

# CHAPTER 01

# Introduction

Shannon LNG Limited  
August 2021

**Shannon Technology and Energy Park**  
Environmental Impact Assessment Report

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# 1. Introduction

## 1.1 General

Shannon LNG Limited (hereafter referred to as the ‘Applicant’) proposes to develop a combined cycle gas turbine plant (CCGT) with three combustion turbines, a 120 MWh battery energy storage system and a liquified natural gas (LNG) Terminal, which will be known collectively as the Shannon Technology and Energy Park (STEP, hereafter referred to as the ‘Proposed Development’). It will be located on the Shannon Estuary between Tarbert and Ballylongford in Co. Kerry (hereafter referred to as the ‘Proposed Development site’).

This Environmental Impact Assessment Report (EIAR) has been prepared by AECOM Ireland Limited (AECOM) on behalf of the Applicant, an Irish owned subsidiary of New Fortress Energy Inc.

The EIAR is presented in four volumes as outlined below.

- Volume 1: Non – Technical Summary (NTS);
- Volume 2: Main Text;
- Volume 3: Figures; and
- Volume 4: Appendices.

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.

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

Pre-application consultation with An Bord Pleanála (ABP), entered into on 20<sup>th</sup> March 2019, has determined that the Proposed Development is strategic infrastructure within the meaning of section 37A of the Planning and Development Act 2000. The notice served on 2<sup>nd</sup> June 2021 requires an application to be made directly to ABP under section 37E of the Act. This EIAR should be read in conjunction with all the particulars of the planning application (see Section 1.4.1).

## 1.2 Key Objectives

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 battery energy storage system (BESS) to participate in the electricity ancillary services market; and
3. Provide an LNG Terminal capable of offering up to 180,000 m<sup>3</sup> of LNG storage capacity and regasification capacity of up to 22.6 million Sm<sup>3</sup>/d.

## 1.3 Proposed Development Overview

The Proposed Development site is located 4.5 km from Tarbert and 3.5 km Ballylongford in Co. Kerry. The area to be developed within the Proposed Development site is 52 ha (including both onshore and offshore elements) and is characterised by predominantly improved grassland in an agricultural setting. Field boundaries predominantly consist of hedgerows with small drainage ditches. A small section of the Ralappane Stream is located in the southernmost part of the Proposed Development site. The

Proposed Development site is zoned for marine-related industry in the Kerry County Development Plan 2015-2021, and has been identified as a Strategic Development location in the Shannon Integrated Framework Plan 2014-2020, the Regional Spatial and Economic Strategy (RSES) for the Southern Region 2020, the Kerry County Development Plan 2015-2021, and the Listowel Municipal District Local Area Plan 2020. See Chapter 04 – Policy (Energy and Planning) for further detail.

The Shannon Estuary comprises 500 km<sup>2</sup> of navigable water extending from Loop Head, in Co. Clare, and Kerry Head, in Co. Kerry, eastwards to the city of Limerick, a distance of 100 km. The naturally occurring deep and sheltered waters of the estuary are connected to the Atlantic Ocean and are accessible to large ocean-going vessels of varying types and sizes of up to 185,000 deadweight tonnes (dwt).

The Proposed Development will be comprised of two main components, as detailed in Chapter 02 – Project Description:

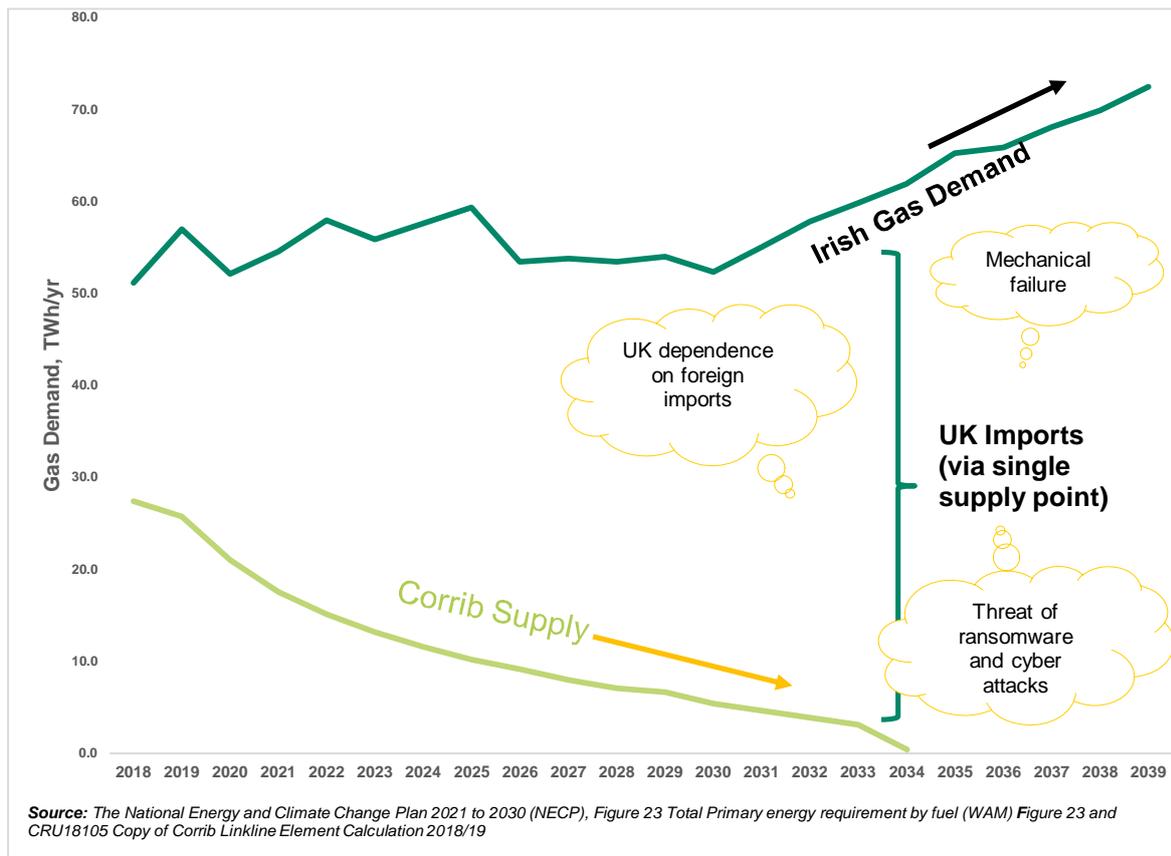
1. A Power Plant; and
2. An LNG Terminal.

The Power Plant will employ combined cycle natural gas technology and its design will comply with all relevant national and international codes. The Power Plant and 120 MWh battery energy storage system will be located directly adjacent to the LNG Terminal. The Proposed Development will have installed capacity to supply up to 22.6 million Sm<sup>3</sup>/d of natural gas to the Irish gas transmission network via the already consented 30 inch Shannon Pipeline. The total installed capacity of the flexible modular Power Plant will be up to 600 MW.

The Power Plant will generate power for its own needs and for the LNG Terminal, 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 is considered in the cumulative impact assessment within each technical chapter. An application to connect to the national electrical transmission network via this 220 kV connection was submitted to EirGrid in September 2020. An offer has yet to be received though Shannon LNG Limited made a successful high voltage grid application under Enduring Connection Policy (ECP2.1). Once the connection offer is made, this 220 kV connection will be subject to a separate planning application.

LNG is natural gas that has been cooled to approximately -160 degrees centigrade (°C), at which point it becomes a liquid at atmospheric pressure. As a liquid, the volume of natural gas is approximately 600 times less than the volume of the equivalent amount in the gaseous stage, making it more manageable for storage and ocean transportation. LNG is stored and transported in insulated tanks operating at pressures slightly above normal atmospheric pressure.

LNG is produced primarily in locations with large gas reserves which are too distant from market areas to be transported economically by pipeline. The natural gas from these fields is gathered and brought by pipeline to liquefaction plants where it is liquefied, pumped into LNG storage tanks and then loaded onto LNG ships and transported to the market areas of the world (refer to Figure 1-1). Ireland is one of very few countries in Western Europe with a national gas transmission network that does not have an LNG import terminal. The main sources of natural gas to Ireland are detailed in Figure 1-1 below. Once the LNG is delivered to the regasification terminal, the liquid is unloaded into the storage tanks, converted back into gas and transmitted via the gas pipeline system.



**Figure 1-1 Irish Gas Supply and Demand**

The previously consented 26 km 30” Shannon Pipeline (planning reference: PL08.GA0003), once constructed, will facilitate transport of the natural gas from the Proposed Development site to the national gas network at Foynes.

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 location of the Proposed Development site will provide access to future offshore renewable projects, combined with facilities for the production and landing of hydrogen. This would contribute to the decarbonisation of Ireland’s energy system by providing long term hydrogen energy storage (produced onsite and entered into the national gas transmission network) and hydrogen directly used in electricity generation at the Power Plant. The modular Power Plant offers flexibility to incorporate alternative fuels, and the modern nature of the LNG Terminal will ensure it can easily be adapted in future. Refer to New Fortress Energy Inc.’s ‘A Step Towards a Zero Carbon Future’ policy for further details (Appendix A1-1, Volume 4).

