors Operation and Maintenance (O&M) manuals. The operator will implement and maintain an Environment Management System (EMS) which will be certified to International Standards Organisation (ISO) 14001. The EMS will establish the requirements and procedures required to ensure that the Site is operating to the appropriate standard.

1.5.1.1.1 Best Available Techniques

The conditions of an IE licence require that the emission limit values must be based on the Best Available Techniques (BAT). A BAT assessment has been prepared, and the Proposed Development will comply with the assessment findings. The BAT assessment covers:

- Emissions from storage.
- Energy efficiency.
- Industrial cooling systems.
- Large combustion plant.

All required operational controls will be developed prior to commencement of operations and the Proposed Development will be compliant with BAT at commencement of operations. Key elements include:

- The use of best practice design guidance and BAT requirements.
- To inform the detailed design.
- Site / environmental / safety management systems including monitoring / audits and training (such as continuous emissions monitoring).
- Specific recommendations around material storage (such as secondary containment).
- Commitment to an energy management and efficiency policy, including Key Performance Indicators (KPI).
- Closed-circuit air-cooled condenser technology to be used for cooling.

1.5.2 Commission for Regulation of Utilities

The CRU is Ireland's independent energy and water regulator and was originally established as the Commission for Energy Regulation (CER) in 1999.

Under the Electricity Regulation Act, 1999 (as amended), the CRU has powers to licence and regulate the generation, distribution, transmission and supply of electricity in Ireland. In addition, the CRU also issues authorisations to construct (or reconstruct) generating stations.

In this regard, the Proposed Development will seek the necessary authorisations and licences, as follows:

Authorisation to Construct:

- In order to construct the Proposed Development, the Applicant must have an Authorisation to Construct or Reconstruct a Generation Station. Once granted, the Applicant will be obliged to comply with the associated conditions of this Authorisation.

Licence to Generate Electricity:

- In order to operate the Proposed Development, the Applicant will require a Licence to Generate Electricity. Once granted, the Applicant will be obliged to comply with the conditions of the Licence.

Such authorisations / licence will also be required for any emergency or back-up power generators in excess of 1 MW capacity.

Typically, a joint application is submitted to the CRU both the Authorisation to construct and Licence to generate.

1.5.3 Health and Safety Authority

The HSA is the central competent authority for regulatory control of sites to which the Seveso Directive applies.

The Proposed Development will be classified as a Lower Tier Control of Major Accidents Hazards (COMAH) Establishment as a result of the inventory of natural gas potentially present on the Site. The Proposed Development will therefore be required to comply with t*he Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015)* (the "COMAH Regulations 2015"), and in particular, to carry out a detailed quantitative risk assessment (QRA) of the facilities for submission to the HSA.

European Union (EU) Directive 96/82/EC on the Control of Major Accident Hazards Involving Dangerous Substances (Seveso II Directive) came into force in 1997 and was implemented into Irish law under *EC (Control of Major Accident Hazards Involving Dangerous Substances (COMAH)) Regulations, 2000 S.I. No. 476 of 2000*.

This Directive was restated and repealed by Directive 2012/18/EU (Seveso III Directive) and implemented in Ireland by two sets of 2015 Regulations:

- The COMAH Regulations 2015.
- The European Union (Control of Major Accident Hazards involving Dangerous Substances) (Revocation) Regulations 2015 (S.I. No. 208 of 2015).

The COMAH Regulations 2015 require operators of establishments where dangerous substances are present, in quantities equal to or in excess of defined thresholds listed in Schedule I, Parts 1 and 2, to take all measures necessary to prevent and mitigate the effects of major accidents to human beings and the environment.

1.5.4 Kerry County Council and Limerick County Council

Should there be a requirement for temporary road closures or road restrictions during the operational phase e.g., equipment replacement or overhaul, applications for Temporary Road Closures will be made directly to Kerry County Council and Limerick County Council. The operator will be responsible for obtaining these as necessary.

1.5.5 Other Permits and Consents

A number of permits will be required for the Proposed Development, some of which have already been obtained. These include but are not limited to those described below.

1.5.5.1 Foreshore Licence

The Foreshore Act 1933 (as amended) requires that a lease or licence must be obtained from the Minister for the Environment, Climate and Communications for undertaking any works or placing structures or material on, or for the occupation of, or removal of material from, State-owned foreshore.

On 21st December 2010, the Applicant has obtained the following foreshore license in relation to the drainage outfall.

Reference	Decided	Decision	Description
FS006224	20.04.2010	Granted	Drainage outfall pipe to discharge surface water, groundwater, treated process and foul water and used firewater.

By deed of variation dated 16th April 2012, made with the Minister for the Environment, Community and Local Government, the term of the lease was extended to 99 years.

1.5.5.2 Fire Safety Certificates

Fire Safety Certificates are required from Kerry Co. Co. Fire Brigade. This process consists of a detailed technical appraisal, by a Kerry Co. Co. Fire Prevention Officer, of a proposed building design or proposed change of use against Part B (Fire Safety) of the Second Schedule to the Building Regulations 1997 to 2006 (S.I. No. 497 of 1997 as amended by S.I. No. 115 of 2006) and the related Technical Guidance Document B or an approved equivalent standard.

The process may also involve pre-project consultation, liaison with consultants and building inspections.

1.5.5.3 Disability Access Certificate for Buildings

A Disability Access Certificate (DAC) will be required from Kerry Co. Co. for each building, certifying compliance of the design with the requirements of Part M of the Building Regulations 1997 to 2010 (S.I. No. 497 of 1997 as amended by S.I. No. 513 of 2010). This will need to be applied for and granted for each building prior to construction.

1.5.5.4 Section 50 Consent (Consent to Construct a Culvert)

All works to bridges and culverts on watercourses require approval from the Office of Public Works (OPW) in accordance with Section 50 of the Arterial Drainage Act 1945. Kerry Co. Co. will seek Section 50 approval during the planning process. The process requires the submission of structural drawings, hydraulic calculations and reports to the OPW for its approval.

1.5.5.5 Section 254 Licence

A licence must be obtained from the planning authority under Section 254 of the PDA 2000 (as amended), to erect, construct, place or maintain a cable, wire, or pipeline over or along a public road. The application must furnish such plans and other information as the planning authority may require. The planning authority may grant a licence for a specified period and subject to conditions.

1.5.5.6 Archaeological Licences

There are some features of archaeological interest identified on the Site that need to be removed prior to the start of construction. A licence to carry out archaeological excavation is required from the National Monuments Service (NMS). Facilities will be required to complete the archaeological excavation and associated post-excavation work, including preparation of preliminary and final reports (including specialist reports) to the standard required under the licence. Full details on the Site archaeological features are provided in **Chapter 12** (Cultural Heritage) which describes the likely significant effects upon the archaeological and architectural heritage resources from the Proposed Development.

1.6 Consultation

The previous Strategic Infrastructure Development (SID) application (ABP-311233-21) was subject to extensive consultation, including Kerry Co. Co., the NPWS, GNI, CRU, EPA, Shannon Foynes Port Company, the Health and Safety Authority (HSA), Geological Servies Ireland (GSI), Inland Fisheries (IFI), Irish Aviation Authority (IAA), Foreshore Unit, Underwater Archaeology Unit and Uisce Éireann.

An online public consultation event was also held with the Kilcolgan, Tarbert and Ballylongford Associations, and a virtual public information room was also established online.

There is no express provision made under the planning legislation to enter into public participation prior to the submission of the application for development consent for an SID application. Public participation under the EIA Directive is not triggered until the formal application for development consent is submitted *i.e.,* submission of the EIAR to ABP.

