

Network Implementation Plan 2020



Data Freeze and Rounding

In order to complete the detailed analysis and modelling required to produce this document, the demand and supply scenarios were defined in July 2020, based on the most up to date information at the time. In presenting the data obtained for publication in the Network Development Plan, energy values have been rounded to one decimal place, and aggregated growth/contraction rates are expressed as whole numbers to aid clarity. In certain cases, rounding may lead to slight variance in sum totals.

Disclaimer

Gas Networks Ireland has followed accepted industry practice in the collection and analysis of data available. However, prior to taking business decisions, interested parties are advised to seek separate and independent opinion in relation to the matters covered by the present Network Development Plan and should not rely solely upon data and information contained therein. Information in this document does not purport to contain all the information that a prospective investor or participant in the Republic of Ireland's gas market may need.

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1 Executive Summary

Gas Networks Ireland is both the national gas Transmission System Operator (TSO) and Distribution System Operator (DSO). Gas Networks Ireland builds, develops and operates Ireland's world-class gas infrastructure, maintaining over 14,390 km of gas pipelines and two sub-sea interconnectors. Gas Networks Ireland annually produces the Network Development Plan (NDP) as part of its licence and regulatory obligations. The NDP provides a view of how the gas network may develop over a ten-year period. It is based on current supply and demand for gas, as well as projections for growth in gas consumption and development of infrastructure.

“Gas Networks Ireland continuously undertakes detailed system modelling of the network in order to assess the capacity of the network.”

In order to provide a comprehensive analysis Gas Networks Ireland has developed three gas demand scenarios over the ten year NDP horizon, namely Low, Best Estimate and High demand scenarios. These scenarios are designed to represent a broad range of likely outcomes and are informed by a range of external and internal factors. The Best Estimate demand scenario identified in the NDP is designed to take the median view in terms of how these factors will develop over time and for this reason is modelled to identify any potential capacity constraints.

These capacity constraints are then taken forward as potential projects and are identified in the Network Implementation Plan which sets out the manner in which projects identified in this section will be developed and will assess the potential for cumulative effects on the environment that may arise from these projects. These projects are classed as either “Upgrade” or “New” in the Network Implementation Plan.

Gas Networks Ireland is also focused on the delivery of new Compressed Natural Gas (CNG) stations throughout Ireland. These will be located along core urban and regional road networks. These projects are included in the Network Implementation Plan and are classed under “Other – New CNG” projects. The Network Implementation Plan also includes Centralised Gas Injection (CGI) facilities. Gas Networks Ireland, in conjunction with other industry stakeholders, intends to invest in CGI facilities located on the gas transmission network where Renewable Gas quality will be verified and the grid injection process will be managed and metered. These projects are classed under “Other – New CGI” projects.

It is likely that, given the continuously changing nature of gas requirements, new developments will emerge that could impact the plan as presented. These changes will be identified in future studies and accommodated in future development plans which will also be subject to an Environmental Appraisal.



Table 1-1: Summary of Projects by Category

Project Category	Northern & Western Region	Eastern & Midlands Region	Southern Region	Total
Upgrade AGI	1	9	2	12
New AGI	0	3	0	3
New Pipeline	0	0	0	0
Other – CNG	1	8	2	11
Other – CGI	0	0	1	1
Total	2	20	5	27

The Network Implementation Plan is screened for the purposes of compliance with the Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) Regulations and is subject to SEA (Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27 June 2001, on the Assessment of the Effects of Certain Plans and Programmes on the Environment) and Appropriate Assessment under the provisions of Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC).

Gas Networks Ireland continuously undertakes detailed system modelling of the network in order to assess the capacity of the network. The Best Estimate demand scenario identified in the NDP is modelled to identify any potential capacity constraints. Gas Networks Ireland will mitigate against these modelled system constraints to maintain system resilience and security of supply. Any such mitigating works are identified as part of the Network Implementation Plan. Following the publication of the 2019 Network Development Plan, Gas Networks Ireland have identified 278 such

projects required over the ten-year period 2018/19 to 2027/28.

The projects identified in the Network Implementation Plan are required to ensure possible capacity constraints are mitigated against and to ensure security of gas supply to Gas Networks Ireland's customers. During late 2017 and early 2018, the gas network has again demonstrated its resilience through extreme weather events Storms Emma and Ophelia, with no loss of gas supply to households, businesses or the power generation sector.

Gas Networks Ireland will continue to ensure that a resilient, robust and safe gas network is maintained to customers through appropriate and efficient investment. With the onset of Brexit, Gas Networks Ireland is fully committed to ensuring that gas will continue to flow through its interconnectors and that gas supply will not be negatively impacted.

2 Introduction

Gas Networks Ireland annually produces the Network Development Plan (NDP) annually as part of its licence and regulatory obligations. The NDP provides a view of how the gas network may develop over a ten-year period. It is based on current supply and demand for gas, as well as projections for growth in gas consumption and development of infrastructure.

In order to provide a comprehensive analysis Gas Networks Ireland has developed three gas demand scenarios over the NDP horizon, namely Low, Best Estimate and High demand scenarios. These scenarios are designed to represent a broad range of likely outcomes and are informed by a range of external and internal factors. The Best Estimate demand scenario identified in the NDP is designed to take the median view in terms of how these factors will develop over time and for this reason is modelled to identify any potential capacity constraints. These capacity constraints are then taken forward as potential projects and are identified in the Network Implementation Plan which sets out the manner in which projects identified in this section will be developed and will assess the potential for cumulative effects on the environment that may arise from these projects. These projects are classed as either "Upgrade" or "New" in the Network Implementation Plan.

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Implementation Plan also includes Centralised Gas Injection (CGI) facilities. Gas Networks Ireland, in conjunction with other industry stakeholders, intends to invest in CGI facilities located on the gas transmission network where Renewable Gas quality will be verified and the grid injection process will be managed and metered. These projects are classed under "Other – New CGI" projects.

In addition to the projects mentioned above, Gas Networks Ireland also coordinates minor capital works, such as distribution alteration/ reinforcement projects. These projects are numerous and generally of low value or deal with the day-to-day operation and maintenance of the network. These are not included in the Network Implementation Plan.

The Network Implementation Plan is screened for the purposes of compliance with the SEA and AA Regulations and is subject to SEA (Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27 June 2001, on the Assessment of the Effects of Certain Plans and Programmes on the Environment) and Appropriate Assessment under the provisions of Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC).

2.1 Overview of the Gas Networks Ireland System

Gas Networks Ireland builds, develops and operates Ireland's world-class gas infrastructure, maintaining over 14,390 km of gas pipelines and two sub-sea interconnectors.

The Gas Networks Ireland transmission network includes onshore Scotland, interconnectors and the onshore ROI network. The interconnector (IC) sub-system comprises of two subsea Interconnectors between ROI and Scotland; compressor stations at Beattock and Brighthouse Bay. The Interconnector system connects to Great Britain's (GB) National Transmission System (NTS) at Moffat in Scotland. It also supplies gas to the Northern Ireland (NI) market at Twynholm and the Isle of Man (IOM) market via the second subsea Interconnector (IC2).

The ROI onshore part currently consists of 1,672km of transmission pipeline comprising primarily of a ring-main system with spur lines serving various network configurations as well as 147 Above Ground Installations (AGIs) which are used to control and reduce pressures on the network.

The gas infrastructure is differentiated by the following pressure regimes:

- ▶ High pressure transmission infrastructure which operates above 16 barg;
- ▶ Distribution infrastructure which operates below 16 barg.

The distribution infrastructure is typically operated at 4 barg and less than 100 mbarg for inner city networks.