The LNG Terminal could also be operational before the Power Plant and the 220 kV grid connection are completed. Therefore, a medium voltage (10/ 20 kV) connection to supply power to the LNG Terminal in the absence of the 600 MW Power Plant will be required. This medium voltage connection will also be subject to a separate planning application and is included in the cumulative impact assessment within each technical chapter.

The Masterplan for the Shannon Technology and Energy Park will integrate the Proposed Development and a (future) Data Centre Campus (Figure F1-1, Vol. 3). The Data Centre Campus is not included in this application and will therefore be subject to a separate planning application. The 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 ABP for the development of an LNG Terminal (2007) and a Combined Heat and Power Plant (CHP) (2013) on the Proposed Development site. The current application is a new Strategic Infrastructure Development (SID) application and does not rely on any of

the previous planning applications. A Site Selection Assessment has been undertaken by AECOM in 2021 and a report prepared. The report concluded that Ballylongford/ Tarbert landbank is the most suitable location to accommodate and safely operate the Proposed Development. The location offers the following:

- A large unoccupied landbank on the coast which is zoned for industrial purposes adjacent to the foreshore;
- Access to water depth greater than 13 m;
- A navigational channel of uniform cross-sectional depth suitable for LNG carriers (LNGC) including the largest vessel;
- Turning circle for LNG ships that provides adequate turning space of up to approximately 690 m;
- Space outside the main navigation channel for a marine control zone around the LNGC and Floating Storage and Regasification Unit;
- Protection from swell waves from the Atlantic, being subject only to locally generated wind waves;
- Access to high-capacity gas transmission network that can receive up to 22.6 million Sm<sup>3</sup>/d;
- The ability to get a high voltage export grid connection offer within the generation capacity shortfall time window<sup>1</sup>; and
- Access to high-capacity electricity grid (220 kV or higher) that can export 600 MW without undue system constraint.

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<sup>1</sup> Shannon LNG Limited made a successful high voltage grid application under Enduring Connection Policy (ECP2.1)



**Figure 1-2 Proposed Project Overview (viewed from the north and south respectively)**

Further detail in relation to the Proposed Development is provided in the following sections.

### **1.3.1 Power Plant**

The Power Plant is modular and will comprise:

- Three (3) 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;
- Battery Energy Storage System (BESS);
- High voltage 220 kV Substation;
- Auxiliary Boiler;

- Water Storage and Water Treatment Facility
- Structural/ Architectural Buildings (various);
- Sewerage drainage system;
- Process effluent collection system and sump;
- Firewater storage tanks and fire water pumps;
- Fuel storage;
- Roadway and Area lighting; and
- Central control/ operations building.

The Power Plant will employ CCGT technology and its design will comply with all relevant national and international codes. The Power Plant will be located directly adjacent to the LNG Terminal and 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<sup>2</sup>. However, the LNG Terminal will need to be operational all year round.

A detailed description of the main features of the Power Plant is contained in Chapter 02 – Project Description.

### 1.3.2 LNG Terminal

The LNG Terminal will comprise:

- A Floating Storage and Regasification Unit (FSRU), which will be a ship and will have an LNG storage capacity onboard of up to 180,000 m<sup>3</sup> (equivalent to approximately eight days' gas demand for Ireland, approximately 160 GWh/day). The ship will be up to 300 m long, up to 50 m wide and the height of the vessel including the top of the exhaust stack will be approximately 50 m above sea level. The LNG vaporisation process equipment to regasify the LNG to natural gas will be onboard the FSRU. The main heat for LNG regasification will be from seawater through heat-exchangers, supplemented by heat from gas fired heaters during periods when the water temperatures are too low to provide sufficient heat. The FRSU will regasify LNG at rates required to meet gas demand up to 22.6 million Sm<sup>3</sup>/d (approximately 250 GWh/day);
- LNG will be delivered by an LNGC, which is also a ship, and which will be moored to the seaward side of the FSRU in a ship-to-ship transfer configuration. Up to 60 LNGC visits per year are anticipated. The LNG will be discharged from the LNGC, via connecting cryogenic hoses, into the storage tanks of the FSRU;
- A jetty capable of receiving and providing secure berthing for LNG ships with the capacity to accommodate up to 4 tugs;
- Onshore facilities including a nitrogen generation facility, a control room, a guard house, workshop and maintenance buildings, administrative building, instrument air generator, backup power generators and a fire water system;
- Onsite power generation plant of approximately 24 MW capacity; and
- An Above Ground Installation (AGI), which will include an odourisation facility, a gas heater building, gas metering plant and pressure control equipment.

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<sup>2</sup> 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. The model assumes the Government's 70% renewable by 2030 target is met. It also considers the detailed requirements of the system operator (EirGrid) to keep the grid stable and secure. 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.

The Proposed Development will have installed capacity to supply up to 22.6 million Sm<sup>3</sup>/d (approximately 250 GWh/day) of natural gas to the Irish gas transmission network via the already consented 30 inch Shannon Pipeline.

Note that the LNG Terminal will be constructed as part of the first phase of construction, followed by the Power Plant.

Further details of the LNG Terminal are contained in Chapter 02 – Project Description.

## 1.4 Planning procedure

### 1.4.1 Pre-Application Stage

Shannon LNG Limited, the Applicant, entered into a pre application consultation process with ABP under section 37B of the Planning and Development Act, 2000, as amended, (the Act) on 20<sup>th</sup> March, 2019. ABP served notice on 2<sup>nd</sup> June 2021 under section 37B(4)(a) of the Act that it is of the opinion that the Proposed Development falls within the scope of paragraphs (a), (b), and (c) of section 37A(2) of the Act, and that the Proposed Development will be strategic infrastructure within the meaning of section 37A of the Act, and an application must therefore be made directly to ABP under section 37E of the Act.

ABP 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 Consultation.

### 1.4.2 Application Stage

Section 37E(1) of the Act 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 [ABP] and shall be accompanied by an environmental impact assessment report in respect of the proposed development'*.

The planning application is accompanied by an Environmental Impact Assessment Report (EIAR). A Natura Impact Statement (NIS) also accompanies the planning application. A website, <https://stepplanning.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 which are outlined under the regulatory framework 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); and
- Local Planning Authority (Kerry Co. Council (KCC)).

The Shannon Foynes Port Company has statutory jurisdiction over marine activities, as discussed in Section 1.5.4.

The LNG Terminal and Power Plant 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, GNI Code of Operations.

### 1.5.1 The Environmental Protection Agency (EPA)

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 and a GHG Permit, 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 Greenhouse Gas Permit**

Ireland and the EU have GHG emission targets and reduction obligations agreed in the Kyoto Protocol and the Paris Agreement, the international treaties negotiated under the framework of the United Nations Framework Convention on Climate Change (UNFCCC).

The EU 2030 Targets commit to a 40% reduction in EU-wide GHG emissions compared to 1990 levels. Emissions from energy intensive industries and power generation in the EU are regulated under the EU ETS. The EU ETS is administered in Ireland by the EPA. Given the nature of the Proposed Development, and in particular the combustion turbines to be used for power generation, a GHG Permit will be required in relation to the following category of activity listed in Schedule 1 of the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 (S.I. No. 490 of 2012):

*‘Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)’ resulting in the emission of ‘Carbon dioxide’.*

The GHG Emissions Permit authorizes the Applicant to emit carbon dioxide from listed emission sources. It also contains requirements that must be met in respect of such emissions, including monitoring and reporting requirements. A licence application will be made to the EPA within one year prior to commencement of operations.

#### **1.5.1.2 Industrial Emission Directive**

The Industrial Emissions Directive (IED) (2010/75/EU) came into force on 6<sup>th</sup> January 2011, as a result of a European Commission 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); and
- Three existing directives on titanium dioxide.

The EPA is the Competent Authority for granting and enforcing Industrial Emissions (IE) licences for specified industrial and agriculture activities listed in the First Schedule to the Environmental Protection Agency Act 1992 as amended.

All of the emissions arising from the Proposed Development during its operation will be subject to the terms and conditions of an IE licence. 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 50MW or more.

The IE licence must be in place prior to commencement of operations and will be the result of an application process to the EPA, including an EIA process.

#### **Best Available Techniques (BAT)**

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; and
- 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; and
- Closed-circuit air-cooled condenser technology to be used for cooling.

## 1.5.2 The Health and Safety Authority

The Health and Safety Authority (HSA) is the central competent authority for regulatory control of sites to which the Seveso Directive applies. The Proposed Development will be classified as an Upper Tier Control of Major Accidents Hazards (COMAH) Establishment as a result of the inventory of natural gas potentially present on the Proposed Development site. The Proposed Development will therefore be required to comply with the 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. 476 of 2000.

This Directive was restated and repealed by Directive 2012/18/EU (Seveso III Directive) and implemented in Ireland by 2 sets of 2015 Regulations:

- The COMAH Regulations 2015; and
- 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.

### 1.5.2.1 Safety Report

The Applicant will be obliged to prepare and submit a pre-construction Safety Report to the HSA no later than 4 months prior to start of major construction.