Consultation with relevant statutory and non-statutory bodies forms an important part of the EIA process. The consultations with the relevant bodies during the pre-applications for the Proposed Development process were carried out to ensure a robust EIAR was submitted.

The 2022 EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports confirms that '*Consultation is a key element of each stage of the EIA process'. The requirement for consultation is included in the definition of EIA in the Directive*.'

Scoping and consultation for the EIA was carried out by the Applicant and focused on meetings, discussions and / or correspondence with the following bodies refer to **Table 1.1**. The consultation took the form of a letter to the consultees which included details of the Proposed Development and inviting the consultee to comment on the proposal.

Table 1.1: Overview of Consultation Undertaken to Date

Consultee	Date	Form of Consultation	Summary
An Bord Pleanála	24.04.2023	Pre-SID Application Submitted 24th April 2023. PC08.316518	Pre-Application meeting held with ABP 28th September 2023. Determined to constitute SID by ABP on 15th November 2023.
Kerry County Council (Kerry Co. Co.)	28.04.2023	Letter Consultation and meeting	Meeting held with Kerry Co. Co. 22nd November 2023. Presentation on Proposed Development was delivered to Kerry Co. Co. No issues raised.
EirGrid	04.05.2023	Letter Consultation	Letter Consultation sent to Eirgrid explaining the application. Given the reduced scale of the development with the elimination of the LNG Terminal and the identical nature of the power plant and based on the extensive pre-application consultation for ABP-311233-21, no meeting was requested by the consultee.
Health and Safety Authority (HSA)	04.05.2023	Letter Consultation	Letter Consultation sent to HSA explaining the application. Response received from HSA 5th May 2023. No meeting requested by HSA. HSA requested results of the quantitative risk assessment (QRA). Results of QRA were provided to the HSA 19th March 2024.
Inland Fisheries Ireland (IFI)	04.05.2023	Letter Consultation	Letter Consultation sent to IFI explaining the application. Given the reduced scale of the development with the elimination of the LNG Terminal and the identical nature of the power plant and based on the extensive pre-application consultation for ABP-311233-21, no meeting was requested by the consultee.
Environmental Protection Agency (EPA)	04.05.2023	Letter Consultation	Letter Consultation sent to the EPA explaining the application. Given the reduced scale of the development with the elimination of the LNG Terminal and the identical nature of the power plant and based on the extensive pre-application consultation for ABP-311233-21, no meeting was requested by the consultee.
Commission for Regulation of Utilities (CRU)	04.05.2023	Letter Consultation	Letter Consultation sent to the CRU explaining the application. Given the reduced scale of the development with the elimination of the LNG Terminal and the identical nature of the power plant and based on the extensive pre-application consultation for ABP-311233-21, no meeting was requested by the consultee.
National Parks and Wildlife Service (NPWS)	05.05.2023	Letter Consultation and Meeting	Letter Consultation sent to the NPWS explaining the application. Meeting held 22nd May 2023. No issues raised
Shannon Foynes Port Company	05.05.2023	Letter Consultation and Meeting	Letter Consultation sent to the Shannon Foynes Port Company explaining the application. Meeting held 22nd June 2023. No issues raised.
Irish Whale and Dolphin Group (IWDG)	05.05.2023	Letter Consultation	Letter Consultation sent to the IWDG explaining the application.

Consultee	Date	Form of Consultation	Summary
			Given the reduced scale of the development with the elimination of the LNG Terminal and the identical nature of the power plant and based on the extensive pre-application consultation for ABP-311233-21, no meeting was requested by the consultee.
National Monuments Services	04.05.2023	Letter Consultation and Meeting held 22.05.2023	Letter Consultation sent to the NMS explaining the application. NMS highlighted that a research intertidal archaeological study was undertaken in the Shannon Estuary by the Discovery Programme and identified archaeological artifacts of national significance and suggested that a Geophysical Survey be undertaken as part of the application. A Marine Geophysical Survey and Foreshore Metal Detector Survey was undertaken between 12th and 25th February 2024 and the results are discussed in Chapter 12 (Cultural Heritage).
Kerry Co. Co. Fire Department	06.02.2023	Letter Consultation	Letter Consultation sent to Kerry Co. Co. Fire Department explaining the application. Given the reduced scale of the development with the elimination of the LNG Terminal and the identical nature of the power plant and based on the extensive pre-application consultation for ABP-311233-21, no meeting was requested by the consultee.
Tarbert Ballylongford Kilcolgan Residents Association	12.03.2024	Meeting	Meeting held 12th March 2024. Residents Association showed support for the Proposed Development.

The Applicant, entered into a pre-application consultation process with An Bord Pleanála (ABP) ("The Board") under Section 37B of the PDA 2000 (as amended) ("PDA 2000") on 24th April 2023 (ABP Reference ABP-316518-23) and held a pre-application meeting with ABP on 28th September 2023. The Board's Notice of 15th November 2023, as referred to in **Section 1.4.1** above, included a list of prescribed bodies which have been notified of the application for the Proposed Development, these prescribed bodies being:

- Department of Planning and Local Government and Heritage (DPLGH).
- Minister of Environment, Climate and Communications.
- Kerry County Council (Kerry Co. Co.).
- Clare County Council (Clare Co. Co.).
- Transport Infrastructure Ireland (TII) / National Transport.
- An Chomhairle Ealaion (Arts Council).
- Heritage Council.
- Failte Ireland.
- An Taisce.
- Southern Regional Assembly (SRA).
- Uisce Éireann.

- Inland Fisheries Ireland (IFI).
- Waterways Ireland.
- Department of Agriculture, Food and Marine (DAFM).
- Environmental Protection Agency (EPA)
- Department of Tourism, Culture, Arts, Gael, Sports and Media (DTCAGSM).
- Health Service Executive (HSE).
- Health and Safety Authority (HSA).
- Commission for Regulation of Utilities (CRU).
- Office of Public Works (OPW).
- Electricity Supply Board (ESB).
- EirGrid.

1.7 Environmental Impact Assessment

EIA is a process for the systematic examination of the '*likely significant effects*' on the environment of a proposed development; ensuring that adequate consideration is given to any such effects; and avoiding, reducing or offsetting any significant adverse effects. The findings of the EIA process are set out in the EIAR.

This EIAR has been prepared in accordance with the European Union (EU) EIA Directive 2011/92/EU (the 'EIA Directive'), as amended by EIA Directive 2014/52/EU and in accordance with the requirements of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) and relevant guidance documents, in order to inform the consideration of the planning application and provide the planning authority with the environmental information that must be taken into account when determining this planning application.

In Irish legislation, Section 172 of the PDA 2000 (as amended) establishes the requirement for EIA, states:

> *'An environmental impact assessment shall be carried out by the planning authority or the Board, as the case may be, in respect of an application for consent for proposed development where either—*
>
> *(a) the proposed development would be of a class specified in—*
>
> *(i) Part 1 of Schedule 5 of the Planning and Development Regulations 2001,*
>
> *and either -*
>
> *(I) such development would exceed any relevant quantity, area or other limit specified in that Part, or*
>
> *(II) no quantity, area or other limit is specified in that Part in respect of the development concerned,*
>
> *Or*
>
> *(ii) Part 2 of Schedule 5 of the Planning and Development Regulations 2001*

and either—

(I) such development would exceed any relevant quantity, area or other limit specified in that Part, or

(II) no quantity, area or other limit is specified in that Part in respect of the development concerned,

Or

(b) (i) the proposed development would be of a class specified in Part 2 of Schedule 5 of the Planning and Development Regulations 2001 but does not exceed the relevant quantity, area or other limit specified in that Part.

And

(ii) the planning authority or the Board, as the case may be, determines that the proposed development would be likely to have significant effects on the environment.'