The natural gas network has demonstrated resilience and reliability through severe winter weather conditions, particularly during January and December 2010 when record sub-zero temperatures were recorded.

Figure 2 1: Overview of the Gas Networks Ireland Transmission System



2 Introduction (continued)

During late 2017 and early 2018, the gas network again demonstrated its resilience through extreme weather events, storm Emma and Ophelia, with no loss of gas supply to households, businesses or the power generation sector. Natural gas is available in 21 counties and there are circa 700,000 users in Ireland. Gas Networks Ireland is responsible for connecting all new gas customers to the network, and for work on service pipes and meters at customers' premises, on behalf of all gas suppliers in Ireland.

2.2 Capital Allowance

Capital investment is funded by a combination of;

- ▶ Regulatory capital allowances where investment is approved to be added to the company's regulatory asset base ("RAB"), with revenue generated through the transportation tariffs in future years;
- ▶ Regulatory operating expenditure allowances where approval is given to recoup cost of investment through tariffs in the year it is incurred;
- ▶ Unregulated investment made by the company.

In addition, third party funding can be provided through upfront customer contributions or grants.

2.2.1 Regulated Projects

Future investment proposals are subject to approval from the Commission for Regulation of Utilities and the relevant consents and permissions. System operator requirements continue to evolve and both environmental and European legislative requirements will impact on future system operations.

Gas Networks Ireland is currently in its fourth regulatory Price Control period (PC4) which concludes in September 2022. The CRU has given a capital allowance of €554m for future

investment in the distribution and transmission network for the duration of PC4 (excluding non-pipe). The capacity constraints projects identified in section 4 relating to AGI upgrades and classed as either "Upgrade" or "New" are funded by the Price Control Capital Allowance. It should be noted that capacity upgrades may be related to large new connections to which all or a portion of the funding may be covered by the customer.

In addition to RAB funded regulated investments, the Causeway Project is a regulated project funded by a combination of regulatory opex allowances (Innovation fund), co-funded from a grant from the CEF Transport Fund and upfront customer contributions. The current CNG projects outlined in the Network Implementation Plan are funded by the Causeway Project. The Causeway project represents a significant step forward in delivering a sustainable alternative fuel for Irish transport.

2.2.2 Unregulated Projects

Projects that are not funded by regulated capex and opex allowances are referred to as unregulated projects. These are funded by a combination of Gas Networks Ireland investing their own resources in commercial projects together with customer contributions and third party grants. The assets from an unregulated project will not be included in the RAB. Any unregulated project must be approved by the Ervia Board and capital commitments must be approved by Gas Networks Ireland's shareholder.

The Green Connect project is a follow-on project to the Causeway project which has the scope to allow for the construction of an additional 21 CNG stations, four renewable gas injection facilities, four CNG mobile refuelling units and a CNG vehicle

"We are committed to improving our energy performance of 33% by 2020 from a 2006 baseline and to date, have already achieved over 44% energy efficiency improvements."

grant scheme to provide support to fleet operators to convert to CNG vehicles. The location and scope of each of these individual projects is yet to be determined. The Green Connect project has been approved for a grant from the CEF Transport Fund with the balance being funded by GNI on an unregulated basis.

The new Centralised Gas Injection (CGI) Facility project at 0701 AGI aims to build the first transmission connected CGI in Ireland. The GRAZE Gas project, of which the CGI is an integral part, has been shortlisted for funding from the Climate Action Fund and once formally approved will be an unregulated project. In addition to the CGI, the project will also include a renewable gas logistics operation, two additional CNG stations and a CNG vehicle grant scheme. This project will inject large volumes of renewable natural gas onto the natural gas grid and will be a major step in achieving Gas Networks Ireland's target to deliver 11TWh per annum renewable gas (20% of current demand) in the network within a 10 year timeframe subject to the introduction of relevant policy supports.

2.3 Environmental and Planning Considerations

Gas Networks Ireland is committed to sustainability by ensuring that environmental, ethical and social principles are at the core of our business decisions and key to our strategy. We are also working to ensure that sustainable practices are engrained into our everyday activities, that they become part of our way of working. We are ever conscious of our impact on the environment and the community. We make every effort to act with responsibility, respect and in the best interests of sustainability. This year, GNI produced its very first Sustainability Report in alignment with the United Nations Sustainability Development Goals. The report

highlighted the sustainability work carried out across our business, focusing on the areas of environment, social and economic. We are currently developing our Sustainability Strategy for GNI and plan to launch it in the first quarter of 2020. GNI are certified to the Environmental Management System ISO14001 and the Energy Management System ISO50001. We also are one of 33 companies which hold the Business Responsibly Mark.

As guardians of Ireland's natural gas infrastructure, we aim to deliver our services in a sustainable manner that contributes to the protection of the environment whilst focusing on the areas where we can make the biggest difference. To reduce our impact on the environment we have developed objectives in a number of areas including air/carbon emissions, energy use, biodiversity, sustainable procurement and waste generation all of which are verifiable within our certified Environmental Management System ISO14001 and Energy Management System ISO50001. GNI has an environmental energy working group, the purpose of which is to promote a more integrated and strategic approach to environmental and energy management across the business and our asset base. In partnership with the Sustainable Energy Authority of Ireland, we actively participate in the National Energy Efficiency Action Plan, aimed at delivering 33% energy efficiency savings in the Public Sector by 2020. We are committed to improving our energy performance of 33% by 2020 from a 2006 baseline and to date, have already achieved over 44% energy efficiency improvements.

The purpose of the NIP is to identify large mitigating projects to guarantee the adequacy of the gas transportation system and security of supply. While it outlines a number of capital projects which will be delivered over

the coming years, future proposed large capital projects and proposed new technologies, these projects are subject to the appropriate consenting and planning regimes as set out under the Gas Acts 1976 to 2009, the Planning and Development Acts 2000 to 2011 and other relevant National and European law. In order to assist with its obligations in this regard, Gas Networks Ireland developed and implements an environmental and planning assessment procedure for works designed and planned for Gas Networks Ireland.

This procedure includes Gas Networks Ireland's bespoke Envirokit and EnviroPlan environmental planning and design toolkits to assist its designers and planners in applying a standardised approach to Environmental Management. EnviroOps, Gas Networks Ireland's in-house environmental guidance document was developed to assist its operations personnel in applying best practice while working for the organisation. Together they are a bespoke environmental planning and assessment tool modelled on environmental legal and regulatory requirements and best environmental practice, including requirements pursuant to the EIA Directive (85/337/EEC), as amended and the Habitats Directive (92/43/EEC), as amended. This procedure ensures that environmental and planning matters and appropriate mitigation measures are considered and communicated during the design and project planning stages of all Gas Network Ireland projects. As mentioned previously, the Network Implementation Plan is screened for the purposes of compliance with the SEA and AA Regulations and is assessed for the potential cumulative effects on the environment that may arise from these projects.

2 Introduction (continued)

2.4 Sustainability in Action Report

In 2019, Gas Networks Ireland published its first sustainability report titled “Sustainability in Action 2018 Report” which highlights Gas Networks Ireland’s progress in implementing the principles of sustainable development across all aspects of its operations. The report aligns with the United Nations’ Sustainable Developments Goals to illustrate and how Gas Networks Ireland’s efforts fit within a larger context for positive change.

The Sustainability in Action Report also serves to comply with the European Union (Disclosure of Non-Financial and Diversity Information by certain larger undertakings and groups) Regulations 2017 as amended by the European Union (Disclosure of Non-Financial and Diversity Information by certain larger undertakings and groups) (Amendment) Regulations 2018.

