Chapter 9 – Climate

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9. CLIMATE

9.1 Introduction

This chapter assesses the likely climate impacts associated with the Proposed Development and the impact of climate change on the Proposed Development located in Edenderry, Co. Offaly.

The purpose of the Proposed Development is to provide the licenced site at the Edenderry Power Limited (P0482-04) with a natural gas supply which will facilitate the conversion of the existing Cushaling Peaker Plant on the site from their current single-fuel operation (using liquid fuel) to dual-fuel operation, with natural gas as the primary fuel and liquid fuel retained as backup.

This chapter considers the construction, commissioning, and operation of the GNI 143 Ballykilleen Pipeline and all ancillary and associated temporary works hereafter collectively referred to as the Proposed Development. A full description of the development is available in Chapter 2 – Description of the Proposed Development.

An overview of the methodology undertaken for the climate impact assessment is outlined below:

- A detailed baseline review of GHG emissions has been undertaken in order to characterise the baseline environment. This has been undertaken through a review of available published GHG emission data;
- A review of the most applicable guidelines for the assessment of GHG emissions has been carried out in order to define the significance criteria for the construction and operational phases of the Proposed Development. These guidelines describe appropriate methods for quantifying the emissions of GHGs from the Proposed Development;
- Predictive calculations and impact assessments relating to the likely impact of the Proposed Development on climate (GHG emissions) have been undertaken;
- An assessment of the vulnerability of the Proposed Development to climate change has been undertaken; and
- A schedule of mitigation measures has been incorporated where required to reduce, where necessary, the identified potential climatic impacts associated with the Proposed Development.

The climate assessment is divided into two distinct sections – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA).

- Greenhouse Gas Emissions Assessment (GHGA) – Quantifies the GHG emissions from a project over its lifetime. The assessment compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude.
- Climate Change Risk Assessment (CCRA) – Identifies the impact of a changing climate on a project and receiving environment. The assessment considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

9.2 Methodology

The assessment methodology has been derived with reference to the most appropriate guidance documents relating to climate which are set out in the following sections of this report.

9.2.1 Relevant Legislation & Guidance

9.2.1.1 Guidance

The climate assessment has been carried out in line with the guidance outlined in the European Commission publications *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (EC, 2013) and *Environmental Impact Assessment of Projects – Guidance on the*

preparation of the Environmental Impact Assessment Report (EC, 2017) and the EPA publication *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022).

The assessment has made reference to national guidelines where available, in addition to international standards and guidelines relating to the assessment of climate impacts. These are summarised below:

- Government of Ireland (2024a) Buying Greener: Green Public Procurement Strategy and Action Plan (2024–2027)
- Government of Ireland (2024b) Long-Term Strategy on Greenhouse Gas Emissions Reductions
- Government of Ireland (2024c) National Adaptation Framework 2024
- Government of Ireland (2024d) National Biomethane Strategy
- Government of Ireland (2023b) National Hydrogen Strategy
- Government of Ireland (2025) 2025 Climate Action Plan
- Institute of Sustainability & Environmental Professionals (ISEP) (formerly known as IEMA) Environmental Impact Assessment Guide to: Assessing GHG Emissions and Evaluating their Significance (hereafter referred to as the ISEP GHG guidance) (ISEP, 2022);
- ISEP Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (hereafter referred to as the ISEP Climate Change guidance) (ISEP, 2020a);
- ISEP GHG Management Hierarchy (hereafter referred to as the ISEP GHG Management Hierarchy) (ISEP, 2020b);
- ISEP Principles Series: Climate Change Mitigation & EIA (ISEP, 2010);
- Publicly Available Specification (PAS) 2080:2016 on Carbon Management in Infrastructure (BSI, 2016);
- Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021a);
- Transport Infrastructure Ireland (TII) PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document (TII, 2022); and
- Transport Infrastructure Ireland (TII) GE-ENV-01106: TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document (TII, 2025).

In addition, data of relevance to the climate impact assessment is outlined below:

- Environmental Protection Agency (EPA) (2025a) Ireland's Greenhouse Gas Emissions Projections – 2024 - 2055
- Environmental Protection Agency (EPA) (2025b) Ireland's Provisional Greenhouse Gas Emissions 1990-2024
- Met Éireann (2024a) Met Eireann website: https://www.met.ie/science/translate
- Met Éireann (2024b) Ireland's 30-year Climate Averages [Online] Available at: https://www.met.ie/climate/30-year-averages
- Met Éireann (2024c) TRANSLATE research report.
- Met Éireann (2025) 2024 Climate Statement
- Global Facility for Disaster Reduction and Recovery (GFDRR) (2025) ThinkHazard! Tool. Available online at: https://thinkhazard.org/en/

9.2.1.2 Legislation

9.2.1.2.1 International Legislation & Policy

The Paris Agreement (UNFCCC, 2015), which entered into force in 2016, is an important milestone in terms of international climate change agreements and includes an aim of limiting global temperature increases to no more than 2°C (degrees Celsius) above pre-industrial levels with efforts to limit this rise to 1.5°C. Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of these long-term goals. NDCs comprise the efforts and actions by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement requires each country

to prepare the NDCs that it intends to achieve, updating and enhancing the NDCs every 5 years. Countries are required to implement mitigation measures, with the aim of achieving the objectives of such contributions. Each of the EU Member States submit their own NDCs, which contribute to the overall EU NDC.

The European Green Deal, published by the European Commission in December 2019, provides an action plan which aims for the EU to be climate neutral by 2050. The EU Green Deal highlights that further decarbonisation of the energy sector is critical to reach climate objectives in 2030 and 2050. The European Green Deal has increased the GHG emissions reduction 2030 target to at least 55% in comparison to 1990 levels.

On 14 July 2021, the European Commission adopted a series of legislative proposals setting out how it intends to achieve climate neutrality in the EU by 2050, including the intermediate target of at least a 55% net reduction in greenhouse gas emissions by 2030. The package of proposals is known as the 'Fit for 55' package.

The package includes revisions to the legislation put forward as part of the Climate and Energy Framework 2021-2030, including the EU Emissions Trading System (ETS), Effort Sharing Regulation, transport and land use legislation, setting out in real terms the ways in which the Commission intends to reach EU climate targets under the European Green Deal.

The EU ETS was launched in 2005 as the world's first international company- level 'cap-and trade' system for reducing emissions of greenhouse gases cost-effectively. The EU ETS regulates the GHG emissions of larger industrial emitters including electricity generation, cement manufacturing and heavy industry.

Under this new package of legislative proposals, the sectors of the Irish economy covered by the current ETS must reduce emissions by 42% by 2030 compared to 2005 levels by increasing annual emissions reduction to 4.2% per annum.

The non-ETS sector includes all domestic GHG emitters which do not fall under the ETS scheme and thus includes GHG emissions from transport, residential and commercial buildings and agriculture. These sectors must reduce emissions by 42% by 2030 compared to 2005 levels also.

Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') writes into law the goal set out in the European Green Deal for Europe's economy and society to become climate-neutral by 2050. The law also sets the intermediate target of reducing net greenhouse gas (GHG) emissions by at least 55% by 2030, compared to 1990 levels.

The 2021 EU Strategy on Adaptation to Climate Change sets out the pathway to prepare for the unavoidable impacts of climate change. The aim is that "*by 2050, when we aim to have reached climate neutrality, we will have reinforced adaptive capacity and minimised vulnerability to climate impacts…"* Adaptation refers to measures that can reduce the negative impact of climate change by, for example, ensuring a project is resilient to future increases in storm frequency and rainfall levels.

The EU has adopted integrated monitoring and reporting rules to ensure progress towards its 2030 climate and energy targets and its international commitments under the 2015 Paris Agreement.

Climate is also addressed specifically in Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. Recital (7) of Directive 2014/52/EU states that:

"*Over the last decade, environmental issues, such as resource efficiency and sustainability, biodiversity protection, climate change, and risks of accidents and disasters, have become more important in policy*

making. They should therefore also constitute important elements in assessment and decision-making processes".

Recital (13) of Directive 2014/52/EU states that:

"*Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change*".

Additionally Annex IV requires the following to be considered within Environmental Impact Assessment:

- *Paragraph 4: "A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape".*
- *Paragraph 5 (f): "A description of the likely significant effects of the project on the environment resulting from, inter alia: the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change".*

9.2.1.2.2 National Legislation

In 2015, the Climate Action and Low Carbon Development Act (the 2015 Act) (Government of Ireland, 2015) was enacted. The purpose of the 2015 Act is to enable Ireland "*so as to reduce the extent of further global warming, pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy (in this Act referred to as the "national climate objective")"* (3.(1) of No. 46 of 2015). The 2015 Act made provision for a national mitigation plan, and a national adaptation framework. In addition, the 2015 Act provided for the establishment of the Climate Change Advisory Council with the function to advise and make recommendations on the preparation of the national mitigation and adaptation plans and compliance with existing climate obligations.

The first Climate Action Plan (CAP) was published by the Irish Government in June 2019 (Government of Ireland, 2019). The Climate Action Plan 2019 outlined the current status across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and outlined the various broadscale measures required for each sector to achieve ambitious decarbonisation targets. The 2019 CAP also detailed the required governance arrangements for implementation including carbon-proofing of policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas. The fifth and most recent climate action plan, CAP25, was published in April 2025 (Government of Ireland, 2025).

Following on from Ireland declaring a climate and biodiversity emergency in May 2019, and the European Parliament approving a resolution declaring a climate and environment emergency in Europe in November 2019, the Government approved the publication of the General Scheme in December 2019, followed by the publication of the Climate Action and Low Carbon Development (Amendment) Act 2021 (hereafter referred to as the 2021 Climate Act), in March 2021, which amended the 2015 Act. The 2021 Climate Act was signed into Law on the 23rd July 2021, giving statutory effect to the core objectives stated within the CAP.

The purpose of the 2021 Climate Act (Government of Ireland, 2021) is to provide for the approval of plans "*for the purpose of pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050*". The 2021 Climate Act also provides for "carbon budgets and a decarbonisation target range for certain sectors of the economy". The 2021 Climate Act

defines the carbon budget as "*the total amount of greenhouse gas emissions that are permitted during the budget period*".

