

# **Proposed Derrygreenagh Power Project Environmental Impact Assessment Report Non-Technical Summary**

**Applicant: Bord na Móna Powergen Ltd.**

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## 1.0 INTRODUCTION

### 1.1 Structure of the Documents

1.1.1 This document presents a Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) that has been prepared by AECOM Ireland Limited on behalf of Bord na Móna Powergen Limited ('the Applicant') in relation to a planning application ('the Application') for a Combined Cycle Gas Turbine (CCGT) unit and an Open Cycle Gas Turbine (OCGT) unit, Electricity Grid Connection including substations and associated buildings and transmission infrastructure ('the Proposed Development') on land within a subset of the Bord na Móna Derrygreenagh Bog Group in Counties Offaly, Westmeath, and Meath.

1.1.2 For the purposes of the EIAR and the assessment, the following terms are used to describe the Site and its wider parts:

- **'Proposed Development'** – relates to the components for which planning permission is being sought (i.e., the 'red line boundary') – this includes the Power Plant Area and Electricity Grid Connection as defined below.
- **'Power Plant Area'** – relates to the main thermal power plant area east of the R400 road, which includes Combined Cycle Gas Turbine (CCGT) and Open Cycle Gas Turbine (OCGT) plant; a gas Above Ground Installation (AGI) ('Derrygreenagh AGI'); water abstraction and water treatment infrastructure; respective surface and process water discharge connection routes; and a permanent peat and spoil deposition area for overburden material excavated from the Power Plant Area. The process water discharge pipe will extend west of the R400 road before ultimate discharge south into the Yellow River.
- **'Industrial Emissions Licence Area'** - relates to a sub boundary within the Power Plant Area required for the operational phase under Class activity 2.1 of the First Schedule of the EPA Act as amended and excludes components such as the Derrygreenagh AGI and requirements limited to the construction phase, namely upgrades to the public road network and peat deposition area. While the Industrial Emissions Licence Area will likely comprise a smaller area within the footprint of the Power Plant Area once operational, for the purposes of this EIAR, the entirety of the wider Power Plant Area has been considered in respect of the overall assessments of the construction, operational and decommissioning phases, for completeness.
- **'Electricity Grid Connection'** - this is part of the Proposed Development and will consist of the 220kV substation west of the R400 road, pylon towers, overhead lines, Line-cable Interface compound, underground cabling, associated cabling and a new loop-in 400kV substation and compound.
- **'Gas Connection Corridor'** - this is part of the Overall Project, as defined below, and will enable the Proposed Development to connect to the existing high pressure Gas Pipeline to the West (BGE/77), north of the Power Plant Area via an AGI at the tie-in location and an underground pipeline. The Underground Gas Connection (UGC) is not being applied for in the planning application for the Proposed Development (as it will be applied for by Gas Networks Ireland (GNI) under separate consenting processes). However, the Gas Connection Corridor, identified by GNI during the preliminary design stage is assessed in this EIAR as part of the Overall Project for completeness, as it will be integral to the operation of the Proposed Development. The route of the Gas Connection Corridor is the preferred route, as indicated by GNI, at the time of writing but may be subject to change as part of the detailed design process to be carried out.

- **‘the Overall Project’** – relates to the Proposed Development (*i.e.* the components for which planning permission is being sought) and, to ensure a robust environmental assessment, includes the Gas Connection Corridor as described above.
- **‘Secondary Fuel’** – While the Power Plant Area, once operational, will run primarily on natural gas supplied by GNI through the Gas Connection Corridor, the plant will also have dual fuel capability for firing off secondary fuel stored onsite. This ‘Secondary Fuel’ will comprise of either Distillate and/or HVO.

1.1.3 The EIAR is presented as two volumes:

- Volume I: Environmental Impact Assessment Report (Main Text); and
- Volume II: Appendices.

1.1.4 This specific document is the NTS provided as a standalone document. For the purposes of cross referencing, the figures supplied within the NTS are numbered as per the main EIAR. Figures are provided at the end of each chapter of the EIAR Volume I.

## 1.2 Summary of the Proposed Development

1.2.1 The Proposed Development will develop flexible, fully dispatchable gas-fired technology for the production of electrical power for export to the National high voltage transmission grid. This development will support the intermittent nature of renewable energy generation and the security of the electrical grid network by providing for the replacement of older conventional power systems with lower carbon gas-fired technology. The Power Plant Area includes both CCGT and OCGT technology, which will operate primarily off natural gas with dual fuel capability for firing off back-up Secondary Fuel stored onsite.

1.2.2 Electrical outputs from generating assets (*i.e.*, OCGT and CCGT plant) will be fed to transformers where the voltage will be stepped up to 220kV. The power will be transferred via underground cables linking the Power Plant Area (east of R400 road) to the Electricity Grid Connection 220kV substation (west of the R400 road) via an existing road underpass along the former light railway line. The new 220kV substation includes an associated transmission system in the form of a 220kV double circuit hybrid transmission infrastructure, comprising of c. 5km of overhead line (OHL) and c. 3.2km of underground cable which will connect to a new 400kV substation. The latter will connect into the national grid (400kV Oldstreet-Woodland overhead transmission line) via a loop-in connection.

1.2.3 A planning application is being submitted for the Proposed Development, which will comprise of the following main components:

- CCGT Unit, including CCGT Turbine Hall and buildings, Heat Recovery Steam Generator (HRSG);
- OCGT Unit and emissions stack;
- Secondary Fuel Storage and Unloading Facility;
- Gas Connection Corridor AGI Compound;
- Associated buildings and infrastructure and subsidiary items of plant/ equipment; and
- Electricity Grid Connection, including 220kV Substation, 220kV Overhead Line, 220kV Line-Cable Interface Compound, 220kV Underground Connection and 400kV ‘Loop-in’ Substation at entry point to the 400kV transmission network.

1.2.4 The Existing Site is described in Section 3 of this NTS, and the Proposed Development is described in Section 4 of this NTS.

- 1.2.5 The purpose of this NTS is to describe the Proposed Development and provide a summary of the key findings of the EIAR in non-technical language for the benefit of consultees and stakeholders.
- 1.2.6 The EIAR is a document that enables stakeholders to understand the likely significant environmental effects of the Proposed Development identified through the Environmental Impact Assessment (EIA) process. EIA is a systematic process used to predict the adverse and beneficial effects of a proposed development.
- 1.2.7 The EIAR is provided in accordance with the European Union (EU) EIA Directive 2011/92/EU and EIA Directive 2014/52/EU and the European Union (Planning and Development) (EIA) Regulations 2018, in order to inform the consideration of the Application and provide An Bord Pleanála (ABP) (the ‘planning authority’) with environmental information that must be taken into account when determining the Application.

### 1.3 The Applicant

- 1.3.1 The Applicant, Bord na Móna Powergen Ltd., is a subsidiary of Bord na Móna PLC. Bord na Móna PLC is a publicly owned company, originally established in 1946 to develop and manage some of Ireland’s extensive peat resources on an industrial scale, in accordance with government policy at the time. Bord na Móna lands extend to approximately 80,000 ha in total and are located mainly in the Irish midlands. Bord na Móna currently manages and operates a portfolio of thermal and renewable assets such as the Edenderry Power Plant (a biomass fired electricity generating unit), Oweninny wind farm, Timahoe North solar farm (under construction) and the Drehid landfill gas facility.

### 1.4 Requirement for an Environmental Impact Assessment Report

- 1.4.1 The EIAR complies with the requirements of the EIA Directive 2011/92/EU, as amended by EIA Directive 2014/52/EU and Part X of the Planning and Development Act 2000 and Part 10 of the Planning and Development Regulations 2001, as amended by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018. The EIAR has been prepared to satisfy the requirements of Schedule 6 of the Planning and Development Regulations – ‘Information to be contained in Environmental Impact Assessment Report’.
- 1.4.2 The classes of development where an EIA is mandatory are set down in Regulations made pursuant to Section 176 of the Planning and Development Act 2000 (as amended). In addition, Schedule 5 sets out thresholds for projects, and if that threshold is exceeded an EIA must be carried out. These are mandatory requirements. Finally, where a project is of a type listed in the regulations but does not meet or exceed the applicable threshold then the likelihood of the project having significant effects on the environment – as considered against a range of prescribed criteria, must be assessed.
- 1.4.3 The Proposed Development, which includes a 570 MW CCGT and a 140 MW OCGT plant, 5km of OHL and c. 3.2km of underground cable, a 220kV substation and a 400kV substation falls within the descriptions of development in the Planning and Development Regulations, 2001, Schedule 5, Development for the purposes of Part 10, as per below:
- *Part 1, item 2. (a) A thermal power station or other combustion installation with a heat output of 300 megawatts or more.*
  - *Part 2, item 10 (dd) All private roads which would exceed 2000 metres in length.*
- 1.4.4 An EIA for the Proposed Development is therefore mandatory. A Pre-Application Strategic Infrastructure Development (SID) consultation was held with ABP on the 12 May April 2023 and the scope and format of the EIAR was presented.

- 1.4.5 It was presented to ABP that the Applicant would be submitting an EIAR with the planning application, as required for SID.
- 1.4.6 EIA provides a system of sharing information about the environment which enables effects to be foreseen and prevented during the design and consent stages, and for residual effects to be taken into account by the relevant consenting authority. This protects the environment and informs and improves decision-making. The EIAR presents an objective and concise record of the process and the determination of significant environmental effects.
- 1.4.7 Scoping is integral to the EIA process, designed to focus the subsequent EIAR in order to identify potentially significant issues for detailed examination and those that can be 'scoped out' of future assessments.
- 1.4.8 Detailed assessment has involved impact analysis according to accepted methodologies, consultations, and site visits, leading to the evaluation of the significance and magnitude of any direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects on the environment from the Proposed Development and Overall Project.
- 1.4.9 In summary, this EIAR has compiled, evaluated, and presented the significant environmental effects of the Proposed Development. The assessment is designed to take into account environmental factors by detecting likely significant adverse effects, thus leading to the identification and incorporation of appropriate mitigation measures into the development of the design. The main steps in the assessment procedure are summarised in EIAR Chapter 1: Introduction (refer to EIAR Volume I).

## **1.5 Environmental Impact Assessment Report Methodology**

- 1.5.1 The assessment of impacts has been conducted in accordance with the EPA's '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*' (May 2022) with reference to the following general approach. The specific methodology adopted for each assessment is contained in the individual technical chapters.
- 1.5.2 Likely significant effects arising from the Proposed Development have been identified and described and an assessment of the level of significance for each effect determined. Determination of the significance of the effects is a key stage in the assessment. In general, the significance of an effect has been defined using a combination of the sensitivity (e.g., high, medium, low and negligible) of the environmental receptor and the magnitude of impact (e.g., high, medium, low, and negligible).
- 1.5.3 The overall significance of an effect, taking the relationship between sensitivity and the magnitude level of impact into consideration, is also defined for each environmental subject.
- 1.5.4 Where possible, the assessment uses best practice defined methods, based on legislation, published standards, and accepted industry criteria. This is set out in detail in each technical chapter within the EIAR.
- 1.5.5 For the purpose of the EIAR, adverse and beneficial effects arising from the Proposed Development are categorised in significance categories (e.g., Neutral, Slight, Moderate, Large, Very Large). Where the assessment predicts a significant adverse effect on one or more receptors, proposed mitigation measures are identified where possible to avoid or minimise the effect, or to reduce the likelihood of it happening. The use of such mitigation will be secured through the planning consent or through other legislation and consenting regimes.

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

1.5.7 Full details of the Assessment Method are provided within the Chapter 1: Introduction, of EIAR Volume I.

Environmental Topics

1.5.8 The assessment and the EIAR include the following environmental topics:

- Air Quality;
- Cultural Heritage and Archaeology;
- Biodiversity;
- Landscape and Visual;
- Noise and Vibration;
- Water Environment;
- Land, Soils and Geology;
- Traffic;
- Population and Human Health;
- Material Assets;
- Major Accidents and Disasters (MA&D);
- Climate;
- Cumulative Effects; and
- Schedule of Environmental Commitments.

## 2.0 PLANNING POLICY

### 2.1 Introduction

- 2.1.1 This section of the NTS provides a summarised overview of European Union, national, regional, and local planning policy, guidance, and legislation that is relevant to the Proposed Development and Overall Project. These are further detailed in Chapter 2: Planning Policy of Volume I of the EIAR.
- 2.1.2 It is clear across all levels of planning policy that maintaining security of energy supply is a key priority for the coming decade and beyond. The Proposed Development will provide flexible generation capacity and significant grid infrastructure which will help to maintain security of supply while supporting Ireland in its transition to a low carbon economy. Furthermore, it will help to replace generation capacity that will be lost through the planned retirement of ageing, more carbon intensive power stations in the coming years.
- 2.1.3 The Proposed Development has been designed to facilitate a sustainable transition to operating off a blending of renewable fuels, such as Hydrogen, over the operational life of the project. In so doing, it addresses the ability of the Proposed Development to transition from natural gas to hydrogen in line with plans to be developed (2023-2026) for transitioning the gas network to hydrogen overtime. For a detailed consideration of the Proposed Development's compliance with applicable planning policy, please refer to the Planning Statement (PS, 2023) produced by Gravis Planning which accompanies the planning application.

### 2.2 European Energy Policy

#### Energy Roadmap 2050

- 2.2.1 The European Energy Roadmap 2050 (EC, 2011) was published in 2011 and explores the transition of Europe's energy systems so that they are compatible with the greenhouse gas (GHG) reduction targets set out in the Renewable Energy Directive (2009/28/EC), while also increasing competitiveness and security of supply.

#### 2030 Climate and Energy Framework

- 2.2.2 The EU's 2030 Climate and Energy Framework sets a legally binding target for EU member states of achieving at least 32% of electricity generation from renewable sources by 2030. The Framework includes EU-wide targets and policy objectives for the period from 2021 to 2030.

### 2.3 National Energy Policy & Legislation

#### Climate Action and Low Carbon Development (Amendment) Act 2021

- 2.3.1 The Climate Action and Low Carbon Development (Amendment) Act 2021 amends the previous 2015 Act (GOI, 2015) in order to strengthen the governance framework on climate action by the State through the introduction of a legally binding interim target of a 51% reduction in greenhouse gas emissions by 2030 relative to a baseline of 2018. The Act establishes a 2050 net zero emissions target compared to 1990 levels and introduces a system of successive five-year carbon budgets starting in 2021.

#### Climate Action Plan 2024

- 2.3.2 The Climate Action Plan 2024 (CAP24) (2023) sets out a sectoral 'roadmap' setting out a range of measures and actions for each sector of the economy to achieve a net zero carbon energy system by 2050. For the electricity sector, the need for additional gas-fired generation capacity is clear: the Plan states that '*rapid delivery of flexible gas*

*generation is needed at scale and in a timeframe to replace emissions from coal and oil generation before the second budget period' (i.e., 2026 – 2030). Key measures identified for the energy sector under CAP24 include that the "CRU and EirGrid will ensure an adequate level of conventional dispatchable generation capacity and deliver at least 2 GW of new flexible gas-fired generation".*

#### White Paper - Ireland's Transition to a Low Carbon Energy Future 2015-2030

- 2.3.3 The Government White Paper entitled 'Ireland's Transition to a Low Carbon Energy Future 2015-2030' set out a framework to guide Ireland's energy policy development over the period 2015-2030. The 'Energy Vision 2050' established in the White Paper describes a 'radical transformation' of Ireland's energy system, including transitioning from carbon-intensive fuels such as peat and coal to lower carbon fuels like natural gas while transitioning to a renewable energy system for energy supply.

## **2.4 National Planning Policy**

### National Planning Framework 2018-2040 – Project Ireland 2040

- 2.4.1 'Project Ireland 2040 - National Planning Framework' (NPF) is a 20-year planning framework designed to guide public and private investment, to create and promote opportunities for Irish citizens, and to protect and enhance Ireland's built and natural environment.
- 2.4.2 The NPF requires a secure and reliable electricity supply to be achieved, which is necessary for the realisation of almost all of its National Strategic Outcomes. To facilitate this, the NPF acknowledges the need to *"reinforce the distribution and transmission network to facilitate planned growth and distribution of a more renewables focused source of energy across the major demand centres"*.
- 2.4.3 The Proposed Development complements the National Policy Objectives (NPOs) (e.g., NPOs 54 and 55) around the creation of a lower carbon and more distributed energy generation system.

### National Development Plan 2021-2030

- 2.4.4 The 'National Development Plan 2021-2030' (NDP), published in October 2021, updates the NDP 2018-2027 which was introduced alongside the NPF and set out the investment priorities that underpin its implementation as well as provides additional context for the assessment of projects such as the Proposed Development.
- 2.4.5 The NDP recognises that the target of delivering up to 80% of Ireland's electricity from renewable sources by 2030 will require investment in renewable electricity generation and storage as well as conventional electricity generation capacity to support the operation of variable renewable technologies and provide security of supply. The Plan clarifies that much of the new conventional (mainly gas-fired) generation capacity needed over the next 10 years will need to be delivered within the next five years to meet demand.