The report highlights the sustainability work carried out across our business, focusing on the areas of environment, social and economic.

Innovation is at the heart of what we do, Gas Networks Ireland is targeting 11TWh per annum renewable gas



Figure 2-2: Front Cover of GNI’s very first Sustainability Report published in 2019



Figure 2-3: River Blackwater Riverbank

(20% of current demand) in the network within a 10 year timeframe subject to the introduction of relevant policy supports. We will achieve our ambition in the area of sustainability through the ongoing efforts of our colleagues and by working closely with our customers and stakeholders.

Gas Networks Ireland is committed to protecting biodiversity across our business and in our community. In 2017, Gas Networks Ireland signed up as a business supporter of the All-Ireland Pollinator Plan. With assets all over the island of Ireland, we recognised the potential to create a network of pollinator-friendly habitats across the country and also to share our knowledge with other businesses. So far, biodiversity enhancement measures have been implemented across a number of our Above Ground Installations (AGIs). The measures include reduced grass cuttings, reduced use of pesticides and installation of birdboxes and beehives.

Gas Networks Ireland in conjunction with Rivus Ecological Engineering, designed and installed a nature-based solution at riverbanks along the Bride and Blackwater rivers. Willow and stone were used to secure a major gas pipeline and restore a collapsed riverbank, at the same time as boosting biodiversity. The ecologically favourable solution consisted of;

- ▶ Consultation with the local community Willow-spiled river banks;
- ▶ Tiered structures built-up with of a mixture of live and desiccated willow;
- ▶ Rock base to reduce erosion;
- ▶ Ideal nesting environment for the large colonies of Sand Martin birds;
- ▶ Birdboxes installed to help improve breeding success of Sand Martin;
- ▶ Bonus for the community, marks available in the annual Tidy Towns Assessment;
- ▶ Local Community Groups commended the work and shared some photographs of the works on social media.

2.5 Climate Change

Climate change is one of the most significant and challenging issues of our time. Natural gas and gas infrastructure can contribute significantly in the short, medium and long term (up to and beyond 2050) in achieving EU energy and climate goals in the most cost-efficient way.

Gas has a key role in decarbonising the energy sector across the areas of transportation, power, heating, industry and in the operation of social communities.

The Climate Action Plan 2019¹ (CAP), published by the Government on 17th June 2019, tackles climate breakdown by setting out sectoral targets, actions and timelines for implementing specific actions. There are over 180 actions in the Plan that focus on setting out a pathway to 2030, consistent with achieving a net zero target by 2050. The CAP also sets out clear governance arrangements which will significantly enhance accountability and purpose in implementing the proposals.

Gas Networks Ireland welcomes the strength of the ambition and the associated governance set out in the CAP. Ireland must significantly increase its commitments to tackling climate disruption, and Gas Networks Ireland is delighted to share its vision for the significant role that the gas network can play in supporting Ireland's climate commitments. Gas Networks Ireland, together with its parent company Ervia, published "Vision 2050 – A Net Zero Carbon Gas Network for Ireland"² on the 3rd of October 2019. Vision 2050 outlines the role that the gas network and

key technologies such as renewable gas and compressed natural gas (CNG) for transport, will play in tackling climate change while also ensuring that Ireland has a sustainable and secure energy future. Vision 2050 demonstrates how the gas network supports decarbonisation for domestic customers, industrial users, transport, agriculture and power generation.

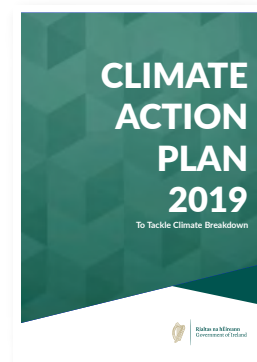
Today, gas is used to generate approximately 50% of Ireland's electricity. A move to 70% renewable sources for electricity generation, such as wind and solar, is planned by 2030 as part of ambitious national climate action targets. And while Ireland has excellent renewable resources, renewable energy, by its very nature, is intermittent – sometimes the wind doesn't blow or the sun doesn't shine. As such, in order for renewable energy to achieve its full potential, investment in complementary energy is required. Natural gas is the optimal complementary energy source for renewable energy such as wind and solar.

Achieving 70% renewable sources for electricity generation will require a significant reliance on

"A move to 70% renewable sources for electricity generation, such as wind and solar, is planned by 2030."

gas powered electricity generation to provide the balance of requirements and to ensure Ireland has a secure energy supply at all times.

Natural Gas is the earth's cleanest fossil fuel. It emits 40% less CO₂ than coal and 22% less CO₂ than oil³. It also produces negligible levels of nitrogen dioxide (NO_x) and sulphur dioxide (SO_x) compared to oil or coal. Switching from these higher carbon fuels to natural gas can deliver immediate emissions benefits. The existing gas network is already capable of taking on significant new energy demands. Crucially, up to 100% of the carbon dioxide emissions from gas powered electricity generation can be captured through CCS (Carbon Capture and Storage), meaning Ireland can continue to benefit from the reliability of the gas network in a low carbon future.



1 Government of Ireland, 2019, Climate Action Plan, <https://www.gov.ie/en/publication/5350ae-climate-action-plan/>
 2 https://www.gasnetworks.ie/vision-2050/future-of-gas/GNI_Vision_2050_Report_Final.pdf
 3 Government of Ireland, 2019, Climate Action Plan, <https://www.gov.ie/en/publication/5350ae-climate-action-plan/>

3 Potential Projects

Gas Networks Ireland annually produces the Network Development Plan (NDP) as part of its licence and regulatory obligations. The NDP provides a view of how the gas network may develop over a ten-year period.

It is based on current supply and demand for gas, as well as projections for growth in gas consumption and development of infrastructure. In order to provide a comprehensive analysis Gas Networks Ireland has developed three gas demand scenarios over the NDP, namely Low, Best Estimate and High demand scenarios. These scenarios are designed to represent a broad range of likely outcomes and are informed by a range of external and internal factors.

These scenarios represent a range of potential gas demands, to be used for network planning purposes to test the capability of the gas network. Gas

demand is dependent on a number of external factors, including economic growth, electricity demand growth and other power generation sector developments. The Best Estimate scenario is designed to take the median view in terms of how these factors will develop over time. The Best Estimate demand scenario identified in the NDP is modelled to identify any potential capacity constraints.

Gas Networks Ireland continuously undertakes detailed system modelling of the network in order to assess the capacity of the network. The Best Estimate demand scenario identified in the NDP is modelled to identify any

potential capacity constraints. Gas Networks Ireland will mitigate against these modelled system constraints to maintain system resilience and security of supply in the form of upgrading or reinforcing the existing network.

Typical reinforcements include increasing or upgrading the capacity of Above Ground Installations (AGIs). AGIs are used to control and reduce pressures from the transmission high pressure tiers to the lower distribution pressure tiers on the network and can be considered to the entry point to a localised system feeding to distribution centre or dedicated industrial and commercial customers. The existing capacity of an AGI may be found to be undersized if there is an increase in the forecasted demand at that area. In order to ensure a safe and reliable gas supply to the customers in that area, Gas Networks Ireland will “upgrade” that AGI to an increase technical capacity. Similarly, a more feasible option may be to add a new AGI or even install a new pipeline to reinforce the area.