In relation to carbon budgets, the 2021 Climate Act states "*A carbon budget, consistent with furthering the achievement of the national climate objective, shall be proposed by the Climate Change Advisory Council, finalised by the Minister and approved by the Government for the period of 5 years commencing on the 1 January 2021 and ending on 31 December 2025 and for each subsequent period of 5 years (in this Act referred to as a 'budget period')*". The carbon budget is to be produced for 3 sequential budget periods, as shown in Table 9-1. The carbon budget can be revised where new obligations are imposed under the law of the European Union or international agreements or where there are significant developments in scientific knowledge in relation to climate change. In relation to the sectoral emissions ceiling, the Minister for Climate, Environment and Energy (the Minister for the Environment) shall prepare and submit to government the maximum amount of GHG emissions that are permitted in different sectors of the economy during a budget period and different ceilings may apply to different sectors. The sectorial emission ceilings for 2030 are published in CAP25 and are shown in Table 9-2.

Table 9-1 Ireland's 5-Year Carbon Budgets

Period	Mt CO_2e	Emission Reduction Target
2021-2025	295 Mt CO_2e	Reduction in emissions of 4.8% per annum for the first budget period.
2026-2030	200 Mt CO_2e	Reduction in emissions of 8.3% per annum for the second budget period.
2031-2035	151 Mt CO_2e	Reduction in emissions of 3.5% per annum for the third provisional budget.

Table 9-2 Sectoral Emission Ceiling 2030

Sector	Baseline (Mt CO_2e)	Carbon Budgets (Mt CO_2e)		2030 Emissions (Mt CO_2e)	Indicative Emissions % Reduction in Final Year of 2025- 2030 Period (Compared to 2018)
	2018	2021-2025	2026-2030		
Electricity	10	40	20	3	75
Transport	12	54	37	6	50
Built Environment - Residential	7	29	23	4	40
Built Environment - Commercial	2	7	5	1	45
Industry	7	30	24	4	35
Agriculture	23	106	96	17.25	25
Other (F-gases, waste, petroleum refining)	2	9	8	1	50
Land Use, Land-use Change and Forestry (LULUCF)	5	Reflecting the continued volatility for LULUCF baseline emissions to 2030 and beyond, a new approach aligned with the EU LULUCF Regulation has been adopted.			
Total	**68**				
Unallocated Savings	-	-	26	-5.25	-
Legally Binding Carbon Budgets and 2030 Emission Reduction Targets	**-**	**295**	**200**	**-**	**51**

9.2.1.3 Policy

9.2.1.3.1 Greenhouse Gas Policy

Climate Action Plans

In December 2023, CAP24 was published, establishing key actions to deliver a 51% reduction in GHG emissions by 2030 (compared to 2018 levels) and achieve climate neutrality by 2050 (Government of Ireland, 2023). The updated and current CAP25, published in April 2025 (Government of Ireland, 2025), builds on the progress of the previous four iterations of the CAP, with CAP23 first publishing carbon budgets and sectoral emission ceilings, and reaffirms Ireland's climate ambition, with a focus on delivery, implementation and measurable outcomes, particularly ahead of the second carbon budget period (2026–2030). 2025 is the last year in the first 5-year carbon budget period. During the initial 5-year budget period the average annual reduction required was 4.8%, this increases to 8.3% in the second budget period (2026-2030). CAP25 retains the high-impact sectors where the biggest savings can be achieved, while emphasising public sector leadership and green procurement. These sectors include renewable energy; energy efficiency of buildings; transport; sustainable farming; sustainable business; and land-use change.

CAP25 also includes targeted actions to decarbonise industrial heat and support the transition to carbon-neutral manufacturing processes. Public sector leadership is strengthened through a new *Buying Greener: Green Public Procurement Strategy and Action Plan* (2024–2027) (Government of Ireland, 2024a) the development of mandatory Climate Action Roadmaps, and enhanced emissions monitoring and reporting across government operations. The government has reinforced the public sector's responsibility to lead by example, particularly through climate-proofing operations and sustainable procurement initiatives. To support innovation and ensure future economic resilience, IDA Ireland continues to attract and support businesses investing in climate technologies and low-carbon solutions.

CAP25 highlights a significant 17% reduction in electricity emissions in early 2024, with wind power supplying nearly 40% of Ireland's total electricity demand and over 100,000 rooftop microgenerators connected to the grid. Investments are ongoing in grid reinforcement, offshore wind development, and interconnectors with France and the UK to enhance renewable generation capacity. According to legal and policy analysts, these developments place Ireland among the top countries globally in per capita wind generation, while continuing to expand domestic and community-based renewable energy. EirGrid, Enterprise Ireland and IDA Ireland have recently signed an MoU to collectively support offshore wind development in Ireland.

CAP25 also reinforces targets first outlined in CAP24 to reduce the embodied carbon of construction materials, with a 10% reduction by 2025 and 30% reduction by 2030 for materials produced and used in Ireland. Cement and high embodied carbon construction materials can be reduced through product substitution, reduced clinker content in cement and uptake of low-carbon construction methods, including those outlined in the Construction Industry Federation 2021 report *Modern Methods of Construction* (Construction Industry Federation, 2021). There also remains scope for the construction industry to use more timber in construction. In 2022, 24% of new construction in Ireland was built using timber frames to satisfy the demand for housing. Public bodies are now required under the Public Sector Mandate to use best practice project design to reduce embodied carbon; procure concretes with clinker replacements (lower carbon); and require that large construction projects produce a whole life cycle GHG emissions assessment. Further guidance on how the built environment can contribute to a circular, low-carbon economy is detailed in the recently published *A Roadmap for a Resource Efficient Circular Built Environment.* This supports the Circular Economy And Miscellaneous Provisions Act 2022 (No. 26 of 2022), which allows for waste material to be safely and sustainably re-used as secondary raw materials and is particularly important for the construction sector.

Furthermore, CAP25 advances sector-specific measures in green procurement, electrification of transport and heat, and just transition (with the introduction of a Just Transition Commission) to support vulnerable communities and ensure equitable decarbonisation. While transport emissions increased by 0.3%, electric vehicles and the expanded use of biofuels are highlighted as the most effective short- to medium-term strategies for emissions reductions in the sector.

In April 2023, the Government published its *Long-Term Strategy on Greenhouse Gas Emissions Reductions* (Government of Ireland, 2024b). This strategy provides a long-term plan on how Ireland will transition towards net carbon zero by 2050, achieving the interim targets set out in the Climate Action Plan.

Gas Networks Ireland

In relation to the Proposed Development, Gas Networks Ireland (GNI) is a statutory body whose primary function is to own, operate, develop and maintain the natural gas transmission and distribution system in Ireland. It has a statutory obligation pursuant to Section 10A(2) of the Gas Act 1976 to enter into binding agreements for access to that system, subject to certain terms, conditions and exemptions, in particular the requirement to comply with a CRU-approved connection policy in that regard. GNI entered into such agreements and has obligations under Irish and EU law, under which the Proposed Development is required to deliver on access to the gas system.

GNI and CRU are public bodies for the purposes of the 2015 Act. GNI considers that the consenting and construction of the Proposed Development is consistent with the most recent approved Climate Action Plan (CAP25) and its statutory obligations under the 2021 Act. CAP25, and previous climate action plans, identifies a comprehensive range of studies and policies that will be rapidly developed in order to deliver on the national climate objective, as well as binding targets for the increase of zero emission gases, such as biomethane and hydrogen, in the natural gas system. GNI will support those efforts and will continue to align its own strategy and operations with its statutory obligations under the 2021 Act, as well as those under the *National Biomethane Strategy* (Government of Ireland, 2024d) and the *National Hydrogen Strategy* (Government of Ireland, 2023b).

Investment in existing gas pipelines is required for GNI to meet these obligations and to enable decarbonisation of its network. Studies by GNI (GNI, 2022) and the Agency for the Cooperation of Energy Regulators (ACER, 2021) conclude that repurposing its existing gas pipeline network to transport hydrogen instead is feasible and that the cost of repurposing existing gas pipelines to transport hydrogen is a fraction of the cost of building new dedicated hydrogen pipelines. In terms of hydrogen production, Ireland's preferred option for indigenous green hydrogen production is electrolysis, whereby electricity splits water into hydrogen and oxygen, a process which can be powered by renewable energy sources, like wind or solar. In anticipation of the emergence of both indigenous green hydrogen and hydrogen via the UK, GNI is engaged in an extensive programme of work to enable the phased introduction of hydrogen into the gas network and its blending with natural gas via both interconnection and direct connection.

The government has committed to tripling its ambition from CAP21, to now deliver up to 5.7 TWh of indigenously produced biomethane by 2030 with ambitions for the production of up to 1 TWh of biomethane by 2025. Biomethane that satisfies the Renewable Energy Directive's life cycle sustainability criteria can be classified as "a zero-carbon rated fuel". Biomethane can therefore directly contribute to meeting Ireland's decarbonisation targets.

As biomethane is fully compatible with Ireland's existing gas infrastructure, technologies and appliances, GNI has a pivotal role to play in supporting Ireland's transition to a net zero energy system and has already begun replacing natural gas with small amounts of biomethane in the network since 2020. The recently published *Biomethane Energy Report* by GNI (GNI, 2023) surveyed potential biomethane producers in Ireland and identified an ambition for future production that would comfortably meet the Government's current targets with the right market conditions. Increasing availability of biomethane on the national network provides large energy users with the opportunity to buy renewable gas for their operations and GNI will continue to increase these volumes in coming years.

Local Policy

The Offaly County Council Climate Action Plan 2024 - 2029 (OCC, 2024) outlines OCC's goals to mitigate GHG emissions and plans to prepare for and adapt to climate change, with climate actions grouped under five key themes:

- Governance and Leadership,
- Built Environment and Transport,
- Natural Environment and Green Infrastructure,
- Communities: Resilience and Just Transition and Sustainability and
- Resource Management

At present, the County has approximately 650MW of operational or permitted renewables (OCC, 2021). These include: wind, solar, hydrogen electrolysers, biomass methanisation, and synchronous compensator. The existing, consented and 'pipeline' of additional projects may raise the total to over 1.5 GW of renewable energy, storage and grid systems services facilities in Offaly, according to the Offaly County Development Plan 2021-2027 (OCC, 2021).