The purpose of a Safety Report is to describe the safety arrangements for activities to be conducted at the Proposed Development and demonstrate how these arrangements ensure that all necessary measures are in place to prevent major accidents occurring and to limit the consequences of any such major accidents for human health and the environment, in accordance with the requirements of regulation 7(1) of the COMAH Regulations 2015. The Safety Report will be developed to meet with the requirements of the COMAH Regulations 2015.

The main objectives of the Safety Report are to:

- Demonstrate that a major accident prevention policy and safety management system for implementing it has been put into effect;
- Demonstrate that major accident hazards have been identified and that the necessary measures have been taken to prevent such accidents and to limit their consequences for human health and the environment;
- Demonstrate that adequate safety and reliability has been incorporated into the a) design and construction, and b) operations and maintenance of the LNG Terminal;

- Demonstrate that internal emergency plans have been drawn up and supply information to enable the external plan to be drawn up in order to take the necessary measures in the event of a major accident; and
- Provide sufficient information to the HSA to enable decisions to be made regarding the siting of new activities or developments around existing establishments.

The Applicant will put in place a Corporate Major Accident Prevention Policy (MAPP) which will form part of the Health, Safety and Environmental Management system and recognise that the control of major accident hazards is an integral part of the business. The MAPP reinforces commitment to the safety of employees, to the prevention and control of major accidents, and to the minimisation of the risk to both the public and the environment of its activities.

The risk management process, as applied through the Safety Case (see Section 1.5.3.2), requires the operator to identify hazards and assess the associated risk levels, identify and implement control and recovery measures to reduce risks, and maintain a documented demonstration that major risks associated with each hazard have been reduced to a level that is As Low As Reasonably Possible (ALARP).

The Safety Report describes how risk management will be carried out at the establishment from the outset. Hazard identification and risk assessment commenced early, to take maximum advantage during design of the potential for elimination of hazards and for the implementation of other, highly effective risk reduction measures. Output from the various studies carried out has been incorporated into equipment and system design such that the risks associated with operations are reduced to ALARP levels. A Hazards and Effects Register will be produced summarising the hazards identified for the establishment, ranking them in terms of associated risk and referencing the key risk controls in place.

The establishment is subject to the typical hazards associated with petroleum production and processing, namely flammable hydrocarbons and other dangerous substances, potentially leading to fires, explosions, pollution, etc. The COMAH Regulations 2015, regulation 2(1), define a major accident as *'an occurrence such as a major emission, fire or explosion resulting from uncontrolled developments in the course of the operation of any establishment, covered by these Regulations, and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances'*.

A summary of the quantitative risk assessment (QRA) findings is provided in Chapter 02 – Project Description.

The MAPP and Safety Report will be submitted to the HSA in a timely manner, as per HSA timelines for submission of COMAH documentation.

### **1.5.3 The Commission for Regulation of Utilities (CRU)**

The Commission for Regulation of Utilities (CRU) is Ireland's independent energy and water regulator and was originally established as the Commission for Energy Regulation (CER) in 1999. The CER changed its name to the CRU in 2017 to better reflect the expanded powers and functions of the organisation. It has a wide range of economic, customer protection and safety responsibilities in energy and water, and its role includes commercial and safety regulation of utilities.

#### **1.5.3.1 Construction/ Operation of Electricity Generators**

The Electricity Regulation Act, 1999 as amended gives the CRU the necessary powers to licence and regulate the generation, distribution, transmission and supply of electricity in Ireland. One of the functions of the CRU under the Act is to grant or refuse Authorisations to Construct or Reconstruct generating stations (an Authorisation), following assessment of an associated application. In relation to this, the Proposed Development will seek the necessary authorisations and licences, as follows:

- Authorisation to Construct:
  - In order to construct the Power Plant, 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 Power Plant, 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 the LNG Terminal in excess of 1 MW capacity.

### 1.5.3.2 Energy Safety (Gas Undertakings)

The CRU's role in regulating safety in relation to LNG facilities is set out in the Gas Safety Regulatory Framework for Ireland (CRU, 2019) Part B LNG Undertakings. In general, the CRU Safety Regulations require operators of LNG Facilities (for which a Licence to Operate from the CRU will be required) to submit a Safety Case in respect of their facilities. The Safety Case will as a minimum contain the following sections:

- Facility Description;
- Formal Safety Risk Assessment;
- Safety Management System; and
- Emergency Procedures.

The Safety Case submission and assessment process comprise three main stages:

1. Pre-Submission and Development Safety Case Process;
1. Submission Safety Case Assessment Process; and
2. Acceptance of Safety Case and Licence Approval.

The emphasis of the Safety Case regime is on 'demonstration' by the gas undertaking, e.g. the LNG facility, that acceptable safety arrangements for the management of gas-safety related risks are in place and working effectively on a day-to-day basis. In this context, demonstration involves a higher standard than simply describing the way measures work or are expected to work. There is a requirement on the undertaking to provide evidence that the measures described in the Safety Case work in practice and are monitored to ensure that this actually happens.

There are currently no LNG undertakings within Ireland, under the CRU's regulatory jurisdiction. As a result, the CRU's guidelines state that they will not publish requirements for LNG undertakings as part of the Safety Case Guidelines main document at this time.

The guidelines also state that the CRU recognises that some natural gas operations, such as LNG undertakings, fall under the safety requirements of the Seveso III Directive and the COMAH Regulations 2015 (S.I. No. 209 of 2015). As a result, there is significant overlap between the requirements for the LNG Safety Cases as required by the CRU as safety regulator under the Electricity Regulation Act 1999 (as amended) and the Pre-Operating Safety Report required by the HSA as the Central Competent Authority under the Seveso III Directive and the COMAH Regulations 2015. With this in mind, the CRU will review the requirements with the HSA at such time as the need arises, with the objective of agreeing an approach to the safety regulation of natural gas Seveso sites that minimises the level of duplication of safety reporting by undertakings, whilst respecting the legislative responsibilities of both the CRU and the HSA.

### 1.5.4 Shannon Foynes Port Company (SFPC)

Shannon Foynes Port Company (SFPC) is a statutory Harbour Authority and has jurisdiction and responsibility for all commercial maritime activities on the Shannon Estuary between Shannon Bridge in Limerick City and an imaginary line at the mouth of the estuary joining Loop Head in Co. Clare to Kerry Head in Co. Kerry.

SFPC has the authority to issue Byelaws pursuant to section 42 of the Harbours Act 1996 (as amended); the current Byelaws came into effect on 10<sup>th</sup> November 2004. The Harbour Master is vested with the authority to issue 'Directions' to the masters of vessels arriving, departing, or lying within the port. Through contractual arrangement with the port and operational procedures, Shannon Technology and Energy Park will comply, as appropriate, with SFPC Byelaws and Harbour Master 'Directions'.

The FSRU and visiting LNGC will meet all conditions of international navigation, i.e. conditions that have been established by the SOLAS Convention and other international conventions accepted within the International Maritime Organization (IMO). The FSRU will possess valid ship certificates and documents required for such a ship type in accordance with the aforementioned international conventions, whose list is consolidated and updated in the Maritime Safety Committee of the International Maritime Organization's 'List of Certificates and Documents Required to be Carried onboard Ships' document.

The FSRU will also comply with all safety requirements prescribed by the regulations of the ship's registries and the flag State which the vessel is flying, the recognized organizations (RO) and the recognized security organization (RSO).

In addition, the FSRU as a vessel for the transport and storage of liquefied natural gas should meet the requirements of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), as amended.

If the FSRU decouples from the jetty, it will be subject to the International Convention for the Prevention of Pollution from Ships (MARPOL) (transposed into Irish law by the Sea Pollution Act 1991 (as amended)).

### **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 Construction of Surface Water Drainage**

All drainage from the construction phase of the Proposed Development will be managed and monitored in accordance with the planning conditions set out by the planning authority. The mitigation and monitoring measures will also be included in the OCEMP (see Appendix A2-4, Vol. 4).

#### **1.5.5.2 Foreshore Leases and Licences**

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.

A foreshore lease will be required for elements of the Proposed Development including the jetty and the surface water discharge pipe. The Applicant has obtained a foreshore lease for a jetty at the proposed location and a foreshore licence for a storm water outfall pipe at the proposed location. Amendments to these licences and leases may be required for the Proposed Development.

#### **1.5.5.3 Fire Safety Certificates**

Fire Safety Certificates are required from KCC Fire Brigade. This process consists of a detailed technical appraisal, by a KCC 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.

#### **1.5.5.4 Disability Access Certificate for Buildings**

A Disability Access Certificate (DAC) will be required from KCC 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). It will need to be applied for and granted for each building prior to construction.

#### **1.5.5.5 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. KCC 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.

### 1.5.5.6 Section 254 Licence

A licence must be obtained from the planning authority under Section 254 of the Planning and Development Act 2000, 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.

### 1.5.5.7 Archaeological Licences

There are some features of archaeological interest identified on the Proposed Development 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. 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.

### 1.5.5.8 Ecological Licences

Where species are found that should be protected by removal from the Proposed Development site, an application to the National Parks & Wildlife Service (NPWS) for the appropriate ecological licence shall be made and no prohibited work shall be carried out unless under and in accordance with the appropriate ecological licence.