In addition, Schedule 5 sets out thresholds for projects, and if that threshold is exceeded an EIA must be carried out. These are mandatory requirement. Finally, where a project is of a type listed in the regulations but does not meet or exceed the applicable threshold then the likelihood of the project having significant effects on the environment - as considered against a range of prescribed criteria, must be assessed.

The Proposed Development, which includes: three (3 No.) blocks of CCGTs, (each block with a capacity of approximately 200 MW), total installed capacity of up to 600 MW, a 120 MWh (1-hr) BESS, Above Ground Installation (AGI), secondary fuel storage facility and associated plant, equipment and infrastructure including a substation, which falls within the descriptions of development in the Planning and Development Regulations, 2001, Schedule 5, Development for the purposes of Part 10, as per below:

Part 1, Item 2. (a) A thermal power station or other combustion installation with a heat output of 300 megawatts or more.

An EIA for the Proposed Development is therefore mandatory.

The Strategic Infrastructure Development (SID) provisions of the PDA 2000, (as amended), have been considered in making this application, with formal pre-application consultation carried out between the Applicant and An Bord Pleanála, refer to **Section 1.4.**

This EIAR has been prepared in accordance with the requirements set out in the EIA Directive and relevant associated guidelines and documentation including:

- DHPLG (2018). *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*.
- EC (2013). *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment.*
- EC (2015). *Interpretation of definitions of project categories of Annex I and II of the EIA Directive*.
- EC (2017a). *Environmental Impact Assessment of Projects - Guidance on Scoping.*

- EC (2017b). *Environmental Impact Assessment of Projects, Guidance on the preparation of Environmental Impact Assessment Reports.*
- EPA (2017). *Environmental Impact Assessment of Projects. Guidance on Scoping.*
- EPA (2022). *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.*

In addition to these guidance documents, EU Directives and national legislation relating to the specialist areas (*e.g.*, Biodiversity, Surface Water, *etc.*) have been considered under each relevant environmental aspect. Specific guidance is addressed in the technical chapters of this EIAR.

1.8 Methodology

1.8.1 Introduction

EIA is a process for anticipating the impacts and associated effects (both positive and negative) from a proposed development or project on various environmental receptors.

In EIA, impacts are defined as the changes resulting from an action, whereas effect is the term used to express the consequence of an impact (expressed as the 'significance of effect'). If the anticipated effects are unacceptable, design measures or other relevant mitigation and monitoring measures can be implemented to reduce or avoid those effects.

The EIAR is the document produced as a result of the EIA process that includes in accordance with the requirements of Article 5(1) of the 2014 Directive:

> *a) a description of the project comprising information on the site, design, size and other relevant features of the project;*
>
> *b) a description of the likely significant effects of the project on the environment;*
>
> *c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;*
>
> *d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;*
>
> *e) a non-technical summary of the information referred to in points (a) to (d); and*
>
> *f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.*

The EIA process can involve several stages, including consultation, screening, scoping, baseline surveys, impact assessments, ongoing feedback into a project design, and preparation of the EIAR.

The EIA Directive aims to provide a high level of protection to the environment and ensures that environmental considerations are taken into account in the preparation of a proposed development or project, with the view to reducing environmental impacts.

In accordance with the requirements of Article 3 of the 2014 Directive the EIA will '*identify, describe and assess in an appropriate manner, the direct and indirect significant effects'* of the Proposed Development on the following factors:

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape;

(e) the interaction between the factors referred to in points (a) to (d).

The EIAR must include the necessary information and assessments in accordance with the EIA Directive.

The EIA Directive states in Article 1(2)(g) that '*environmental impact assessment*' is a process consisting of:

'*(i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);*

(ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;

(iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;

(iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and

(v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.'

Further details of the EIA process and methodology undertaken for the Proposed Development are presented in the following subsections and **Figure 1.3**.

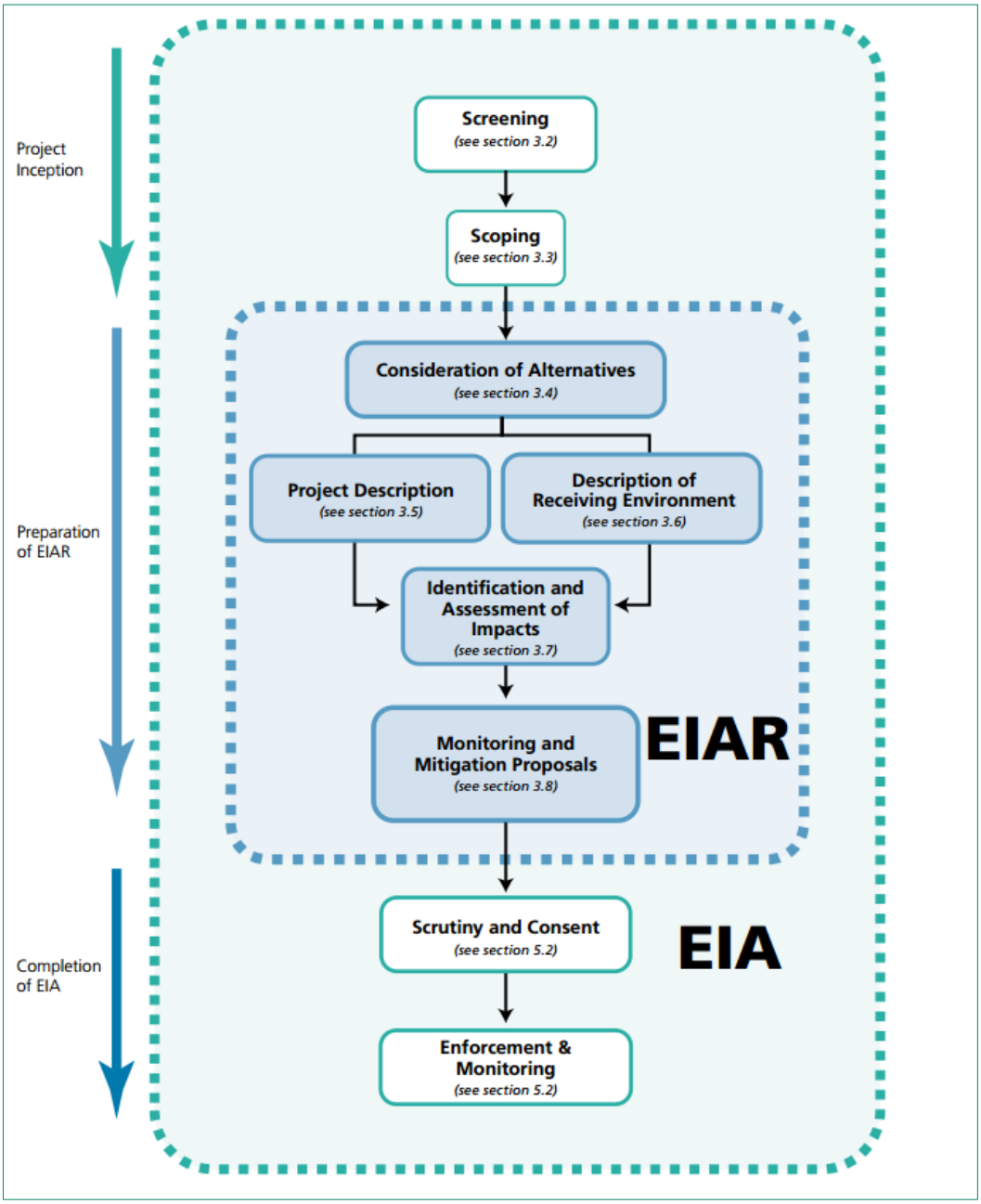

Figure 1.3: Position of an EIAR within the EIA Process

Source: EPA Guidelines (2022), Figure 2.1.