### Policy Statement on Security of Electricity Supply (2021)

- 2.4.6 The Government's Policy Statement on Security of Electricity Supply (November 2021) sets out a number of updates to national energy policy in the context of Programme for Government commitments relevant to the electricity sector, planning authorities, and developers. It seeks to ensure that continued security of electricity supply is considered a priority at national level. The policy statement includes explicit Government approval that *"the development of new conventional generation (including gas-fired and gasoil/distillate-fired generation) is a national priority and should be permitted and*

*supported in order to ensure security of electricity supply and support the growth of renewable electricity generation”.*

National Energy Security Framework (2022)

- 2.4.7 The ‘National Energy Security Framework’, published in April 2022, provides a further policy response to the challenges of ensuring long-term and ongoing security of energy supply. It sets out a ‘whole of Government’ response to the challenges posed to the state’s energy security and energy affordability in the context of recent events including the war in Ukraine. It recognises that the level of dispatchable electricity generation capacity needs to increase significantly over the coming years in order to reliably meet the expected demand for electricity, and notes that the CRU is managing a programme of actions to meet this challenge under its DS3 Programme.

The Eirgrid/SONI Ireland Capacity Outlook 2022 - 2031

- 2.4.8 The latest all-Ireland Capacity Statement predicts capacity deficits during the 10 years to 2031 and states that *“further new electricity generation will be required to secure the transition to high levels of renewable electricity over the coming decades”*. It is clear that this must include new gas-fired generation capacity: *“a balanced portfolio of new capacity is required and this includes the need for new cleaner gas fired generation plant”*.

Eirgrid/SONI - Shaping our Electricity Future - A Roadmap to Achieve our Renewable Ambition

- 2.4.9 The ‘Shaping our Electricity Future’ document, published in November 2021, has built upon and taken over from the ‘Delivering a Secure Sustainable Electricity System’ (DS3) Programme. This Programme has been updated by a revised Roadmap, ‘Shaping Our Electricity Future Version 1.1’ published in July 2023.
- 2.4.10 This Programme *“identifies the transmission network reinforcements needed to manage renewable generation and demand growth”* and provides an outline of the key developments needed to support a secure transition to at least 70% renewables on the electricity grid by 2030. The document advises that *“gas-fired generation is expected to play an ongoing key role, replacing retiring conventional plant and providing multi-day capacity, during extended spells of low wind and solar output”*.

Eirgrid Group – Strategy 2020-50: Transform the Power System for Future Generations

- 2.4.11 Eirgrid Group’s statement of purpose is to ‘Transform the power system for future generations’. The ‘Strategy 2020-50’ document sets out their strategy for achieving this and the challenges that they are facing. It recognises that, in order to increase the amount of renewable power on the grid, the system must be operated in a more dynamic and responsive way.

Eirgrid Group – Delivering a Secure Sustainable Electricity System (DS3 Programme)

- 2.4.12 In response to binding national and European targets, the EirGrid Group began a multi-year programme, i.e., the DS3 Programme, in 2011. The aim of the DS3 Programme is to meet Ireland's 2020 electricity targets by increasing the amount of renewable energy on the Irish power system in a safe and secure manner.
- 2.4.13 The DS3 Programme remains ongoing, with new targets set for 2030, but is to be replaced by the operational roadmap set out in the ‘Shaping Our Electricity Future’ Programme.

### Hydrogen Strategy for Ireland

- 2.4.14 The 'Consultation on Developing a Hydrogen Strategy for Ireland', published in July 2022, notes that *"hydrogen has many possible applications as a feedstock, a fuel for transport or an energy carrier. As it does not emit carbon dioxide when used, hydrogen could become a zero-carbon substitute for fossil fuels in the coming years to decarbonise industrial processes and economic sectors where reducing carbon emissions is difficult to achieve"*. It also notes that *"Ireland's gas network is one of the most modern in Europe. The distribution network is comprised of polyethylene pipes and early indications are that it is already capable of transporting hydrogen or hydrogen/natural gas blends"*.

## **2.5 Regional Planning Policy**

### Eastern & Midland Regional Assembly: Regional Spatial and Economic Strategy 2019-2031

- 2.5.1 The Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland region was adopted in 2019 and provides a high-level development framework for the region that supports the implementation of the NPF. With regard to climate action, the Strategy notes *"the need to enhance climate resilience and to accelerate a transition to a low carbon society recognising the role of natural capital and ecosystem services in achieving this"*. The Strategy also recognises the implications surrounding the demand for energy in the coming years and states that *"a secure and resilient supply of energy is critical to a well-functioning region being relied upon for heating, cooling and to fuel transport, power industry, and generate electricity. With projected increases in population and economic growth, the demand for energy is set to increase in the coming years"*.
- 2.5.2 The RSES sets out Regional Policy Objectives (RPOs) (e.g., RPOs 10.19, 10.20, and 10.22) aimed at ensuring that the development of the electricity network is undertaken in a safe and secure way which meets projected demand levels and is consistent with Government Policy and the need to achieve a long-term, sustainable and competitive energy future for Ireland.

## **2.6 Local Planning Policy**

### Offaly County Development Plan 2021-2027

- 2.6.1 The Plan emphasises the importance of achieving a transition to a low carbon economy and reducing dependency of fossil fuels. Chapter 3 (Climate Action and Energy) seeks to *"achieve a transition to an economically competitive, low carbon climate resilient and environmentally sustainable county"* and sets out specific policies related to Energy (i.e., CAEP-01, CAEP-09, CAEP-11, CAEO-09, and CAEP-13).

### Westmeath County Development Plan (2021 – 2027)

- 2.6.2 The Westmeath County Development Plan states that *"a secure and resilient supply of energy is critical to a well-functioning economy, being relied upon for heating, cooling, and to fuel transport, power industry, and generate electricity"*.
- 2.6.3 Chapter 10 (Transport, Infrastructure and Energy) of the Plan outlines that it will continue to support infrastructure renewal and the development of electricity and gas networks throughout the County. The Plan sets out the following policy objectives to support the development of county's gas and electricity network, as well as generation capacity. (i.e., CPO 10.169, CPO 10.171, CPO 10.172, CPO 10.174, CPO 10.176).

## 3.0 NEED AND ALTERNATIVES

### 3.1 Introduction

3.1.1 The need, reasonable alternatives, and the design progression that has been considered during the evolution of the Proposed Development is presented in Chapter 3: Need and Alternatives of Volume I of the EIAR. This Chapter details of the reasonable site locations, technical solutions, and layout alternatives considered and how these were selected to avoid sensitive environmental receptors and infrastructure.

### 3.2 The Need for the Proposed Development

3.2.1 Ireland is in the process of transitioning from a centralised, fossil fuel based electrical power generation network to a more distributed, renewable energy-based generation network. To facilitate the continued expansion of Ireland's renewable generation capacity, and support security of supply, modes of supporting the electricity network during periods when there is a gap between renewable power generation and power demand will be needed. This project is designed specifically for this purpose, being able to respond quickly to shortfalls in power generation at times of high demand.

3.2.2 As a responsive power generator, the proposed power plant (located in the Power Plant Area) will facilitate the integration of more renewable generation into the electricity network, helping to maintain security of supply and supporting Ireland in its transition to a low carbon economy. This type of generation capacity is urgently required, not just to support the transition to renewables but also given the heightened level of power supply risk facing the country.

3.2.3 The need for the Proposed Development is recognised at national, regional, and local level as detailed in Section 2 of this report.

### 3.3 The 'Do Nothing' Scenario

3.3.1 A 'Do Nothing' scenario in which the Proposed Development does not proceed is the baseline against which the impacts of the Proposed Development will be compared within the assessment. Should the Proposed Development not proceed, neither will the Overall Project (which includes the Gas Connection Corridor). The 'Do Nothing' scenario would not enable the Applicant to create additional electricity generating capacity, thus would exacerbate security of supply concerns for Ireland resulting in significant adverse effects on population.

### 3.4 Alternative Site Locations

#### Power Plant Area

3.4.1 A comprehensive site selection process was undertaken as part of a previous, now extant permission (Ref: 19.PA0011); the constraints and facilitators outlined in that assessment continue to be relevant. Chapter 3 of Volume I of the EIAR details alternative sites considered for Tier 1 (Regional Site Selection), Tier 2 (per National Spatial Strategy) and Tier 3 (a more detailed appraisal of locations within the selected zone) in support of the existing site location and the extant planning consent.

#### Electricity Grid Connection

3.4.2 A preliminary grid options assessment was carried out by the Bord na Móna Powergen Grid Development Team with input from other in-house specialists as required, and in accordance with EirGrid technical standards.

3.4.3 The Maynooth-Shannonbridge 200kV power line runs to the north of the power plant site is one of the lowest rated power lines of this voltage in Ireland. The Derryron 100kV

substation 5km to the south (adjacent to Rhode Peaking Power Plant) is at capacity. It is necessary to facilitate this type of large power output development to connect into the 400kV Oldstreet-Woodland power line. A connection method option of a new tail 220kV substation to loop in 400kV substation best suits the Proposed Development given the distance from the electricity infrastructure. The availability of land under the control of the Applicant and proximity to the grid connection and utilities identified the chosen location as the optimum location available to the Applicant.

#### Temporary Construction Works

- 3.4.4 The use of multiple temporary construction compounds is appropriate to facilitate separate construction phases of elements of the Proposed Development and to allow efficient construction practices given the scale of the site, particularly as regards the Electricity Grid Connection.

#### Gas Connection Corridor

- 3.4.5 The location of the Derrygreenagh AGI will be within the planning boundary of the Power Plant Area and will be consented as part of the planning application. There is a requirement to connect the Derrygreenagh AGI with a location on the Gas Pipeline. The process for establishing the route of the Gas Connection Corridor has been the subject of a GNI feasibility study. Route of the Gas Connection Corridor has been determined as the preferred route at the time of writing and is the route that has been considered as the "Gas Connection Corridor" throughout this EIAR.

### **3.5 Alternative Technical Solutions**

#### Power Plant Area

- 3.5.1 Technology selection and configuration for the Power Plant Area were determined to comply with policy and legal requirements for gas-fired technology in support of renewable generation. The technical solutions allow for the power plant to provide flexible load response as demanded by the receiving power system but also providing system services including inertia necessary for the stability and reliability of the overall power system. The selection of technology allows for project dynamism to adapt to changing realities from forecast of renewables power generation. The co-location of gas-fired units also offers synergies which reduce the operation and maintenance costs in areas such as staffing, fuel procurement and general services.

#### Electricity Grid Connection

- 3.5.2 The route design chosen is a hybrid of overhead line and underground cable connected by a Line-Cable Interface Compound with associated connections. The type and nature of the electricity grid connection is selected from a balance of considerations including available area, visual impact, ground conditions, local watercourses, access to the site, environmental constraints, efficiency of operation, maintenance, cost, and cumulative developments.

#### Temporary Construction Works

- 3.5.3 There will be a temporary construction contractors compound serving the Power Plant Area and an additional 2 no. temporary construction compounds serving the electricity grid connection in the construction phases. All sites chosen are appropriately sized, located in close proximity to each element of the development and located to facilitate ease of access from public roads.

#### Gas Connection Corridor

- 3.5.4 Consent will be applied for by the gas networks operator, i.e., GNI, at a point in the future. Pipeline wall thickness depends on a design factor to be determined by GNI.

### **3.6 Alternative Layouts**

#### Power Plant Area

- 3.6.1 The specific location within the Site was chosen due to its availability in having built infrastructure and/or plant in place and provides the required footprint area for the Power Plant Area and its associated infrastructure.

#### Electricity Grid Connection

- 3.6.2 The type and nature of the electricity grid connection is selected from a balance of considerations including available area, visual impact, ground conditions, local watercourses, access to the site, environmental constraints, efficiency of operation, maintenance, cost, and cumulative developments

#### Gas Connection Corridor

- 3.6.3 The route of the Gas Connection Corridor chosen for assessment within the EIAR is a relatively direct route between the Power Plant Area and the Gas Pipeline to the West (BGE/77) and relatively unconstrained through mainly agricultural land suitable for pipeline construction. The final route of the underground gas connection will be determined and applied for by GNI and, as such, alternative corridor routes have not been considered in this EIAR.

## 4.0 THE EXISTING SITE

### 4.1 Introduction

4.1.1 The Proposed Development and Overall Project site is situated in Derrygreenagh and adjacent townlands (Derryarkin, Derryiron, Ballybeg, Barrysbrook, Togher and Coole), Co. Offaly, Ireland (Irish Grid Reference N49525 38259), and comprises three main elements, those being:

- The Power Plant Area;
- The Electricity Grid Connection; and
- The Gas Connection Corridor.

4.1.2 The majority of the Proposed Development is located within a subset of the Bord na Móna Derrygreenagh Bog Group, which includes the Drumman, Derryarkin, and Ballybeg bogs. The characteristics of the surroundings of the Proposed Development and Overall Project vary, but it is mostly low density agricultural and residential development with either scattered houses and farming buildings, or dwellings clustered along busier roads. A significant extent of lands in close proximity to the Proposed Development boundary are peat bogs owned by the Applicant which have been historically harvested.

### 4.2 The Proposed Development Site

#### Power Plant Area

4.2.1 The Power Plant Area has an approximate area of 49ha. It is located directly adjacent to R400 road on a brownfield site with hardstanding surfaces, buildings, structures, and a narrow-gauge railway associated with the former use of the site. Towards the west and alongside the southern boundary, there are mature trees and hedges screening the development from the road. There is also mixed grassland surrounding the boundary and a single area of bare peat in the north-east corner.

#### Electricity Grid Connection

4.2.2 The Electricity Grid Connection 220kV substation is located west of the R400 road within a brownfield site in the wider Derryarkin bog complex with limited mature trees and grassland, cutover bogs with varying degrees of vegetation, and the narrow railway crossing into the Power Plant Area via underpass below the road. From the substation, overhead lines will run for approximately 5km through bogs associated with historic peatland harvesting in the area, crossing the haul road leading into an active quarry and the Yellow River, before linking into a proposed underground cabling connection at the bottom of Ballybeg bog. The underground connection follows the route of existing railway for approximately 2.6km south, including a crossing of Coolcor stream, crossing the L1010 Togher Road from an existing underpass, until it links into the loop the 400kV substation on adjacent agricultural land.

### 4.3 The Overall Project Site

4.3.1 The Gas Connection Corridor extends for c. 9.6km to the northwest of the Power Plant Area. The lands traversed by the corridor route are primarily agricultural, with the corridor crossing two watercourses, the M6 motorway, R446 road and two local roads. The Gas Connection Corridor is will also be routed within the R400 road for c. 1.4km to the immediate north of the proposed Power Plant Area before tie-in with the proposed Derrygreenagh AGI.

## 4.4 The Surrounding Area

4.4.1 The location of the Site is shown in NTS Figure 4.1. The wider area is characterised by the following features (measured from the closest element of the Proposed Development and Overall Project):

### Power Plant Area

- North of Power Plant Area – Rochfortbridge Co. Westmeath (c. 4km), M6 Motorway (c. 2km);
- East of Power Plant Area – Kilmurray S&G (c. 300m), Rhode Co. Offaly (c. 1km), Black Castle Bog NHA (c. 5.5km);
- South of Power Plant Area – Grand Canal pNHA (002104) (less than 0.5km from 400kV substation), residential properties (c. 1km). Raheenmore Bog SAC (also designated as a nature reserve) (c. 5km east), Daingean Bog NHA (c. 5km southeast); and
- West of Power Plant Area – R400 road (directly adjacent the Power Plant Area to the west or adjacent to the 220kV substation to the east, otherwise is east of the Proposed Development).

### Electricity Grid Connection

- North of Electricity Grid Connection – Rochfortbridge, Co. Westmeath (c. 4.5km), M6 Motorway (c. 2.5km);
- South of Electricity Grid Connection - Grand Canal pNHA (002104) (less than 0.5km from 400kV substation)
- East of Electricity Grid Connection - Rhode Co. Offaly (c. 1km), Black Castle Bog NHA (c. 5.5km);
- West of Electricity Grid Connection - Raheenmore Bog SAC (also designated as a nature reserve) (c. 5km east).

### Gas Connection Corridor

- North of Gas Connection Corridor – Rochfortbridge Co. Westmeath (c. 0.5km)
- South of Gas Connection Corridor – Kilmurray S&G (c. 0.5km),
- East of Gas Connection Corridor – Dalystown, Co. Westmeath (c. 0.5km)
- West of Gas Connection Corridor – N52 road (c.0.5km) and M6 Motorway.

4.4.2 The existing buildings and structures associated with the Power Plant Area are at the north of the Site. A narrow railway traverses and crosses the boundary of the Site a number of times. Lands surrounding the Site are typically rural in nature, principally historic peat harvesting and agriculture. The large proportion of the lands in close proximity to the discharge water route and the Electricity Grid Connection are peat bogs in lands owned by the Applicant.

## 4.5 Project Site History

4.5.1 Beginning in 1946, Bord na Móna PLC acquired extensive peatlands and associated areas principally for the industrial harvesting of peat for energy and as horticultural growing media. These lands extend in total to approximately 80,000 ha and are located mainly in the Irish midlands. In January 2021, Bord na Móna formally took the decision to cease industrial scale peat extraction on its land bank.