Figure 3-1: Gas Demand Scenarios Overview¹

Low Demand	Best Estimate	High Demand
EirGrid's low electricity demand scenario	EirGrid's median electricity demand scenario	EirGrid's high demand scenario
CO ₂ – IEA's New Policies scenario	CO ₂ – IEA's New Policies scenario	CO ₂ – IEA's New Policies scenario
Bloomberg futures fuel pricing	Bloomberg futures fuel pricing	Bloomberg futures fuel pricing
Blended short term GDP projections plus ESRI's stagnation scenario	Blended short term GDP projections plus ESRI's Economic outlook 2016	Blended short term GDP projections plus ESRI's Economic outlook 2016
+ New Connection Low CNG Low	+ New Connection Best Estimate CNG Best Estimate	+ New Connections High CNG High

¹ Bloomberg futures fuel pricing as taken on 27th September 2019

Gas Networks Ireland is also focused on the delivery of new Compressed Natural Gas (CNG) stations throughout Ireland. These will be located along core urban and regional road networks. These projects are included in the Network Implementation Plan and are classed under "Other – New CNG" projects. The Network Implementation Plan also includes Centralised Gas Injection (CGI) facilities. Gas Networks Ireland, in conjunction with other industry stakeholders, intends to invest in CGI facilities located on the gas transmission network where Renewable Gas quality will be verified and the grid injection process will be managed and metered. These projects are classed under "Other – New CGI" projects.

In addition to the projects mentioned above, Gas Networks Ireland also coordinates minor capital works, such as distribution alteration/ reinforcement projects. These projects are numerous and generally of low value or deal with the day-to-day operation and maintenance of the network. These are not included in the Network Implementation Plan.

As mentioned above, the transmission capacity constraints and CNG and CGI projects are categorised under the following headings:

- ▶ **Upgrade:** are projects that involve the uprating of existing assets. An example of an uprate project is changing equipment to increase the flow capacity of the Above Ground installation (AGI);
- ▶ **New:** projects that involve the construction of new AGIs or pipelines;
- ▶ **Other:** are projects that do not fall naturally into any of the categories above such as CNG stations.

Following the publication of the 2019 Network Development

Table 3-1: Summary of Projects by Category

Project Category	Northern & Western Region	Eastern & Midlands Region	Southern Region	Total
Upgrade AGI	1	9	2	12
New AGI	0	3	0	3
New Pipeline	0	0	0	0
Other - CNG	1	8	2	11
Other - CGI	0	0	1	1
Total	2	20	5	27

Plan, Gas Networks Ireland have identified 278 such projects required over the ten-year period 2018/19 to 2027/28. Table 5-1 provides a summary of these projects.

In order to complete the detailed analysis and modelling required to produce this document, the demand and supply scenarios were defined in September/March 2019, based on the most up to date information at the time. In presenting the data obtained for publication in the Network Development Plan, energy values have been rounded to one decimal place, and aggregated growth/ contraction rates are expressed as whole numbers to aid clarity. In certain cases, rounding may lead to slight variance in sum totals.

In this context therefore, it is important to understand that any NIP is a "point-in-time" understanding of gas network development. However, the long-term development of the network is under continuous review by Gas Networks Ireland. The NIP is clear in acknowledging the possibility that changes will occur in the need for, scope of, project phase, and timing of gas network development. It is also acknowledged that it is likely, given the continuously changing nature of electricity requirements, that

new developments will emerge that could alter the project information as presented in any version of a NIP. These changes are identified in future studies and updated in future NIPs.

The following sections outline the location of each project, both by planning region and county. Projects classed as "Upgrade" are transmission related and highlight the existing capacity currently in use and the required forecasted demand. Project classed as "New" are transmission related and identified the new capacity required. "Other CGI" identify the capacity required for the Centralised Gas Injection projects. "Other CNG" projects are distribution related and identified the new capacity required.

The Network Implementation Plan is screened for the purposes of compliance with the SEA and AA Regulations and is subject to SEA (Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27 June 2001, on the Assessment of the Effects of Certain Plans and Programmes on the Environment) and Appropriate Assessment under the provisions of Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC).

3 Potential Projects (continued)

Figure 3-2: Configuration of the Regional Assemblies in Ireland



3.1 The Northern and Western Region

The Northern and Western Region is made up of the following counties: Donegal, Leitrim, Cavan, Monaghan, Roscommon, Sligo, Mayo and Galway.

3.1.1 Projects in County Cavan

► Capacity Upgrade to existing 5501 AGI

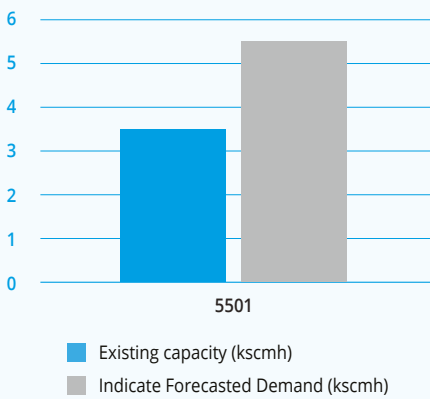
The driver of this project is security of supply. A capacity upgrade is required at the existing 5501 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 4kscmh to 5.2kscmh.

► New CNG Station at NIP19CNCNG1

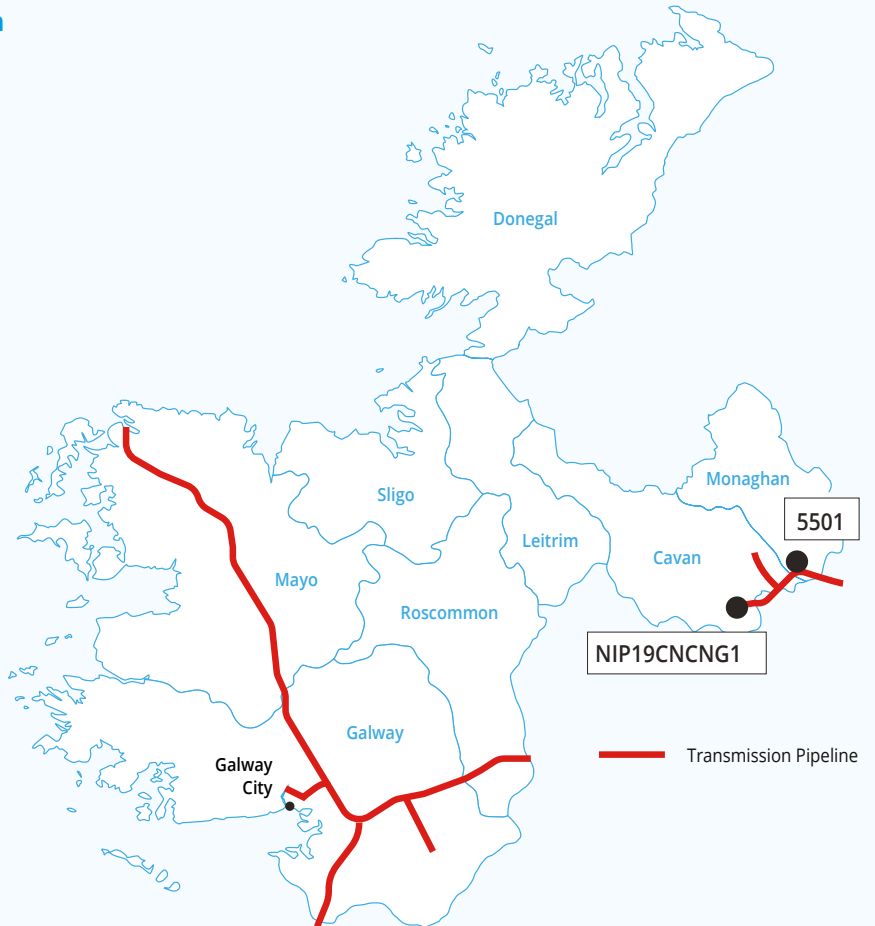
The driver of this project is to facilitate the installation of a new CNG station at Maghera, Co. Cavan. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.562kscmh. The name of the CNG station NIP19CNCNG1 will change once Gas Networks Ireland complete the design of this CNG station.