1.8.2 Screening

The first step in the EIA process is '*Screening*', which determines if an EIA is required, and usually commences at the project design stage.

In accordance with Article 4(1) of the 2014 Directive, all projects listed in Annex I are considered as having significant effects on the environment and will be subject to EIA, and projects for which an assessment must be undertaken to determine if they are probable to result in likely significant effects (Annex II).

For Annex II projects, individual Member States can choose to institute specific thresholds or project specific considerations, or a combination of both of these approaches to arrive at a decision regarding

the requirement to undertake an EIA. Annex II developments that do not exceed the thresholds for the mandatory requirement to prepare an EIA are categorised as sub-threshold and must be assessed on a case-by-case basis to determine whether they are likely to have significant effects on the existing environment. The likelihood of a significant environmental effect is the principal matter around which consideration of the requirement for an EIA is based.

Annex III of the EIA Directive sets out the criteria to be examined when carrying out EIA screening. These criteria include the characteristics of projects, location of projects, and type and characteristics of the potential impact.

An EIAR is mandatory for the Proposed Development in line with paragraph 2(a) of Annex I and paragraph 3(a) of Annex II of the EIA Directive, as transposed, respectively, by paragraph 2(a) of Part 1 of Schedule 7 to the 2001 Regulations and paragraph 3(a) of Part 2 of Schedule 7 to the 2001 Regulations. In addition, the Proposed Development falls under the Seventh Schedule of the PDA 2000 (as amended).

1.8.3 Scoping

Scoping is the process of identifying the significant issues which should be addressed by a particular impact assessment as well as the means or methods of carrying out the assessment.

The EPA Guidelines (2022) state that "'*Scoping' is a process of deciding what information should be contained in an EIAR and what methods should be used to gather and assess that information*. It is defined in the European Commission guidance as: '*The process of identifying the content and extent of the information to be submitted to the Competent Authority under the EIA process'*.

Scoping was carried out on an informal basis through the pre-planning process with Kerry Co. Co. where key issues to be considered were identified and discussed. Throughout various stages of the project, relevant statutory and non-statutory consultees were contacted and consulted on the project design. Refer to the technical chapters of this EIAR for the content and scope of each assessment chapter.

1.8.4 Environmental Impact Assessment (EIA)

An EIAR is prepared as part of the EIA process. A range of environmental topics are assessed and documented within the EIAR. Typically, the EIAR includes a baseline assessment to determine the status of the existing environment; impact prediction and evaluation to identify impacts and effects and determine the significance of effects (this can include cumulative effects); delineation of mitigation and monitoring measures to reduce the impacts identified; and a residual impact assessment of the significance of effects once any mitigation and monitoring measures have been implemented.

An EIAR is defined in Section 2 of the PDA 2000 (as amended by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) as: *'A report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive'.*

1.8.4.1 General Approach to the Assessment

Each technical chapter of this EIAR (Chapters 05-17), the classification and significance of effects is generally evaluated in accordance with the EIA Directive and the methodology outlined in the EPA Guidelines (2022).

Where more relevant and specific standards and methodologies exist, they are adopted and outlined in the respective methodology sections within each technical chapter (for example, specific criteria and assessment terminology used to assess ecology impacts).

1.8.4.2 Description of Effects

The term '*significance of effects*' generally refers to the importance of the outcome of the effects which are the consequences of changes. Significance is determined by a combination of scientific (objective) and social (subjective) factors. **Table 1.2** outlines the approach for describing the effects, the methodology that follows the EPA Guidelines (2022).

Table 1.2: Descriptions of Effects

Type of Effect	Description of Effect
Quality of Effects It is important to inform the non-specialist reader whether an effect is positive, negative, or neutral.	**Positive Effects** A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative / Adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Describing the Significance of Effects 'Significance' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful (also see Determining Significance).	**Imperceptible** An effect capable of measurement but without significant consequences.
	Not Significant An effect which causes noticeable2 changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
	Very Significant An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics
Describing the Extent and Context of Effects	**Extent** Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.

Type of Effect	Description of Effect
Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly, or increasingly experienced.	**Context** Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions.
Describing the Probability of Effects Descriptions of effects should establish how likely it is that the predicted effects will occur.	**Likely Effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Duration and Frequency of Effects 'Duration' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.	**Momentary Effects** Effects lasting from seconds to minutes.
	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Describing the Types of Effects	**Indirect Effects or Secondary Effects** Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
	'Do-Nothing Effects' The environment as it would be in the future should the subject project not be carried out.
	'Worst case' Effects The effects arising from a project in the case where mitigation measures substantially fail. It can also be a worst-case assumption where there is uncertainty in the assessment or in the effectiveness of mitigation measures.
	Indeterminable Effects When the full consequences of a change in the environment cannot be described.
	Irreversible Effects When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost.
	Residual Effects

Type of Effect	Description of Effect
	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents, (e.g., combination of SOx and NOx to produce smog).

1.8.4.3 Significance Criteria

The matrix adapted from the EPA Guidelines (2022), is used to determine the significance of effect being assessed. **Figure 1.4** illustrates how comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance of the effect.

For each technical chapter of this EIAR (**Chapters 05-17**), the classification and significance of effects will be evaluated with reference to definitive standards, accepted criteria and legislation where available. Where it is not possible to quantify effects, qualitative assessments will be carried out, based on well-reasoned professional judgement supported by evidence. Where uncertainty exists, this will be noted in the relevant EIAR chapter.

Figure 1.4 shows how the magnitude of impact and sensitivity of the receptor combine to evaluate the significance of effect.

The technical chapters of this EIAR (**Chapters 05-17**) consider the magnitude of impacts and the sensitivity of the resources / receptors that could be affected in order to classify the effect and has regard to the EPA Guidelines (2022). While each technical discipline has its own method based on applicable standards and approaches, which are detailed in a transparent and understandable way within the EIAR chapter, all assessments have been undertaken with consideration and cognisance of the EPA Guidelines (2022).