## 1.6 Consultation

Consultation with relevant statutory and non-statutory bodies forms an important part of the EIA process. The EPA guidance on the information to be contained within an EIAR 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.'* (EPA, 2017). Consultations – for example during the scoping process – help to ensure that all impacts, issues, alternatives, and mitigation measures, which interested parties believe should be considered in the EIA, have been addressed (in accordance with the European Commission's (EC) 'Environmental Impact Assessment of Projects – Guidance on Scoping', 2017b). Scoping and consultation for the EIA was carried out by the Applicant and focused on meetings, discussions and/ or correspondence with the following bodies only (see Table 1-1 and Appendix A1-5, Vol. 4 for further details).

**Table 1-1 Overview of Consultation Undertaken to Date**

Consultee and Summary of Comments	Response
<b>Local Authorities</b>	
<p><b>KCC Planning Department (including KCC Biodiversity Officer)</b></p> <p>KCC Planning Department indicated that the potential for marine pollution would need to be addressed in the EIAR. They also raised the issues of discharges, emissions and waste, and commented that the EIAR and NIS would need to address these matters, as well as cumulative impacts.</p>	<p>The potential for marine pollution is addressed in Chapter 06 – Water and Chapter 07 – Biodiversity.</p> <p>Discharges, emissions and waste are discussed in Chapter 06 – Water, Chapter 08 – Air Quality and Chapter 16 – Waste. Cumulative impacts are addressed within each technical chapter (Chapters 05 to 17).</p>
<p><b>KCC Chief Fire Officer</b></p> <p>KCC Fire Officers enquired about the fire capability of the tugs, requested that the risk of both firewater tanks being lost in one event be considered, requested clarity on the internal fire and rescue plan, requested details on typical fire and rescue systems commonly used in other similar facilities, how many people would be onsite and what would their capability and training be for fire, confirmation that there be self-inflating life rafts on the jetty.</p>	<p>Refer to Chapter 02 – Project Description.</p>

Consultee and Summary of Comments	Response
<b>KCC County Archaeologist</b>	
Requested detailed mapping of all recorded archaeological features in relation to the Proposed Development (scaled). Noted the testing of untested areas and excavation of all identified/ potential archaeological features and/ or strata within the development boundary will be recommended, and the proposals to carry out this work should be detailed in the application.	Addressed in Chapter 12 – Cultural Heritage.
Given the archaeology that has been uncovered and recorded KCC noted that archaeological, licensed monitoring of all topsoil stripping associated with the development will be required. Requested that any proposals to deal with foreshore and/ or underwater archaeological potential are outlined in the EIAR.	
<b>KCC Roads Department</b>	
KCC discussed that the L1010 is to be widened prior to the start of the main construction elements. KCC discussed that, as part of the traffic analysis, consideration be given for construction staff arriving from the N69 Listowel direction. KCC commented that each abnormal load may require its own abnormal load permit to be transferred from Foynes Port to the Proposed Development. KCC recommended that the number of HGVs arriving from the N69 Listowel direction is to be limited due to high kerbs and potential oversailing at the junction.	See Chapter 11 – Traffic and Transport.
<b>Limerick Co. Council</b>	
No response to date.	-
<b>Clare Co. Council</b>	
No response to date.	-
<b>State/ Semi-State Bodies</b>	
<b>Gas Networks Ireland (GNI)</b>	
GNI referred the Applicant to the security of supply study commissioned by the Department of Communications, Climate Action and Environment, with support from the Commission for Regulation of Utilities (CRU); the GNI/ EirGrid Long Term Resilience Study 2018. This study notes that Ireland fails to meet the EU Security of Supply Regulation (Regulation (EU) 2017/1938) and has a key recommendation that: <i>'The most economically advantageous option to improve the resilience of Ireland's gas supply is a floating LNG terminal.'</i>	Addressed in Chapter 03 – Need and Alternatives.
<b>EirGrid</b>	
EirGrid noted the ambitious and strategic nature of the development. EirGrid noted the design seems aligned with what the grid needs in the future to support increased renewable penetration. Specifically, fast acting, low minimum stable generation, and high inertia gas fired power generation. In the context of predicted future capacity shortfall, EirGrid enquired would the Applicant be participating in the 2025/26 T-4 Capacity auction which will be held in March 2021.	Addressed in Chapter 03 – Need and Alternatives.

## Consultee and Summary of Comments

## Response

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### Commission for Regulation of Utilities

The CRU advised of the predicted generation capacity shortfall and agreed that the proposed Power Plant would be well placed to address this. The CRU advised that the LNG Terminal will need a safety case. The CRU advised of two policy documents – EirGrid plan to 2030 'Pathway to 2030' and EirGrid's Tomorrow's Energy Scenario – both of which outline the enduring role of natural gas fired power plants in supporting intermittent renewable generation.

See Chapter 01 – Introduction (this chapter), Chapter 03 – Need and Alternatives and Chapter 04 – Policy.

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### Environmental Protection Agency

The EPA noted the Applicant's proposal. The EPA suggested that the Applicant commence the IE licence application shortly after the planning application to ABP.

Refer to Chapter 01 – Introduction.

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### National Parks & Wildlife Service

NPWS noted that the scope of surveys and models as presented look like best practice. NPWS noted that the recent surveys seem to build upon the surveys done in earlier years, and that the Applicant should now have a good ecological understanding of the Proposed Development site. NPWS advised of the conservation objectives that Qualifying Interest habitat area should be stable or increasing. NPWS noted that the requirement, in the context of an appropriate assessment, is to demonstrate the absence of adverse effects on European Sites. NPWS advised that in combination effects both for construction and operation would need to be considered in the application. NPWS advised that a full AA is required. NPWS advised that oil spills need to be considered in the application and that NFE should engage with the estuary river pollution protection plan. NPWS requested that an assessment of management of ballast water should be included in the EIAR. Potential for invasive species in ballast or attached to ship's hull should be addressed. NPWS requested an assessment of hull cleaning/ hull fouling in the EIAR. NPWS enquired on potential impacts on birds offshore and within shipping routes. NPWS enquired would the jetty be illuminated at night and would night time lighting pose a collision risk to birds. NPWS requested that if blasting is required, then impacts on fauna including birds and dolphins be assessed. NPWS advised that full accounting of construction and demolition waste needs to be considered in the plan. NPWS advised of the requirement for cumulative impact assessment of the ancillary developments that are functionally dependent on the instant application. NPWS requested that hydrogeological impact be considered in the EIAR. NPWS enquired would the development impact on bat movement.

Addressed in Chapter 07 – Biodiversity.

## Consultee and Summary of Comments

## Response

NPWS queried the need to update the EIA and appropriate assessment for the gas pipeline, being an integral part of the whole project.

This application does not propose or request permission for any extraction, refining or liquefaction of natural gas. The potential sources of liquefied natural gas are varied and, although not possible to identify, will all be located outside of the State and almost all will be located outside of the European Union. The pre-application observations made by the Development Applications Unit of the Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media suggest that the impacts of source gas extraction should be examined, where such data is available. In accordance with the decision of the High Court in *An Taisce v. An Bord Pleanála* [2021] IEHC 254 and 422, any impacts on the environment from extraction, refining or liquefaction of source gas are too remote from the proposed development to require examination, analysis and evaluation within the environmental impact assessment and appropriate assessment of the proposed development. We are advised that, for this reason, it is neither necessary nor appropriate to include particulars of any one place where source gas might be extracted.

## Consultee and Summary of Comments

## Response

Noted from previous meetings that the Proposed Development is not dependent on the use of shale (fracked) gas. However, in the event that this remains a possible option which is not strictly excluded from the proposed project, questioned if it should be taken into account in the EIAR citing potential concerns raised in Pennsylvania to the listed species rayed bean and snuffbox mussel.

The 26km gas pipeline that will connect the Proposed Development to the existing natural gas network is already permitted. By decision dated 17 February 2009, An Bord Pleanála granted approval for this gas pipeline under section 182D of the Planning and Development Act, 2000 (as amended) (Board ref. PL08.GA0003). It follows that the permitted pipeline is an 'approved project', to which Annex IV(5)(e) of the EIA Directive applies. This means the EIA of the Proposed Development must include effects resulting from the cumulation of effects with the permitted pipeline. Similarly, the permitted pipeline is a project for the purposes of the 'in combination' assessment under the Habitats Directive. The pre-application observations made by the Development Applications Unit of the Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media suggest that a revised assessment of the permitted pipeline would appear to them to be necessary. That revised assessment will be included within the required future application for consent under section 39A of the Gas Act 1976 (as amended). We are advised that no such revised assessment is necessary to complete necessary cumulative and in combination assessments. The necessary cumulative and in combination assessments have been completed, on the basis that the permitted pipeline is built in accordance with its existing approval. Refer to the cumulative assessment within each technical chapter (05 to 17).

### Shannon Foynes Port Company (SFPC)

SFPC completed a navigation risk assessment for the Proposed Development. SFPC concluded that the navigational risk as a result of the presence of the Proposed Development is acceptable and should have minimal impact on the existing navigational risk profile, assuming compliance with embedded, and the implementation of proposed, mitigation measures. SFPC noted the comparatively large geographical size of the estuary, the substantial amount of deep navigable water available and the relatively low density of commercial shipping.