- 4.5.2 The majority of the Proposed Development for Derrygreenagh Power is located within the lands of the Derrygreenagh Bog Group. Included within the Application's red line boundary are also agricultural lands adjacent to the Derrygreenagh Bog Group required for the 400kV substation of the Proposed Development.
- 4.5.3 A number of activities have been developed post peat extraction within the Derrygreenagh Bog Group. There are sand and gravel quarrying activities ongoing across Derryarkin Bog and Drumman Bog. The storage, seasoning, and chipping of biomass logs is another activity in Drumman Bog, south of the Mongagh River. Other lands were developed into commercial forestry within the Derryarkin Bog and Drumman Bog. There is a telecommunications mast fenced off to the east of R400 road and the existing Derrygreenagh Works, currently leased out by Bord na Móna to a third-party operator. There is a Motocross amenity facility located to the north of Derryarkin Bog and two guyed wind monitoring masts, one located to the south of the Derryarkin Bog and the other east on Ballybeg bog.
- 4.5.4 In 2010, planning consent was granted for a 430MW CCGT unit and a 170MW OCGT unit, in addition to ancillary works, to be located on the site of the existing Derrygreenagh Works and the proposed site of the Power Plant Area. This current application for Proposed Development, if granted, will generate a new planning consent under which Derrygreenagh Power will be developed out, but the proposal is consistent with the principle set by this extant consent.
- 4.5.5 A subset of Derrygreenagh Bog Group consists of lands within Derryhinch Bog, Drumman Bog, Derryarkin Bog and Ballybeg Bog (2,994 ha) regulated under Licence Reg No. P0501-01. The decommissioning and rehabilitation work required for the bogs included in the red line boundary are in accordance with Condition 10 of the Licence.
- 4.5.6 The Derrygreenagh Bog Group is well connected to national infrastructure including major road, fibre, gas and grid networks. The landbank presents unique benefits including its scale (present in large blocks), the history of industrial development on now brown-field sites, suitable for redevelopment in open, unenclosed landscapes with good linkage within it by a network of rail or road passageways.
- 4.6 Project Site Relevant Planning History**
- 4.6.1 A full review of planning applications within 5km of the Site was completed using OCC and WCC's online planning systems, and ABP's online records, for applications submitted within the last 5 years, and 10 years in the case of SID applications.
- 4.6.2 Full details of search results are presented in Appendix 4A of Volume II of the EIA.
- 4.7 Potential Environmental Sensitivities/ Receptors**
- 4.7.1 A number of environmental receptors relevant to the assessment have been identified within and outside the Proposed Development and Overall Project, as described below.
- Residential and Human Health Receptors
- 4.7.2 There are no residential properties located within 500m of the Power Plant Area. The closest are two sets of three properties towards the south-east (one set over R400 road and the other on L1009 road at Knockdrin) and the closest town is Rochfortbridge, Co. Westmeath, c. 4km north-west of the Site. In total there are 27 residential houses within 2km of the Power Plant Area.
- 4.7.3 There are a number of residential properties located within 500m or less of the Electricity Grid Connection (some along L1010 Togher Road and others on a minor road, the intersection of these roads known as Taylors Cross) as well as 400kV substation site (11 residential properties with 500m of this site).

4.7.4 There are a number of residential properties located within 500m or less of the Gas Connection Corridor mostly clustered around the Rochfortbridge.

#### Biodiversity - Designated Nature Conservation Sites

4.7.5 There are no sites designated under the EU Habitats Directive and EU Birds Directive located within the footprint of the Zone of Influence. There are no national parks within 15km of the Proposed Development and Overall Project.

4.7.6 There are six European sites, comprising five SAC and one Special Protection Area (SPA), located within 15km of the Power Plant Area and Electricity Grid Connection. Two of these sites (Raheenmore Bog and Lough Ennell) are also Ramsar sites. There are no other Ramsar sites within 15km of the Power Plant Area and Electricity Grid Connection. Two further European sites, i.e., River Boyne and River Blackwater SAC and SPA, are hydrologically connected 28.6km downstream of the Power Plant Area and 25.5km of the Electricity Grid Connection, via the Mongagh River and Yellow River.

4.7.7 There are no nationally designated sites (i.e., National Heritage Areas (NHA) and proposed NHA (pNHA)) within 2km of the Power Plant Area, but there is one within 2km of the Electricity Grid Connection, i.e., the Grand Canal pNHA located c. 65m south of the Site.

4.7.8 There are no national parks within 15km of the Proposed Development.

4.7.9 There are eight European sites, comprising six SPA and two SAC, located within 15km of the Gas Connection Corridor. Three of these sites (Lough Ennell, Raheenmore Bog, and Lough Owel) are also Ramsar sites. None of these sites fall within the Gas Connection Corridor.

4.7.10 Two further European sites, i.e., the River Boyne and River Blackwater SAC and SPA, are hydrologically connected 29km downstream of the site, via the Mongagh River and then the Yellow River.

#### Transport Receptors

4.7.11 The main roads that are surrounding the Proposed Development and Overall Project are as follows:

- R400 road, immediately adjacent to the Power Plant Area to the west. The R400 road runs from north-west to the south-east, where it is adjacent to the Power Plant Area (which is accessed east off this road, access west off the R400 road to the Electricity Grid Connection and site of the proposed 220kV substation and Line-Cable Interface Compound), then changes direction towards the south where it meets a minor road c. 5km south.
- Junction 3 on the M6 motorway for Rhode and Rochfortbridge, c. 2.2km north from the Site entrances on the R400 road. M6 motorway runs from the south-west to the north-east above the Bord na Móna Derrygreenagh Bog Group where it meets the M4 motorway c. 12km northwest from the Power Plant Area. The Gas Connection Corridor put forward to be assessed crosses the M6 c. 3.2km north-west from where it connects to the Proposed Development.
- Two minor roads c. 650m south of the Power Plant Area (L1009 and L10091 roads), branching out from R400 road towards the east. These then meet and merge into a single L1009 road which links into the R400 c. 5km south of the Power Plant Area at the Coolcor roundabout. These roads are single-carriage local roads.
- A haul road branching out of the R400 road towards the west c. 1.7km south of the Power Plant area, leading to Kilmurray S&G (active quarry) and crossing the

intersection between Derryarkin bog to the north and Ballybeg bog to the south, c 1km west from R400 road.

- A private road access to the west off the R400 road, c. 560m south of the above intersection and c. 1.7km distance west will connect to the Ballybeg railway line and machine pass to the east of Ballybeg bog.
- R441 road, c. 6km south of the Power Plant Area and c. 3.2km east of the access to the substation site from the L1010 road in Rhode village.
- From the intersection of R400 and R441 roads, towards the west, a double-carriage road extends towards the west. The road changes name several times in the areas surrounding the Electricity Grid Connection, the first c. 500m of roads are called Marian Terrace Road, then the name changes to L1010 road. Approximately 3.2km down the road continuing west, the road is identified as L1010 Togher road. It is at this point where the underground electricity connection route crosses this road via the existing railway line.

#### Air Quality Receptors

- 4.7.12 The closest human receptors to the Power Plant Area are a small group of three dwellings c. 1km south-east. There is one dwelling within 250m of the Electricity Grid Connection; it is understood that this dwelling will fall into the ownership of the Applicant. In addition, there is a house on the road beside the Gas Connection Corridor, 173m from the tie in location, and another within 88m located approximately 1.2km south of the tie in point. It should be noted that the route will be subject to more detailed analysis by GNI and may change within 500m the route.
- 4.7.13 The most significant, potentially dust-generating activities would occur in the Power Plant Area where the main thermal power plant will be located. Although other elements of the Proposed Development would potentially result in lower levels of dust and air emissions, elements of the underground Electricity Grid Connection will pass by in relatively close proximity to residential properties.
- 4.7.14 During the operational phase, potential impacts are associated with emissions from the Power Plant Area arising from the power plant. A number of human receptors in the greater area are considered as well as ecological receptors identified within a 15km radius.

#### Soils and Geology Receptors

- 4.7.15 The Power Plant Area is largely underlain by Made Ground, with adjoining areas underlain by blanket peat (largely cutaway), made ground and deep well drained mineral (mainly basic) soils (to the south and west).
- 4.7.16 The Electricity Grid Connection route runs southward from the substation site and the overhead portion traverses relatively level Cutover Peatland to the substation where the cables begin to run underground.
- 4.7.17 The c. 9.6km Gas Connection Corridor runs northwest from the Power Plant Area and would cross mainly agricultural areas with the exception of c. 1.4km to be routed in the R400 road.
- 4.7.18 Works in the surrounding environs of the Overall Project include historic peat harvesting, active quarries, forestry, and agriculture. Groundwater vulnerability varies; the Power Plant area itself is described as having 'Low' groundwater vulnerability, with some areas mapped as 'Moderate' or 'High' groundwater vulnerability between 1 and 2km of the Power Plant Area; at the Electricity Grid Connection site, it is classified as low due to low subsoil permeability; and the southern end of the Gas Connection Corridor, which

overlies peatland, has 'Low' groundwater vulnerability while the remainder is generally assigned 'Moderate' to 'High' groundwater vulnerability.

#### Water Environment Receptors

- 4.7.19 There are no mapped surface water features within the Power Plant Area boundary. However, there are a number of small man-made ditches cut into the peat surrounding the site. The nearest river to the Power Plant Area is the Mongagh River, located immediately adjacent to the northernmost boundary of the Power Plant Area. The Mongagh River is a tributary of the Yellow River and flows into it approximately 15km downstream of the Power Plant Area. Subsequently, the Yellow River flows into the River Boyne a further 2km downstream. Both of the Mongagh and Yellow Rivers are tributaries of the River Boyne.
- 4.7.20 The Electricity Grid Connection crosses two river waterbodies, i.e., the Yellow River and the Castletown Tara Stream, and there are two surface waterbodies in close proximity to the 400kV substation site, both designated as Esker Stream, located approximately 950m and 1.3km to the east and west respectively. In addition, the Grand Canal waterbody is within 500m to the south of the 400kV substation.
- 4.7.21 The Gas Connection Corridor crosses four river waterbodies: the Mongagh River, the Yellow River, the Rochfortbridge Stream, and the River Brosna.
- 4.7.22 The Power Plant Area and Electricity Grid Connection are mapped by being within the Athboy groundwater body which is 'poorly productive'.

#### Cultural Heritage

- 4.7.23 The Proposed Development and Overall Project is located in an area of moderate to high archaeological potential where a significant number of archaeological sites and artefacts from the bogs in the surrounding environs have been identified.
- 4.7.24 While there are no recorded archaeological assets within the boundaries of the Power Plant Area, 19 are recorded within the 1km study area. These are all located within the surrounding commercially cut peat bogs and were uncovered during field surveys. Although there may have been other heritage assets present in the form of previously unrecorded sub-surface archaeological deposits and features, these will have been destroyed by ground disturbance associated with the construction of the existing buildings and infrastructure. Similarly, while there are none recorded within the footprint of the Electricity Grid Connection, with 108 assets recorded within the 1km study area; 16 of these assets are located c. 680m from the 220kV substation.
- 4.7.25 There are 16 recorded archaeological sites within the 1km wide Gas Connection Corridor ranging in date from the prehistoric to the medieval period. The prehistoric sites comprise of a barrow and a standing stone. There are also three undated assets (i.e., two enclosures and a cropmark) within the Gas Connection Corridor which could date to the prehistoric period. In addition, there are 10 Recorded Protected Structures recorded within the 1km Gas Connection Corridor comprising 14 assets, the majority of which are also recorded on the National Inventory of Architectural Heritage (NIAH) with corresponding identification numbers.

#### Landscape Receptors

- 4.7.26 Views experienced from locations such as settlements, recognised routes and popular vantage points used by the public have been included in the assessment. Receptors are the viewers at these locations.

Noise and Vibration Receptors

- 1.1.1 The Noise Sensitive Receptors (NSRs) likely to be most exposed to the noise emissions from the Proposed Development and Overall Project are shown on Figure 11.1 of EIAR Volume I Chapter 11: Noise and Vibration and have been identified to be seven residential receptors. The closest two receptors to the Power Plant Area are both approximately 1.1km south, while the closest receptor to the 400kV Substation is approximately 350m south-west of the shortest path to the red line boundary.

## 5.0 THE PROPOSED DEVELOPMENT

### 5.1 Introduction

5.1.1 This chapter of the NTS provides a detailed description of the Proposed Development which comprises a CCGT unit, an OCGT unit, and the Electricity Grid Connection including substations and associated buildings and infrastructure, on land within a subset of the Derrygreenagh Bog Group in Co. Offaly. Also presented are details of the Gas Connection Corridor which forms part of the Overall Project and will enable the Proposed Development to connect to the existing high pressure Gas Pipeline to the west (BGE/77), north of the Power Plant Area via an AGI at the tie-in location and an underground pipeline.

### 5.2 Need for the Proposed Development

5.2.1 The objective of the Proposed Development and Overall Project is to facilitate targets for a net zero future through provision of gas-fired power stations in support of a high variable renewable electricity system as part of the transition in meeting these targets. The Proposed Development and Overall Project will provide support to the electricity network during periods when there is a gap between renewable power generation and power demand. The Proposed Development and Overall Project will help ensure national security and stability of electricity supply (including through expected growth in energy demand from increased activity by energy intensive industries and the electrification of heat and transport) and facilitate replacement of older less efficient conventional technology with lower carbon technology.

### 5.3 Components of the Proposed Development and Overall Project

5.3.1 All of the various components which make up the Proposed Development are contained within the application area shown on the Proposed Development Plan (refer to drawing S7060-8310-0004, EIAR Volume II, Appendix 5C) and are described or encompassed within the description of the Proposed Development in the accompanying planning application documents and Planning Statement.

5.3.2 The Gas Connection Corridor assessed as part of the Overall Project is shown on the Overall Development Plan (Section 8 of this NTS). As previously stated, the route and design of the Gas Connection Corridor will be subject to a separate consenting application process, which will be undertaken by GNI.

#### Power Plant Area

5.3.3 The Proposed Development will include the following components in relation to the Power Plant Area:

- CCGT Plant;
- OCGT Plant;
- Secondary Fuel Storage and Unloading Facility;
- Subsidiary items of plant/equipment;
- AGI Compound;
- Gas receiving facility
- Associated buildings and infrastructure (e.g., administration building, car parking, water treatment plant, foul water treatment system, water discharge points, landscape mitigation, etc.);

- Demolition works;
- Peat Deposition Area / Soil Deposition Area; and
- Temporary Construction Phase Works.

5.3.4 The facility will be required under the Grid Code Secondary Fuel Obligations to maintain a secondary fuel supply of distillate fuel sufficient for 5 days operation of the CCGT plant and 3 days of the OCGT plant. The secondary fuel storage facility and associated equipment will have a footprint of approximately 3,200m<sup>2</sup>, and the fuel will be contained in two tanks within a bunded area to the south of the site.

5.3.5 The Secondary Fuel will only be used in the unlikely event that both the gas connection is unavailable and other generation sources on the transmission grid cannot meet demand.

#### Electricity Grid Connection

5.3.6 The Proposed Development will include the following components in relation to the Electricity Grid Connection:

- 220kV Substation;
- 220kV Substation Telecommunication Mast;
- 220kV Overhead Line;
- 220kV Line-Cable Interface Compound;
- 220kV Underground Connection;
- 400kV Substation;
- 400kV Substation Telecommunication Mast;
- 2 No. 400kV Strain Towers;
- Peat Deposition Areas and Soil Deposition Area; and
- Temporary Construction Phase Works.

#### Gas Connection Corridor

5.3.7 The Gas Connection Corridor is part of the Overall Project and will include:

- An AGI at the connection to the BGE/77 Transmission Pipeline north of Rochfortbridge;
- An underground high-pressure (HP) natural gas pipeline up to 400mm in diameter and with a maximum design pressure of up to 85 bar to transport natural gas from the BGE/77 Transmission Pipeline to the Derrygreenagh AGI;
- A Cathodic Protection (CP) System;
- Aerial gas pipeline identification marker posts and CP test posts;
- Surface water drainage systems including channelling, culverting, crossings and works to existing drainage ditches and systems;
- Site establishment and preparation works; and
- Temporary construction and laydown areas comprising hardstanding, laydown and open storage areas.

## 5.4 Construction Phase

### Environmental Management for Proposed Development

- 5.4.1 All activities on the Proposed Development Site are provided for in the Construction Environmental Management Plan (CEMP). A CEMP has been prepared for the Proposed Development and is included in Appendix 5A of Volume II of the EIAR. The CEMP sets out the key environmental considerations and mitigation and monitoring measures that the appointed contractor will be contractually obliged to comply with during construction. In addition, details of the environmental management measures that the contractor will comply with in terms of refuelling, concrete deliveries and pours, dust suppression, vehicle washing, and other best practice methodologies, are presented in EIAR Volume I Chapter 5: The Proposed Development.
- 5.4.2 Prior to commencement of construction works the contractor will draw up detailed Method Statements which will be informed by Outline Construction Methodology and the guidance documents and best practice measures described in EIAR Volume I Chapter 5: The Proposed Development, environmental protection measures included within the planning application, measures proposed within the CEMP. The CEMP will be updated, and a detailed Resource Waste Management Plan (RWMP) and Construction Traffic Management Plan (CTMP) will be prepared by the EPC Contractor and agreed on with the relevant local authorities.