The Northern and Western Region

Upgrade Projects



County	AGI no.	Existing Capacity (kscmh)	Indicative Forecasted Capacity (kscmh)
Cavan	5501	4	5.2



Other - CNG Projects

Country	AGI no.	Comment	Indicative Forecasted Capacity (kscmh)
Cavan	NIP19CNCNG1	New CNG Station	0.562

Summary of Projects

Project Category	Cavan
Upgrade AGI	1
New AGI	0
New Pipeline	0
Other - CNG	1
Other - CGI	0
Total by County	2
Total by Area	2

3 Potential Projects (continued)

3.2 The Eastern and Midlands Region

The Eastern and Midland Region is made up of the following counties: Longford, Westmeath, Meath, Louth, Offaly, Laois, Kildare, Wicklow and Dublin.

3.2.1 Projects in County Louth

- ▶ **Capacity Upgrade to existing 3607 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 3607 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 13.5kscmh to 16.1kscmh
- ▶ **Capacity Upgrade to existing 5301 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 5301 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 2kscmh to 2.2kscmh.

3.2.2 Projects in County Laois

- ▶ **New CNG Station at NIP19LSCNG1**
The driver of this project is to facilitate the installation of a new CNG station at Portlaoise, Co. Laois. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.56kscmh. The name of the CNG station NIP19LSCNG1 will change once Gas Networks Ireland complete the design of this CNG station.

3.2.3 Projects in County Meath

- ▶ **New CNG Station at NIP19MHCNG1**
The driver of this project is to facilitate the installation of a new CNG station at Gormanston, Co. Meath. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.56kscmh. The name of the CNG station NIP19MHCNG1 will change once Gas Networks Ireland complete the design of this CNG station.
- ▶ **New CNG Station at NIP19MHCNG2**
The driver of this project is to facilitate the installation of a new CNG station at Trim, Co. Meath. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.307kscmh. The name of the CNG station NIP19MHCNG2 will change once Gas Networks Ireland complete the design of this CNG station.

3.2.4 Projects in County Kildare

- ▶ **Capacity Upgrade to existing 7403 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 7403 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 16.8kscmh to 18.7kscmh.
- ▶ **Capacity Upgrade to existing 6403 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 6403 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 16.44kscmh to 17.8kscmh.

- ▶ **Capacity Upgrade to existing 6103 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 6103 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 19kscmh to 24kscmh.
- ▶ **New CNG Station at NIP19KECNG1**
The driver of this project is to facilitate the installation of a new CNG station at Monasterevin, Co. Kildare. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.307kscmh. The name of the CNG station NIP19KECNG1 will change once Gas Networks Ireland complete the design of this CNG station.

3.2.5 Projects in County Dublin

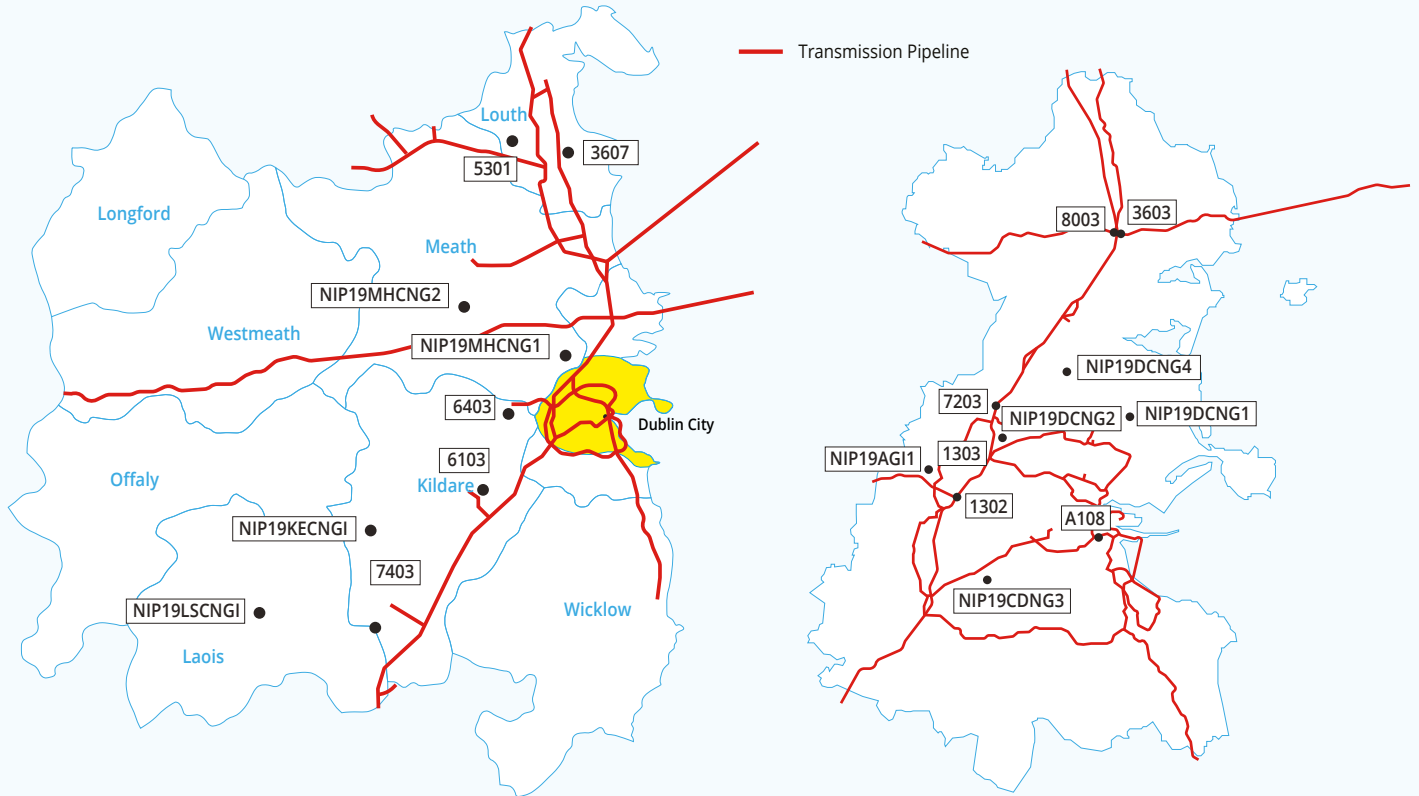
- ▶ **Capacity Upgrade to existing 1303 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 1303 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 270kscmh to 393kscmh.
- ▶ **Capacity Upgrade to existing A108 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing A108 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 6.5kscmh to 7.3kscmh.