Refer to Appendix A2-1 Marine Navigation Risk Assessment (Volume 4).

### Health and Safety Authority (HSA)

The HSA requested that a Quantitative Risk Assessment (QRA) be submitted at the time of the submission of the overall planning application to ABP. The HSA also advised the Applicant of the recent HSA consultation document, *Guidance on Technical Land-use Planning Advice for Planning Authorities and Operators of Establishments under the COMAH Regulations* and requested that the Applicant consider this guidance in preparation of the QRA.

See Chapter 02 – Project Description.

## Consultee and Summary of Comments

## Response

### Geological Survey of Ireland (GSI)

The GSI records show that there are no unaudited County Geological Sites (CGSs) in the vicinity of the Proposed Development site. The GSI Groundwater Data Viewer indicates the Proposed Development site is underlain by a 'Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones'. The Groundwater Vulnerability Map indicates the area covered is variable. Landslide susceptibility in the Proposed Development area is classed from Moderately Low to Moderately High at the coastal margins. GSI recommend AECOM utilise the range of data and resources provided by them, as well as their online map viewers, to fully determine site conditions, as often conditions onsite are variable.

Addressed in Chapter 05 – Land and Soils.

GSI have also stated that, should development go ahead, all other factors considered, they would much appreciate a copy of reports detailing any site investigations carried out. Should any significant bedrock cuttings be created, GSI ask that they will be designed to remain visible as rock exposure rather than covered with soil and vegetated, in accordance with safety guidelines and engineering constraints. In areas where natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface and could be included as additional sites of the geoheritage dataset, if appropriate. Alternatively, GSI ask that a digital photographic record of significant new excavations be provided. Potential visits from GSI personnel to document exposures could also be arranged.

### Inland Fisheries Ireland (IFI)

IFI have raised the following concerns. Fire water will likely be required for the plant and the BESS: the source of this should be addressed. Detail should be provided as to the treatment and disposal of wastewater from onsite hygiene facilities. A pollution prevention and rapid response plan should be prepared in the event of an oil spill during refuelling or a spill of LNG during the unloading/ regasification process. The management of ballast water to prevent the further introduction of alien invasive species should be dealt with. IFI are also concerned about the impact of construction/ piling noise on the auditory and migratory response of resident estuarine and migrant fish species.

Refer to Chapter 02 – Project Description and Chapter 07 – Biodiversity.

IFI request modelling of the impact and dispersion of the outlet water and its impact on the temperature and salinity regime in the vicinity of the proposed plant. IFI also request detail of the proposals to prevent fish impingement/ entrainment on any water intake pipes and the adequacy of any proposed systems to prevent same. Regarding tanker access to the new jetty, IFI have asked if additional dredging of the channel is required and if so, the impact of this must be adequately assessed.

IFI have asked that the in-combination effects of all of the above with the Data Centre and 220 kV connection be addressed.

## Consultee and Summary of Comments

## Response

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### Irish Aviation Authority (IAA)

The IAA noted that no information in relation to general heights or elevations of the Proposed Development are provided. Nevertheless, the Authority would consider it prudent for AECOM to engage with Shannon Airport Authority and the IAA's Air Navigation Service Provider at Shannon Airport to undertake a preliminary assessment of the proposal to ensure that there is no potential impact on Shannon's obstacle limitation surfaces, flight procedures and communication, navigation and surveillance equipment.

More detail is provided in Chapter 02 – Project Description.

The IAA advised that, based on the information provided, it is likely that during a formal planning process, it will only make general observations in relation to the construction process and the notification of proposed crane operations with at least 30 days notification to the IAA.

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### Department of Housing, Local Government and Heritage (Foreshore Unit)

The Department requested that a copy of their response letter be sent to ABP and to Aquafact for their information, as they are also currently working on the project. They asked for AECOM's consent to copy both of these parties on any observations the Department sends to AECOM.

Refer to Chapter 01 – Introduction (this chapter).

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### Underwater Archaeology Unit c/o Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media

The Department recommended that a cultural heritage section submitted with a new application should include a full overview of all previous archaeological results – these to include terrestrial, foreshore and subtidal data.

Included in Chapter 12 – Cultural Heritage.

The Department also recommended a renewed foreshore/ intertidal archaeological survey by way of updated Underwater Archaeological Impact Assessment (UAIA) be undertaken to assess if any cultural heritage has been revealed within the footprint of the newly revised Shannon Technology and Energy Park. This should concentrate particularly on any parts of the foreshore which will be the focus of disturbance, e.g. for outfall works, plant and machinery movements, etc.

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### Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media

The Department advised that a co-ordinated heritage related response would be issued within 6 weeks.

No response has been received to date.

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### The Heritage Council

No response.

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### Irish Water

Irish Water provided feedback on the capacity to supply water for the Proposed Development.

See Chapter 06 – Water.

Consultee and Summary of Comments	Response
<b>Office of Public Works</b>	-
No response received to date.	
<b>Garda Síochána Traffic Corps</b>	-
No response received to date.	
<b>ESB Networks</b>	See Chapter 15 – Material Assets.
An application was made to ESNB to import up to 10 MW of power from the electricity distribution system.	
<b>Fáilte Ireland</b>	-
No response received to date.	
<b>Birdwatch Ireland</b>	Refer to Chapter 07 – Biodiversity.
Contacted for background information on the Shannon Estuary and I-WeBS data.	
<b>Southern Regional Assembly</b>	-
No response received to date.	
<b>South West Regional Authority</b>	-
No response received to date.	
<b>Mid West Regional Authority</b>	-
No response received to date.	
<b>An Taisce</b>	-
No response.	

#### Public Consultation

##### **Kilcolgan, Tarbert and Ballylongford Residents and Development Associations**

An online public consultation event was held with the Kilcolgan, Tarbert and Ballylongford Associations. The consultation was held via MS Teams due to Covid-19. Key discussion points included the requirement to satisfy the SID Public Consultation obligations in light of Covid-19 restrictions, the Applicant's engagement in the media, source of LNG suppliers and Ship to Ship LNG transfer safety.

Addressed in Chapter 01 – Introduction (this chapter) and Chapter 02 – Project Description.

The Applicant undertook a period of public engagement from 23<sup>rd</sup> June 2021 to 10<sup>th</sup> July 2021. The purpose of the engagement was to provide information to the public on the Proposed Development.

Due to social distancing regulations in place as a result of the Covid-19 pandemic, it was not possible to hold the public event in-person. Therefore, a virtual public information room was developed which was hosted on a dedicated website accessible at <https://step.consultation.ai/>.

The website captured details of the Proposed Development, representative views of the development and included a feedback mechanism (see Appendix A1-2 in Volume 4).

Adverts notifying of the information event were posted in Kerry's Eye and The Kerryman newspapers in advance of the launch on 24<sup>th</sup> June and 23<sup>rd</sup> June, respectively. Refer to Appendix A1-3 in Volume 4 for copies of the advert.

The virtual public information room received 1,112 visitors and 36 public comments during the engagement period. 97% (35) of the public comments were supportive of the development. Specifically, of the 35 supportive comments, 16 were supportive due to the local employment opportunities that STEP will create, 13 were expressions of general support and 6 supportive of the development to address national energy security concerns (Figure 1-3). Only 1 comment questioned the need for the

development and was not supportive. Refer to Appendix A1-4 in Volume 4 for a summary of the feedback received.