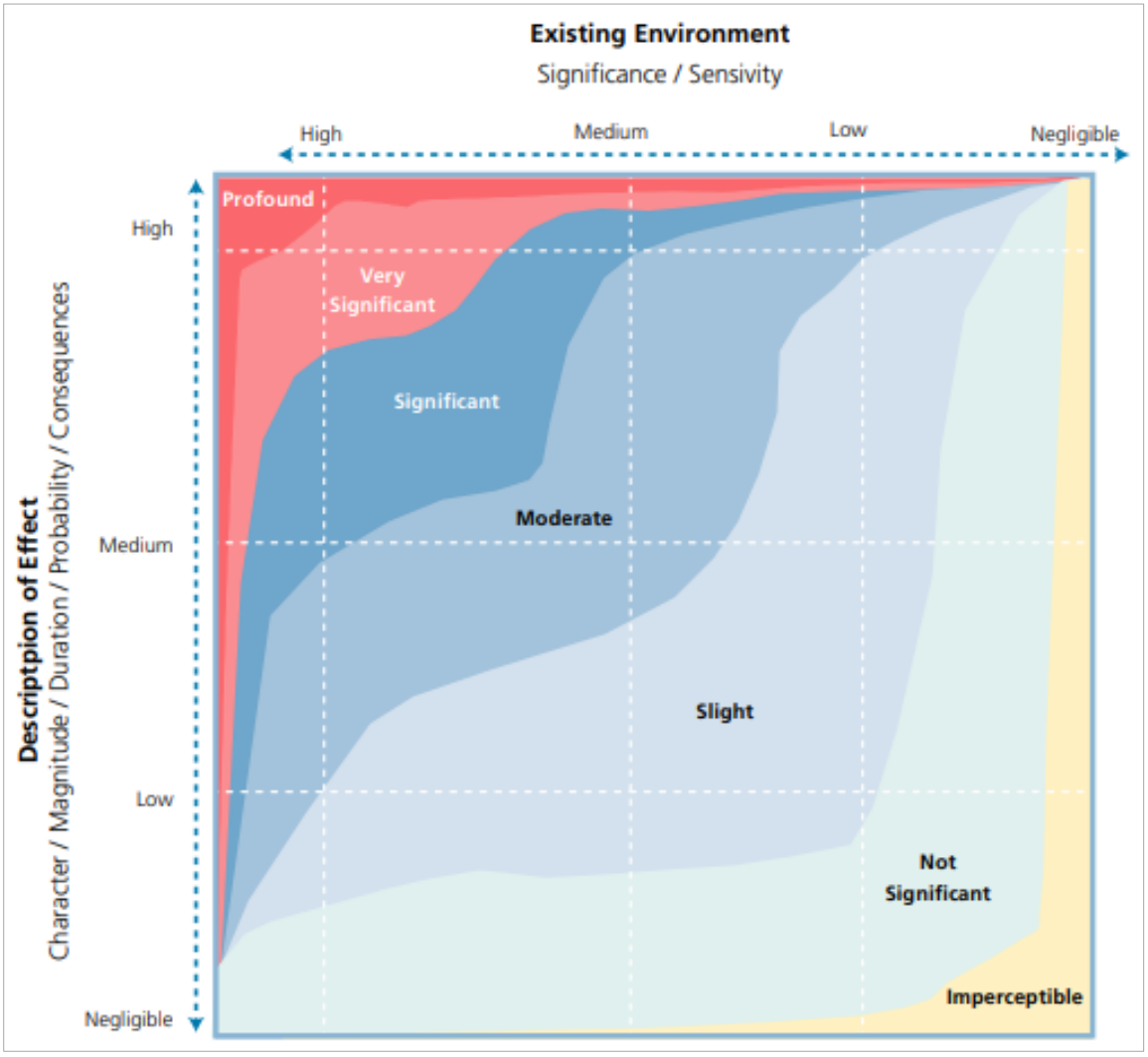

Figure 1.4: Chart showing typical classification of the Significance of Effects

Source: EPA Guidelines (2022), Figure 3.4.

1.8.4.4 Cumulative Impacts

The assessment takes into consideration cumulative impacts with consented, planned and reasonably foreseeable projects. A desktop search of proposed and existing planning applications was undertaken on 4th March 2024. The search used publicly available data from the MyPlan.ie 'National Planning Application' database, the relevant county council's planning application portal and the online database and consultation with the Applicant as regards planning history for the Site. The relevant planning application search is included in **Chapter 4** (Energy and Planning Policy) and the list of cumulative projects is included in **Appendix A1.2**, Volume 4.

The purpose is to inform the cumulative impact assessments within this EIAR. The cumulation of the Proposed Development with other existing and / or proposed developments has been assessed within each relevant chapter of this EIAR. The scope of the search was based on:

- Planning applications (excluding individual dwellings and works to individual dwellings) within approximately 5 km radius of the Site.
- Other existing developments or projects (outside the 5 km radius of the Site).

1.8.4.5 Residual Effects

The residual effects are the final or intended effects which occur after the proposed mitigation measures have been implemented. As per the EPA's EIAR Guidelines, the effects from the impacts that remain after all assessment and mitigation are referred to as '*Residual Effects*'. Determination of the residual effects follows the same methodology outlined above.

It is important to note that the methodology outlined above is a general approach only. Characterising the character / significance of a potential effect can have specific criteria which are documented in the assessment chapters.

1.9 Previous Consents

The consents already granted in respect of the Site are outlined below. For the avoidance of doubt, the current application is a new SID application and is not an alteration to current or previous consents. **Table 1.3** sets out the key planning history pertaining to the Site.

Table 1.3: Planning History

Planning Reference	Location	Received Date	Decision Date	Decision	Description
PC08.319245	Townlands of Kilcolgan Lower and Ralappane, Ballylongford, Co. Kerry	08.03.2024	TBC	TBC	Pre-Application Consultation. Proposed development of a strategic gas emergency reserve facility, and associated development works
VC08.318119	Townlands of Ralappane, Kilcolgan Lower, Carhoonakineely, Carhoonakilla, Cockhill, Coolnanoonagh, Carhoona, Farranawana and Kilpaddoge, Tarbert, Co. Kerry	28.09.2023	TBC	TBC	Pre-Application Consultation Request. Proposed 220 kV Grid Connection and 2 no. 220 kV GIS substations.
ABP-311233-21	Townlands of Kilcolgan Lower and Ralappane, Ballylongford, Co. Kerry	27.08.2021	15.09.2023	Refused. Currently subject to JR proceedings.	10-year permission for proposed Shannon Technology and Energy Park consisting of power plant, battery energy storage system, floating storage and regasification unit, jetty, onshore receiving facilities, above ground installation and all ancillary structures / works.
PL08B. PA0002	Ralappane and Kilcolgan Lower, Co. Kerry	24.09.2007	31.03.2008	Granted	Proposed LNG regasification terminal.
PL08.PM0002	Ralappane and Kilcolgan Lower, Co. Kerry	01.11.2012	04.03.2013	Granted	Amendment to the phasing of the construction of the permitted LNG Terminal (condition no. 3) and other minor modifications.
PL08.PM0014	Ralappane and Kilcolgan Lower, Co. Kerry	22.09.2017	13.07.2018	Granted	Amendment to the length of the permission for the permitted LNG Terminal (condition no. 2) from 10 years to 15 years.

Planning Reference	Location	Received Date	Decision Date	Decision	Description
					This decision was quashed by the High Court in November 2020.
PL08.GA0003	Townlands of Ralappane, Carhoonakineely, Carhoonakilla, Cockhill.	14.08.2008	17.02.2009	Granted	Permission approved for a gas pipeline to connect Shannon LNG Terminal to the existing natural gas network at Leahy's Co. Limerick.
PL08. DA0003	Townlands of Ralappane, Carhoonakineely, Carhoonakilla, Cockhill.	01.08.2008	17.02.2009	Make acquisition order without amendments	Application for an acquisition order for the Shannon LNG Terminal at Tarbert, Co. Kerry to the Bord Gáis Eireann Network at Foynes, Co. Limerick.
PL08. PA0028	Ralappane and Kilcolgan Lower, Co. Kerry.	21.12.2012	09.07.2013	Granted	10-year permission for a combined Heat and Power (CHP) Plant.

1.10 Structure of the EIAR

Table 1.4 sets out the format and structure of this EIAR that has been prepared to allow for ease of presentation and consistency when considering the various environmental factors considered, a systematic structure is used for the main body of this EIAR.

The EIAR has been prepared having due regard to the EPA Guidelines (2022) which sets out that: '*A systematic approach, standard descriptive methods and the use of replicable assessment techniques and standardised impact descriptions must be adopted to ensure that all likely significant effects are adequately considered and clearly communicated*'. This EIAR is presented in four volumes as outlined in **Table 1.4**.