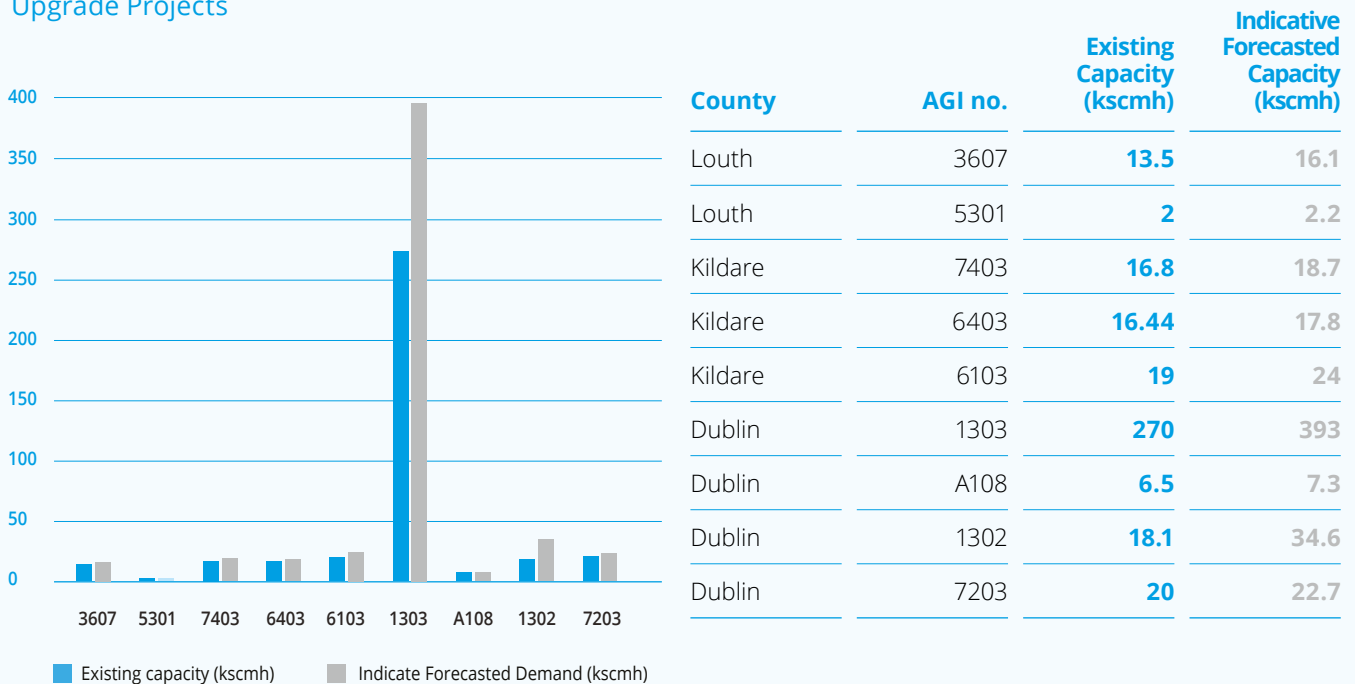
- ▶ **Capacity Upgrade to existing 1302 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 1302 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 18.1kscmh to 34.6kscmh.
- ▶ **Capacity Upgrade to existing 7203 AGI**
The driver of this project is security of supply. A capacity upgrade is required at the existing 7203 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 20kscmh to 22.7kscmh.
- ▶ **Station Bypass Project at 3603 AGI**
The driver of this project is security of supply. 3603 AGI has been identified as being a critical installation on the gas transportation system and is supplied by the offshore pipelines (IC1 and IC2) that supply gas from Scotland to the Republic of Ireland. Therefore, the consequence of 3603 AGI being unavailable has the potential to significantly impact gas flow in Ireland. A bypass pipeline around 3603 AGI is required to reduce the importance of this AGI to the network and improve the resilience of the network as a whole.
- ▶ **New 85-70Bar AGI Station at 8003 AGI**
The driver of this project is security of supply. Following the anticipated cessation of Celtic Sea operations and the supplies from the Inch Entry Point, Gas Networks Ireland have initiated a project that will uprate a section of the ring main to 85 barg. A new AGI with a Pressure Reduction Skid is required in order to reinforce the network in the South of Ireland. This project involves installing a new AGI with a Pressure Reduction Skid with a capacity of 1300kscmh.
- ▶ **New 70-4Bar AGI Station at NIP19DAGI1 AGI**
The driver of this project is security of supply. A new AGI is required in order to accommodate the projected future growth in demand in the local network. This project involves installing a new AGI with a capacity of 20 kscmh in the area. The name of this AGI NIP19DAGI1 will change once Gas Networks Ireland complete the design of this AGI.
- ▶ **New CNG Station at NIP19DCNG1**
The driver of this project is to facilitate the installation of a new CNG station at Clonsaugh Road, Co. Dublin. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.56kscmh. The name of the CNG station NIP19DCNG1 will change once Gas Networks Ireland complete the design of this CNG station.
- ▶ **New CNG Station at NIP19DCNG2**
The driver of this project is to facilitate the installation of a new CNG station at Cappagh, Co. Dublin. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.56kscmh. The name of the CNG station NIP19DCNG2 will change once Gas Networks Ireland complete the design of this CNG station.
- ▶ **New CNG Station at NIP19DCNG3**
The driver of this project is to facilitate the installation of a new CNG station at Ballymount, Co. Dublin. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.56kscmh. The name of the CNG station NIP19DCNG3 will change once Gas Networks Ireland complete the design of this CNG station.
- ▶ **New CNG Station at NIP19DCNG4**
The driver of this project is to facilitate the installation of a new CNG station at St Margret's, Co. Dublin. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.307kscmh. The name of the CNG station NIP19DCNG4 will change once Gas Networks Ireland complete the design of this CNG station.

3 Potential Projects (continued)

The Eastern and Midlands region



Upgrade Projects



New AGI Projects

Country	AGI no.	Comment	Indicative Forecasted Capacity (kscmh)
Dublin	3603	New AGI By Pass (pipework only)	N/A
Dublin	8003	New 85–70Bar PRS	1300
Dublin	NIP19DAGI1	New 70–4Bar PRS	20

Other – CNG Projects

Country	AGI no.	Comment	Indicative Forecasted Capacity (kscmh)
Meath	NIP19MHCNG1	New CNG Station	0.56
Meath	NIP19MHCNG2	New CNG Station	0.307
Laois	NIP19LSCNG1	New CNG Station	0.56
Kildare	NIP19KECNG1	New CNG Station	0.307
Dublin	NIP19DCNG1	New CNG Station	0.56
Dublin	NIP19DCNG2	New CNG Station	0.56
Dublin	NIP19DCNG3	New CNG Station	0.56
Dublin	NIP19DCNG4	New CNG Station	0.307

Summary of Projects

Project Category	Louth	Kildare	Meath	Laois	Dublin
Upgrade AGI	2	3	0	0	4
New AGI	0	0	0	0	3
New Pipeline	0	0	0	0	0
Other - CNG	0	1	2	1	4
Other - CGI	0	0	0	0	0
Total by County	2	4	2	1	11
Total by Area			20		

3 Potential Projects (continued)

3.3 The Southern Region

The Southern Region is made up of the following counties: Clare, Limerick, Kerry, Cork, Waterford, Tipperary, Kilkenny, Carlow and Wexford.

3.3.1 Projects in County Cork

▶ New Renewable Gas Injection Facility at 0701 AGI

The driver of this project is to facilitate the installation of a new Centralised Gas Injection (CGI) Facility at 0701 AGI in order to facilitate the supply of Renewable Gas to the network. The new facility is expected to connect to the existing high-pressure 70Barg transmission gas network at the existing 0701 AGI. The Renewable Gas Injection Facility is expected to have a capacity of 20kscmh.

3.3.2 Projects in County Limerick

▶ New Pressure Reduction Skid at existing 0705 AGI

The driver of this project is security of supply. Following the anticipated cessation of Celtic Sea operations and the supplies from the Inch Entry Point, Gas Networks Ireland have initiated a project that will uprate a section of the ring main to 85 barg. A new Pressure Reduction Skid is required at the existing 0705 AGI in order to reinforce the network in the South of Ireland. This project involves installing a new Pressure Reduction Skid with a capacity of 350kscmh at the existing AGI.