The Meath County Council Climate Action Plan 2024–2029 (MCC, 2024) outlines Meath County Council's objectives to mitigate greenhouse gas emissions and strategies to prepare for and adapt to climate change. The plan encompasses actions across several thematic areas, including Energy & Buildings, Transport, Flood Resilience, Nature-Based Solutions, Circular Economy & Resource Management, and Citizen Engagement. This aligns with the Government's National Climate Objective, which aims to achieve, by no later than 2050, a transition to a climate-resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy. The Meath County Council Climate Action Plan sets ambitious targets, including a 51% reduction in the Council's GHG emissions by 2030 and a 50% improvement in energy efficiency within the same timeframe. Additionally, it seeks to make County Meath a climate-resilient region by reducing the impacts of future climate change-related events and actively engaging and informing communities on climate action.

9.2.1.3.2 Climate Change Vulnerability Policy

The second *National Adaptation Framework* (NAF) (Government of Ireland, 2024c) was published in June 2024 in line with the five-year requirement of the 2015 Climate Act as amended. The plan provides a whole of government and society approach to climate adaptation in Ireland in order to reduce Irelands vulnerability to climate change risks including extreme weather events, flooding, drought, loss of biodiversity, sea level rise and increased temperatures. Similar to the "Just Transition" when considering carbon emissions, the NAF aims for "Just Resilience" stating that:

"A climate resilient Ireland will have a reduced reliance on fossil fuel, it will have widely accessible electrified public transport and will have transitioned towards sustainable agricultural practices such as agroforestry and organic farming."

In relation to electricity and gas networks the following potential impacts are identified:

- "*Water shortages and drought may affect the availability of cooling at conventional power plants.*
- *Changes in rainfall distribution could reduce hydro power generation during certain seasons, while increasing the role of hydro stations in flood alleviation.*
- *Floods may damage electricity and gas transmission systems, and coastal erosion could impact infrastructure.*
- *Increased wind variability may require backup generation or storage, and strong winds may lead to turbine shutdown or damage."*

The *National Climate Change Risk Assessment* (NCCRA) was published in June 2025 (EPA, 2025c). The NCCRA was required to be developed under Action 457 from the 2021 CAP (Government of Ireland, 2021). Action 457 seeks to "Further develop Ireland's national climate change risk assessment capacity to identify the priority physical risks of climate change to Ireland'. The NCCRA uses definitions of the risk determinants from the Intergovernmental Panel on Climate Change (IPCC) Risk Framework (IPCC, 2023):

- **Hazard** - the potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources
- **Exposure** - the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected
- **Vulnerability** - the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity
- **Risk** - the potential for adverse consequences for human or ecological systems.

When considering risk, the NCCRA assess exposure and vulnerability for two future climate change scenarios or Representative Concentration Pathways (RCPs):

- RCP4.5 was selected as it represents a scenario aligned with the global temperature trajectory
- RCP8.5 was selected as it represents a high-emissions scenario and achieves the highest level of modelled temperature increases by the end of the century. Consequently, this scenario will result in the highest level of physical risk for Ireland, and therefore the greatest requirement for adaptation.

These scenarios align with a conservative approach to assess risks to Ireland and assumes global emission reduction targets are not met. This aligns with the principle of precaution as stated in the NAF (Government of Ireland, 2024c). In addition to the future climate scenarios, the NCCRA assesses the risk from the future climate during the following timeframes:

- Present (~2030)
- Medium term (~2050)
- Long term (~2100)

9.2.2 Greenhouse Gas Assessment

As per the EU guidance document *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (European Commission, 2013) the climate baseline is first established with reference to EPA data on annual GHG emissions (see Section 9.3.1). This baseline is used to evaluate the impact of the Proposed Development during the construction and operational phases. The methodology for the construction and operational phase assessments is discussed in the following sections.

9.2.2.1 Construction Phase

The GHG assessment has been conducted following the TII PE-ENV-01104 guidance (TII, 2022). PE-ENV-01104 (TII, 2022) recommends the calculation of the construction stage GHG emissions, including embodied carbon, using the TII Online Carbon Tool (TII, 2025). Embodied carbon refers to the sum of the carbon needed to produce a good or service. It incorporates the energy needed in the mining or processing of raw materials, the manufacturing of products and the delivery of these products to site.

The TII Online Carbon Tool (TII, 2025) has been commissioned by TII to assess GHG emissions associated with road or rail projects using Ireland-specific emission factors and data. However, the tool can be used to estimate the GHG emissions from other development types such as the proposed project as a number of the material types and activities are somewhat similar. It uses emission factors from recognised sources including the Civil Engineering Standard Method of Measurement (CESSM) Carbon and Price Book database (CESSM, 2013), which can be applied to a variety of developments, not just road or rail. The tool aligns with PAS 2080.

The TII Carbon Tool has been used to assess the GHG emissions associated with excavation works, construction materials, material transport, energy usage, construction worker travel and construction waste for the Proposed Development. Precautionary estimates have been used in this assessment where necessary to provide an estimate of the GHGs associated with the Proposed Development.

The purpose of the embodied carbon assessment is to engage the design team in the consideration of embodied carbon at an early stage in the development and mitigate embodied carbon. This engagement aims to ensure carbon savings are made and to assist in aligning the project to Ireland's CAP goal of Net Carbon Zero by 2050.

9.2.2.2 Operational Phase

The TII Carbon Tool has also been used to assess the GHG emissions associated with energy usage, water usage and vehicle movements associated with maintenance of the pipeline throughout the development lifespan. Energy usage includes the operation of a single back-up generator within the PBU in the AGI for a maximum of 72 hours per year. The back-up generator is required for emergency purposes only when there is an interruption to the power supply. As the PBU and AGI are critical infrastructure interruptions to power supply are minimised to unforeseen events and the Applicant has appropriate measures in place to allow for prompt restoration of the power supply in the event of an outage. Therefore, the back-up generator is unlikely to operate in excess of 72 hours in a given year.

For the purposes of this assessment a lifespan of 40-years has been utilised in the calculations. The choice of 40 years has been based on information from the design team and the approach taken on similar developments for the Applicant. It is considered an appropriate, representative lifespan for the purposes of the GHG assessment in order to adequately capture operational stage emissions. However, this lifespan is for the purposes of the GHG assessment only and based on the purpose of the Proposed Development it is anticipated that it will be maintained, and periodic upgrading undertaken over a longer lifetime to meet future demand and upgrades in technology, as is standard practice by GNI.

9.2.2.3 Significance Criteria for GHGA

The Transport Infrastructure Ireland (TII) guidance document entitled *PE-ENV-01104 Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document* (TII, 2022a) outlines a recommended approach for determining the significance of the effects for both the construction and operational phases of a development.

The significance of GHG effects set out in PE-ENV-01104 (TII, 2022a) is based on ISEP GHG Guidance (ISEP, 2022) which is consistent with the terminology contained within Figure 3.4 of the EPA's (2022) '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*'.

The ISEP GHG Guidance (ISEP, 2022) sets out the following principles for significance:

- When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible;
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and
- Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.

The criteria for determining the significance of effects are a two-stage process that involves defining the magnitude of the impacts and the sensitivity of the receptors (i.e. Ireland's National GHG targets). In relation to climate, there is no project specific assessment criteria, but the project will be assessed against the recommended TII significance determination. This takes account of any embedded or committed mitigation measures that form part of the design which should be considered.

TII (TII, 2022a) states that professional judgement must be taken into account when contextualising and assessing the significance of a project's GHG impact. In line with ISEP GHG Guidance (ISEP, 2022), TII state that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the*

magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050".

Significance is determined using the criteria outlined in Table 9-3 (derived from Table 6.7 of PE-ENV-01104 (TII 2022a)) along with consideration of the following two factors:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

Table 9-3 GHGA Significance Criteria

Effects	Significance level Description	Description
Significant adverse	Major adverse	► The project's GHG impacts are not mitigated. ► The project has not complied with do-minimum standards set through regulation, nor provided reductions required by local or national policies; and ► No meaningful absolute contribution to Ireland's trajectory towards net zero[1].
	Moderate adverse	► The project's GHG impacts are partially mitigated. ► The project has partially complied with do-minimum standards set through regulation, and have not fully complied with local or national policies; and ► Falls short of full contribution to Ireland's trajectory towards net zero.
Not significant	Minor adverse	► The project's GHG impacts are mitigated through 'good practice' measures. ► The project has complied with existing and emerging policy requirements; and ► Fully in line to achieve Ireland's trajectory towards net zero.
	Negligible	► The project's GHG impacts are mitigated beyond design standards. ► The project has gone well beyond existing and emerging policy requirements; and ► Well 'ahead of the curve' for Ireland's trajectory towards net zero.
Beneficial	Beneficial	► The project's net GHG impacts are below zero and it causes a reduction in atmosphere GHG concentration. ► The project has gone well beyond existing and emerging policy requirements; and ► Well 'ahead of the curve' for Ireland's trajectory towards net zero, provides a positive climate impact.

Ireland's carbon budgets can also be used to contextualise the magnitude of GHG emissions from the Proposed Development (TII, 2022a). The approach is based on comparing the net Proposed Development GHG emissions to the relevant carbon budgets (Government of Ireland, 2025a). With the publication of the Climate Action Act in 2021 and CAP25, sectoral carbon budgets have been published for comparison

[1] Net Zero: "When anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period." Net zero is achieved where emissions are first educed in line with a 'science-based' trajectory with any residual emissions neutralised through offsets.

with the net GHG emissions from the Proposed Development over its lifespan.

9.2.3 Climate Change Risk Assessment

The assessment involves determining the vulnerability of the Proposed Development to climate change. This involves an analysis of the sensitivity and exposure of the development to climate hazards which together provide a measure of vulnerability.

PE-ENV-01104 (TII, 2022a) states that the CCRA is guided by the principles set out in the overarching best practice guidance documents:

- Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021a); and
- The Institute of Environmental Management and Assessment, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2nd Edition) (ISEP, 2020).

The baseline environment information provided in Section 9.3, future climate change modelling and input from other experts working on the Proposed Development (i.e. hydrologists) should be used to assess the likelihood of a climate risk.

First an initial screening CCRA based on the operational phase is carried out, according to the TII guidance PE-ENV-01104. This is carried out by determining the sensitivity of Proposed Development assets (i.e. receptors) and their exposure to climate change hazards.

The Proposed Development asset categories must be assigned a level of sensitivity to climate hazards. PE-ENV-01104 (TII, 2022a) provides the list of asset categories and climate hazards to be considered. The asset categories will vary for development type and need to be determined on a development by development basis.