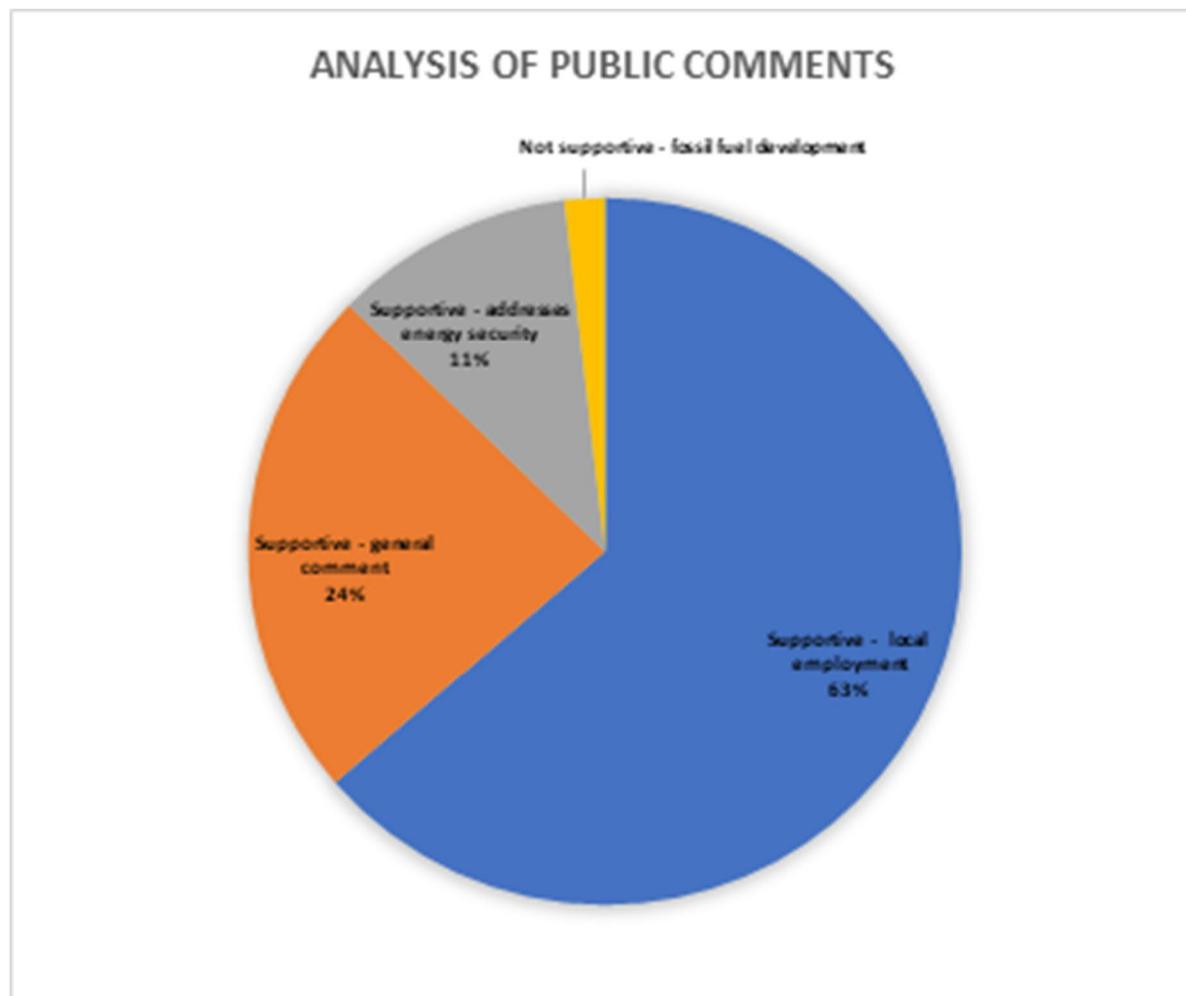


Figure 1-3 Summary of Feedback from Public Consultations

## 1.7 Environmental Impact Assessment Legislation and Guidance

EIA requirements derive from Directive 2011/92/EU (the 'EIA Directive') of the European Parliament and the Council on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU. Directive 2014/52/EU required that it be transposed into national law by 16<sup>th</sup> May 2017; it was transposed into Irish planning law on 1<sup>st</sup> September 2018 by the European Union (EU) (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 298 of 2018).

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

- EPA's draft 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, 2017) (the 'EPA draft guidelines');
- EC, 'Environmental Impact Assessment of Projects, Guidance on the preparation of Environmental Impact Assessment Reports' (EC, 2017a);
- EC's 'Environmental Impact Assessment of Projects – Guidance on Scoping (EC, 2017b);
- EC's 'Interpretation of definitions of project categories of Annex I and II of the EIA Directive' (EC, 2015);

- EC's 'Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment' (EC, 2013);
- Guidelines for Planning Authorities and An Board Pleanála on carrying out Environmental Impact Assessment, (Government of Ireland, 2018); and
- Other guidelines relevant to the environmental aspects assessed, as noted in specific chapters of the EIAR.

### 1.7.1 Why the Proposed Development Requires an Environmental Impact Assessment

The Proposed Development falls under the Seventh Schedule of the Planning and Development Act 2000 (as amended), as:

- '*An onshore terminal, building or installation, whether above or below ground, associated with an LNG facility, and for the purpose of this provision, 'LNG facility' means a terminal which is used for the gas liquefaction of natural gas or the importation, offloading and re-gasification or liquified natural gas, including ancillary services*'; and
- '*A thermal power station or other combustion installation with a total energy output of 300 megawatts or more*'.

In accordance with sections 37A and 37B of the Act, the Proposed Development has been determined by ABP to fulfil the criteria requiring the application for permission to be made directly to ABP instead of the local planning authority. Section 37E of the Act provides that such an application shall be accompanied by an EIAR.

## 1.8 Methodology

### 1.8.1 Environmental Impact Assessment Process

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 describes the current state of the environment and assesses the likely significant effects and impacts of a proposed development on the environment, including the residual impacts and effects once mitigation and monitoring measures have been implemented.

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 (Figure 1-4). For this Proposed Development, the EIAR will be submitted as part of a planning application to ABP, which is the Competent Authority (CA), to enable ABP to assess the impacts and carry out an EIA before consenting or otherwise.

This EIAR will also accompany the IE licence application to the EPA following submission of the planning application. The EPA is the CA in respect of IE licensing and will also carry out an EIA to ensure that, subject to compliance with the conditions of the licence, any emissions from the licensed activities will comply with and not contravene any of the requirements of section 83(5) of the Environmental Protection Agency Act 1992 (as amended), i.e. will not adversely affect human health or the environment, that the operation of the installation is in line with the latest developments in the best available techniques, and will meet all relevant national and EU standards. Likewise, the EIAR will accompany any applications for Foreshore licences/ leases.

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);*

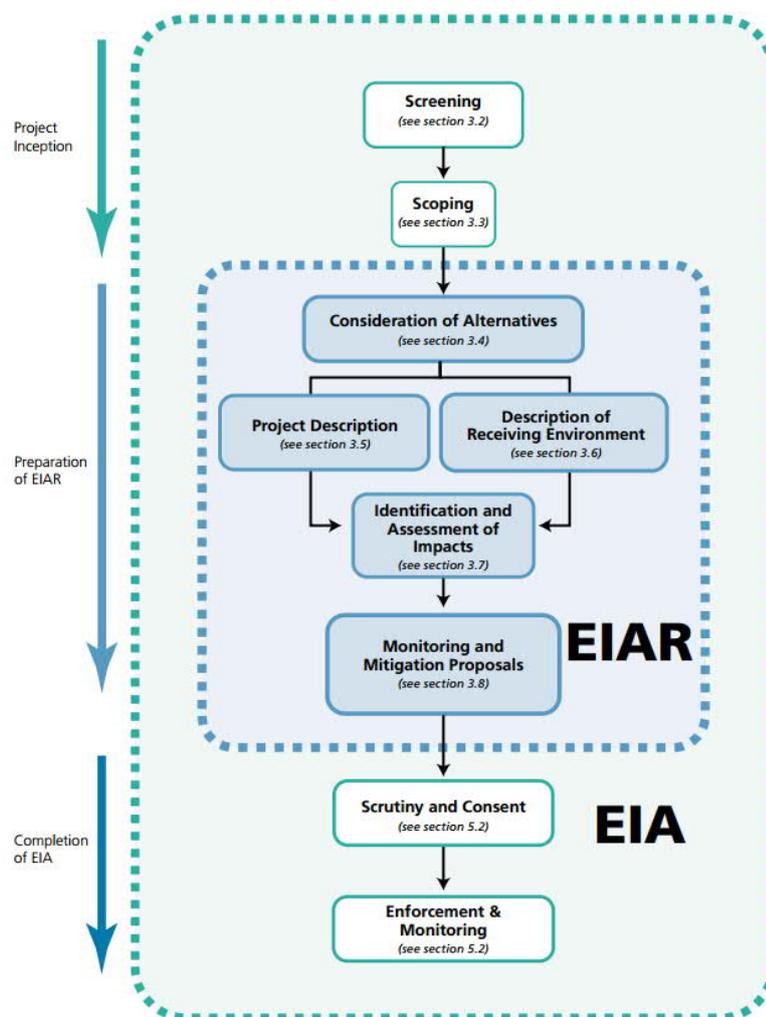
*(ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;*

*(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 1-4.



**Figure 1-4 EIA Process (EIA Draft Guidelines, EPA, 2017)**

### 1.8.1.1 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. The EIA Directive lists those projects that require a mandatory EIA (Annex I) and those 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.

In Ireland, generally the process of ascertaining whether a development requires an EIA is determined by the Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended), in particular Schedule 7 thereof.

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 Planning and Development Act 2000 (as amended).

#### 1.8.1.2 Scoping

If it is determined that an EIA is required, the next step is to ‘scope’ the content of the EIAR. Scoping considers the potential for likely significant effects throughout different phases of a proposed project to determine ‘*the content and extent of the matters which should be covered in the environmental information to be submitted in the EIAR*’ (EPA, 2017).

As described in the draft EPA guidelines, ‘*the potential for likely significant effects throughout different phases of the proposed project, are considered as far as possible at scoping stage – whether they would individually require consent or not. These include, as relevant, site investigations, construction, commissioning and operation to eventual decommissioning. Scoping also considers the range of alternatives to be considered in an EIAR*’ (EPA, 2017).

Throughout various stages of the project, relevant statutory and non-statutory consultees were contacted and consulted on the project design. The consultees are listed in Section 1.6 of this report.

A summary of consultation and responses is included in Appendix A1-4 in Volume 4.

Please see individual chapters for the content and scope of each assessment chapter.