### Construction Site Management

- 5.4.3 The construction of the Power Plant Area, Electricity Grid Connection, and Gas Connection Corridor will be managed by separate contractors. The Applicant will appoint an Engineering, Procurement and Construction (EPC) Contractor for the works on the Power Plant Area and another for the Electricity Grid Connection. The contractors will appoint subcontractors to undertake all the specific construction and civil works.
- 5.4.4 Construction works would typically take place during the hours of 0700hrs to 1900hrs (Monday to Friday) and 0800hrs to 1300hrs (Saturday) with the exception of commissioning and specific engineering works (e.g., concrete pours) which could take place outside these hours, as and when agreed with the planning authority.
- 5.4.5 It is envisaged that the Gas Connection Corridor will adhere to the same construction site management measures.

### Community Consultation and Liaison

- 5.4.6 There shall be an ongoing commitment by the Project Team to maintain community consultation and liaison throughout the construction period for the Proposed Development and Overall Project. Signage will be provided at Site entrances which shall have a Project contact telephone number where the public will be able to leave messages in relation to the Proposed Development construction. A liaison officer will be appointed to manage the calls/messages and any subsequent actions pertaining to these. Further information on community consultation and liaison is outlined in the CEMP in Appendix 5A of Volume II of the EIAR.
- 5.4.7 Details of community engagement and consultation to date is defined in EIAR Volume I EIA Chapter 6: Consultation.

#### Construction Site Access and Traffic

- 5.4.8 The Power Plant Area can be approached along the R400 road from the direction of the junction with the M6; all HGV deliveries to the Power Plant Area will be directed to follow this access. Access to the 220kV electricity substation will be west off the R400 road, while access to the 400kV substation during construction and operation will be from the L1010 road.
- 5.4.9 It is expected that the extent of HGV movements will vary at different stages of the construction works in response to the activities taking place at any given time and the main HGV movements will be associated with the pipe deliveries.

#### Construction Site Compound

- 5.4.10 The areas allocated for the Power Plant construction contractor compounds are on the west and north sides of the of the Power Plant Area. These areas will be used for the unloading and storage of construction materials, temporary site offices and welfare facilities, and construction staff vehicle parking. The construction compounds will consist of a mixture of permeable, semi-permeable and hardstanding areas provided with drainage systems and provided with silt traps and, if required, hydrocarbon interceptors. The surface water will infiltrate into the ground and/or be discharged into the local area drainage system. A detailed drainage plan for the construction phase will be developed during the detailed design phase by the EPC Contractor.
- 5.4.11 For both the 220kV and the 400kV substations, the construction and laydown area will comprise two temporary construction compounds, one north of the 220kV substation and the other north of the 400kV substation. In addition, there will be two satellite, temporary construction compounds along the OHL transmission route. The temporary construction compounds will include temporary site offices, parking, stores, and laydown areas.
- 5.4.12 Temporary perimeter fencing, gates and access control measures will be provided for the Power Plant Area, and a construction phase lighting scheme will be developed by the EPC contractor.

#### Construction Phase Waste Management

- 5.4.13 Waste will be generated during all stages of the construction works. A Site Waste Management Plan is incorporated into the CEMP and all relevant contractors will be required to seek to minimise waste arising at source and, where such waste generation is unavoidable, to maximise its recycling and reuse potential. Recycling of materials will take place off-site at appropriately licensed facilities where noise and dust are more easily managed and less likely to impact on surrounding properties.
- 5.4.14 A RWMP will be prepared by the appointed contractor prior to work commencing to help manage site waste more effectively, reducing potential harm to the environment and human health. In addition, a Peat and Spoil Management Plan outlining the proposed methodology for peat management and storage is presented in Appendix 5B (refer to EIAR Volume II).
- 5.4.15 Demolition of a number of buildings and structures within the existing Derrygreenagh Works is included as part of the Proposed Development in relation to the Power Plant Area. These works will take approximately 6 months to complete. Buildings and structures to be demolished include site offices, a boiler house, two workshops, a water tank, and a storage unit. Demolition works are calculated to result in 11,700m<sup>3</sup> of demolition wastes. Wastes will be classified, segregated, stockpiled, recycled and disposed of from the site to appropriately licensed receiving facilities.

## 5.5 Commissioning & Operational Life

### Power Plant Area

#### *Industrial Emissions Licence*

- 5.5.1 The Derrygreenagh Thermal Power Plant site will comply with the requirements of the EU (Large Combustion Plants) Regulations 2012 S. I. No. 566 of 2012 under its Industrial Emissions (IE) Licence (to be applied for) so that any impacts of emissions to air, soil, surface and groundwater, and effects on the environment and human health, will be minimised and avoided where possible.
- 5.5.2 The Site will be operated in line with the IE Licence (to be applied for) and appropriate standards, and the operator will implement and maintain an Environment Management System (EMS) which will be certified to International Standards Organisation (ISO) 14001. The EMS will establish the requirements and procedures required to ensure that the Site is operating to the appropriate standard.
- 5.5.3 Sampling and analysis of pollutants will be carried out where required including monitoring of exhaust emissions levels in accordance with the IE Licence.

#### *Hazard Prevention and Emergency Planning*

- 5.5.4 Measures to prevent the risks of fire, flooding, spillages, or other potentially major incidents will be embedded in the design of the Proposed Development. These include:
- Compliance with all relevant health, safety and environmental legislation;
  - Design, build and operation in accordance with good industry practice;
  - Regular maintenance and inspections to reduce the risk of equipment failures;
  - Bunded or double-skinned storage areas for liquid chemicals;
  - Regular maintenance and Site housekeeping to reduce the likelihood of leakages and improve leakage detection; and
  - Spill kits stored on Site.
- 5.5.5 A site-specific Health and Safety Plan covering, commissioning, and operation will be prepared to ensure compliance with relevant health and safety legislation.
- 5.5.6 Procedures will be in place to clearly outline the responsibilities, actions and communication channels for operational staff and personnel on how to deal with emergencies should they occur. Staff will also receive the level of training required for their role and position. This will include dealing with events such as fires, spillages, flooding, etc. Such measures will be included in the site operating and management system and regulated by EPA through the IE Licence for the site.

#### *Start-Up and Shut-Down*

- 5.5.7 The Proposed Development will be started and stopped automatically, under the supervision of trained operators. This will be in response to the requirements of the electricity grid operator's (i.e., EirGrid) request for power. The plant is specifically designed to start-up, shut-down, and ramp (change its output) rapidly in response to the requirement for power from the electricity grid.

#### *Fuel*

- 5.5.8 The CCGT and OCGT will fire primarily natural gas to generate power, however the turbines will also have the functionality to fire on locally stored back up fuel (distillate fuel).

- 5.5.9 Operation using distillate fuel is only expected to occur during an emergency scenario (such as loss of natural gas transmission pipeline pressure during a period of high electricity demand) and during short grid code compliance tests to confirm the readiness of the turbines to respond to a call to fire on locally stored distillate fuel as a backup.
- 5.5.10 The Power Plant to operate at a 5% blend of hydrogen by design offers the potential for the Power Plant emissions to become even more efficient over the period to 2050, as and when the required policies and supply chains for hydrogen are developed.

#### *Commissioning Stage*

- 5.5.11 Commissioning takes place in two stages: cold commissioning and hot commissioning. Cold commissioning is the initial period where pumps, fans, and other components are run at the drive level, circuit cleaning takes place, and cable continuity and control and instrument (C&I) checks are carried out. Hot commissioning takes place once gas is available to the site and involves operating the facility with fuel and verifying that the technology functions correctly.
- 5.5.12 Once the above has been successfully completed, the facility will then be offered for reliability run and tests on completion. Then, the relevant certificates are issued, and the facility will be deemed ready for commercial operation.

#### *Maintenance*

- 5.5.13 Routine maintenance will be undertaken in accordance with maintenance manuals provided by the construction contractor.
- 5.5.14 The GTs will be subject to inspection by the manufacturer per annum or as required. During this time, the GT will be shut down and manufacturer personnel will be deployed to site to complete the works. The annual inspection may take between three days (most years) and 17 days (every five years) for the GT units. These works are likely to take place during the summer months when the units are least likely to be operated. During this maintenance period, maintenance on balance of plant will also be undertaken.

#### Electricity Grid Connection

- 5.5.15 Commissioning of the Electricity Grid Connection will be carried out by the EPC Contractor. During commissioning, the Electricity Grid Connection will be operated in line with the EPC Contractors commissioning procedures. Commissioning will take place in stages.
- 5.5.16 The Electricity Grid Connection will be managed by the respective transmission asset operators (TAO) and transmission service operators (TSO) (ESBNI and EirGrid for electricity) as part of the national grid electricity.

#### Gas Connection Corridor

- 1.1.2 The gas connection will be managed by the TAO and TSO (GNI for gas) as part of the national gas networks. When the gas pipeline will be decommissioned depends on the asset owner's operational requirement and asset management policy. Decommissioning activities will be conducted in accordance with the appropriate guidance and legislation at the time of decommissioning.

## **5.6 Decommissioning Phase**

### Power Plant Area

- 5.6.1 It is envisaged that the Power Plant Area will have a design life of at least 25 years. At the end of the design life, the Power Plant Area would either be decommissioned, or the lifetime could potentially be extended. Decommissioning or extension of the lifetime of the asset would therefore be expected to commence at some point after 2052.

- 5.6.2 At the end of its operating life, all above-ground equipment associated with the Power Plant Area will be decommissioned and removed from the site. Prior to removing the plant and equipment, all residues and operating chemicals will be cleaned out from the plant and disposed of at a suitably licenced facility. Once the plant and equipment have been removed to ground level the hardstanding and sealed concrete areas will be left in place.
- 5.6.3 A Decommissioning Plan (including a including a Decommissioning Environmental Management Plan (DEMP)) will be produced and agreed with the EPA as part of the permit surrender process ahead of any permit surrender. Site closure planning and liability risk assessment will be within the IE licence for the site and will typically include a requirement for any removal of soils, buildings, plant and equipment, and remedial actions would be undertaken under a Decommissioning Management Plan, part of a Closure, Restoration and Management Plan (CRAMP).
- 5.6.4 During decommissioning and demolition there will be a requirement for office, accommodation and welfare facilities which will be located adjacent to the Power Plant Area. Decommissioning activities will be conducted in accordance with the appropriate guidance and legislation at the time of decommissioning.

#### Electricity Grid Connection

- 5.6.5 The Electricity Grid Connection will be managed by the TAO and TSO (ESBNI and EirGrid for electricity) as part of the national grid electricity. When the Electricity Grid Connection will be decommissioned depends on the asset owner's operational requirement and asset management policy. Decommissioning activities will be conducted in accordance with the appropriate guidance and legislation at the time of decommissioning.

#### Gas Connection Corridor

- 5.6.6 The gas connections will be managed by the TAO and TSO (GNI for gas) as part of the national gas networks. At the end of its design life, it is expected that the gas connection pipeline may have residual life remaining, and the operational life may be extended if appropriate and/or the asset refurbished and retained as part of the national transmission network.

## **5.7 Staffing**

### Power Plant Area

#### *Construction Phase*

- 5.7.1 Levels of employment will vary throughout the construction phase, with peak levels of employment likely to be 400 staff average and a maximum of approximately 750 staff. Staff will comprise engineering, management, skilled and semi-skilled workers during the construction programme. A number of indirect employment opportunities would also be created in a variety of different trades as a result of the construction phase of the Power Plant Area.
- 5.7.2 Local businesses may benefit from the opportunity to supply materials, plant, and equipment which will represent a significant capital investment.

#### *Operational Phase*

- 5.7.3 During the operational phase, the Power Plant Area will be operated, maintained, and managed by suitably qualified and trained personnel. There will be a high degree of automation in the Power Plant Area with all processes controlled from a shared central control room. The facility will be permanently manned 24 hours a day and seven days a week. The operations team typically comprising of two operators, and a shift team leader

will work rotational shift patterns to ensure cover is provided whilst the plant is operating. Depending on the final shift patterns, this may involve 4 or 5 operations teams. In addition, other personnel employed at the Power Plant Area will include a station management team, a maintenance team and administrative support staff who will work typical office hours. It is expected that the total number of personnel employed at the Power Plant Area in the operation phase will be in the range of 40-60.

- 5.7.4 A number of indirect employment opportunities would also be created in a variety of different trades and business as a result of the operational phases of the Power Plant Area.

#### Electricity Grid Connection

##### *Construction Phase*

- 5.7.5 There will be a peak of 120 staff numbers in construction across the Electricity Grid Connection.

##### *Operational Phase*

- 5.7.6 It is not proposed that the Electricity Grid Connection or substations will be manned, although periodic inspections and maintenance activities will be undertaken intermittently.

#### Gas Connection Corridor

##### *Construction Phase*

- 5.7.7 Staff numbers will be dependent on how many work crews the contractor employs however it is expected that these will peak at 120.

##### *Operational Phase*

- 5.7.8 It is not proposed that the AGIs will be manned, although periodic inspections and maintenance activities will be undertaken intermittently.

## **5.8 Community Benefit Proposals**

- 5.8.1 A Community Benefit Fund will be set up for the Proposed Development. The fund shall be made by five annual payments of €90,000 (ninety thousand euro), beginning on commencement of construction of the Proposed Development contributing to a total fund of €450,000 (four hundred and fifty thousand euro) over the five-year period. As the project is at an early stage of its development, the exact nature and structure of the proposed Community Benefit Fund, including details of the management and operation of the Fund, is not known at this time. It is envisaged that the Community Benefit Fund will operate in a similar manner to other Bord na Móna Community Benefit Fund models currently in operation.

## 6.0 CONSULTATION

- 6.1.1 Details of the consultation undertaken to inform the EIAR and planning application process is presented in Chapter 6: Consultation of the EIAR (Volume I). As part of the pre-application process consultation, meetings with several statutory stakeholders took place including:
- ABP;
  - Environmental Protection Agency (EPA);
  - Offaly County Council (OCC); and
- 6.1.2 The SID provisions of the Planning and Development Act 2000 (as amended) have been considered in making this application, with a formal pre-application consultation carried out between the Applicant and ABP prior to the finalisation and submission of this application.
- 6.1.3 A request was submitted to ABP on 24 February 2023 to enter into pre-application consultation. A meeting was held with representatives from Bord na Móna Powergen Limited, their consultants, and ABP on the 12 May 2023. A request for closure was then made by the Applicant on 9 June 2023 and the process was formally concluded on 5 July 2023. It was subsequently determined by ABP that the Proposed Development does constitute SID and that a planning application should be made to ABP.
- 6.1.4 Pre-application consultation was also undertaken with the EPA (07 July 2022 and 27 March 2023) to discuss requirements in relation to EIA and the approach to the project with regard to licencing, and with OCC (19 June 2023) to discuss the principle of the Proposed Development and Overall Project, the preliminary design proposal, the environmental assessment of the proposal and the Applicant's opinion regarding SID. A pre-application meeting was requested to WCC but no response from council was received.
- 6.1.5 In addition to the pre-application meetings consultations referenced above, consultations have been undertaken prior to the submission of this EIAR in the form of Online Consultation, Community Consultation Events, and Statutory and Non-Statutory Consultation (by letter and email). Full details of the consultation process are presented in EIAR Volume I Chapter 6: Consultations.

## 7.0 SUMMARY OF ENVIRONMENTAL EFFECTS

### 7.1 Introduction

7.1.1 An assessment of the environmental effects of the Proposed Development and Overall Project during its construction, operation (including maintenance), and decommissioning has been completed for each of the environmental topics identified in the EIAR.

7.1.2 The likely significant environmental effects are fully described within EIAR Volume I. This section of the NTS provides a summary of the findings of the EIAR in non-technical language. The findings of the following EIAR Chapters are summarised below:

- Chapter 7: Air Quality
- Chapter 8: Cultural Heritage and Archaeology
- Chapter 9: Biodiversity
- Chapter 10: Landscape and Visual
- Chapter 11: Noise and Vibration
- Chapter 12: Water Environment
- Chapter 13: Land, Soils and Geology
- Chapter 14: Traffic
- Chapter 15: Population and Human Health
- Chapter 16: Material Assets
- Chapter 17: Major Accidents and Disasters
- Chapter 18: Climate
- Chapter 19: Cumulative Effects and Interactions
- Chapter 20: Schedule of Environmental Commitments

### 7.2 Air Quality

7.2.1 The air quality assessment of construction impacts assumes that the impact avoidance measures outlined within EIAR Volume I Chapter 7: Air Quality will be incorporated into the design of the Proposed Development and Overall Project, as they are standard good practice measures that are routinely applied across large construction sites. No specific additional mitigation has been identified as necessary for the construction phase of the Proposed Development and Overall Project. No significant effects have been identified.

7.2.2 An air quality dispersion modelling assessment was carried out to evaluate the impact on local air quality of the operation of the Power Plant Area. It concluded that there would be a small increase in ground-level concentrations of nitrogen dioxide (NO<sub>2</sub>) and carbon monoxide (CO), and that operational concentrations of the modelled pollutants would be well within current Environmental Standards.

7.2.3 The Power Plant Area will comply with the requirements of the European Union (Large Combustion Plants) Regulations 2012 S. I. No. 566 of 2012 under an IE Licence (which is to be applied for) so that any impacts of emissions to air, soil, surface and groundwater, and effects on the environment and human health, will be minimised and avoided where possible.