Table 1.4: Structure of the EIAR

Chapter No.	Description
Volume 1: Non-Technical Summary (NTS)	
NTS	Provides an overview of the Proposed Development, the Environmental Impact Assessment (EIA) methodology and the assessment of environmental components. This includes baseline environmental conditions, potential impacts which may arise as a result of the Proposed Development and proposed mitigation measures for each component.
Volume 2: EIAR - Main Report	
Chapter 01 Introduction	Provides an overview of the purpose, methodology, structure and scope of the report.
Chapter 02 Description of the Proposed Development	Describes the design, scale and size of the Proposed Development. Provides an overview of the location and wider setting of the Proposed Development.
Chapter 03 Need and Consideration of Alternatives	Sets out the need for the Proposed Development. Describes and evaluates the reasonable alternatives studied by the developer including alternative locations, designs and processes considered. Sets out the justification for the option chosen with consideration of the effects of the Proposed Development on the environment.
Chapter 04 Energy and Planning Policy	Outlines policies and legislation relevant to the Proposed Development.
Chapter 05 Land, Soils and Geology	Provides a review of the land, soils and geology baseline, potential impacts on soil and geology and impacts in relation to land take. Recommends mitigation measures.
Chapter 06 Water	Describes the baseline water environment, the potential impact of the Proposed Development on water quality and quantity and recommends mitigation measures.
Chapter 07A Marine Ecology **Chapter 07B Terrestrial Ecology**	Describes the receiving environment in terms of existing species and habitats. Assesses potential impacts on the baseline environment and surrounding environs and proposes relevant mitigation measures.
Chapter 08 Air Quality	Provides an overview of the baseline air quality environment, describes the impacts on air quality related to the Proposed Development and recommends appropriate mitigation measures.
Chapter 09 Airborne Noise and Groundborne Vibration	Provides an assessment of the baseline noise environment and outlines sensitive receptors vulnerable to potential noise impacts that may arise as a result of the Proposed Development.
Chapter 10 Landscape and Visual	Describes the existing landscape and visual environment, potential impacts to the landscape character and viewpoints and recommends mitigation measures.
Chapter 11 Traffic and Transport	Outlines the baseline traffic environment and describes potential impacts on local roads that may arise due to construction and operational traffic.
Chapter 12 Cultural Heritage	Provides an assessment of the Site, considering potential impacts to cultural heritage assets, such as architectural and archaeological heritage, and proposes mitigation measures.
Chapter 13 Population and Human Health	Provides an assessment of the baseline population and human health and potential impact on humans as a result of the Proposed Development.
Chapter 14 Major Accidents and Disasters	Identifies and assesses the likelihood and potential impacts to the environment and population arising from the vulnerability of the Proposed Development to risks of major accidents and / or natural disasters.
Chapter 15 Climate	Describes the existing climatic environment, the vulnerability of the Proposed Development to climate change and potential contributions to climate change by the Proposed Development.

Chapter No.	Description
Chapter 16 Waste Management	Describes the existing waste facilities, the potential sources of waste, vulnerable environmental receptors that may be impacted by pollution and appropriate mitigation measures.
Chapter 17 Material Assets	Describes existing services and infrastructural service requirements by the Proposed Development. Describes potential impacts to utilities as a result of the Proposed Development.
Chapter 18 Interactions	Provides an overview of potential interactions among environmental factors and their cumulative impact as a result of the Proposed Development.
Chapter 19 Schedule of Environmental Commitments	Sets out the mitigation and monitoring measures proposed throughout the various chapters for ease of reference.
Volume 3: Figures	
Figures F1.1 – F17.1	Figures to support the EIAR.
Volume 4: Appendices	
Appendix A1.1 – A16.2	Appendices to support Volume 2 of the EIAR.

The format of each technical chapter (*i.e.*, **Chapters 05-17**) is structured as follows:

- Introduction.
- Legislation and Policy.
- Methodology.
- Baseline Environment.
- Assessment of Impact and Effect.
- Mitigation Measures.
- Residual Effect.
- Cumulative Effects.
- Summary.
- References.

1.11 Expertise of the EIAR Team

This EIAR has been compiled by AECOM Ireland Ltd. on behalf of the Applicant with assessment and reporting provided by competent experts from AECOM and other consultancies for each individual topic.

The competent experts for the specialist chapters of the EIAR, are a requirement as of the EIA Directive and Regulations to provide objective input based on their experience and possession of the requisite knowledge of the latest and most appropriate scientific methodology and assessment procedures as well as the correct understanding and interpretation of the relevant data. Article 5(3) of Directive 2014/52/EU (2014 EIA Directive), expressly requires that the developer must ensure that the EIAR is prepared by competent experts, stating:

> *'Experts involved in the preparation of environmental impact assessment reports should be qualified and competent. Sufficient expertise, in the relevant field of the project concerned, is required for the*

purpose of its examination by the competent authorities in order to ensure that the information provided by the developer is complete and of a high level of quality'.

Details and a statement (a 'statement of competence') of the relevant expertise and qualifications of each of the contributors to the EIAR is required by EIA Regulations. **Table 1.5** provides the details of the management and technical leads responsible for the preparation of this EIAR along with their relevant qualifications and a brief summary of relevant experience.

Table 1.5: Expertise of the EIAR Team

EIAR Chapters / Role	Consultant Name	Qualification / Summary of Relevant Experience
Project Director	**Peter O'Connor (AECOM)**	**Technical Director, BSc (Hons), Dip Geo, MRICS, MCIWM** Peter is a Technical Director in the AECOM Environment, Water and Energy team responsible for the project management of Environmental Statements and Scoping studies throughout Northern Ireland, Ireland and Great Britain. He is a Chartered Surveyor (MRICS) with over 25 years' experience in consultancy, he has been responsible for the management and production of a diverse range of planning applications and EIAs throughout Ireland and the UK for both public and private sector clients. His experience includes managing stakeholder engagement programmes, preapplication discussions, management of Public Inquiries, Pre-Commencement Condition Discharge and associated planning / ES and permits / PPC for power related and infrastrcture projects.
Project Manager / EIAR co-ordinator	**Rebecca Dunlea (AECOM)**	**Principal Environmental Consultant, BA (Hons), MA, MSc Sustainability, MCIWEM** Rebecca is a Principal EIA Consultant in the AECOM Environment, Water and Energy team. Rebecca has over eight years' experience in the environmental sector, including coordinating and managing multi-disciplinary teams across all stages of the EIA process, Screening, Scoping and Environmental Impact Assessment Reports (EIAR). Rebecca has experience in a wide range of projects for both public and private sectors, including power, pipelines, SHD's, industrial and road infrastructure. Rebecca also has experience in all stages of the Strategic Environmental Assessment (SEA) process.
Chapter 01 **Introduction**	**Rebecca Dunlea (AECOM)**	As previously detailed.
Chapter 02 **Description of the Proposed Development**	**Rebecca Dunlea (AECOM)**	As previously detailed.
Chapter 03 **Need and Considerations of Alternatives**	**Peter O'Connor (AECOM)**	As previously detailed.
Chapter 04 **Energy and Planning Policy**	**Aiden O'Neill (Coakley O'Neill Town Planning Ltd)**	**Director, BSc (Hons), DipTCP, MIPI** Aiden has over 28 years' professional experience in town planning in the public and private sectors and has provided consultancy services in respect of several urban development and infrastructural developments. Aiden is a corporate member of the Irish Planning Institute, and the Cork Co. Council Planning Strategic Policy Committee (SPC).
Chapter 05 **Land and Soils**	**Kevin Forde (AECOM)**	**Associate Hydrogeologist, BSc (Hons), Dip Comp Sci, MSc Hydrogeology** Kevin is an Associate Hydrogeologist in the AECOM Environment, Water and Energy team and has more than 30 years' post-graduate experience. He graduated with an honour's degree in Geology (1991) and has since earned a post graduate diploma in Computing (UCC, 1992) and a Masters in Hydrogeology (UCL, 1993). He has extensive experience of ground contamination assessment and remediation for both public and private