#### 1.8.1.3 Environmental Impact Assessment Report

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 Planning and Development Act 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’.*

#### General Approach to Assessment

For each technical EIAR chapter, the classification and significance of effects is generally evaluated in accordance with the EIA Directive and the methodology outlined in the EPA’s Draft ‘Guidelines on the Information to be Contained in Environmental Impact Assessment Reports’ (EPA, 2017). 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).

### **Determining the Sensitivity of the Existing Environment/ Receptor**

Each receptor and/ or environmental resource which may be impacted by the Proposed Development is identified and assigned a value based on its importance or sensitivity to the potential impacts. The terminology used to describe the sensitivity of resource/ receptor is high, medium, low, or negligible. The sensitivity, importance, or value of a receptor/ resource is normally derived from:

- Designated status within the land use planning system;
- Reference to standards in environmental assessment guidance;
- The number of individual receptors, such as residents;
- An empirical assessment based on characteristics such as rarity or condition; and
- The ability of a receptor/ resource to absorb change.

### **Determining the Character of Effects**

The potential effects of the Proposed Development and associated effects on the sensitive receptor are then determined. This is undertaken by assessing the character of effect (including magnitude, duration, probability, and quality) in comparison to baseline conditions using the relevant terminology outlined in the EPA's draft guidance (EPA, 2017). The significance of effect is then determined based on the character of the predicted impact and sensitivity of the receiving environment. The assessment of effects considers any embedded mitigation that forms an inherent part of the Proposed Development. For this assessment, 'embedded mitigation measures' are those that have been incorporated into the design of the development. Any 'additional mitigation measures' are those preventing, reducing and offsetting any remaining significant adverse effects.

The assessment also takes into consideration cumulative impacts with consented, planned and reasonably foreseeable projects. A desktop search of proposed and existing planning applications was undertaken in January 2021 and updated in May, June and July 2021. The search used publicly available data from the MyPlan.ie 'National Planning Application' database (data outage was recorded from 11<sup>th</sup> January 2021), the KCC planning application portal and the ABP online database.

The purpose of this search 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 on the Proposed Development site;
- Planning Applications (excluding individual dwellings and works to individual dwellings) within approximately 5 km of the Proposed Development site over a 10-Year Period;
- Other Relevant Planning Applications (outside the 5 km radius of the Proposed Development site); and
- Other Relevant Planning Proposals (outside the 5 km radius of the Proposed Development site).

The relevant planning application search is listed in Appendix A1-5 in Volume 4.

There are three ancillary developments planned at the Shannon Technology and Energy Park that will be subject to separate planning applications:

1. Medium voltage (10/ 20 kV) grid connection;
2. 220 kV grid connection; and
3. The masterplan vision for the expansion of the site also includes a Data Centre Campus.

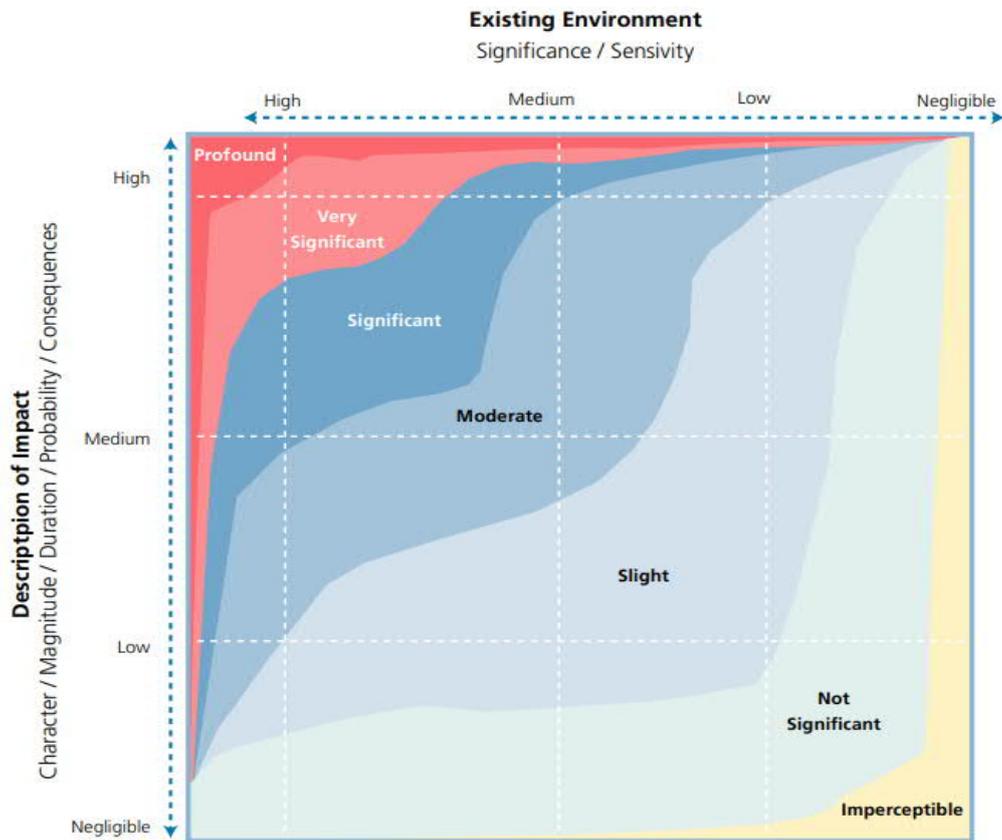
These will also be considered in the cumulative impact assessment within each EIAR chapter.

Where it has not been possible to quantify effects, qualitative assessments are carried out, based on expert opinion and professional judgement. Where uncertainty exists, this is noted in the relevant EIAR

chapter. Overall, a character of effect of high, medium, low, or negligible is then assigned to the impact being assessed (unless otherwise stated in individual technical chapters).

### Classifying Significance

The matrix (Figure 1-5) adapted from the EPA’s draft guidance (EPA, 2017) is then used to classify the significance of effect being assessed. This considers the overall character of effect with the sensitivity of the receptor/ existing environment.



**Figure 1-5 Determination of Significance (Source: EPA’s draft ‘Guidelines on the Information to be Contained in Environmental Impact Assessment Reports’ (EPA, 2017))**

### Mitigation and Monitoring Measures

Mitigation and monitoring measures are identified through the assessment process to prevent, reduce, offset/ remedy the likelihood of an identified environmental impact arising.

### Residual Impacts and Effects

The residual impacts and associated effects are the final or intended effects which occur after the proposed mitigation measures have been implemented (EPA, 2017). As per the EPA draft guidelines, the effects from the impacts that remain after all assessment and mitigation are referred to as ‘Residual Effects’ (EPA, 2017). 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 Proposed Development 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.

- On 31<sup>st</sup> March 2008, the Board granted SID permission for an LNG terminal (Board ref. no. PL08.PA0002).
- On 17<sup>th</sup> February 2009, the Board granted approval for the gas pipeline under section 182D of the Planning and Development Act 2000 (as amended) (Board ref. PL08.GA0003).
- On 21<sup>st</sup> December 2010, foreshore leases for the jetty and a construction materials Jetty were obtained. Foreshore licences were also obtained for a seawater intake and outfall system and storm water outfall pipe in December 2010.
- On the 11<sup>th</sup> July 2013, the Board granted SID permission for a CHP plant (Board ref. no. 08.PA0028).
- On 13<sup>th</sup> July 2018, the Board amended PL08.PA0002 to extend the life of the permission from 10 to 15 years (Board ref. no. PL08.PM0014).
  - Proceedings to question the validity of that amendment were commenced on 6<sup>th</sup> September 2018: Friends of the Irish Environment CLG v. An Bord Pleanála, High Court 2018 No. 734JR. After reference to the Court of Justice of the European Union ([2019] IEHC 80 and Case C-254/19), an order was made on 9<sup>th</sup> November 2020 quashing the amendment. It follows that the 2008 permission (PL08.PA0002) is now expired.

### 1.9.1 Structure of the EIAR

This EIAR has been prepared in accordance with the EPA’s draft guidance (EPA, 2017). Table 1-2 provides the structure of the EIAR.