- **Asset Categories** Pavements; drainage; structures; utilities; landscaping; signs, light posts, buildings, and fences.
- **Climate Hazards** Flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning and hail; landslides; fog.

The sensitivity is based on a High, Medium or Low rating with a score of 1 to 3 assigned as per the criteria below.

- **High Sensitivity** The climate hazard will or is likely to have a major impact on the asset category. This is a sensitivity score of 3.
- **Medium Sensitivity** It is possible or likely the climate hazard will have a moderate impact on the asset category. This is a sensitivity score of 2.
- **Low Sensitivity** It is possible the climate hazard will have a low or negligible impact on the asset category. This is a sensitivity score of 1.

Once the sensitivities have been identified the exposure analysis is undertaken. The exposure analysis involves determining the level of exposure of each climate hazard at the project location irrespective of the project type. For example, flooding could be a risk if the project location is next to a river in a floodplain. Exposure is assigned a level of High, Medium or Low as per the below criteria.

- **High Exposure** It is almost certain or likely this climate hazard will occur at the project location, i.e. might arise once to several times per year. This is an exposure score of 3.
- **Medium Exposure** It is possible this climate hazard will occur at the project location, i.e. might arise a number of times in a decade. This is an exposure score of 2.
- **Low Exposure** It is unlikely or rare this climate hazard will occur at the project location, i.e. might arise a number of times in a generation or in a lifetime. This is an exposure score of 1.

Once the sensitivity and exposure are categorised, a vulnerability analysis is conducted by multiplying the sensitivity and exposure to calculate the vulnerability.

9.2.3.1 Significance Criteria for CCRA

The CCRA involves an initial screening assessment to determine the vulnerability of the Proposed Development to various climate hazards. The vulnerability is determined by combining the sensitivity and the exposure of the Proposed Development to various climate hazards.

Vulnerability = Sensitivity x Exposure

The vulnerability assessment takes any proposed mitigation into account. Table 9-4 details the vulnerability matrix; vulnerabilities are scored on a high, medium and low scale.

TII guidance (TII, 2022a) and the EU technical guidance (European Commission, 2021a) note that if all vulnerabilities are ranked as low in a justified manner, no detailed climate risk assessment may be needed. Therefore, the impact from climate change on the Proposed Development can be considered to be not significant.

However, where residual medium or high vulnerabilities exist the assessment may need to be progressed to a detailed climate change risk assessment and further mitigation implemented to reduce risks. An assessment of construction phase CCRA impacts is only required according to the TII guidance (TII, 2022a) if a detailed CCRA is required.

Table 9-4 Vulnerability Matrix

		Exposure		
		High (3)	**Medium (2)**	**Low (1)**
Sensitivity	**High (3)**	9 - High	6 – High	3 - Medium
	Medium (2)	6 - High	4 - Medium	2 - Low
	Low (1)	3 - Medium	2 – Low	1 - Low

The screening CCRA, detailed in Section 9.5.2.2, did not identify any residual medium or high risks to the Proposed Development as a result of climate change. Therefore, a detailed CCRA for the construction, operational and decommissioning phases was scoped out.

While a CCRA for the construction phase was not required, best practice mitigation against climate hazards is proposed in Section 9.7.1.

9.2.4 Forecasting Methods and Difficulties Encountered

There were no difficulties encountered when completing the climate assessment.

9.3 Receiving Environment

Climate is defined by the IPCC (IPCC, 2023) as the average weather over a period of time, whilst climate change is a significant change to the average weather. Climate change is a natural phenomenon but in the industrial age human activities, through the release of GHGs, have impacted on the climate (EPA, 2025b). The release of anthropogenic GHGs is altering the Earth's atmosphere resulting in a 'Greenhouse Effect'. This effect is causing an increase in the atmosphere's heat trapping abilities resulting in increased average global temperatures over the past number of decades. The release of CO_2 as a result of burning fossil fuels, has been one of the leading factors in the increase of the 'Greenhouse Effect'. The most significant GHGs are CO_2, methane (CH_4) and nitrous oxide (N_2O).

For the purposes of this assessment, the definition outlined in Council Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (hereafter referred to as the Renewable Energy Directive) for GHGs has been used. In Annex V, C. Methodology Point 5 of the Renewable Energy Directive the relevant GHGs are defined as CO_2, CH_4 and N_2O. CO_2 accounted for 61.1% of total GHG emissions in Ireland in 2023 while CH_4 and N_2O accounted for 28.9% and 8.8% respectively. The main source of CH_4 and N_2O is from the agricultural sector.

GHGs have different efficiencies in retaining solar energy in the atmosphere and different lifetimes in the atmosphere. In order to compare different GHGs, emissions are calculated on the basis of their Global Warming Potential (GWPs) over a 100-year period, giving a measure of their relative heating effect in the atmosphere. The IPCC AR6 Synthesis Report: Climate Change 2021 (IPCC, 2023) sets out the global warming potential for a 100-year time period (GWP100) for CO_2 as the basic unit (GWP = 1) whereas CH_4 has a global warming potential equivalent to 29.8 units of CO_2 (for fossil sources) and N_2O has a GWP100 of 273. These values have been refined since the AR5 report.

9.3.1 Current GHG Baseline

PE-ENV-01104 (TII, 2022a) states that a baseline climate scenario should identify, consistent with the study area for the project, GHG emissions without the project for both the current and future baseline. As Ireland's GHG emissions and compliance with the sectoral carbon budgets are assessed at a national scale, the study area for the purposes of this assessment is the Republic of Ireland.

Ireland declared a climate and biodiversity emergency in May 2019 and in November 2019 there was European Parliament approval of a resolution declaring a climate and environment emergency in Europe. This, in addition to Ireland's current failure to meet its EU binding targets under Regulation 2018/842 (European Union, 2018) results in changes in GHG emissions either beneficial or adverse being of more significance than previously considered prior to these declarations.

Data published in July 2025 (EPA, 2025a), indicates that Ireland exceeded, without the use of flexibilities, its 2024 annual limit set under EU's Effort Sharing Decision (ESD) (406/2009/EC) by 1.03 Mt CO_2e. However, the 2024 emissions represent the second consecutive year in which Ireland's emission were below (-4.2%) 1990 levels. ETS (Emissions Trading Scheme) emissions decreased (-1.1%) and ESR (Effort Sharing Regulation) emissions decreased (-2.2%). Ireland's target is an emission reduction of 626 kt of CO_2e by 2030 on an average baseline of 2016 to 2018.

The EPA estimate that 2024 total national GHG emissions, excluding LULUCF, have decreased by 2.0% on 2023 levels to 53.82 Mt CO_2e, with a 0.7 Mt CO_2e (-8.19%) reduction in electricity industries sector alone. This was driven by a 39.7% share of energy from renewables in 2024 and the complete phase-out of peat for electricity generation. Manufacturing combustion and industrial processes decreased by 4.6% to 6.0 Mt CO_2e in 2024 due to declines in fossil fuel usage. The sector with the highest emissions in 2024 was agriculture at 37.9% of the total, followed by transport at 20.8%. For 2024, total national emissions (including LULUCF) were 57.564 Mt CO_2e (EPA, 2025a) (see Table 9-5).

The current estimates of National greenhouse gas emissions (including LULUCF) in 2024 are 12.0% below 2018, well off the National Climate ambition of a 51% reduction by 2030. The data indicate that from 2021- 2024 Ireland has used 82.8% (243.3 Mt CO_2e) of the 295 Mt CO_2e Carbon Budget for the five-year period 2021-2025. This leaves 17.5% of the budget available for 2025, requiring a substantial 10.3% annual emissions reduction for 2025 to stay within budget.

Table 9-5 Trends in National GHG Emissions in 2021 – 2024

Sector [Note 1]	2021 Emissions (Mt CO_2e)	2022 Emissions (Mt CO_2e)	2023 Emissions (Mt CO_2e)	2024 Emissions (Mt CO_2e)	Total Budget (Mt CO_2e) (2021-2025)	% Budget 2021-2025 used	Annual change 2023 to 2024
Electricity	9.89	9.69	7.57	6.95	40	85.25%	-8.19%
Transport	11.09	11.76	11.8	11.65	54	85.74%	-1.27%
Buildings (Residential)	6.87	5.75	5.35	5.61	29	81.31%	4.86%
Buildings (Commercial and Public)	1.44	1.45	1.39	1.49	7	82.43%	7.19%
Industry	7.09	6.62	6.31	6.01	30	86.77%	-4.75%
Agriculture	21.94	21.78	20.72	20.41	106	80.05%	-1.50%
Other [Note 2]	1.86	1.93	1.81	1.63	9	80.33%	-9.94%
LULUCF	4.63	3.98	3.89	3.89	–	–	0
Total including LULUCF	**64.82**	**62.99**	**58.83**	**57.64**	**295**	**82.81%**	**-2.04%**

Note 1 Reproduced from latest emissions data from the EPA (EPA, 2025a).

Note 2 Other includes Petroleum refining, F-Gases and Waste (emissions from solid waste disposal on land (landfilling), solid waste treatment (composting and anaerobic digestion), wastewater treatment, waste incineration and open burning of waste).

9.3.2 Future GHG Baseline

The future baseline with respect to the GHGA can be considered in relation to the future climate targets which the assessment results will be compared against. In line with TII (TII, 2022) and ISEP GHG guidance (ISEP, 2022) the future baseline is a trajectory towards net zero by 2050, *"whether it* [the project] *contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050"*.

The future baseline will be determined by Ireland meeting its targets set out in the CAP25, and future CAPs, alongside binding 2030 and net zero by 2050 EU targets. In order to meet the commitments under the Paris Agreement, the European Union (EU) enacted *'Regulation (EU) 2018/842 on binding annual GHG emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No. 525/2013'* (hereafter referred to as the Regulation) (European Union, 2018). The Regulation aims to deliver, collectively by the EU in the most cost-effective manner possible, reductions in GHG emissions from the Emission Trading Scheme (ETS) and non-ETS sectors amounting to 43% and 30%, respectively, by 2030 compared to 2005. The Regulation was amended in April 2023 and Ireland must now limit its greenhouse gas emissions by at least 42% by 2030. The ETS is an EU-wide scheme which regulates the GHG emissions of larger industrial emitters including electricity generation, cement manufacturing and heavy industry. The non-ETS sector includes all domestic GHG emitters which do not fall under the ETS scheme and thus includes GHG emissions from transport, residential and commercial buildings and agriculture.