▶ New CNG Station at NIP19LKCNG1

The driver of this project is to facilitate the installation of a new CNG station at Ballysimon Road. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.56kscmh. The name of the CNG station NIP19LKCNG1 will change once Gas Networks Ireland complete the design of this CNG station.

3.3.3 Projects in County Tipperary

▶ Capacity Upgrade to existing 0605 AGI

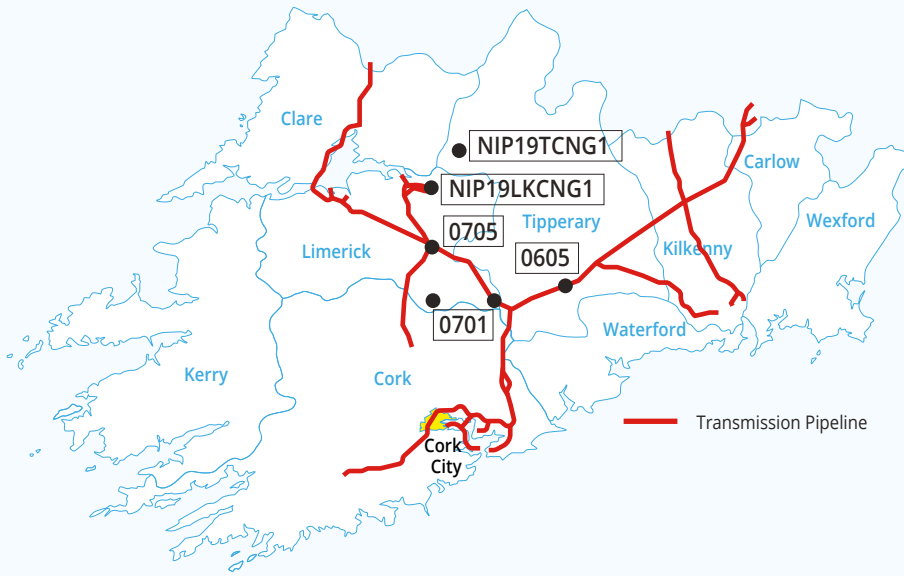
The driver of this project is security of supply. A capacity upgrade is required at the existing 0605 AGI station in order to accommodate the projected future growth in demand in the local network. This project involves increasing the capacity of the existing Pressure Reduction Skid from 2kscmh to 2.7kscmh.

▶ New CNG Station at NIP19TNCNG1

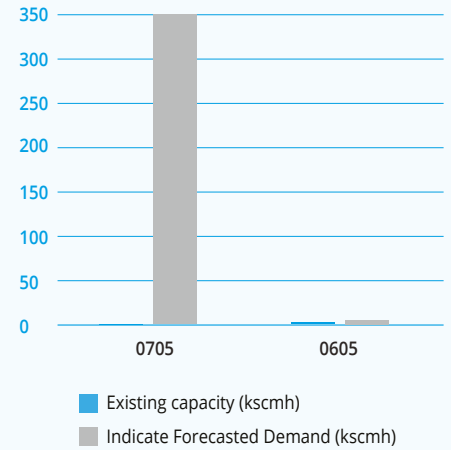
The driver of this project is to facilitate the installation of a new CNG station at Birdhill. The new CNG station is expected to connect to the existing low-pressure distribution gas network. The CNG station is expected to have a capacity of 0.56kscmh. The name of the CNG station NIP19TNCNG1 will change once Gas Networks Ireland complete the design of this CNG station.



The Southern Region



Upgrade Projects



County	AGI no.	Existing Capacity (kscmh)	Indicative Forecasted Capacity (kscmh)
Limerick	0705	0	350
Tipperary	0605	2	2.7

Other – CNG Projects

Country	AGI no.	Comment	Indicative Forecasted Capacity (kscmh)
Limerick	NIP19LKCNG1	New CNG Station	0.56
Tipperary	NIP19TCNG1	New CNG Station	0.56

Other – CGI Projects

Country	AGI no.	Comment	Indicative Forecasted Capacity (kscmh)
Cork	0701	New injection facility on to the 70Bar System	20

Summary of Projects

Project Category	Limerick	Cork	Tipperary
Upgrade AGI	1	0	1
New AGI	0	0	0
New Pipeline	0	0	0
Other - CNG	1	0	1
Other - CGI	0	1	0
Total by County	2	1	2
Total by Area		5	

4 Aims and Commitments

The following environmental aims and commitments developed for this draft Network Implementation Plan will ensure appropriate protection of the environment in the network development:

4.1 General

4.1.1 GNI aim to uphold best environmental practice in the design and appraisal of transmission development projects.

4.1.2 GNI aims to ensure that transmission development projects follow the standard approach to environmental assessment of transmission projects.

4.1.3 GNI aim to ensure that the special interest of protected structures, including their curtilages and settings, are protected to the greatest extent possible when considering site or route options for transmission infrastructure development.

4.1.4 GNI aim to continue to protect and enhance landscapes through the sustainable planning and design of transmission infrastructure development.

4.1.5 It is the aim of GNI to seek to preserve and maintain air and noise quality in accordance with good practice and relevant legislation in the construction of its transmission projects.

4.1.6 GNI aims not increase in flood risk as a result of transmission development, and to ensure any flood risk to the development is appropriately managed.

4.1.7 It is the aim of GNI to deliver our services in a sustainable manner which contributes to the protection of the environment whilst focusing on the areas where we can make the biggest difference.

4.1.8 GNI is committed to ensuring the United Nations Sustainable Development Goals are at the core of our business decisions and key to our strategy.

4.1.9 GNI is committed to uphold transparency in our sustainability and environmental performance, and to disclose widely on our sustainability performance

4.1.10 GNI is committed to embedding sustainability and decarbonisation principles to the core of our business decisions and strategy.

4.1.11 GNI will maintain certification to the Environmental Management System ISO 14001 and the Energy Management System ISO 50001. We will continue to actively participate in the National Energy Efficiency Action Plan, aimed at delivering 33% energy efficiency savings in the Public Sector by 2020. We are committed to improving our energy performance of 33% by 2020 from a 2006 baseline and to date, have already achieved over 44% energy efficiency improvements.

4.1.12 GNI will carry out planning, design, construction and operation in a manner that is both environmentally acceptable and aligned to our sustainability framework as it is an

essential part of this process and will continue to play a key role in driving sustainable change in our business.

4.1.13 Ireland's gas network provides a major opportunity to achieve significant and enduring emissions savings, sooner rather than later, across every sector of the economy, in a least cost and least disruptive manner; while retaining energy sector security and flexibility. Gas Networks Ireland are committed to developing the gas network so that this opportunity can be realised.

4.1.14 GNI will endeavour to adhere to the mitigation measures outlined in SEA Environmental Report and Natura Impact Report that relates to the NIP where necessary.

4.2 Biodiversity

4.2.1 GNI will continue our multifaceted Biodiversity Enhancement Programme which aims to increase awareness about biodiversity among our staff and stakeholders.

4.2.2 GNI will continue to drive and enhance biodiversity as part of a long-term Biodiversity strategy to delivery our 2025 commitments as part of "Our seeds for Nature" commitments.

4.2.3 GNI will implement our public pledge to manage all infrastructure, asset base and offices in Ireland and Scotland in line with biodiversity best practice;

4.2.4 GNI will Strive to have a net positive impact on biodiversity in all our operations

4.2.5 GNI will Promote promote red clover, which is good for bees and soil, by encouraging farmers to grow this as a feedstock crop to produce biogas.