7.2.4 The air quality assessment of impacts at opening of the Power Plant Area has assumed that the ELVs will be met for the operational Power Plant Area as required and in

accordance with use of Best Available Techniques (BAT) under the EPA's environmental permitting regime. The emissions to air from the operation of the Electricity Grid Connection and Gas Connection Corridor would be minimal and have been classified as '**Negligible**'. Therefore, air quality effects for the operational phase of the Proposed Development and Overall Project will be '**Not Significant**' and, other than the embedded mitigation measures outlined in EIAR Volume I Chapter 7, no specific additional mitigation has been identified as necessary.

- 7.2.5 Consistent with construction mitigation, it has been assumed that relevant standard best practice mitigation measures would be in place during any decommissioning works. No significant effects are anticipated. Decommissioning of the Electricity Grid Connection and Gas Connection Corridor are not envisaged and have not been assessed under this EIAR as they will be managed by EirGrid and by GNI respectively.

### 7.3 Cultural Heritage and Archaeology

#### Power Plant Area

- 7.3.1 There are no heritage assets recorded within the boundaries of the Power Plant Area, however there are 19 recorded archaeological assets recorded within the 1km study area, in the surrounding commercially cut peat bogs. While there are no known Cultural Heritage assets within the Power Plant Area and majority of the Site has been severely disturbed by previous development, there is potential for currently unrecorded archaeological remains to be present. These are likely to be of local interest and low heritage value.
- 7.3.2 Groundworks within the Power Plant Area would severely impact upon any archaeological remains. Mitigation has been proposed to determine the presence/absence of such features and preserve them by record during the construction phase. There is no likelihood of negative impacts caused by changes to the setting of identified designated assets by noise, dust, vibration, and visual intrusion, from temporary, construction-related activities due to the distance between these assets and the Power Plant Area. Therefore, the effect is assessed to be '**Moderate**', '**Negative**', and '**Permanent**'.
- 7.3.3 Significant effects for the operation phase derive from changes to the setting of heritage assets. These largely mirror the construction phase effects assessed for the permanent presence of the Power Plant Area. There would be no change to the effects assessed for the designated assets within the wider study area due to the permanent presence of the Power Plant Area during the operational phase. Additionally, the level of traffic associated with the construction phase will not be present during the operational phase, also reducing impact. Given this, there is no need to reassess each designated heritage asset as the significance of effect will remain as determined for the construction phase.

#### Electricity Grid Connection

- 7.3.4 There are no heritage assets recorded within the boundaries of the Electricity Grid Connection, however there are 108 assets recorded within the 1km study area, the majority of which are located within the surrounding commercially cut peat bogs.
- 7.3.5 Similarly, to the assessment of the Power Plant Area, construction phase effects on unrecorded archaeological assets are assessed to be '**Moderate**', '**Negative**', and '**Permanent**'. In addition, construction of the Overhead Power Line will impact the special interests and qualities of the National Monument Barrow (NM. 532) and a bowl barrow (OF010-004001), and our ability to understand and appreciate them. This will not change with mitigation and the effect is therefore assessed to be '**Moderate**' for the National Monument Barrow (NM. 532) and '**Slight**' for the bowl barrow (OF010-004001), and '**Adverse**' and '**Long-Term Reversible**' for both assets.

- 7.3.6 The effects of the operational phase of the Electricity Grid Connection largely mirror those of the construction phase and have therefore not been reassessed.

#### Gas Connection Corridor

- 7.3.7 Within the 1km wide Gas Connection Corridor, there are 16 recorded archaeological sites ranging in date from the prehistoric to the medieval period in addition to 3 undated assets; 10 Recorded Protected Structures (RPS) comprising 14 assets (the majority of which are also recorded on the National Inventory of Architectural Heritage (NIAH)); and two further assets recorded as NIAH building footprint layers only. In addition, there is one Historic Asset (i.e., Planned Landscape (NIAH 4237)) within the route of the Gas Connection Corridor, which is the associated with the former rectory Glebe House.

### **7.4 Biodiversity**

#### Power Plant Area

- 7.4.1 A number of effects on different biodiversity assets associated with the construction phase of the Power Plant Area were identified, ranging from **'Slight'** to **'Significant'** in terms of significance, **'Short-Term'** to **'Permanent'** in terms of duration, and **'Local'** to **'International'** in terms of geographic scale. Most of the effects identified for the operational phase are **'Slight'** to **'Imperceptible'** but others are **'Moderate'** or **'Significant'**, while most are **'Permanent'** in duration, and all are **'Local'** in term of geographic scale. Effects arising from the process of decommissioning of the Power Plant Area are considered to be of a similar nature and duration to those arising from the construction process on a precautionary basis.

- 7.4.2 With the implementation of mitigation measures presented in EIAR Volume I Chapter 9, residual effects for the Power Plant Area will largely be **'Imperceptible'** or **'Not Significant'**, with the exception of the following ecological constraints:

- Residual effects on bats will remain **'Permanent'**, **'Negative'**, and **'Slight'**, at **'Local'** in scale, and are associated with the loss of bat roosts during construction and disturbance to retained and new bats roosts during operation.
- Residual effects on smooth newt and common frog from habitat loss and fragmentation, disturbance, injury, or mortality as a result of construction activities for the Power Plant Area will be **'Short-Term'** but result in **'Negative'** and **'Slight'** effects to populations of these species at the **'Local'** geographic scale.

#### Electricity Grid Connection

- 7.4.3 Effects from the construction phase of the Electricity Grid Connection range from **'Slight'** to **'Significant'** in terms of significance, **'Short-Term'** to **'Permanent'** in terms of duration, and **'Local'** to **'International'** in terms of geographic scale. Most of the effects identified for the operational phase are **'Slight'** to **'Imperceptible'** but others are **'Moderate'** or **'Significant'**, while most are **'Permanent'** in duration, and all are **'Local'** in term of geographic scale.

- 7.4.4 With the implementation of mitigation measures presented in EIAR Volume I Chapter 9, residual effects for the Electricity Grid Connection will largely be **'Imperceptible'** or **'Not Significant'**, with the exception of the following ecological constraints:

- Despite the implementation of mitigation to protect badgers and their setts during construction, the loss of setts and increased human presence and artificial lighting during operation will continue to have a **'Negative'** and **'Slight'** effect on badger populations at the **'Local'** geographic scale.

- Residual effects on for smooth newt and common frog from habitat loss and fragmentation, disturbance, injury, or mortality as a result of construction activities will be '**Short-Term**' but result in '**Negative**' and '**Slight**' effects to populations of these species at the '**Local**' geographic scale.
- Elements of the Electricity Grid Connection might be expected to remain a collision and electrocution risk to both breeding and wintering birds; thus, residual effect will be '**Permanent**', '**Negative**', '**Slight**' effect at the '**Local**' (for Amber-listed species) to '**County**' (for Red-listed species) geographic scale. In addition, elements along the Electricity Grid Connection may still cause both breeding and wintering birds to be displaced from suitable habitat and could act as a partial barrier to movement. As such, the residual effect will be '**Permanent**', '**Negative**', and '**Slight**' at the '**Local**' (for Amber-listed species) to '**County**' (for Red-listed species) geographic scale.

7.4.5 The Electricity Grid Connection will be managed by the TAO and TSO (ESBNI and EirGrid for electricity) as part of the national grid electricity. When the Electricity Grid Connection will be decommissioned depends on the asset owner's operational requirement and asset management policy. Decommissioning activities will be conducted in accordance with the appropriate guidance and legislation at the time of decommissioning.

#### Gas Connection Corridor

7.4.6 The Gas Connection Corridor is not being applied for in the planning application for the Proposed Development (as it will be applied for by GNI under separate consenting processes). The Gas Connection Corridor is the preferred route, as indicated by GNI, at the time of writing but may be subject to change as part of the detailed design process to be carried out by GNI at a later date. Effects from the construction phase of the Gas Connection Corridor range from slight to significant in terms of significance, short-term to permanent in terms of duration, and '**Local**' to '**International**' in terms of geographic scale.

7.4.7 The operational phase impacts of the Gas Connection Corridor are currently unknown. In addition, as there is no baseline ecological information from field surveys for the Gas Connection Corridor, the types or likelihood of operational phase impacts have been assumed on the precautionary principle based on the typical operation of other similar gas pipelines and AGI developments. It is assumed that the Gas Connection Corridor, once in operation would require infrequent maintenance, pose little to no risk of pollution and not be associated with any noise or light disturbance. There are no predicted significant effects associated with the operational phase of the Gas Connection Corridor.

7.4.8 When the gas pipeline will be decommissioned depends on the asset owner's operational requirement and asset management policy. Decommissioning activities will be conducted in accordance with the appropriate guidance and legislation at the time of decommissioning. Similarly, mitigation for the construction, operation, or decommissioning phases of the Gas Connection Corridor will be determined by GNI as part of these future consenting processes and detailed design.

## **7.5 Landscape and Visual Effects**

7.5.1 Potential impacts and associated effects arising during the decommissioning phase of the Proposed Development and Overall Project are not anticipated above and beyond those already assessed during the construction phase. Therefore, only construction and operational phase effects are discussed below.

### Power Plant Area

#### *Landscape Effects*

- 7.5.2 Construction phase effects on the landscape character result from the loss of existing vegetation and habitat; construction activities such as soil stripping, earthworks, grading, etc.; indirect effects to visual amenity as a result of the visibility of construction activities; and short-term presence of site infrastructure (e.g., site traffic, construction compounds, soil storage areas, etc.). The introduction of localised changes to the landform (e.g., presence of construction plant) will be **Temporary** to **Short-Term**, and **Reversible**. Construction will alter a small area within the wider landscape character of County Offaly but it will not result in the permanent loss of key features such as the overall landscape structure. Construction phase effects are therefore considered to be **Moderate Adverse**. Landscape character areas located in County Westmeath and County Meath will not be affected.
- 7.5.3 During the operational phase, **DIRECT** and **LONG-TERM** change will occur locally where the proposed Power Plant Area will be physically located as it will introduce a prominent industrial component in the landscape character within approximately 1 km radius from the Power Plant Area. Operational phase effects are therefore considered to be **Significant Adverse**.
- 7.5.4 Given the scale and location of the Power Plant Area, landscape mitigation measures focus on architectural mitigation such as façade treatment and minimising lighting during night-time. Additional woodland and tree belts are also proposed to integrate the facility where possible, although this will not reduce effects on the landscape character as the alteration to the landscape character will remain. Residual landscape effects from the construction and operational phases will therefore remain unchanged.

#### *Visual Effects*

- 7.5.5 Construction activity will not be visible to all of the visual receptors due to intervening landform, vegetation, and distance to the site boundary. The presence of construction-specific elements and activity will be **Reversible** and of **Short-Term** duration. Therefore, visual effects are considered to be **Moderate Adverse**.
- 7.5.6 During operational, the potential for significant visible plumes from the OGCT development is considered to be very low with no real risk of significant plumes. The CCGT development will experience occasional plumes but the risk of prolonged visibility of plumes is low. However, the Power Plant Area will be visible for approximately 5 km, affecting a number of visual receptors within the study area. The effects will range from **None** to **Significant** depending on their distance.
- 7.5.7 Residual visual effects from the construction and operational phases will remain largely unchanged despite the implementation of mitigation measures. These effects will be highest in short and middle-distance views from the adjacent road network as well as from areas on higher ground, where there is no or little intervening existing vegetation.

### Electricity Grid Connection

#### *Landscape Effects*

- 7.5.8 The construction phase of the Electricity Grid Connection will adversely affect the vegetation and habitat onsite and change sections of the local landscape character within approximately 1 km radius, intensifying its industrial character (particularly due to the introduction of noticeable vertical elements). Landscape effects during the construction phase are considered to be **Temporary**, **Moderate**, and **Adverse**.

- 7.5.9 During the operational phase, **Direct** and **Permanent** change will occur locally where the elements of the proposed Electricity Grid Connection will be physically located. This change will include tall vertical elements and ancillary structures, as well as localised changes to landform. Visual effects are therefore considered to be **Significant**, and **Adverse**.
- 7.5.10 Mitigation measures proposed are similar to those of the Power Plant Area and includes proposed bands of woodland and clusters of deciduous trees in the vicinity of the substation compounds where feasible in order to integrate the substation structures in the surrounding setting. However, this will also not reduce effects on the landscape character as the alteration to the landscape character will remain. Landscape effects will therefore remain unchanged.

#### *Visual Effects*

- 7.5.11 The visual amenity within approximately 1 km radius of the Electricity Grid Connection corridor will be altered during the construction phase due to the introduction of prominent new vertical elements and construction plant and works. Sensitive features such as retained field boundaries and hedgerows will be protected along construction corridors and access tracks.
- 7.5.12 Construction phase changes will be **Temporary** to **Short-term** and largely **Reversible**. Construction will alter a wide area at a local level potentially resulting in permanent loss of key features such as trees and hedgerows along the construction corridor. The changes to the landscape character will be noticeable within 1 km of the corridor and up to approximately 5.5 km in elevated areas to the southwest, including Croghan Hill.
- 7.5.13 During the operational phase, the Electricity Grid Connection will alter the visual amenity within approximately 1 km radius from its boundary. The introduction of tall vertical features will result in changes to the visual amenity locally but also be also noticeable beyond 1 km in the wider study area, particularly from elevated areas such as Croghan Hill and Knockdrin Hill. Visual effects will range from **Not Significant** to **Significant**, and **Neutral** to **Adverse**, depending on their distance.
- 7.5.14 Residual visual effects in close and middle-distance views (up to 1km) along the R400 will reduce slightly due to the implementation of additional screen planting along the substation compound boundaries. Middle and long-distance views (beyond 1km) from the Electricity Grid Connection and from elevated locations, such as Croghan Hill or Knockdrin Hill, will remain unchanged.

#### Gas Connection Corridor

##### *Landscape Effects*

- 7.5.15 The construction corridor for the gas connection is largely located within County Westmeath. Landscape effects of underground pipelines include surface disturbance, hedgerow and hedgerow tree removal, soil compaction, erosion, watercourse crossings, and the risk of spills or leaks. Adverse effects to the landscape character and vegetation will be localised and are highest in locations where the route alignment is not located within existing road corridors. It is anticipated that the Gas Connection Corridor has the potential to alter the landscape character within approximately up to 500 m radius from the route alignment; changes to the landscape character will not be noticeable or significant beyond 500 m. Landscape effects during the construction phase are considered to be **Significant Adverse**.
- 7.5.16 During the operational phase, **Direct** and **Permanent** change will occur locally where the Gas Connection Corridor will be physically located, resulting in **Slight Adverse** effects.

7.5.17 Following the successful retention of existing vegetation and the establishment of proposed new vegetation, adverse landscape effects at the site location will be reduced. The significance of effects on the landscape character for locations within 250 to 500m from the Gas Connection Corridor site will be reduced to **Slight Neutral**, and for locations beyond 500m the landscape effects will reduce to **Imperceptible Neutral**. The landscape effects resulting from the AGI locations will gradually reduce with the maturing of screen planting along the perimeter of the Gas Connection Corridor site, which will help to integrate the proposed light industrial overground structures in the overall landscape character over time.

#### *Visual Effects*

7.5.18 Areas experiencing visual effects during the construction stage will vary, depending on the location of the active section of construction works. It is anticipated that the Gas Connection Corridor will alter the landscape's visual appearance within approximately 300 to 500m radius from the future route alignment depending on intervening existing screening by topography and vegetation. The change will be **Temporary** to **Short Term** and largely **Reversible**. Construction will alter a localised area with the likelihood of a permanent loss of key features such as trees and hedgerows along the future route alignment. The change in the views will likely be noticeable within 1 km of the route alignment and beyond approximately 5 km in elevated areas to the southwest including Croghan Hill.

7.5.19 During the operational phase, the route alignment corridor within the overall Gas Connection Corridor will be of a relatively narrow width and affect a small section of the overall visible features in available views. Changes to views will therefore be localised and rarely extent in their visibility beyond 300m; these effects will be **Adverse**, ranging between **Slight** to **Moderate** in significance. However, visual effects reduce quickly with distance to **Neutral**, ranging between **Not significant** and **Imperceptible** in significance.

7.5.20 Landscape mitigation can be developed once a route alignment becomes available. General landscape mitigation measures are detailed in Section 10.6 of Chapter 10 (EIAR Volume I). Residual visual effects in close distance views located adjacent to the Gas Connection Corridor site boundary, as well as longer-distance views, will remain largely similar. Residual visual effects will be highest in short and middle-distance views from the adjacent road network as well as from areas on higher ground, where there is no or little intervening existing vegetation, but will decrease with the maturing of anticipated landscape mitigation proposals.

## **7.6 Noise and Vibration**

### Power Plant Area

7.6.1 Predicted construction noise levels for the estimated noisiest period of construction are below the weekday daytime and Saturday morning assessment criteria (i.e., 70 dB during the weekday daytime, and 65 dB on Saturday). With the implementation of mitigation measures (including the CEMP), noise impacts on residential receptor positions generated by on-site activities are assessed to be **'Not Significant'**.

7.6.2 Public roads R400 and L1010 will be used by construction traffic. A **'Negligible'** impact on existing road traffic noise levels is expected during the construction phase at residential receptor positions. The effect of the Power Plant Area construction vehicles utilising local roads would be defined as **'Imperceptible'**, **'Short-Term'**, and **'Reversible'**.