In May 2025, the EPA released the report *Ireland's Greenhouse Gas Emissions Projections 2024-2055* (EPA, 2025b), which includes total projected emissions and a breakdown of projected emissions per sector

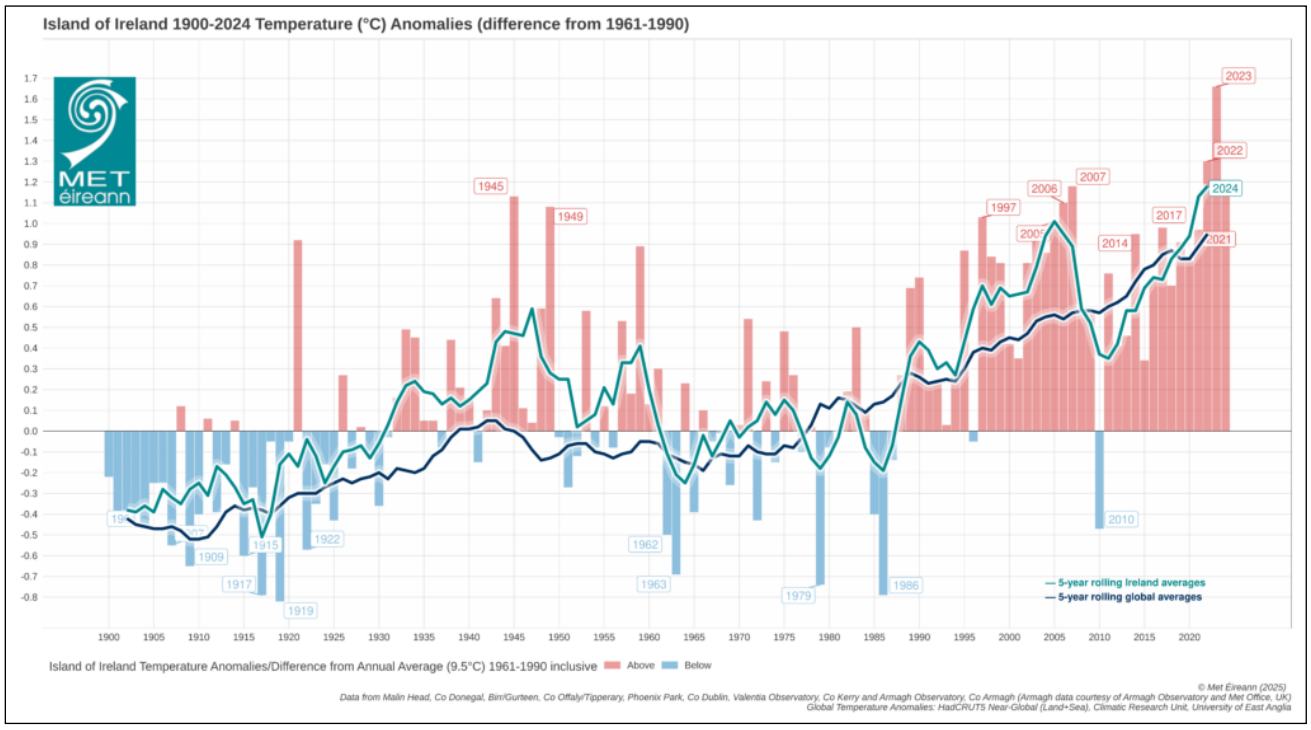
under the 'With Existing Measures' and 'With Additional Measures' scenarios. The EPA projections indicate that currently implemented measures (With Existing Measures) will achieve a reduction of 10% on 2005 levels by 2030, significantly short of the 42% reduction target. If measures in the higher ambition (With Additional Measures) scenario are implemented, EPA projections show that Ireland can achieve a reduction of 22% by 2030, still short of the 42% reduction target.

9.3.3 Current CCRA Baseline

The region of the Proposed Development has a temperate, oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Casement Aerodrome is the nearest, representative, weather and climate monitoring station to the Proposed Development with meteorological data recorded for the 30-year period from 1991 to 2020. The historical regional weather data for Casement Aerodrome meteorological station is considered representative of the current climate in the region of the Proposed Development. The data for the 30-year period from 1991 to 2020 indicates that the wettest months at Casement Aerodrome meteorological station were October and November, and the driest month on average was March (Met Éireann, 2024b). July was the warmest month with a mean temperature of 19.8 Celsius. January was the coldest month with a mean temperature of 8 Celsius.

Met Éireann's 2024 Climate Statement (Met Éireann, 2025) states 2024's average shaded air temperature in Ireland is provisionally 10.72°C, which is 1.17°C above the 1961-1990 long-term average. This makes 2024 the fourth warmest year on record, 0.49 °C cooler than 2023, the warmest year on record. The majority of annual rainfall totals across the country were below their Long-Term Average 1981-2010. Six stations (Mace Head, Co. Galway, Sherkin Island, Co. Cork, Dunsany, Co. Meath, Gurteen, Co. Tipperary, Athenry, Co. Galway and Finner, Co. Donegal) had their highest mean wind for August on record (record lengths ranging between 13 and 20 years). (see Insert 9-1).

Insert 9-1 1900-2024 Temperature (°C) Temperature Anomalies (differences from 1961-1990)



Recent weather patterns and records of extreme weather events recorded by Met Éireann have been reviewed. Considering the 2024 data, Met Éireann states that the latest Irish climate change projections indicate further warming in the future, including warmer winters. The record temperatures mean the

likelihood of extreme weather events occurring has increased. This will result in longer dry periods and heavy rainfall events. Storm surges and coastal flooding due to sea level rise. Compound events, where coastal surges and extreme rainfall events occur simultaneously will also increase. Met Éireann has high confidence in maximum rainfall rates increasing but not in how the frequency or intensity of storms will change with climate change.

9.3.4 Future CCRA Baseline

Impacts as a result of climate change will evolve with a changing future baseline, changes have the potential to include increases in global temperatures and increases in the number of rainfall days per year. Therefore, it is expected that the baseline climate will evolve over time and consideration is needed with respect to this within the design of the Proposed Development.

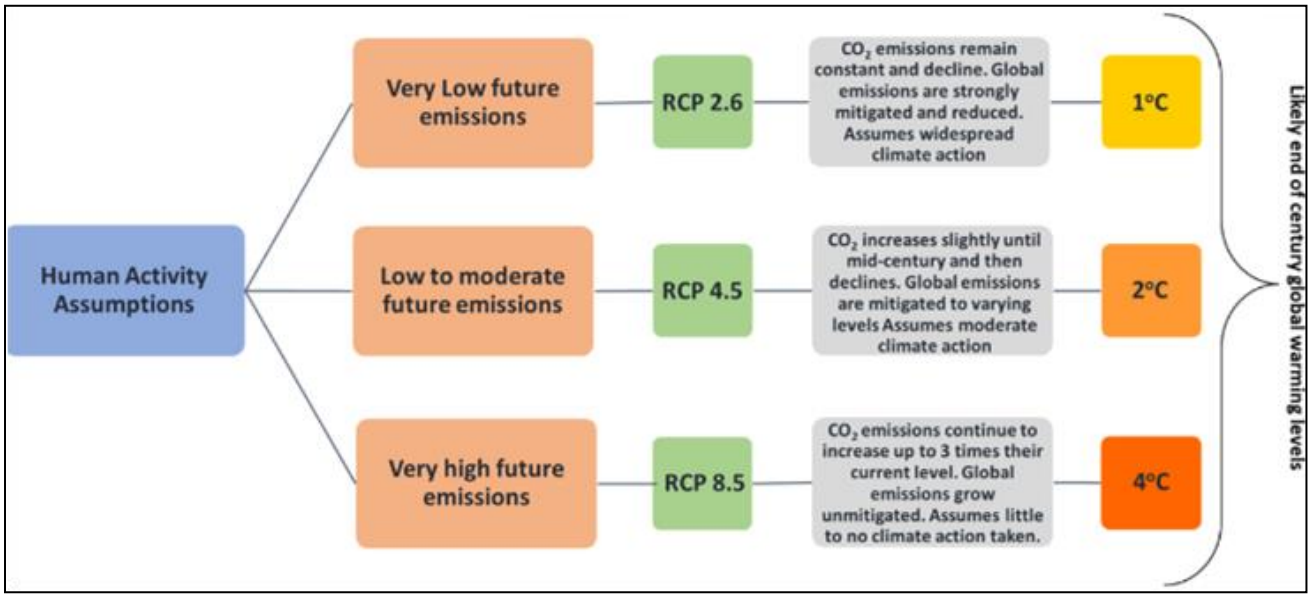
Ireland has seen increases in the annual rainfall in the north and west of the country, with small increases or decreases in the south and east (EPA, 2021b). The EPA have compiled a list of potential adverse impacts as a result of climate change including the following which may be of relevance to the Proposed Development (EPA, 2021b):

- More intense storms and rainfall events;
- Increased likelihood and magnitude of river and coastal flooding;
- Water shortages in summer in the east;
- Adverse impacts on water quality; and
- Changes in distribution of plant and animal species.

TII's Guidance document PE-ENV-01104 (TII, 2022a) states that for future climate change a moderate to high Representative Concentration Pathways (RCP) should be adopted. RPC4.5 is considered moderate, while RPC8.5 is considered high. Representative Concentration Pathways (RCPs) describe different 21st century pathways of GHG emissions depending on the level of climate mitigation action undertaken.