**Table 1-2 EIAR Contents**

Volume	Content	
Volume 1	Non-Technical Summary	
Volume 2	Chapter 01	Introduction
	Chapter 02	Project Description
	Chapter 03	Project Need, Site Selection and Consideration of Alternatives
	Chapter 04	Policy (Energy and Planning)
	Chapter 05	Land and Soils
	Chapter 06	Water
	Chapter 07	Biodiversity
	Chapter 08	Air Quality
	Chapter 09	Airborne Noise and Groundborne Vibration
	Chapter 10	Landscape
	Chapter 11	Traffic and Transport
	Chapter 12	Cultural Heritage
	Chapter 13	Population and Human Health
	Chapter 14	Major Accidents and Disasters
	Chapter 15	Climate
	Chapter 16	Waste
	Chapter 17	Material Assets
	Chapter 18	Interactions
	Chapter 19	Summary of Mitigation and Monitoring Measures



**Table 1-3 Expertise of the EIAR Team**

<b>EIAR Chapters/ Role</b>	<b>Consultant</b>	<b>Qualification/ Summary of Relevant Experience</b>
Project Director	Barry Sheridan (AECOM)	Technical Director, Environment and Sustainability Rol, BA (Mod) Env Barry Sheridan is Technical Director and Head of Environment & Sustainability for AECOM in Ireland. He has over 19 years of professional experience in a variety of areas within environmental management and licensing. He has experience of environmental impact assessment and planning consents for projects in Ireland & the United Kingdom (UK).
Project Manager/ EIAR co- ordinator	Niamh O'Connell (AECOM)	Associate Director Environment and Sustainability, BA (Mod) Eng, H dip Env Eng, MSc, PM, MEnvSc CSci Niamh O'Connell is a Chartered Scientist and Associate Director in the AECOM Environment and Sustainability Team and has more than 16 years' post-graduate experience. She has extensive experience of managing environmental issues on major projects for both public and private sector clients taking projects from feasibility through EIAR, the planning process and later through detailed design and construction phases.
1 Introduction	Adèle Wratten (AECOM)	Senior Environmental Consultant, MEnvSci, PIEMA, REnvP Adèle Wratten has five years' experience coordinating multi-disciplinary teams across all stages of the EIA process. She has experience of managing site appraisal and feasibility assessments, EIA screening, scoping and Environmental Impact Assessment reports, and the discharge of consents and permits across a range of sectors including energy, water, commercial and residential developments.
2 Project Description	Niamh O'Connell (AECOM)	<i>As Above</i>
3 Alternatives	Niamh O'Connell (AECOM)	<i>As Above</i>
4 Planning and Development Context	Aiden O'Neill (Coakley O'Neill Town Planning Ltd)	Town Planning Consultant and Coakley O'Neill Town Planning Ltd Director, BSc (Hons), DipTCP, MIPI. Aiden O'Neill has over 24 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, a member of the Public Affairs Council of Cork Chamber of Commerce and the Cork Co. Council Planning Strategic Policy Committee (SPC).
5 Land and Soils	Kevin Forde (AECOM)	Associate Hydrogeologist, BSc(Hons), Dip Comp Sci, MSc Hydrogeology. Kevin Forde is an Associate Hydrogeologist in the AECOM Ground, Energy and Transaction Services team and has more than 28 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 sector clients involving environmental due diligence, pre-construction site investigation, EIAR, contaminated land remediation and construction phase soil waste management.

EIAR Chapters/ Role	Consultant	Qualification/ Summary of Relevant Experience
6 Water	Kevin Forde (AECOM)	<i>As Above.</i>
7 Biodiversity	Brendan O'Connor (Aquafact),  Carl Dixon (Dixon Brosnan)	Brendan O'Connor PhD established AQUAFAC International Services Ltd in 1986 and has been its MD since then. AQUAFAC is an environmental consultancy with particular expertise in coastal and marine projects and Brendan set it up with the expanding focus on environmental legislation in the 1980s and the development of salmon farming in Ireland. Brendan specialises in the biology and ecology of sea bed invertebrate communities. He was formerly Assistant Director of NUIG's Benthos Research Group and has been associated with the drafting, management and reporting of all AQUAFAC's contracts and reports. He was a member of the board of the Marine Institute for a 5-year term. Outside Ireland, he has worked in the U.K., France, Italy, Norway, Bahrain, Qatar, South Africa, Namibia, Angola and Australia and projects include aggregate extraction, marina and port developments, offshore wind farms, sea bed and sea shore surveys, oceanographic measurement campaigns and various types of aquaculture projects. He is the lead ecologist on the Galway Harbour Expansion project.  Carl Dixon MSc (Ecology) is a senior ecologist who has over 20 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-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.
8 Air Quality	Gareth Hodgkiss (AECOM)	Gareth Hodgkiss Associate Director, BSc (Hons), MSc, MIEEnvSc, MIAQM Gareth Hodgkiss is a full member of the Institute of Air Quality Management and the Institution of Environmental Sciences, with over 14 years' professional experience in the delivery of air quality services for various development led projects across the British Isles and further afield. 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.
9 Noise and Vibration	Chris Skinner (AECOM)	Regional Manager – Acoustics, Environment and Ground Engineering, UK, MSci MA MIOA Chris Skinner has over 20 years' experience in acoustics research and consultancy. Having started his career with the Building Research Establishment, where he worked on a range of environmental noise and consultancy projects, he joined AECOM in 2006, and now leads the AECOM acoustics team in the UK midlands.  Chris has experience in a wide range of areas of acoustics research and consultancy, including measuring, predicted and assessing sound emissions from a wide range of industrial facilities as well as residential and mixed used developments and infrastructure projects. Chris also has particular experience in monitoring and modelling of sound from complex facilities. He has also undertaken independent peer review roles for a range of acoustic assessments.

EIAR Chapters/ Role	Consultant	Qualification/ Summary of Relevant Experience
10 Landscape and Visual	Joerg Schulze (AECOM)	Associate Landscape Architect, Dipl.-Ing. (FH), LA, MILI Joerg Schulze has over 16 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.
11 Traffic and Transport	Carolyn Rollo (AECOM)	Associate MA(Hons) CIHT Carolyn Rollo is the technical lead for Traffic & Transport. A transport planner with over 13 years' experience, Carolyn's focus has been ranging from the development of new: roads, railway stations, and towns to energy solutions. Carolyn is the transport lead for UK&I energy projects and has inputted to over 50 EIARs including working on some of the UK's flagship energy projects such as: Unconventional Oil & Gas, nuclear, pumped hydro, solar and windfarms. Carolyn also supports the post planning for these energy projects including supporting public inquiries/ Hearings.
12 Cultural Heritage	David Kilner (AECOM)	Senior Archaeological Consultant, BA (Hons), PG Dip, MSc, MIAI David Kilner has over 18 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.
13 Population and Human Health	Dave Widger (AECOM)	Regional Director, BSc (Hons), MSc Dave Widger is Regional Director in AECOM's Economic Development & Regeneration Team with over 19 years' experience in economic development and regeneration with particular expertise in health impact assessment, and community and socio-economic impact assessment of major mixed-use and infrastructure schemes. Dave Widger is an experienced Technical Lead with significant experience of working with internal and external staff to deliver complex, major infrastructure projects. He has worked on and led population and health assessments for High Speed 2, Heathrow, A303 Stonehenge and Dublin Airport.
14 Major Accidents and Disasters	Alison Couley (AECOM)	Associate Process Safety Consultant BEng (Hons) CEng MChemE Alison Couley is an Associate within AECOMs Air Quality, Permitting and Process Safety Team in the UK. Alison has over 24 years' professional experience in process engineering and process safety, working for EPC contractors and consultants. Her areas of expertise include risk assessment (HAZOP, HAZID, ERA), COMAH/ Seveso Compliance and DSEAR/ ATEX.
15 Climate	Ian Davies (AECOM)	Associate Director, BA (Hons) Ian Davies has over 15 years' professional experience in the management and delivery of greenhouse gas and climate change assessments across the UK and Ireland. He has led the climate impact and mitigation strategy assessment studies for inclusion in EIA and ESIA on a range of climate impact assessments for large scale infrastructure projects, industrial and residential development.

EIAR Chapters/ Role	Consultant	Qualification/ Summary of Relevant Experience
16 Waste	Mike Bains (AECOM)	Technical Director, BSc (Hons), CChem MRSC Mike Bains has 24 years' experience in environmental consultancy, predominantly in the field of waste management in Ireland, the UK and internationally. He has been subject-matter expert for waste management in a large number of major projects, including nationally significant infrastructure projects in the UK. Mike is also experienced in waste management in the pharmaceutical sector.
17 Materials Assets	Niamh O'Connell (AECOM)	<i>As Above.</i>
18 Interactions	Adèle Wratten (AECOM)	<i>As Above.</i>
19 Schedule of Mitigation Measures	Adèle Wratten (AECOM)	<i>As Above.</i>

## 1.11 References

AECOM. (2020). *Site Selection Assessment*.

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 the preparation of the Environmental Impact Assessment Report*. European Commission.

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

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). (2002). *EPA Guidelines on the information to be contained in Environmental Impact Statements*. Environmental Protection Agency, Co. Wexford, Ireland.

EPA. (2003). *EPA Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*. Environmental Protection Agency, Co. Wexford, Ireland.

EPA. (2013). *Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites*. Environmental Protection Agency, Co. Wexford, Ireland.

EPA. (2017). *EPA Guidelines on the information to be contained in Environmental Assessment Reports*, Draft, August 2017, Environmental Protection Agency, Co. Wexford, Ireland.

Gas Networks Ireland and EirGrid. (2018). *Long Term Resilience Study 2018*. Available from: <https://www.gasnetworks.ie/corporate/gas-regulation/regulatory-publications/Long-Term-Resilience-Study-2018.pdf>

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

Government of Ireland. (2020). *Ireland's National Energy & Climate Plan (NECP) 2021-2030*.

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

Sustainable Energy Authority of Ireland. (2019). *Energy in Ireland, 2019 Report*, Sustainable Energy Authority of Ireland.

United States Department of Energy (DoE) (2005). *Liquefied Natural Gas: Understanding the Basic Facts*. Department of Energy, United States of America. Available from: <https://www.energy.gov/fe/downloads/liquefied-natural-gas-understanding-basic-facts>. Last accessed 11/03/21.