7.6.3 The effects of construction noise and vibration, and construction traffic noise will be **'Temporary'**, only occurring on weekdays and Saturdays.

- 7.6.4 During the operational phase, taking into consideration the implementation of mitigation measures recommended of EIAR Volume I Chapter 11, operational noise levels of the Power Plant Area are at or below the relevant criteria (outlined in EIAR Volume I Chapter 11) at all the selected receptors. Therefore, the effects are assessed to be **'Not Significant'**.
- 7.6.5 Effects arising from the process of decommissioning of the Power Plant Area are likely to be of a similar or lesser nature and duration to those arising from the construction phase. As decommissioning works are temporary in nature, noise effects are determined to be **'Not Significant'**.

#### Electricity Grid Connection

- 7.6.6 Predicted construction noise levels for the estimated noisiest period of construction are below the weekday daytime and Saturday morning assessment criteria. In addition, the use of construction noise mitigation measures including the adoption of BAT, will help control levels so that the predicted noise levels at all Noise Sensitive Receptors (NSRs) are below the relevant assessment criteria during construction. The residual noise effects of the construction phase are determined to be **'Not Significant'** and **'Short-Term'**.
- 7.6.7 Predicted operational noise levels relating to the Electricity Grid Connection (refer to EIAR Volume I Chapter 11) have been shown to be compliant with the relevant operational assessment criteria. Therefore, no specific noise mitigation measures are required as part of the Electricity Grid Connection operation, and the residual effects of noise from the operation phase are assessed to be **'Not Significant'**, **'Permanent'** and **'Reversible'**.
- 7.6.8 As decommissioning works are not planned for Electricity Grid Connection, there will be no residual noise effects to consider.

#### Gas Connection Corridor

- 7.6.9 During the construction phase, it is expected that noise levels in the surrounding environment to the works will increase temporarily and this may be noticeable in outdoor areas at some properties but will generally be controlled to within the relevant guideline threshold values (refer to EIAR Volume I Chapter 11). In any instances where the proximity of planned construction activity may cause an exceedance of the threshold values, the good practice mitigation measures described in EIAR Volume I Chapter 11 will be used to keep construction noise levels to a minimum. Taking this into consideration, the residual noise effects from the construction phase of the Gas Corridor Connection are determined to be **'Not Significant'** and **'Short-Term'**.
- 7.6.10 The Gas Connection Corridor will not produce noise emission under normal operational conditions, and it is therefore considered that there are no residual noise effects. The operational noise effects will be **'Imperceptible'**.
- 7.6.11 As decommissioning works are not planned for the Gas Connection Corridor, there will be no residual noise effects to consider.

#### Proposed Development and Overall Project

- 7.6.12 The residual noise effects from construction traffic associated with the construction phase of the Proposed Development and Overall Project are determined to be **'Imperceptible'** and **'Short-Term'** on the basis that changes in road traffic sound level are limited to **'Minor'** **'Adverse'**.

## 7.7 Water Environment

### Power Plant Area

7.7.1 During the construction phase, the following impacts on the Water Environment have the potential to occur:

- **'Small adverse', 'Direct', and 'Temporary'** impacts on water quality due to uncontrolled site runoff, resulting in **'Slight'** to **'Moderate'** effects. Receptors affected include the Mongagh River and the Knockdrin Garr Cutover (including Drumman Bog) and Bunsallagh Cutover complexes (including Derryarkin Bog).
- **'Small adverse', 'Direct', and 'Temporary'** impacts on surface and groundwater water quality due to accidental spillage of oils, fuels, or other construction chemicals/wastewater, resulting in **'Slight'** to **'Moderate'** effects. Receptors affected include the Mongagh River, the Knockdrin Garr Cutover and Bunsallagh Cutover complexes, one onsite and one offsite well, and the Athboy groundwater body.
- **'Negligible' to 'Small adverse', 'Direct', and 'Temporary'** impacts on surface and groundwater water flows, levels, and resource availability (to onsite and offsite groundwater abstractions and Groundwater dependent terrestrial ecosystems (GWDTEs)), due to dewatering of excavations, altered drainage regimes and discharging of abstracted water. These would result in **'Imperceptible'** to **'Slight'** effects. Receptors affected include the Knockdrin Garr Cutover and Bunsallagh Cutover complexes, and the Athboy groundwater body.
- **'Small adverse', 'Direct', and 'Temporary'** impacts on the geomorphology of watercourses, due to construction activities, resulting in **'Slight'** to **'Moderate'** effects on the Mongagh River.
- **'Negligible', 'Direct', and 'Temporary'** impacts to flood risk status and site drainage by uncontrolled site runoff or by construction within areas at risk of flooding, resulting in **'Imperceptible'** effects on the Mongagh River.

7.7.0 During the operational phase, the following Water Environment impacts have the potential to occur.

- **'Negligible', 'Direct', and 'Long-Term'** impacts on surface water quality in receiving waterbodies as a result of proposed discharges, resulting in **'Imperceptible'** effects on the Mongagh and Yellow rivers.
- **'Small adverse', 'Direct', and 'Long-Term'** impacts on surface and groundwater water quality due to accidental spillages, resulting in **'Slight'** to **'Moderate'** effects on the Mongagh and Yellow rivers, and the Athboy groundwater body.
- **'Small adverse', 'Direct', and 'Temporary'** impacts on the geomorphology of watercourses due to any new drainage outfalls or other structures that may be installed or removed, resulting in **'Slight'** to **'Moderate'** effects on the Mongagh and Yellow rivers.
- **'Negligible' to 'Small adverse', 'Direct', and 'Long-Term'** impacts on groundwater levels and resource availability due to increased groundwater abstraction, resulting in **'Imperceptible'** to **'Slight'** effects. Receptors affected include the Knockdrin Garr Cutover and Bunsallagh Cutover complexes, and the Athboy groundwater body.
- **'Negligible', 'Direct', and 'Long-Term'** impacts to flood risk status by increased volume and rate of surface water runoff from new impervious areas, resulting in **'Imperceptible'** effects on the Mongagh River.

7.7.1 Effects arising from the process of decommissioning of the Power Plant Area are considered to be of a similar nature and duration to those arising from the construction phase.

7.7.2 With the implementation of mitigation measures outlined in EIAR Volume I Chapter 12: Water Environment (including implementation of the CEMP), residual impacts for the Power Plant Area are considered to be **'Imperceptible'** and therefore **'Not Significant'**.

#### Electricity Grid Connection

7.7.3 During the construction phase, the following impacts on the Water Environment have the potential to occur:

- **'Small adverse', 'Direct', and 'Temporary'** impacts on water quality due to uncontrolled site runoff, resulting in **'Slight'** to **'Moderate'** effects. Receptors affected include the Yellow River, the Coolcor Stream, the Grand Canal WFD waterbody, the Bunsallagh Cutover and Ballybeg Cutover complexes, two wells and a borehole, and the Toberdaly Public Water Supply (PWS).
- **'Small adverse', 'Direct', and 'Temporary'** impacts on surface and groundwater water quality due to accidental spillages, resulting in **'Slight'** to **'Moderate'** effects. Receptors affected are the same as above.
- **'Negligible'** to **'Small adverse', 'Direct', and 'Temporary'** impacts on water levels and flows due to dewatering activities, resulting in **'Imperceptible'** to **'Slight'** effects to the Athboy and Daingean groundwater bodies, and the Bunsallagh Cutover and Ballybeg Cutover complexes.
- **'Negligible', 'Direct', and 'Temporary'** impacts to flood risk status and site drainage, resulting in **'Imperceptible'** effects on the Mongagh River and Coolcor Stream.

7.7.4 With the implementation of mitigation measures outlined in EIAR Volume I Chapter 12: Water Environment (including implementation of the CEMP), residual impacts for the Electricity Grid Connection are considered to be **'Imperceptible'** and therefore **'Not Significant'**.

#### Gas Connection Corridor

7.7.5 During the construction phase, the following impacts on the Water Environment have the potential to occur:

- **'Small adverse', 'Direct', and 'Temporary'** impacts on water quality due to uncontrolled site runoff, resulting in **'Imperceptible'** to **'Significant'** effects. Receptors affected include the Yellow River, the Rochfortbridge Stream and River Brosna, Lough Enell SAC and SPA, and two wells.
- **'Small adverse', 'Direct', and 'Temporary'** impacts on surface and groundwater water quality due to accidental spillages, resulting in **'Slight'** to **'Significant'** effects. Receptors affected include the Yellow River, the Rochfortbridge Stream and River Brosna, Lough Enell SAC and SPA, one onsite and one offsite well, and the Athboy and Clara WFD groundwater bodies.
- **'Negligible', 'Direct', and 'Temporary'** impacts on water levels and flows due to dewatering activities, resulting in **'Imperceptible'** effects to the Athboy and Clara WFD groundwater bodies, and the Lough Enell SAC and SPA.
- **'Small adverse', 'Direct', and 'Temporary'** impacts on the geomorphology of watercourses, due to construction activities, resulting in **'Slight'** to **'Moderate'** effects on the Yellow River and Rochfortbridge Stream.

- **‘Negligible’**, **‘Direct’**, and **‘Temporary’** impacts to flood risk status and site drainage, resulting in **‘Imperceptible’** effects on the Yellow River and the Rochfortbridge Stream and River Brosna.

7.7.6 With the implementation of mitigation measures outlined in EIAR Volume I Chapter 12: Water Environment (including implementation of the CEMP), residual impacts for the Gas Connection Corridor are considered to be **‘Imperceptible’** and therefore **‘Not Significant’**.

## 7.8 Land, Soils and Geology

### Power Plant Area

- 7.8.1 During the construction phase, no impact to or removal of agricultural land is proposed or to soil resources is envisaged and all works are on unvegetated Made Ground; therefore, there will be **‘Negligible’** impacts in relation to Land and Soils to agricultural lands which will be of **‘Imperceptible’** significance. Mobilisation of existing ground contamination or introduction of new contamination due to construction activities may give rise to a **‘Small Adverse’** impact on site soils of **‘Slight’** significance.
- 7.8.2 There are no designated sites on or within 2km of the Power Plant Area. The construction activities are anticipated to give rise to **‘Negligible’** impacts to soil of **‘Imperceptible’** significance.
- 7.8.3 There is a possibility for exposed or disturbed soil contamination from the Site to runoff into local surface waterbodies (e.g., the Mongagh River and the Yellow River) and their tributaries, or that contaminants could be introduced to the subsurface as a result of spillages and potentially migrate towards and into surface water receptors via groundwater pathways. With the implementation of mitigation measures as described in EIAR Volume I Chapters 12 and Chapter 13 as well as those outlined within the CEMP, and taking into consideration that these surface watercourses are not classified as river drinking water protected areas and there are no known surface water abstractions from them within 5km of the site, nor are direct works to these surface watercourses required, residual effects from the construction phase of the Power Plant Area are considered to be of **‘Imperceptible’** significance for all of the waterbodies.
- 7.8.4 Similarly, in terms of groundwater impacts, the magnitude of potential impact to groundwater quality through the mobilisation of existing contaminants in soil and the migration of introduced contaminants in soil is likely to be **‘Negligible’** on a high sensitivity receptor (i.e., Karstified Limestone Bedrock Aquifer) and of **‘Imperceptible’** significance.
- 7.8.5 For impacts on human health, with the implementation of mitigation measures, the magnitude of impact magnitude on construction workers (high importance), off-site residential receptors (very high importance), and off-site urban/ industrial land users (medium importance) is likely to be **‘Negligible’**. This would be impact of **‘Imperceptible’** significance.
- 7.8.6 During the operational phase, the Power Plant Area will not result in a loss of agricultural land or change in land use classification. However, there is a likelihood that contaminants could be introduced to the subsurface and soil resources as a result of operational phase leakages from fuel and chemical storage areas of the Power Plant Area. This would result in a **‘Small Adverse’** impact, resulting in a **‘Small Adverse’** effect on Urban grade land. These effects are considered to be **‘Imperceptible’**.
- 7.8.7 There are no predicted direct or indirect impacts anticipated on off-site human health or Designated Sites during the operational phase of the Power Plant Area.

- 7.8.8 During the decommissioning phase, predicted impacts on soils and geological receptors likely to occur during the decommissioning phase would be similar to those likely to occur during the construction phase (with the exception of the impacts relating to unidentified contamination). The impact magnitude of temporary damage to soil structure and introduction of new contamination as a result of spillages is anticipated to be **'Small Adverse'**, resulting in a **'Small Adverse'** effect on Urban grade land. These effects are considered to be **'Imperceptible'**.
- 7.8.9 There are no predicted direct or indirect impacts to Designated Sites anticipated during the decommissioning phase of the Power Plant Area.
- 7.8.10 Given the restricted nature of the decommissioning works in comparison to construction, as well as the implementation of best practice, the impact magnitude of introduced contaminants in the subsurface migrating into surface water receptors would be **'Negligible'**. These effects are considered to be **'Imperceptible'**. Similarly, impacts to groundwater receptors and human health are also anticipated to be **'Negligible'** and of **'Imperceptible'** significance.

#### Electricity Grid Connection

- 7.8.11 The replacement of natural peat, subsoils and rock with gravels and concrete for the construction of the power transmission infrastructure (permanent) will result in a local change in ground conditions within small areas. Overall, this effect is **'Permanent'**, **'Small Adverse'**, and of **'Slight'** significance.
- 7.8.12 The trial pits showed that there are likely minor, localised peat stability issues that will need to be managed during the construction of the Electricity Grid Connection. Following mitigation procedures, the residual impact in relation to peat stability will be a **'Small Adverse'** impact of **'Short-Term'** on a medium sensitivity cut-over peatland receptor and is therefore of **'Slight'** significance.
- 7.8.13 All other potential effects on the soil and geological environment associated with the construction phase will be mitigated through measures outlined in EIAR Volume I Chapter 13 so that, overall, the residual impacts from these other aspects will be **'Negligible'** to **'Small Adverse'** impacts of **'Short-Term'** duration on medium sensitivity receptors and therefore of **'Imperceptible'** to **'Slight'** significance. In addition, construction phase impacts to Designated Sites, surface waters, groundwater, and human health are anticipated to be **'Negligible'**, resulting in **'Imperceptible'** effects.
- 7.8.14 During the operational phase, all land and soils impacts of the Electricity Grid Connection are anticipated to be **'Negligible'**, resulting in **'Imperceptible'** effects.
- 7.8.15 Decommissioning of the Electricity Grid Connection is not envisaged and has not been assessed under this EIAR as it will be managed by the operator EirGrid once it is operational.

#### Gas Connection Corridor

- 7.8.16 During the construction and operational phases, all land and soils impacts of the Gas Connection Corridor are anticipated to be **'Negligible'**, resulting in **'Imperceptible'** effects.
- 7.8.17 Decommissioning of the Gas Connection Corridor is not envisaged and has not been assessed under this EIAR as it will be managed by GNI.

## 7.9 Traffic

### Power Plant Area

- 7.9.1 During the construction phase, there will be a new access to the Power Plant Area located east off the R400 regional road. Vehicles may also still travel through the existing access for Derrygreenagh Works, although this access will be closed off at a point throughout construction. For a worst-case assessment, all traffic associated with the Proposed Development will be considered to travel through the new access. All heavy goods vehicles (HGVs) associated with the Power Plant Area site will be required within the CTMP to travel to the site along R400 from the direction of the M6 motorway. Construction staff parking will be accommodated within the Proposed Development site. The short-term increase in traffic during the construction phase is shown to only have a **'Slight'** impact. Taking this into consideration as well as the implementation of a CTMP (refer to EIAR Volume II Appendix 14H), the residual effect is considered **'Not Significant'**.
- 7.9.2 During the operational phase, vehicle movements will be associated with staff travel. There will be up to 60 additional staff employed at the site working across 3 no. 8-hour shifts with a similar workforce for each shift. Due to the variation in working hours, it is expected that the trips associated with staff will be spread throughout the day and will not all arrive and depart in the same hours. In addition, there will be HGV arrivals associated with secondary fuel delivery and additional staff arriving at the site for inspection and maintenance of both the CCGT and OCGT plants. Due to the low traffic generation, no residual effect on traffic is expected to occur.
- 7.9.3 Effects arising from the process of decommissioning of the Power Plant Area are considered to be of a similar nature and duration to those arising from the construction process and therefore have not been considered separately.

### Electricity Grid Connection

- 7.9.4 During construction, access to the site will be off the R400, to the south of the existing access for Derrygreenagh Works, for the 220kV station; off L1010 Togher Road for the 400kV station; and a number of different locations for the grid route, including the 22kV access and the local Quarry access off R400. The number of trips generated for these elements of the Electricity Grid Connection vary and are detailed in EIAR Volume I Chapter 11: Traffic and Transport. However, all predicted impacts will be **'Neutral'**, **'Slight'**, and **'Short-Term'**. Taking this into consideration as well as the implementation of the CTMP (refer to EIAR Volume II Appendix 14H), residual effects will be **'Not Significant'**.
- 7.9.5 It is not proposed that the Electricity Grid Connection or substations will be manned although periodic inspections and maintenance activities will be undertaken by 1 – 2 staff intermittently. Due to the low traffic generation, no residual effects are expected.
- 7.9.6 Decommissioning of the Electricity Grid Connection is not envisaged and has not been assessed under this EIAR as it will be managed by the operator EirGrid once it is operational.