4.2.6 GNI will continue to protect biodiversity across our business and in our community and remain a key supporter of the All Ireland Pollinator Plan:

4.2.7 GNI will Implementimplement a number of measures at our sites including reduced grass cuttings and pesticide use; installation of bird boxes, biodiversity awareness signage and planting of wildflowers.

4.2.8 GNI will continue to deliver internal biodiversity awareness talks

4.2.9 GNI will continue to hold nNature walks to educate staff about biodiversity and presenting Biodiversity talks to other Business as part of our Business in the Community initiative, and initiative and increase engagement with the community by hosting biodiversity awareness sessions in local primary schools in the local community.

4.3 Climate Change

4.3.1 GNI is committed to delivering a safe, affordable and clean energy future for the people of Ireland through the decarbonisation of our network and the reduction of emissions across all sectors of Irish society.

4.3.2 Gas Networks Ireland is committed to becoming a leader in compliant, sustainable infrastructure development and service provision in Ireland.

4.3.3 GNI is committed to halving our greenhouse gas emissions by 2030 as part of low carbon pledge; an initiative developed by the 34 Business Working Responsibly Mark companies to tackle climate change. This pledge aims to practically demonstrate Irish business commitment to reducing carbon emissions and to act as a catalyst for wider, complementary initiatives and actions.

4.3.4 GNI plans to Definedefine what Carbon Neutrality means for GNI by 2024.

4.3.5 GNI will cContinue to drive better sustainability practices through the entire supply chain by enhancing our procurement processes, and

4.3.6 GNI will Assessassess initiatives identified through the Climate Action Working Group on the basis of the potential achievable emissions reduction and the associated mitigation/abatement cost.

4.3.7 GNI will Reducereduce the carbon footprint of the GNI fleet prioritising CNG vehicles where technically feasible. Where CNG vehicles are not feasible, examine opportunities to use alternative zero/ low carbon fuels – e.g. biodiesel:

4.3.8 GNI will rReview journeys undertaken by GNI (fleet and grey-fleet) and examine ways in which journeys can be reduced, e.g. through the use of technology etc;

4.3.9 GNI will Incentiviseincentivise selection, procurement and use of zero/ low carbon/ fuel efficient vehicles by delivery partners (e.g. the next NSWC contract).

4.3.10 GNI are committed to working with government and policy makers across all sectors, to ensure we maximise the contribution this asset owned by the people of Ireland can make to help reduce emissions at least cost.

4.3.11 Gas Networks Ireland is committed to a clean energy future for Ireland. A whole energy system approach will deliver Ireland's climate ambitions in the most practical and least cost manner. To achieve this, we will partner with key energy stakeholders, industry bodies, research institutes and communities to ensure a least cost and fair transformation to a clean energy society.

4.3.12 Gas Networks Ireland has an ambition to deliver a net zero carbon gas network which will help to ensure that Ireland plays its part in the global effort to tackle climate change, supporting a clean energy society now and for generations to come.

4.4 Waste

4.4.1 GNI is committed to reducing our waste to landfill, our target is zero waste to landfill by 2025.

5 Strategic Environmental Assessment

A Scoping Report has been undertaken on the 27 projects outlined in section 3 in consultation with the environmental authorities. An SEA Environmental Report has been prepared which presents the findings of the environmental assessment of the likely significant effects on the environment.

6 Appropriate Assessment (AA)

A screening for Appropriate Assessment pursuant to Article 6 of the EU Habitats Directive 92/43/EEC has been carried out on the 27 projects outlined in section 3. This 'AA Screening Report' presents the assessment of the likely significant effects, if any, on designated European Sites as a result of the implementation of the draft NIP.

Appendix 1: Overview of Projects

#	Region	County	AGI no.	Existing Capacity (kscmh)	Forecast Capacity (kscmh)	Category
1	Northern & Western	Cavan	5501	4	5.2	Upgrade AGI
2	Northern & Western	Cavan	NIP19CNCNG1	New CNG Station	0.562	Other CNG
3	Eastern & Midlands	Louth	3607	13.5	16.1	Upgrade AGI
4	Eastern & Midlands	Louth	5301	2	2.2	Upgrade AGI
5	Eastern & Midlands	Laois	NIP19LSCNG1	New CNG Station	0.56	Other CNG
6	Eastern & Midlands	Meath	NIP19MHCNG1	New CNG Station	0.56	Other CNG
7	Eastern & Midlands	Meath	NIP19MHCNG2	New CNG Station	0.307	Other CNG
8	Eastern & Midlands	Kildare	7403	16.8	18.7	Upgrade AGI
9	Eastern & Midlands	Kildare	6403	16.44	17.8	Upgrade AGI
10	Eastern & Midlands	Kildare	6103	19	24	Upgrade AGI
11	Eastern & Midlands	Kildare	NIP19KECNG1	New CNG Station	0.307	Other CNG
12	Eastern & Midlands	Dublin	1303	270	393	Upgrade AGI
13	Eastern & Midlands	Dublin	A108	6.5	7.3	Upgrade AGI
14	Eastern & Midlands	Dublin	1302	18.1	34.6	Upgrade AGI
15	Eastern & Midlands	Dublin	7203	20	22.7	Upgrade AGI
16	Eastern & Midlands	Dublin	3603	New AGI By Pass (pipework only)	N/A	New AGI
17	Eastern & Midlands	Dublin	8003	New 85-70Bar PRS	1300	New AGI
18	Eastern & Midlands	Dublin	NIP19DAG11	New 70-4Bar PRS	20	New AGI
19	Eastern & Midlands	Dublin	NIP19DCNG1	New CNG Station	0.56	Other CNG
20	Eastern & Midlands	Dublin	NIP19DCNG2	New CNG Station	0.56	Other CNG
21	Eastern & Midlands	Dublin	NIP19DCNG3	New CNG Station	0.56	Other CNG
22	Eastern & Midlands	Dublin	NIP19DCNG4	New CNG Station	0.307	Other CNG
23	Southern	Cork	0701	New injection facility on to the 70Bar System	20	Other CGI
24	Southern	Limerick	0705	0	350	Upgrade AGI
25	Southern	Limerick	NIP19LKCNG1	New CNG Station	0.56	Other CNG
26	Southern	Tipperary	NIP19TCNG1	New CNG Station	0.56	Other CNG
27	Southern	Tipperary	0605	2	2.7	Upgrade AGI

Glossary

AA	Appropriate Assessment
AD	Anaerobic Digester
AGI	Above Ground Installation
CAP	Climate Action Plan
CCS	Carbon Capture and Storage
CEF	Connecting Europe Facility
CGI	Centralised Gas Injection
CNG	Compressed Natural Gas
CO₂	Carbon Dioxide
CRU	Commission for Regulation of Utilities
EEC	European Economic Community
EIA	Environmental Impact assessment
EU	European Union
GB	Great Britain
GNI	Gas Networks Ireland
GRAZE	Green Renewable Agricultural Zero Emissions
IC	Interconnector
IOM	Isle of Man
Km	Kilometre
NDP	Network Development Plan
NI	Northern Ireland
NIP	Network Implementation Plan
NO_x	nitrogen dioxide
NTS	National Transmission System
PC3	Third Price Control
PC4	Fourth Price Control
RAB	Regulated Asset Base
RES	Renewable Energy Sources
RG	Renewable Gas
ROI	Republic of Ireland
SEA	Strategic Environmental Assessment
SO_x	Sulphur Dioxide
TSO	Transmission System Operator