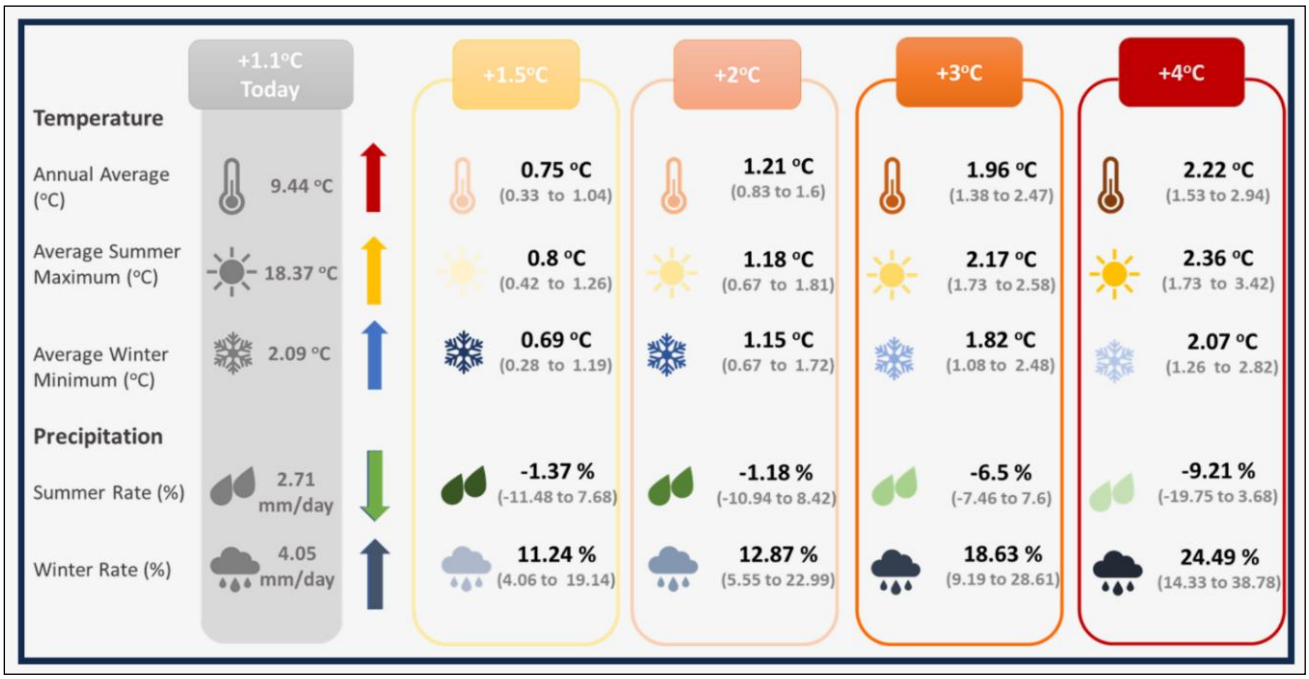
National Framework for Climate Services (NFCS) was founded in June 2022 to streamline the provision of climate services in Ireland and will be led by Met Éireann. The aim of the NFCS is to enable the co-production, delivery and use of accurate, actionable and accessible climate information and tools to support climate resilience planning and decision making. In addition to the NFCS, further work has been ongoing into climate projects in Ireland through research under the TRANSLATE project. TRANSLATE (Met Éireann, 2024a) has been led by climate researchers from University of Galway – Irish Centre for High End Computing (ICHEC), and University College Cork – SFI Research Centre for Energy, Climate and Marine (MaREI), supported by Met Éireann climatologists. TRANSLATE's outputs are produced using a selection of internationally reviewed and accepted models from both CORDEX and CMIP5. Representative Concentration Pathways (RCPs) provide a broad range of possible futures based on assumptions of human activity. The modelled scenarios include for "least" (RCP2.6), "more" (RCP4.5) or "most" (RCP8.5) climate change, see Insert 9-2.

Insert 9-2 Representative Concentration Pathways associated emission levels - TRANSLATE project storymap (Met Éireann, 2024a)



TRANSLATE (Met Éireann, 2024a) provides the first standardised and bias-corrected national climate projections for Ireland to aid climate risk decision making across multiple sectors (for example, transport, energy, water), by providing information on how Ireland's climate could change as global temperatures increase to 1.5˚C ,2˚C, 2.5˚C, 3˚C or 4˚C. Projections broadly agree with previous projections for Ireland. Ireland's climate is dominated by the Atlantic Meridional Overturning Circulation (AMOC), a large system of ocean currents – including the Gulf Stream – characterised by a northward flow of warm water and a southward flow of cold water. Due to the AMOC, Ireland does not suffer from the extremes of temperature experienced by other countries at a similar latitude. Recent studies have projected that the AMOC could decline by 30 – 40 % by 2100, resulting in cooler North Atlantic Sea surface temperatures (SSTs) (Met Éireann, 2024a). Met Éireann projects that Ireland will nevertheless continue to warm, although the AMOC cooling influence may lead to reduced warming compared with continental Europe. AMOC weakening is also expected to lead to additional sea level rise around Ireland. With climate change Ireland's temperature and rainfall will undergo more and more significant changes e.g. on average summer temperature could increase by more than 2°C, summer rainfall could decrease by 9% while winter rainfall could increase by 24% (See Insert 9-3). Future projects also include a 10-fold increase in the frequency of summer nights (values > 15°C) by the end of the century, a decrease in the frequency of cold winter nights and an increase in the number of heatwaves. A heatwave in Ireland is defined as a period of 5 consecutive days where the daily maximum temperature is greater than 25°C.

Insert 9-3 Change of climate variables for Ireland for different global warming thresholds - TRANSLATE project storymap (Met Éireann, 2024c)



The TRANSLATE research report (Met Éireann, 2024c) finds that night-time temperatures will warm more than day-time temperatures, with temperatures increases across all seasons but the highest in the summer (with an increase of 0.5°C to 3.5°C). Autumn is projected to have the highest increase in average minimum temperatures (with an increase of 1.1°C to 4.4°C). The variance is dependent on the scenario that is being reviewed. While these temperatures are projected across all of Ireland, they increase most in the east of the country compared to the west. With respect to rainfall, increases of 4% to 38% are projected, however this will not be spread across the year as during summer months there are projected decreases in rainfall beyond the 2°C warming scenario.

In January 2024 the EPA published *Ireland's Climate Change Assessment Synthesis Report* (EPA, 2024e) which contained four volumes:

- Volume 1: Climate Science: Ireland in a Changing World
- Volume 2: Achieving Climate Neutrality by 2050
- Volume 3: Being Prepared for Ireland's Future Climate
- Volume 4: Realising the Benefits of Transition and Transformation

This report reinforces the existing and future risks arising from climate change. Volume 1 (EPA, 2024e) states that under Early action, the temperature increase averaged across the island of Ireland relative to the recent past (1976 to 2005) would reach 0.91°C (0.44 to 1.10°C) by mid-century before falling back to 0.80°C (0.34 to 1.07°C) at the end of the century. Whereas under Late action, by the end of the century it is projected that the temperature increases could be 2.77°C (2.02 to 3.49°C). Heat extremes will become more frequent and more severe and cold extremes will become less frequent and less severe with further warming.

Precipitation was 7% higher over the period 1991 to 2020 than over the 1961 to 1990 period. The average future predicted increase in precipitation is <10% in annual mean accumulated. By 2100 projected additional rises in sea level range from 0.32 to 0.6m under early action to 0.63 to 1.01m under late action scenarios, with greater storm surges potentially effecting critical infrastructure along the coastline. Projections of changes in storminess are highly uncertain and translate into large uncertainties in future frequency and intensity of extreme waves.

Volume 3 (EPA, 2024e) discusses how water supplies will face growing pressures resulting in increased water demand and how options need to be developed, including potential new sources. The report states the key role of critical infrastructure for delivering public services, economic development and a sustainable environment. These are exposed to a range of climate extremes. Failures in critical infrastructure can cascade across other sectors and present a multi-sector risk due to climate change.

The report references the EPA's *Critical Infrastructure Vulnerability to Climate Change* report (EPA, 2021a) as the most substantial research project in Ireland to date on climate change and critical infrastructure which assesses the future performance of Ireland's critical infrastructure when climate is considered. The Critical Infrastructure Vulnerability to Climate Change report states with respect to water availability and quality, that flood risk and heatwaves have a medium vulnerability index and the underground supply network has a high vulnerability to snowstorms and cold spells. However, while the vulnerability is high, the exposure is likely to reduce due to future climate change resulting in less cold weather events. The risk assessment highlights the co-dependence of the water sector to the energy sector, and how vulnerability in the energy sector may have cascading impacts.

Volume 4 (EPA, 2024e) calls for system change, including a transformation of urban settings. Stating that meaningful urban transformation can create a better living environment while simultaneously reducing emissions.

9.4 Characteristics of the Proposed Development

The purpose of this section is to provide an overview of the key relevant details of the construction phase and operational phase of the Proposed Development. The information presented in this section is informed by the project design, but it is not a complete description of the Proposed Development. Therefore, it should be read in conjunction with the full development package. For a more comprehensive understanding of the Proposed Development, please refer to Chapter 2 (Description of the Proposed Development) of the EIA Report. Chapter 2 provides a detailed overview of the lifecycle of the project, including reference to the architectural and civil engineering, drawings, plans, reports, and other relevant document in order to define the Proposed Development.

9.4.1 Construction Phase

During the construction phase engine emissions from site vehicles and machinery have the potential to impact climate through the release of CO_2 and to a lesser extent, other greenhouse gases (GHGs). Embodied carbon of materials used in the construction of the development along with construction works activities will impact climate through release of GHGs. The key construction activities that have been assessed include excavation, plant use, electricity use for site offices, construction worker travel, material transport and construction wastes (see Table 9-6). Impacts to climate are assessed against Ireland's obligations under the EU 2030 GHG targets and sectoral emissions ceilings. The methodology for quantifying these is described in Section 9.2.2 (GHGA) and Section 9.2.3 (CCRA), and the results of the assessment are presented below in Section 9.5.1 (GHGA) and Section 9.5.2 (CCRA).

9.4.2 Operational Phase

GHG emissions from limited maintenance activities during the operation phase (engine emissions from vehicles accessing the site, backup generator use and water usage) have the potential to impact climate. Operational phase impacts will be long-term in duration over the lifetime of the pipeline. In addition, the vulnerability of the Proposed Development in relation to future climate change must be considered during the operational phase.

9.5 Potential Impacts of the Proposed Development

9.5.1 Greenhouse Gas Assessment

9.5.1.1 Construction Phase

The most significant proportion of GHG emissions typically occur during the construction phase as a result of embodied carbon in construction materials and GHG emissions from construction activities, this is also the case for the Proposed Development (see Section 9.2.2.1 and Table 9-6 for details). 6-6

The construction phase of the Proposed Development is predicted to result in 2,880 tCO_2e (72 tCO_2e when annualised over the total 40-year Proposed Development lifespan). The GHG assessment has highlighted the areas where the highest GHG emissions occur during the construction phase. Construction materials (backfill material, site road materials, steel and cement) result in the majority of GHG emissions for the proposed project, at approximately 58% of the total construction phase GHG emissions. Transport of the construction materials makes the second highest contribution at 22%.