### Gas Connection Corridor

- 7.9.7 The final access points for the construction of the Gas Connection Corridor have not been confirmed. The lack of clarity on number and location of junctions required, which will be subject to detailed design, has prevented a detailed assessment of the Gas Connection Corridor. However, it is expected that, based on the current proposed route, a proportion of trips (currently estimated at 35%) will travel through the proposed Power Plant Area access (where the AGI is located). The remaining 65% of trips have been

assessed travelling through additional access points located beyond Rochfortbridge off Castlelost Road.

- 7.9.8 Levels of employment will vary throughout the construction period; the maximum staff period is expected to result in 44 light goods vehicles (LGVs) arrivals each day, and peak HGV traffic is expected to generate a maximum of 50 two-way HGV trips each day. To provide a robust assessment, it has been assumed that the peak HGV generation and peak LGV generation periods will overlap. However, it is to be noted that the LGVs and HGVs will not arrive at the same times during the day. Predicted impacts will be **'Neutral'**, **'Slight'**, and **'Short-Term'**, resulting in **'Not Significant'** residual effects.
- 7.9.9 During the operational phase, the access to the AGI at the high-pressure line, north of Rochfortbridge will be off a public road and be suitable designed for maintenance access. Once the gas pipeline is operational it is expected that a transit van will access the AGI site approximately once a month. Due to the low traffic generation, no residual effects are expected.
- 7.9.10 Decommissioning of the Gas Connection Corridor is not envisaged and has not been assessed under this EIAR as it will be managed by GNI.

## 7.10 Population and Human Health

- 7.10.1 The assessment of effects on Population and Human Health by the elements of the Proposed Development and Overall Project have taken into consideration:
- Population:
    - Employment / Socio-Economic
    - Severance
    - Tourism
  - Human Health:
    - Access to Health and Social Care Services and Other Social Infrastructure
    - Access to Open Space and Nature
    - Air Quality, Noise and Neighbourhood Amenity
    - Climate Change.
- 7.10.2 A CEMP and CTMP have been prepared for the Power Plant Area and Electricity Grid Connection as part of the planning application (refer to EIAR Volume II Appendix 5A and 14F). All construction works will proceed in line with the recommendations and guidance provided in the CEMP.
- 7.10.3 Mitigation for other environmental topics which relate to Population and Human Health are discussed in the relevant chapters of the EIAR Volume I.

### Power Plant Area

- 7.10.4 During the construction phase, the Power Plant Area is not anticipated to have a significant effect on the local or regional population; therefore, no mitigation measures are required. From an economic/socio-economic perspective, the Power Plant Area will provide employment opportunities to the local community and wider region during construction. The construction phase of the Power Plant Area is also likely to increase spend in local businesses as persons involved in the project stay locally or purchase goods. Overall, there will be a **'Positive'** impact on the local economy and no mitigation measures are required.

- 7.10.5 During the operational phase, the Power Plant Area will comply with the requirements of the European Union (Large Combustion Plants) Regulations 2012 S.I. No. 566 of 2012 under its Industrial Emission (IE) Licence (to be applied for) so that any impacts of emissions to air, soil, surface and groundwater, and effects on the environment and human health, will be minimised and avoided where possible.
- 7.10.6 A site-specific Health and Safety Plan covering the commissioning and operation of the Power Plant Area will be prepared and address health and safety issues from the design stage.
- 7.10.7 In addition to the above, the Applicant is committed to Community Benefit Proposals such as the Community Gain Scheme which will be a positive benefit to local communities.
- 7.10.8 Effects arising from the decommissioning phases of the Power Plant Area are considered to be of a similar nature and duration to those arising from the construction phase and have therefore not been considered separately. At the end of the operating life of the Power Plant Area, a Decommissioning Plan (including a DEMP) will be produced and agreed with EPA as part of the permit surrender process ahead of any permit surrender.
- 7.10.9 Adherence to the mitigation measures outlined in EIAR Volume I will ensure that there will be no negative residual impacts or effects on Population and Human Health during the construction, operational, or decommissioning phases of the Power Plant Area.

#### Electricity Grid Connection

- 7.10.10 Similarly, to the Power Plant Area, during the construction phase, the Electricity Grid Connection is not anticipated to have a significant effect on the local or regional population, and, overall, will result in a '**Positive**' impact on the local economy. No additional mitigation measures are required.
- 7.10.11 During the operational phase, the Electricity Grid Connection will be managed by the respective TAO and TSO (ESBNI and EirGrid for electricity) as part of the national grid electricity.
- 7.10.12 Adherence to the mitigation measures outlined in EIAR Volume I will ensure that there will be no negative residual impacts or effects on Population and Human Health during the construction and operational phases of the Electricity Grid Connection.
- 7.10.13 Additionally, decommissioning of the Electricity Grid Connection is not envisaged as it will be managed by EirGrid once it is operational and will become an important part of the Ireland's national grid infrastructure. Therefore, no mitigation measures are proposed.

#### Gas Connection Corridor

- 7.10.14 No significant effects on population and human health were identified for the construction phase of the Gas Connection Corridor.
- 7.10.15 A CEMP and CTMP will be prepared for the Gas Connection Corridor by the appointed Contractor. Adherence to the typical mitigation measures outlined in EIAR Volume I will ensure that there will be no negative residual impacts or effects on Population and Human Health, during the construction or operational phases of the Gas Connection Corridor. Detailed mitigation measures will not be known until the full impact assessment is completed and design details have been determined by GNI; these measures will therefore be determined by GNI at a later date as part of separate consenting process.
- 7.10.16 Decommissioning of the Gas Connection Corridor is not envisaged as it will be managed by GNI once it is operational.

## 7.11 Material Assets

7.11.1 The assessment of effects on Material Assets by the elements of the Proposed Development and Overall Project have taken into consideration:

- Demolition of the existing Derrygreenagh Works (for the construction phase of the Power Plant Area only);
- Land use and built services:
  - Vegetation clearance and land use changes;
  - Electricity requirements;
  - Gas supply requirements;
  - Wastewater services (foul, process, and surface water) requirements;
  - Water supply requirements; and
  - Impacts to telecommunications services.
- Waste management (including demolition works for the construction phase of the Power Plant Area only).

### Power Plant Area

7.11.2 No significant impacts on land use and built services range or waste management were identified for the construction phase, with **'Moderate'** being the highest magnitude of impact identified. Demolition and construction phase mitigation measures include avoidance, reduction, and remedy measures to reduce or eliminate any significant adverse impacts identified. A CEMP has been prepared (refer to EIAR Volume II Appendix 5A) and will be finalised by the contractor prior to the commencement of the works. No mitigation or monitoring measures have been proposed for land use. Following the implementation of mitigation measures, residual effects on land use and utilities are expected to be **'Unlikely'**, **'Brief'**, **'Slight'**, and **'Negative'**, while effects of waste and resource management will be **'Imperceptible'**, **'Short-term'**, and **'Negative'**.

7.11.3 Without mitigation measures, during the operational phase, **'Negative'** and **'Significant'** impacts on land use, telecommunications, and the local and regional environment (associated with improper, or a lack of, waste management) have been identified. **'Positive'** and **'Significant'** impacts were identified for the electricity and gas supply. The implementation of mitigation measures outlined in EIAR Volume I Chapter 16: Material Assets will ensure that mobile and wireless communications links to the north of the Power Plant are restored. Following the implementation of the mitigation, there will be an **'Imperceptible'**, **'Short-term'**, and **'Negative'** residual effect on telecoms; all other material assets will have an **'Imperceptible'**, **'Long-term'**, and **'Positive'** residual effect. Similarly, there will be an **'Imperceptible'**, **'Long-term'**, and **'Neutral'** residual effect on waste services during the operational phase.

7.11.4 At the end of its operating life, all above-ground equipment associated with the Power Plant Area will be decommissioned and removed from the Site. Site environmental liability risk assessment (ELRA) will be prepared for IE licence application for the Power Plant Area and reviewed in accordance with requirements as regards control of risk in the operational phase that may subsequently impact closure. Closure will typically include a requirement for any removal of soils, buildings, plant and equipment, and remedial actions would be undertaken under a Decommissioning Management Plan, part of a Closure, Restoration and Management Plan (CRAMP). Residual effects to land use during the decommissioning phase will be **'Imperceptible'** and there are no anticipated residual effects to utilities and services in the area.

### Electricity Grid Connection

- 7.11.5 Without mitigation measures, there will have a **'Negative'**, **'Significant'**, and **'Short-term'** impact on land use and the electricity supply during the construction phase of the Electricity Grid Connection. However, after implementing the measures outlined in EIAR Volume I Chapter 16, residual effects on land use, utilities, and on waste services will be **'Not Significant'**, **'Negative'**, and **'Short-Term'**.
- 7.11.6 During the operational phase, a **'Negative'** and **'Significant'** impact on land use, and a **'Positive'** and **'Significant'** impact on the electricity supply were identified. Following implementation of the mitigation measures, residual effects on land use and utilities will be **'Not Significant'**, **'Negative'**, and **'Short-Term'**, and **'Negligible'** on waste services.
- 7.11.7 Decommissioning of the Electricity Grid Connection is not envisaged and has not been assessed under this EIAR as it will be managed by EirGrid once it is operational.

### Gas Connection Corridor

- 7.11.8 Without mitigation measures, there will have a **'Negative'**, **'Significant'**, and **'Temporary'** impact on the gas supply during the construction phase of the Gas Connection Corridor. Following implementation of the mitigation measures, residual effects on land use and utilities will be **'Not Significant'**, **'Negative'**, and **'Short-Term'**, and **'Negligible'** on waste services.
- 7.11.9 During the operational phase, there will be a **'Positive'**, **'Significant'**, and **'Long-Term'** impact on the gas supply. No other **'Significant'** impacts have been identified, and residual effects on land use and utilities will be **'Not Significant'**, **'Negative'**, and **'Short-Term'**, and **'Negligible'** on waste services.
- 7.11.10 Decommissioning of the Gas Connection Corridor is not envisaged and has not been assessed under this EIAR as it will be managed by GNI.

## **7.12 Major Accidents and Disasters**

- 7.12.1 The assessment of MA&D associated with the elements and activities of the Proposed Development and Overall Project has taken into consideration:
- Hazardous substances, including flammable substances, materials harmful to the environment and materials harmful to human health, as well as their quantities and storage arrangements;
  - Electrical hazards;
  - General construction activities, e.g., ground preparation, excavation, construction of buildings and process structures;
  - Natural hazards such as major storms, strong seismic events, and climate change;
  - Identification of Potential Risk Events (PRE);
  - Assessment of Credible Risk Events (CRE).
- 7.12.2 The CRE identified relate to flood events, peat fires, and accidental releases or leaks of hazardous substances which could result in a fire or explosion (e.g., natural gas or liquefied petroleum gas/propane). However, taking into account mitigation measures already in place (i.e., embedded within the design), best practice operating procedures, and emergency response policies (such as the implementation of a Site Emergency Response Plan (ERP)), no likely significant effects were identified, and no additional mitigation measures are proposed. The effects of MA&D are therefore **'Not Significant'**.

## 7.13 Climate

### Climate Change Risk Assessment

- 7.13.1 The Climate Change Risk (CCR) assessment identified: nine risks for the Power Plant Area, four related to construction and five related to operation; eight risks for the Electricity Grid Connection, four related to construction and four related to operation; and six risks for the Gas Connection Corridor, four related to construction and two related to operation. After considering embedded mitigation measures, all CCRs are classified as '**Low**' for all components of the Proposed Development and Overall Project, and their effects are therefore deemed '**Not Significant**'.

### Greenhouse Gas Assessment

#### *Power Plant Area*

- 7.13.2 The Greenhouse Gases (GHGs) emissions associated with the construction of the Power Plant Area are estimated to be 42,180 metric tonnes in carbon dioxide equivalent (tCO<sub>2</sub>e). These effects are mitigated by good practice measures and deemed '**Minor Adverse**' and, therefore, '**Not Significant**'.
- 7.13.3 During the operational phase, GHGs emissions associated with the Power Plant Area are partially mitigated by embedded mitigation measures. Taking this into account, under normal operating conditions, GHGs emissions are estimated to be 34,846,324tCO<sub>2</sub>e over its (at least) 25-year life or 1,393,853tCO<sub>2</sub>e annually. In the emergency case where the plant switches to distillate as its main fuel source, maximum emissions can be even higher, with annual emissions equating to 3,888,823tCO<sub>2</sub>e. The plant will continue to operate beyond 2050 and therefore falls short of fully contributing to Ireland's net zero trajectory. When viewed in isolation, GHG effects of the Power Plant area can be classified as '**Moderate Adverse**' and therefore '**Significant**'.
- 7.13.4 The Power Plant Area will provide a significant contribution to the electricity supply system at times of peak demand, which would contribute to providing a secure energy supply to the national grid. A key component of Ireland's decarbonisation strategy is to target 80% renewable electricity generation by 2030, with no generation from peat and coal. Solar and wind power energy generation is variable, depending on local weather conditions; thus, to allow this uptake of renewable energy to happen, it is necessary to have in place sources of energy generation that can be efficiently dispatched to cover any imbalances in supply and demand. As the use of coal and peat for electricity generation is reduced, natural gas has been identified as a relatively lower-carbon option to provide security of supply. It is reasonable, therefore, to view the Power Plant Area not as an isolated, standalone piece of generating capacity but as an element within an interconnected system that will be part of a wider move to replace existing, unabated high-carbon electricity generation installations.
- 7.13.5 In addition, the Power Plant has been designed with the capability to run on hydrogen blend fuels, should this become a feasible fuel option in future. This makes the Power Plant adaptable to a low-carbon fuel source in line with Ireland's net-zero trajectory. Any future use of hydrogen at a later date will be subject to a detailed assessment and separate planning application.
- 7.13.6 Therefore, when viewed in a broader context, the GHG effects of the Power Plant Area during the operational phase can be said to be '**Minor Adverse**' and therefore '**Not Significant**', as it does comply with existing and emerging policy requirements and is fully in line with Ireland's trajectory towards net zero.
- 7.13.7 Decommissioning activities for the Power Plant will emit GHGs, but these emissions are expected to be significantly less than those calculated for the construction phase given

the shorter duration of the works. Therefore, GHGs effects of the decommissioning phase are deemed '**Minor Adverse**' and therefore '**Not Significant**'.

#### *Electricity Grid Connection*

- 7.13.8 The GHGs emissions associated with the construction of the Electricity Grid Connection are estimated to be 13,306tCO<sub>2</sub>e. Once operational, the Electricity Grid Connection will be limited to intermittent maintenance and monitoring activities and therefore will not result in material operational emissions. As a result, operational emissions from the Electricity Grid Connection are deemed immaterial for the purposes of this assessment. Therefore, the GHG effects associated with the Electricity Grid Connection are deemed '**Minor Adverse**' and therefore '**Not Significant**'.

#### *Gas Connection Corridor*

- 7.13.9 The GHGs emissions associated with the construction of the Gas Connection Corridor are estimated to be 3,453tCO<sub>2</sub>e. Similarly to the Electricity Grid Connection, operational emissions from the Gas Connection Corridor are deemed immaterial for the purposes of this assessment. Therefore, the GHG effects associated with the Gas Connection Corridor are deemed '**Minor Adverse**' and therefore '**Not Significant**'.

### **7.14 Cumulative Effects and Interactions**

- 7.14.1 Cumulative Effects and Interactions evaluates the potential interaction of effects described within the EIAR, which the Proposed Development and Overall Project may have on the receiving environment and sensitive receptors.

- 7.14.2 The interaction of effects within the Proposed Development and Overall Project in respect of each of the environmental factors, listed in the EIA Directive, have been identified and addressed in detail in the respective chapters in this EIAR.

- 7.14.3 Interactions (or inter-relationship) of effects identified from the Proposed Development are identified between the following environmental aspects:

- Population and Human Health
- Biodiversity
- Land and Soils
- Water
- Air Quality
- Climate
- Noise and Vibration
- Material Assets
- Cultural Heritage
- Landscape and Visual
- Traffic and Transport
- Waste Management
- Major Accidents and Disasters.

- 7.14.4 All potential effects arising from the interactions were identified early in the design process and in preparation of the EIAR and were therefore addressed in the design of the Proposed Development and Overall Project, in addition to the impact assessment studies. As a result, any potential effects were either avoided through design measures

or have been addressed through specific mitigation and monitoring measures within respective chapters within this EIAR.

7.14.5 No additional mitigation or monitoring measures are proposed in this section.

### **7.15 Schedule of Environmental Commitments**

7.15.1 This Chapter of the EIAR provides a summary of the Schedule of Environmental Commitments (mitigation measures) for the Proposed Development and Overall Project.

7.15.2 As described throughout each of the EIAR technical chapters (**Chapters 7 to 18**), there are instances where the environmental effects associated with the Proposed Development and Overall Project may be of such a magnitude as to warrant mitigation measures. These measures are deemed necessary to minimise environmental impacts during the construction, operation and / or maintenance phases of the Proposed Development and Overall Project.