EIAR Chapters / Role	Consultant Name	Qualification / Summary of Relevant Experience
		sector clients involving environmental due diligence, pre-construction site investigation, EIAR, contaminated land remediation and construction phase soil waste management.
	Brendan McCarthy (AECOM)	**Principal Geo-Environmental Scientist, BSc (Hons)** Brendan is a Principal Geo-Environmental Scientist in the AECOM Environment, Water and Energy Team specialising in contaminated land and environmental monitoring projects. Brendan obtained an honours degree in Environmental Sciences (Geology) from University Collage Cork and an NVQ Level 4 in Managing Physical & Chemical Treatment – Hazardous Waste: Remediation of Contaminated Land. Brendan has 11 years' post graduate experience and Brendan has worked for both public and private sector clients in the UK and Republic of Ireland.
Chapter 06 Water	**Kevin Forde (AECOM)**	As previously detailed.
	Darragh Reilly (AECOM)	**Principal Hydrogeologist, BSc, MSc** Darragh is a Principal Hydrogeologist in the AECOM Environment, Water and Energy Team. Darragh has experience across a wide range of groundwater resource, protection and impact assessment projects throughout Africa, Ireland and United Kingdom. He has experience with impact assessment and remediation projects throughout Ireland, geochemical projects for the British and Irish Geological Surveys, water quality pumping tests and supervision.
	Aoife Harte (AECOM) FRA	**Senior Engineer, BSc (Hons), FdSc, BSc** Aoife is a Senior Engineer in the AECOM Water Resources team. Aoife has a BSc in Environmental Science and a BSc in Flood and Coastal Engineering which has led her to have over seven years' professional experience in the flood risk sector in Ireland and the UK. While Aoife has delivered flood risk related projects on the ground she has also undertaken and reviewed flood risk assessments for minor and major construction projects within the public and private sector.
Chapter 07A Marine Ecology	**Dr. Shane O'Boyle AQUAFACT (APEM Group)**	**Divisional Director, BSc, CSci, FRSB** Shane is the marine ecology lead for the STEP development and has responsibility for all associated ecological surveys and reporting. He is expert in ecological matters and the full spectrum of environmental assessment techniques, methodologies, and statutes. Professionally, he is a member of relevant Institutes requiring the highest standards of professional competence and integrity. He is a chartered scientist (CSci) and a fellow and member of the Royal Society of Biology and the Royal Geographical Society. Shane has 25 years' experience in the field of marine science and has published approximately 50 scientific papers and numerous reports specialising in understanding and monitoring the impact of different human activities on the ecological health of estuarine and coastal waters. Shane has been directly involved in the establishment of national ecological monitoring programmes and water quality standards in his time working in the Environmental Protection Agency, Ireland.
Chapter 07B Terrestrial Ecology	**Carl Dixon (Dixon Brosnan)**	**Senior Ecologist, MSc (Ecology)** Carl is a senior ecologist who has over 25 years' experience in ecological and water quality assessments. He also has experience in mammal surveys, bat surveys, invasive species surveys and ecological supervision of large-

EIAR Chapters / Role	Consultant Name	Qualification / Summary of Relevant Experience
		scale projects. Projects in recent years include the Waste to Energy Facility Ringaskiddy, Shannon LNG Project, supervision of the Fermoy Flood Relief Scheme, Skibbereen Flood Relief Scheme, Upgrade of Mallow WWTP Scheme, Douglas Flood Relief Scheme, Great Island Gas Pipeline and Arklow Bank Wind Park Phase 2.
	Sorcha Sheehy (Dixon Brosnan)	**PhD (Ecology / Ornithology)** Sorcha is an ecologist and ornithologist with 15 years' ' environmental consultancy experience. She has worked on Screening/NISs for a range of small and large-scale projects with expertise in assessing impacts on birds. Sorcha's PhD research focused on bird behaviour at airports, where she studied bird avoidance behaviour and collision risk to aircraft. During her consultancy work Sorcha has carried out field-based surveys and environmental reports including NIS, AA screening and EIARs. Notable projects include the Arklow Bank Wind Park, Indaver Ireland Waste Management Facility, Fermoy Weir and Fish Bypass Channel and Greenlink Interconnector.
	Ross Macklin (Triturus)	**BSc (Ecology), HDip.,** Ross is a graduate of University College Cork. He has a BSc in Applied Ecology, Higher Diplomas in Integrated Pest Management and Geographical Information Systems. He is completing a PhD in fisheries science at UCC. His expert areas are aquatic ecology and fisheries science. Ross has 18 years' of professional experience and worked on many of Ireland's largest infrastructure projects including flood relief schemes, renewables (solar & wind farms), greenways, blueways, residential, road schemes, pipeline projects and biodiversity. He has also worked on projects in the waste management, petrochemical, pharmaceutical, agricultural and aquaculture industry sectors. Ross has held over 30 NPWS national licences for freshwater pearl mussel (*Margaritifera margaritifera*), white-clawed crayfish (*Austropotamobius pallipe*s) and amphibian species holding full national licences for all of these species. He also has held over 30 NPWS wildlife filming licences, numerous derogation licences and over 200 section 14 licences for fisheries related work.
Chapter 08 **Air Quality**	**Gareth Hodgkiss (AECOM)**	**Associate Director, BSc (Hons), MSc, MIEnvSc, MIAQM** Gareth is an Associated Director in the AECOM Environment, Water and Energy Team. Gareth holds a Master of Science degree in Environmental Management from the University of Nottingham and is a Member of the Institute of Air Quality Management and a Member of the Institution of Environmental Sciences with over 18 years' professional experience in the delivery of air quality services for various development led projects across Ireland, the UK and internationally. He has experience of undertaking air quality assessment to support planning and licence applications for industrial sources across Ireland, and experience of assessing air quality impacts in the power sector for projects in Ireland, the UK and internationally. Of relevance to the Proposed Development, Gareth has undertaken, reviewed and verified assessments of local air quality impacts of major remediation works and large construction projects, which have considered impacts on human health, amenity and sensitive ecology, to support planning applications and the requirements of the appropriate regulator.
Chapter 09 **Airborne Noise and Groundborne Vibration**	**Chris Skinner (AECOM)**	**Acoustic Regional Manager, MSci, MA Physics** Chris Skinner has over 20 years' experience in acoustics consultancy and holds a MSci / MA Physics from the University of Cambridge. He is a full corporate member of the Institute of Acoustics.