The majority of excavated material (c. 95%) will be re-used for back-filling. The re-use of excavated materials on site is included in the GHG offset category (see Table 9-6 and Insert 9-4). The re-use of this excavated material avoids a total of -1,262 tCO_2e which would be emitted through the transport of this material offsite to a waste disposal facility. This offset is not included in the project GHG emissions total as per the guidance (TII, 2025).

9.5.1.2 Operational Phase

The operational phase of the Proposed Development is predicted to result in 1 tCO_2e annually, which accounts for less than 1% of the total Proposed Development GHG emissions. The majority of GHG emissions associated with the operational phase, and the overall lifespan, of the Proposed Development, originate from the combustion of natural gas by the backup generator associated with the AGI. This was assumed to operate for a maximum of 72 hours per year for this assessment.

9.5.1.3 Total GHG Emissions Over Construction and Operational Phases

Insert 9-4 and Table 9-6 show the GHG emissions for the Proposed Development per life-cycle stage based on the output from the TII Carbon Tool.

Insert 9-4 Greenhouse Gas Emissions by Activity Over Project Lifespan

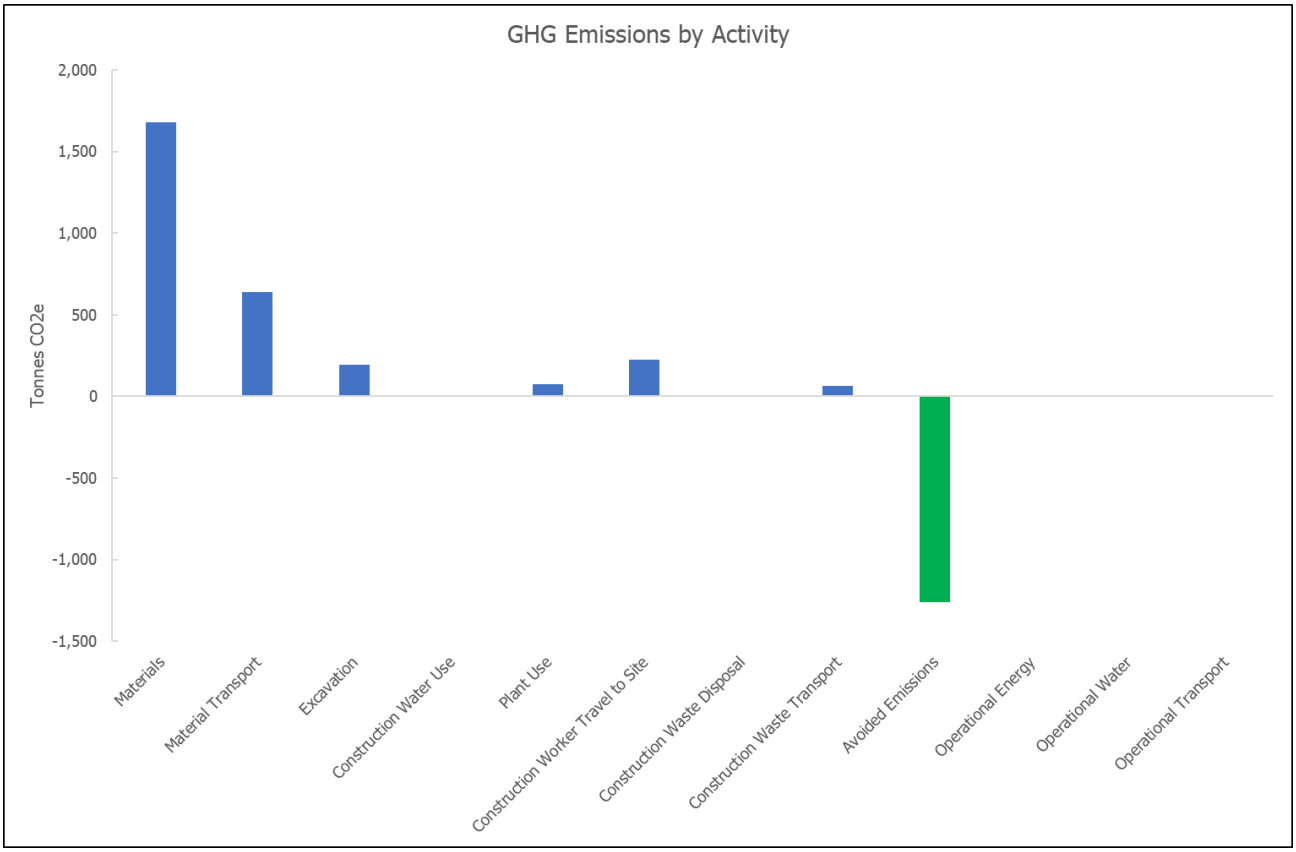


Table 9-6 GHG Assessment Results

GHG Assessment Category	Elements Considered	Predicted GHG Emissions (tCO_2e)	Predicted GHG Emissions as % of Annualised Project Total	Relevant Sector for Carbon Budget Comparison
Materials	Aggregates and other fill material, plastic pipework and cabling, concrete, road pavement materials (e.g. asphalt), steel, geotextiles	1,678	58%	Industry
Material Transport	HGV and LGV trips	639	22%	Transport
Excavation	Topsoil, subsoil and other excavation	194	7%	Industry
Construction Water Use	Water used during construction	0.001	0.00003%	Industry
Plant Use	Fuel usage by plant operation (diesel generators, construction plant) and electricity consumption	76	3%	Electricity
Construction Worker Travel to Site	Car, van and LGV trips	226	8%	Transport

GHG Assessment Category	Elements Considered	Predicted GHG Emissions (tCO_2e)	Predicted GHG Emissions as % of Annualised Project Total	Relevant Sector for Carbon Budget Comparison
Construction Waste Disposal	Mixed construction waste, concrete, timber, wood and excavated material	0.05	0.002%	Waste
Construction Waste Transport	Transport of waste offsite. Waste will be taken from the site by HGV. Distance to destination waste management facility estimated at 30 km (per trip) from the site.	66	2%	Transport
Avoided Emissions	Reuse of excavated material onsite (avoided HGV emissions)	-1,262	N/A	Industry
Total Construction Phase	**2880 tCO_2e (72 tCO_2e annualised over 40-year lifespan)**			
Operational Energy	Natural gas use by backup generator (72 hrs per year)	0.62	0.02%	Electricity
Operational Water	Operational water use (per year)	0.0001	0.000003%	Industry
Operational Transport	Vehicle movements (including waste disposal HGV) (per year)	0.07	0.002%	Transport
Total Operational Phase	**1 tCO_2e (annually over 40-year lifespan)**			
Total GHG Emissions (Construction + Operation)	**2881 tCO_2e (72 tCO_2e annualised over 40-year lifespan)**			

The GHG emissions from the development as a total cannot be compared against one specific sector 2030 carbon budget. The emissions are broken down into different assessment categories and these must be compared separately to the relevant sectoral emissions budget. The predicted GHG emissions (as shown in Table 9-6) have been averaged over the full lifespan of the Proposed Development to give the predicted annual emissions to allow for direct comparison with national annual emissions and targets. The total annualised (over the 40-year lifespan) GHG emissions for the Proposed Development are predicted to be 72 tonnes CO_2e.

In Table 9-7, GHG emissions have been compared against the carbon budget for the industry, transport, electricity and waste sectors in 2030 (Government of Ireland, 2025), against Ireland's total GHG emissions in 2024, and against Ireland's EU 2030 target of a 42% reduction in non-ETS sector emissions based on 2005 levels (27.7 Mt CO_2e) (set out in Regulation EU 2018/842 of the European Parliament and of the Council).

The estimated total GHG emissions, when annualised over the 40-year Proposed Development lifespan, are equivalent to 0.0001% of Ireland's total GHG emissions in 2024 and 0.0003% of the non-ETS 2030 target. The total annualised energy use and generation emissions are 0.0001% of the Electricity sector budget. Total annualised industry-related emissions are 0.001% of the 2030 Industry budget. The estimated annualised GHG emissions associated with transport-related activities are 0.0004% of the 2030 Transport budget, while annualised waste GHG emissions are 0.0000001% of the Waste budget.

Table 9-7 Estimated GHG Emissions Relative to Sectoral Budgets and GHG Baseline

Target/Sectoral Budget	(tCO_2e)	Annualised Development GHG Emissions (tCO_2e)		% of Relevant Target/Budget
Ireland's 2024 Total GHG Emissions (existing baseline)	57,646,201	Total GHG Emissions	72	0.0001%
Non-ETS 2030 Target	27,721,670			0.0003%
2030 Sectoral Budget (Industry Sector)	4,000,000	Total Industry Emissions	47	0.001%
2030 Sectoral Budget (Transport Sector)	6,000,000	Total Transport Emissions	23	0.0004%
2030 Sectoral Budget (Electricity Sector)	3,000,000	Total Electricity Emissions	3	0.0001%
2030 Sectoral Budget (Waste Sector)	1,000,000	Total Waste Emissions	0.001	0.0000001%

Methane Emissions

As part of the initial commissioning of the gas pipeline gas venting or purging will be required which will be carried out in line with IGE/SR/22. Methane will be the primary component of the released gas. Methane gas has the potential to impact climate as it is a greenhouse gas with a global warming potential (GWP100) of 28 times that of carbon dioxide (CO_2). However, this gas venting during commissioning will be a once-off event and will not involve the release of significant quantities of methane to atmosphere. Due to the small amount of gas to be released and the once-off, short-duration of the event this is not predicted to have a significant impact on climate. Impacts will be temporary and imperceptible.

During the operational phase the system will be closed high-pressure transmission network and there will be no emissions of gas to the ambient environment under typical operational conditions. The operational climate impact of the Proposed Development from this will be negligible.

Gas transmission pipelines used by GNI are designed to National Standard IS328. During construction these pipelines are tested to ensure the integrity of the pipeline and the associated equipment to ensure compliance with IS328. Leak survey is systematically carried out per the requirements of IS328. Any detected leaks above 250ppm are investigated and rectified under GNI standard operating procedures for preventative maintenance.

GNI are committed to accurately calculating methane emissions from their network as per the EU methane emissions regulation 24/1787. GNI also includes methane emissions as part of the Scope 1 GHG emissions reporting which are published in the GNI annual Sustainability Report.