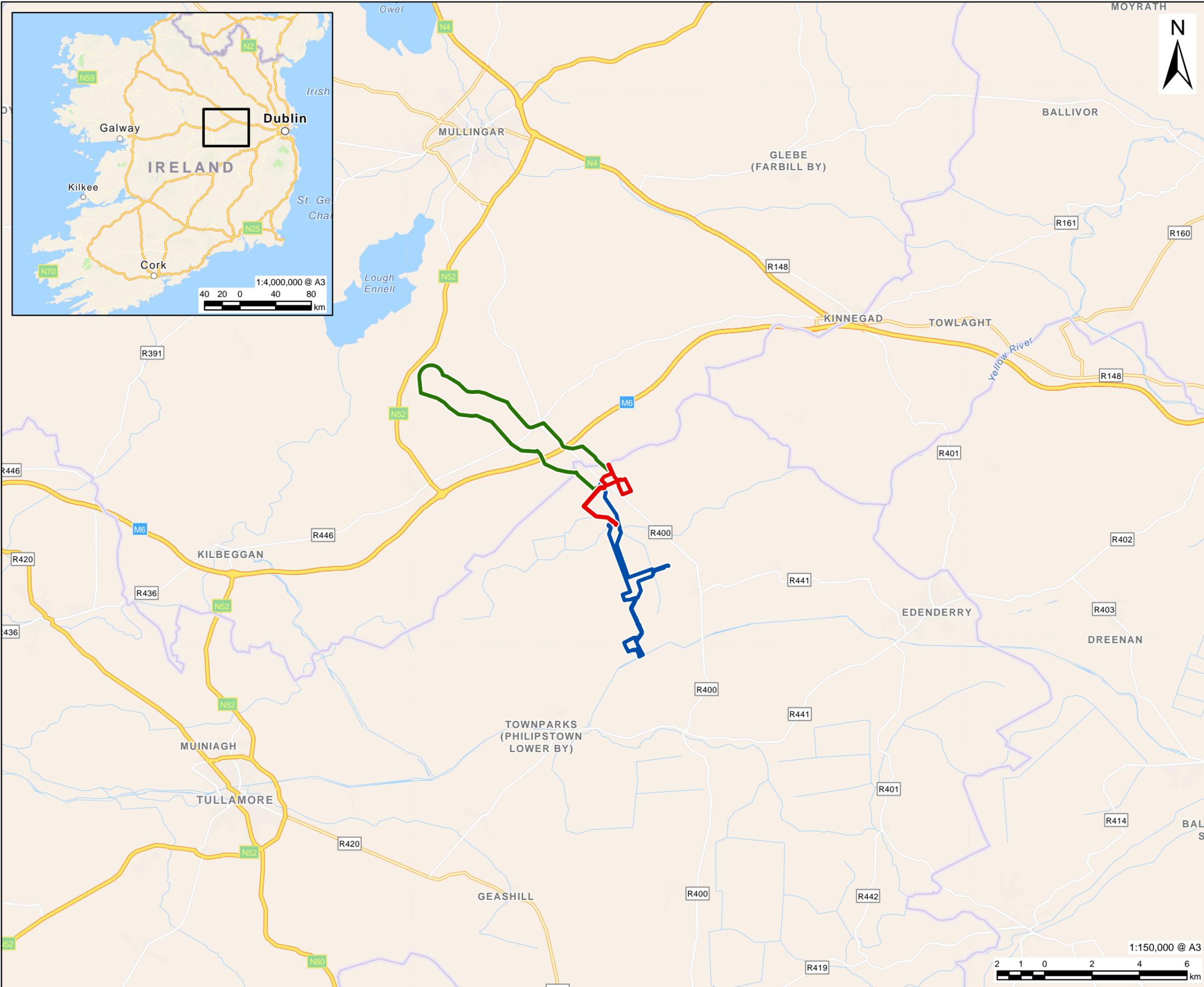
7.15.3 Embedded mitigation measures have been incorporated into the design of the Proposed Development throughout the design process. The environmental impact assessment of the Proposed Development facilitated the identification of additional mitigation and monitoring measures. The mitigation measures identified within **Chapters 7 to 18** of this EIAR are summarised and presented in **Tables 20.1 to 20.3** of EIAR Volume I Chapter 20. The embedded environmental controls and all mitigation measures detailed therein are also included in the CEMP (refer to **Appendix 5A, Volume II**).

## 8.0 SUMMARY AND CONCLUSIONS

- 8.1.1 The EIAR explains the findings of the EIA process that has been undertaken for the Proposed Development and Overall Project. A number of environmental impact avoidance, design, and mitigation measures have been identified to mitigate and control environmental effects during construction and operation of the Proposed Development and Overall Project.
- 8.1.2 The embedded environmental controls and all mitigation and monitoring measures detailed herein are included in the Construction Environmental Management Plan can be found in **Appendix 5A**, Volume II of the EIAR.
- 8.1.3 There are no significant residual effects predicted for the Proposed Development and Overall Project.

## 9.0 FIGURES

*[Note: Figure Numbers for NTS are identical to numbering for Environmental Impact Assessment Report Figures to assist with cross referencing].*



**PROJECT**  
Proposed Derrygreenagh Power Project

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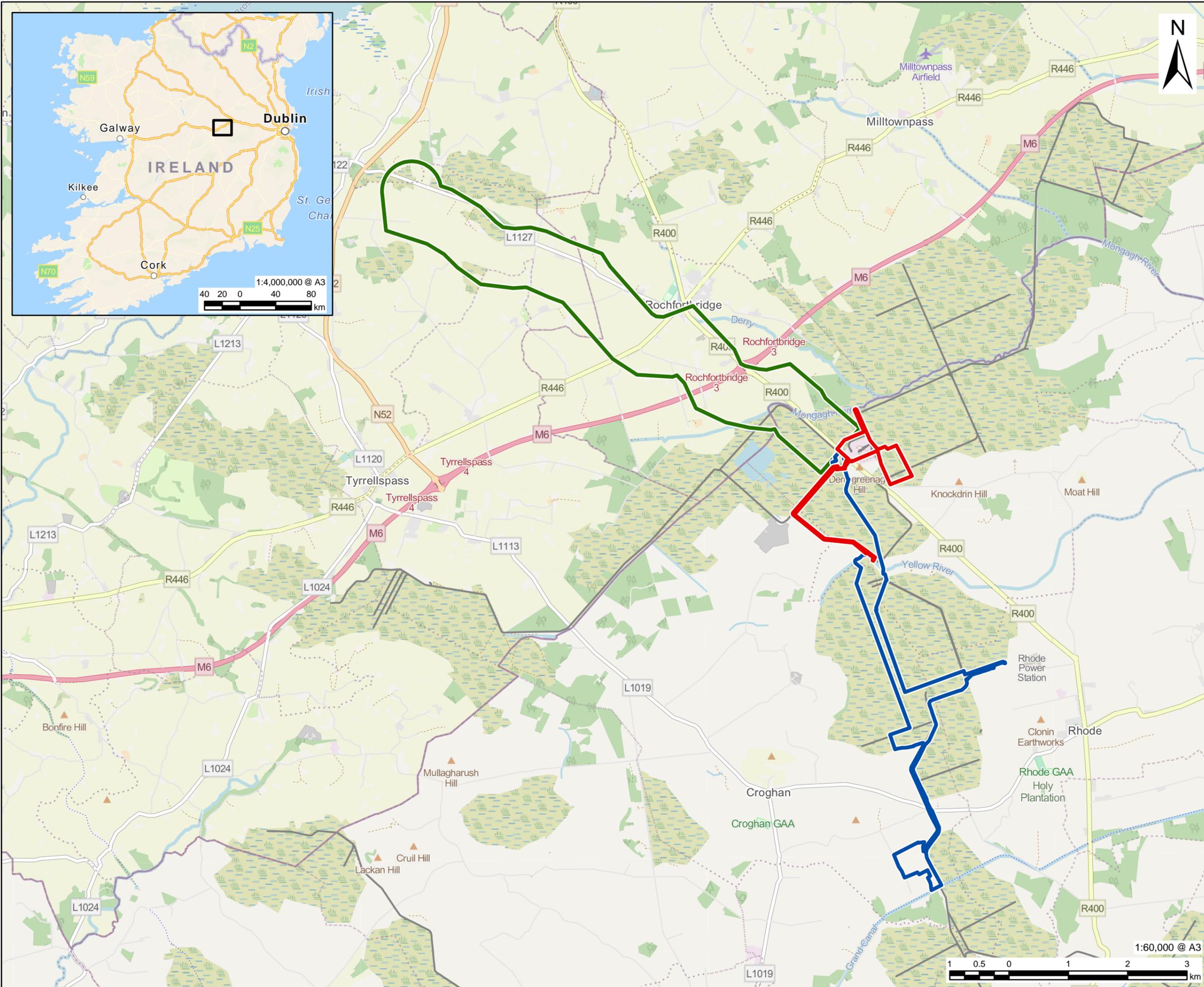
- LEGEND**
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  - ▭ Electricity Grid Connection Boundary
  - ▭ Gas Connection Corridor Boundary

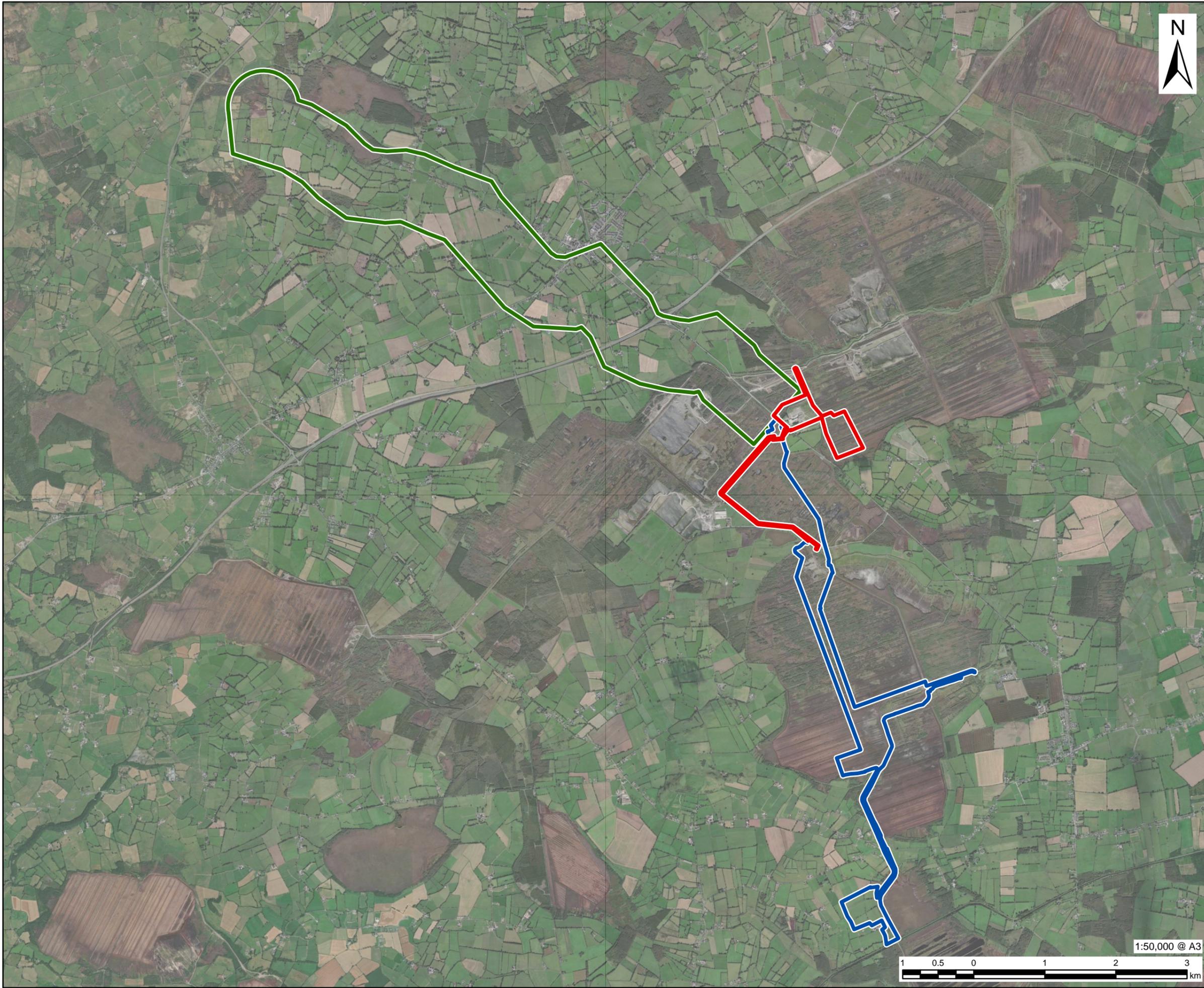
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FOR ISSUE  
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Site Location

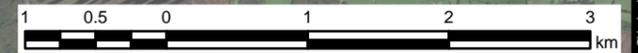
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Figure 1.1

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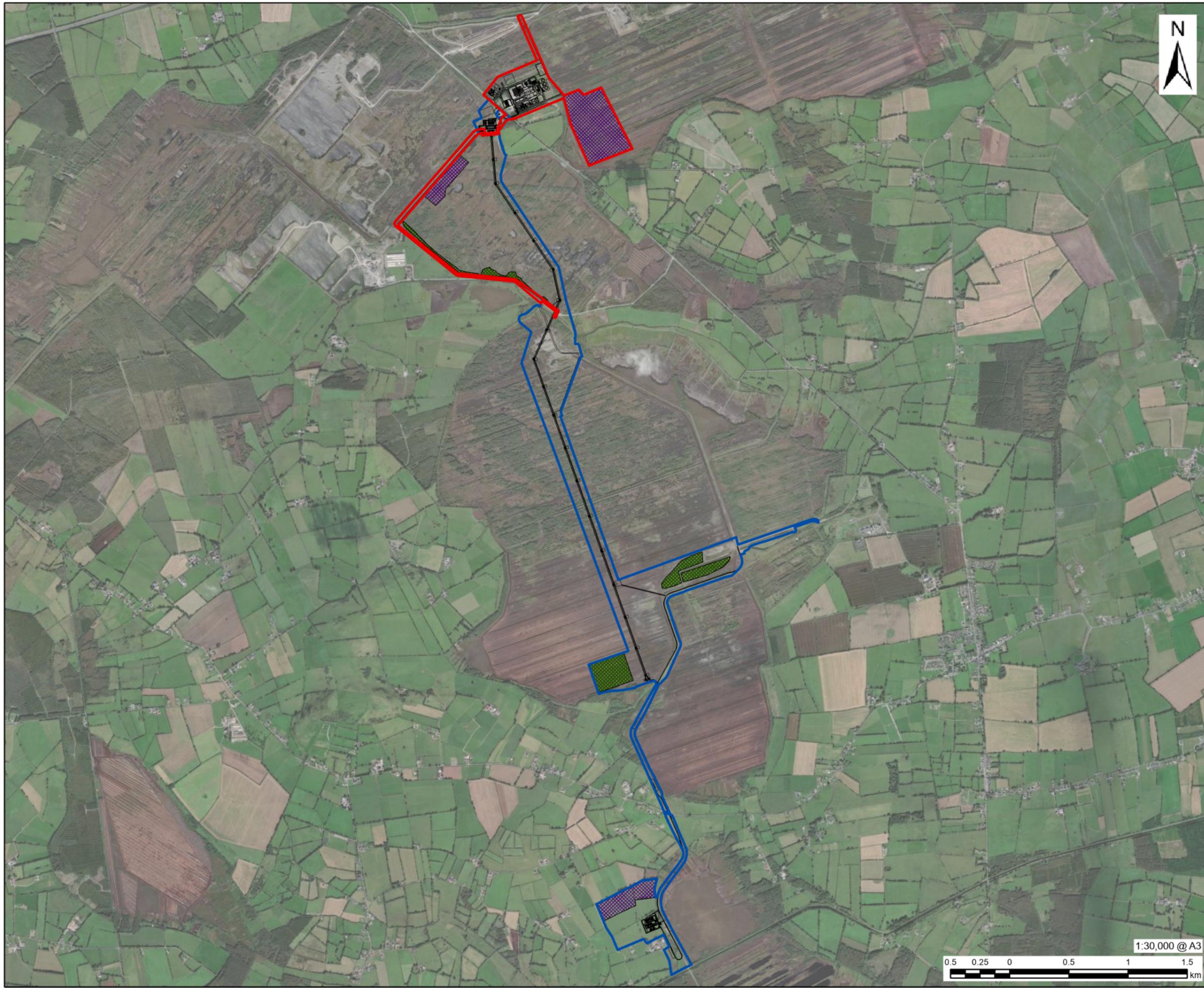




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- Power Plant Area Boundary
- Electricity Grid Connection Boundary
- Project Elements**
- Project Layout
- Tree Replanting Area
- Peat Deposition Area

**NOTES**

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**ISSUE PURPOSE**

FOR ISSUE

**PROJECT NUMBER**

60699676

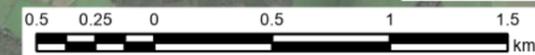
**FIGURE TITLE**

Proposed Development and Overall Project Layout

**FIGURE NUMBER**

Figure 5.1

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