EIAR Chapters / Role	Consultant Name	Qualification / Summary of Relevant Experience
		He has significant experience in modelling noise from a range of industrial facilities, including power generation plant. Chris works with a wide range of clients, from industrial site operators and developers to local authorities and provides expert technical advice to government departments on noise and nuisance. Chris has strong experience in developing large complex acoustic models and undertaking predictions and has worked with many clients to use such models to understand noise impacts from industrial sites, design mitigation and provide acoustic design advice for site developments.
	Alex Young (AECOM)	**Principal Acoustic Consultant, MSc, BA (Hons), IOA** Alex is a Chartered Engineer, with a breadth of experience spanning both building and environmental acoustics. He has over nine years' experience in consultancy and has worked on numerous large linear infrastructure, residential, medical, educational, and power developments in Ireland and the UK. Alex holds a Master's degree in applied Acoustics and is a corporate member of the Institute of Acoustics.
Chapter 10 **Landscape and Visual**	**Joerg Schulze (AECOM)**	**Associate Landscape Architect, Dipl.-Ing. (FH), LA, MILI** Joerg has over 20 years' professional experience working for clients in the private and public sectors. He has a comprehensive track record in developing and managing landscape and visual impact assessments of large industrial, commercial, residential, infrastructural, renewable energy, tourism and civic developments throughout the island of Ireland. He has extensive experience in all stages of the planning, design, tender and implementation process, contract management and as consultant for Part 8 applications for road schemes and EIA processes. He has prepared residential visual impact assessments, manages the production of photomontages and the preparation of zones of theoretical visibility and theoretical visual intensity mapping.
Chapter 11 **Traffic and Transport**	**Jacqueline Haley (AECOM)**	**Associate Director, Development Engineering, Transportation, BEng, PGDip, MSc, CEng, MIEI, Cert Comp RSA** Jacqueline is the Transport Lead for the AECOM Ireland Development Planning & Engineering Team. Jacqueline is Chartered Engineer with over 19 years' experience covering all stages of transport planning, traffic engineering, highway design and road safety. Having held positions as a local authority officer and from working within the private sector, Jacqueline has significant experience in consulting with local authorities, elected members, emergency services, key stakeholders and other external organisations. She has also organised public consultations and exhibitions. Jacqueline is a Transport Infrastructure Ireland (TII) Certified Road Safety Audit Team Leader and has extensive Road Safety Audit experience having undertaken in excess of 400 Road Safety Audits, Road User Audits and Quality Audits acting as both Team Leader and Member on various projects including Residential, Retail, Commercial, Road, Streetscape, Public Transport and Urban Renewal.
	Abby Bennett (AECOM)	**Senior Transport Planner, BSc (Hons) Geography** Abby has 10 years' experience working in the Transport Planning team at AECOM after graduating with a BSc (Hons) in Geography from the University of Southampton in 2012. As a Senior Transport Planner Abby has authored many Transport reports (Transport Assessments, Transport Statement, Travel Plans, Construction Traffic Management Plans (CTMPs)) in support of planning applications for a wide variety of projects in both Ireland and the UK. She also authored several traffic and transport chapters of EIARs and environmental impact

EIAR Chapters / Role	Consultant Name	Qualification / Summary of Relevant Experience
		assessments (EIAs) in Ireland and the UK, and has experience of identifying mitigation measures. Abby has excellent skills in spreadsheet modelling skills which she employs in EIARs to calculate the impact of development, assess cumulative impact and provide the traffic data for air and noise chapters, and she regularly uses Junctions modelling software.
Chapter 12 **Cultural Heritage**	**David Kilner (AECOM)**	**Principal Archaeological Consultant, BA (Hons), PG Dip, MSc, MIAI** David has over 20 years' experience in the heritage sector. Prior to joining AECOM, David was Senior Archaeologist with a commercial archaeological company based in Belfast which involved working all over Ireland. His experience covers a range of projects, from planning advice to archaeological baseline research and EIA to procuring and managing archaeological specialists and sub-contractors undertaking field survey.
Chapter 13 **Population and Human Health**	**Jon Howells (AECOM)**	**Regional Director, Economic Development, BSc (Hons), MSc** Jon is a subject matter expert for socio-economics with 15 years' experience. Jon has acted as discipline lead for socio-economics and / or population and health on a number of energy and energy infrastructure projects in Ireland and the UK, including Shannon Technology & Energy Park, Longfield Solar Farm, Sunnica Energy Farm, Gate Burton Energy Park, and the Viking CCS Pipeline.
Chapter 14 **Major Accidents and Disasters**	**Alex Freeman (AECOM)**	**Associate Director, BSc (Hons), PhD** Alex is an Associate Director within AECOM's Permitting and Process Safety Team. He has over 21 years' consultancy experience in various disciplines including soil and groundwater assessment and remediation, environmental compliance and due diligence auditing, environmental permitting, and process safety studies. He has been involved in authoring chapters for numerous EIARs/ES for power and industrial developments across Ireland and the UK including major accidents and disasters assessments. He has experience with Hazardous Substances Consents applications, HAZID and HAZOP studies, COMAH Safety Reports and DSEAR risk assessment reviews, as well as all aspects of Environmental Permitting, including applications and surrenders.
Chapter 15 **Climate**	**Ian Davies (AECOM)**	**Technical Director, BSc (Hons)** Ian is a Technical Director in AECOM's Carbon and ESG Practice, with over 20 years' experience in the provision of environmental sustainability assessment and strategic, pragmatic advice for robust decision making. Ian specialises in greenhouse gas (GHG) and climate change resilience assessments . He has also led climate impact and mitigation strategy assessments for inclusion in EIA and ESIA on a range of high-profile climate impact assessments including master planning, urban regeneration, transport, and other large-scale infrastructure projects. Ian is fully conversant on EU, Irish and UK legislation and policy with regard to climate change including greenhouse gas emissions, transitioning towards net zero emissions targets and climate change resilience assessment.
	Ben Murray (AECOM)	**Associate Director, BSc (Hons), CEnv, MIEMA** Ben is an Associate Director in AECOM's Carbon and ESG Practice, and has over 20 years' of experience in environmental management and carbon accounting. He specialises in carrying out greenhouse gas and climate change assessments for large infrastructure projects across multiple sectors, including power (generation,

EIAR Chapters / Role	Consultant Name	Qualification / Summary of Relevant Experience
		transmission and distribution), rail, highways and water. Ben has worked across the private, public and voluntary sectors, providing technical expertise and policy advice on climate and energy issues.
Chapter 16 **Waste Management**	**Michael Berney (AECOM)**	**Associate Director, BSc (Hons), MSc (Eng), MCIWM** Michael is an Associate Director with AECOM and has 18 years' experience in environmental consultancy, predominantly in the field of waste management in the UK and internationally. He has a firm understanding in the provision of technical planning application and architectural design support, through the development of Operational Waste Management Plans, and Waste Chapters as part of EIAs for a broad variety of developments.
Chapter 17 **Material Assets**	**Peter O'Connor (AECOM)**	As previously detailed.
Chapter 18 Interactions	**Rebecca Dunlea (AECOM)**	As previously detailed.
Chapter 19 Schedule of Environmental Commitments	**Rebecca Dunlea (AECOM)**	As previously detailed.

1.12 References

Department of Environment, Climate and Communications (DECC) (2023). *Energy Security in Ireland to 2030.*

Department of Environment, Climate and Communications (DECC) (2023). *Draft Updated National Energy & Climate Plan (NECP) 2021-2030.*

Department of Housing Planning and Local Government (DHPLG) (2018). *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.*

EirGrid and Soni (2020). *All-Island Generation Capacity Statement 2020-2029*. Available from: https://www.eirgridgroup.com/site-files/library/EirGrid/All-Island-Generation-Capacity-Statement-2020-2029.pdf.

Environmental Protection Agency (EPA) (2017). *Environmental Impact Assessment of Projects. Guidance on Scoping.*

Environmental Protection Agency (EPA) (2022). *EPA Guidelines on the information to be contained in Environmental Assessment Reports.*

European Commission (EC) (2013). *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment*.

European Commission (EC) (2015). *Interpretation of definitions of project categories of annex I and II of the EIA Directive*.

European Commission (EC) (2017a). *Environmental Impact Assessment of Projects – Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU.*

European Commission (EC) (2017b). *Environmental Impact Assessment of Projects, Guidance on the preparation of the Environmental Impact Assessment Report*.

European Commission (EC) (2017c). *Best Available Techniques (BAT) Reference Document for Large Combustion Plants.*

Government of Ireland (GOI) (2023). *Climate Action Plan 2024.*

Irish Academy of Engineers (2018). *Natural Gas: Essential for Ireland's Future Energy Security*.

Kerry County Council (2022). *Kerry County Development Plan 2022-2028, Volume I.*

New Fortress Energy Inc. (NFE) (2024). *A Step Toward Zero.*

Southern Regional Assembly (SRA) (2020). *Regional Spatial & Economic Strategy 2020-2032*.

Sustainable Energy Authority of Ireland (SEAI) (2022). *Energy in Ireland, 2022 Report*.