9.5.1.4 GHGA Significance of Effects

The TII guidance states that the following two factors should be considered when determining significance:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

The level of mitigation described in Section 9.7 has been taken into account when determining the significance of the Proposed Development's GHG emissions. The Proposed Development is fully in line with national climate policy, as CAP25 specifically gives a key target of installing "at least 2 GW" of new flexible gas plant, intended to produce a *"more flexible energy system, reducing the strain on the power system, and ensuring that we maximise our renewables potential."* The Proposed Development will provide 0.334 GW of this capacity. According to the TII significance criteria described in Section 9.2.2.3 and Table 9-3,

the significance of the GHG emissions during the construction and operational phase is minor adverse. The Proposed Development has mitigated GHG impacts and is fully in line with Ireland's national climate policy and its trajectory towards net zero.

In accordance with the EPA guidelines (EPA, 2022), the above significance equates to a significance of effect of GHG emissions during the construction and operational phase which is ***direct, long-term, negative*** and ***slight***, which is overall ***not significant***.

9.5.2 Climate Change Risk Assessment

9.5.2.1 Construction Phase

A detailed CCRA of the construction phase has been scoped out, as discussed in Section 9.2.3, which states that where there are no residual medium or high risk vulnerabilities to climate change hazards. Therefore, a detailed CCRA is not required (TII, 2022a). However, consideration has been given to the Proposed Development's vulnerability to the following climate change hazards with best practice mitigation measures proposed in Section 9.7.1:

- Flood Risk due to increased precipitation, and intense periods of rainfall. This includes fluvial and pluvial flooding;
- Increased temperatures potentially causing drought, wildfires and prolonged periods of hot weather;
- Reduced temperatures resulting in ice or snow; and
- Major Storm Damage including wind damage.

9.5.2.2 Operational Phase

The sensitivity and exposure of the development to various climate hazards must first be determined to then determine the vulnerability of the Proposed Development to climate change. Flooding (coastal, pluvial, fluvial), extreme heat, extreme cold, wildfire, drought, extreme wind, lightning, hail, landslides and fog have been considered as climate hazards in the context of the Proposed Development. The entirety of the Proposed Development corridor has been included in the assessment, where necessary specific sections have been referred to where they have differing vulnerabilities.

The sensitivity of the Proposed Development to the climate hazards is assessed irrespective of the project location. Table 9-8 details the sensitivity of the Proposed Development on a scale of high (3), medium (2) and low (1). Once the sensitivity has been established the exposure of the Proposed Development to each of the climate hazards is determined, this is the likelihood of the climate hazard occurring at the project location and is also scored on a scale of high (3), medium (2) and low (1). The product of the sensitivity and exposure is then used to determine the overall vulnerability of the Proposed Development to each of the climate hazards as per Table 9-4. The results of the vulnerability assessment are detailed in Table 9-8.

Table 9-8 Climate Change Vulnerability Assessment

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding (Pluvial, Fluvial)	1 (Low)	2 (Medium)	2 (Low)
Extreme Heat	1 (Low)	2 (Medium)	2 (Low)
Extreme Cold	1 (Low)	2 (Medium)	2 (Low)
Wildfire	1 (Low)	1 (Low)	1 (Low)
Drought	1 (Low)	1 (Low)	1 (Low)
Extreme Wind	1 (Low)	1 (Low)	1 (Low)
Lightning & Hail	1 (Low)	1 (Low)	1 (Low)
Landslides	1 (Low)	1 (Low)	1 (Low)
Fog	1 (Low)	1 (Low)	1 (Low)

The sensitivity and exposure of the area was determined with reference to a number of online tools, as referenced in the following sections, and with input from the various discipline specialists on the project team. It was concluded that the Proposed Development does not have any significant vulnerabilities to the identified climate hazards as described in the below sections. All vulnerabilities are classified as low.

Flooding

Increased rainfall in future years as a result of climate change has the potential to result in flooding. A Flood Risk Assessment (FRA) for the Proposed Development was undertaken by JBA Consulting and is submitted as part of this planning application. The FRA was reviewed in order to inform this assessment.

As per the FRA, "*the majority of the Proposed Development is within Flood Zone C with the only section within Flood Zone A/B the section that will traverse the Boyne tributary. All remaining Flood Zone A & B areas that intercept the pipeline are retained within the stream banks. All development located in Flood Zone B will be installed underground, and all associated construction works are located in Flood Zone C*".

Following construction ground levels and conditions will be returned to their condition prior to construction. This will result in no change to flood extents and therefore fluvial flood risk will remain negligible. There are likely to be increases in flood extents due to climate change in the future, however, once the pipeline is constructed as it will be underground, the risk from flooding is negligible.

Based on the above and provided the mitigation outlined in the FRA is applied, the risk from flooding is low.

Extreme Wind, Fog, Lightning & Hail

In relation to extreme winds, the buildings shall be designed to the appropriate standards to account for the relevant wind loadings events for RCP4.5 and RCP8.5. If required as part of the building design, lightning protection shall be provided for. Hail and fog are not predicted to significantly affect any structures due to their design.

Wildfires

In relation to wildfires, the *Think Hazard!* tool developed by the Global Facility for Disaster Reduction and Recovery (GFDRR, 2025), indicates that the wildfire hazard is classified as medium for the Offaly and Meath areas. This means that there is between a 10% to 50% chance of experiencing weather that may cause disruptions and low but tangible risk of life and property loss in any given year. Future climate modelling indicates that there could be an increase in the weather conditions which are favourable to fire conditions, these include increases in temperature and prolonged dry periods. However, due to the project location in a predominantly agricultural area, the risk of wildfire is significantly lessened and it can be concluded that the Proposed Development is of low vulnerability to wildfires.

Landslides

The Geological Society of Ireland (GSI) landslide susceptibility mapping database (GSI, 2025) was reviewed to determine the risk from landslides at the Proposed Development. There have not been any historical landslide events in the vicinity of the Proposed Development and the area is of low susceptibility to future landslides. Therefore, landslides are not a risk for the Proposed Development site.

Extreme Temperatures (Heat & Cold) & Drought

In relation to extreme temperatures, both extreme heat and extreme cold, these have the potential to impact the building materials and some related infrastructure. However, building materials will be selected which meet the relevant design standards and which are account for extreme temperatures. Therefore, extreme temperatures are not considered a significant risk.

Summary

Overall, the Proposed Development has at most low vulnerabilities to the identified climate hazards. Therefore, no detailed risk assessment is required.

9.5.2.3 CCRA Significance of Effects

With design mitigation in place, there are no significant risks to the Proposed Development as a result of climate change. In accordance with the EPA Guidelines (EPA, 2022), the significance of effect of the impacts to the Proposed Development as a result of climate change are ***direct, long-term, negative*** and ***imperceptible***, which is overall ***not significant*** in EIA terms.

9.6 Do Nothing Scenario

In the Do-Nothing scenario, the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from potential new developments in the surrounding area, changes in road traffic, etc). The Do-Nothing scenario is considered neutral in terms of the climate assessment.

9.7 Mitigation Measures

9.7.1 Construction Phase

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. During the construction phase the following best practice measures will be implemented on site to prevent significant GHG emissions and reduce impacts to climate:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. A construction waste management plan will be implemented to minimise construction waste sent to landfills. Recycling of materials will be promoted to and reduce the environmental footprint of the site. The majority of excavated material will be reused on site (c. 95%), which represents emissions savings of approx. 1,262 tCO_2e.
- Sourcing materials locally will be prioritised. This will help to reduce transport related CO_2 emissions and helps support local suppliers, further promoting economic sustainability.
- Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible. The Applicant will comply with all applicable requirements and policies regarding green or low-carbon procurement.

In terms of impact on the Proposed Development due to climate change, during construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements.

9.7.2 Operational Phase

During the operational phase of the proposed project, the works onsite will be limited to maintenance associated with the pipeline. Although the intensity of activity will be only a small fraction of the construction phase, all employees and contractors that are on site will ensure that machinery used is

properly maintained and is switched off when not in use to avoid unnecessary exhaust emissions from maintenance traffic. No other mitigation is proposed.

The pipeline itself has a limited operational climate footprint. The main potential sources of GHG emissions are fugitive methane emissions.

Methane emissions from the GNI network are associated with venting which takes place for operational and safety reasons, 3rd party hits, incomplete combustion and fugitive emissions. Fugitive emissions result from unintentional emissions of natural gas from equipment or components such as pipelines, regulators, valves, flanges, connectors, etc. on the gas transportation network. Mitigation measures in relation to this include:

- Leak detection, preventative maintenance and repair procedures in line with GNI's asset integrity procedures.
- Use of welded joints and corrosion protection coatings to prevent loss of containment.

Additionally, gas transmission pipelines used by GNI are designed to National Standard I.S. 328. During construction these pipelines are tested to ensure the integrity of the pipeline and the associated equipment to ensure compliance with I.S. 328. A leak survey is systematically carried out per the requirements of I.S. 328 during the operational phase of GNI pipelines. Any detected leaks above 250ppm are investigated and rectified under GNI standard operating procedures for preventative maintenance. GNI are committed to accurately calculating methane emissions from their network as per the EU methane emissions regulation 24/1787. GNI also includes methane emissions as part of the Scope 1 GHG emissions reporting which are published in the GNI annual Sustainability Report.

9.8 Monitoring or Reinstatement Measures

There are no monitoring requirements in relation to climate.

9.9 Residual Effects of the Proposed Development

The impact to climate as a result of a Proposed Development must be assessed as a whole for all phases. The Proposed Development will result in some impacts to climate through the release of GHGs. TII reference the ISEP GHG Guidance which states that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050*". The Proposed Development has proposed some best practice mitigation measures and is committing to reducing climate impacts where feasible. The Proposed Development is fully in line with national climate policy, in terms of both CAP25 and the National Biomethane Strategy, as investment in existing and expansion gas pipelines is required for GNI to meets its policy obligations and to enable decarbonisation of its network.

As per the assessment criteria in Table 9-3 the residual impact of the Proposed Development in relation to GHG emissions is considered ***direct, long-term, negative*** and ***slight***, which is overall ***not significant*** in EIA terms.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the Proposed Development as a result of climate change. The residual effect of climate change on the Proposed Development is considered ***direct, long-term, negative*** and ***imperceptible***, which is overall ***not significant*** in EIA terms.

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