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Gas
Networks
Ireland

Delivering a Reliable and Secure Gas Supply

Ireland's Gas Network



The Natural Gas Network in Dublin

The Dublin area has the largest number of gas consumers in Ireland, consisting of thousands of Irish and multinational businesses and over four hundred thousand homes. Dublin also hosts 5 natural gas fired power generation stations supplying homes and businesses in the Dublin area and beyond. Consequently, Dublin is serviced by a highly developed gas network that has the capacity to meet the energy demand of consumers in the region;

- The two high pressure subsea Interconnectors, IC1 and IC2, that currently transport 93% of Ireland's natural gas demand, come to shore just north of Dublin. The close proximity of the subsea Interconnectors to Dublin ensures increased security of supply and a high level of system capacity in the area.
- The gas transmission network in the greater Dublin area comprises of a series of 70 barg, 40 barg and 19 barg interconnected pipelines, providing reliable and secure gas supplies to both transmission and distribution connected customers including power generation plants, large industrial & commercial (I&C) operations, small to medium (SME) businesses and domestic homes.

The existing transmission network has the capacity to accommodate substantial new loads², with connection to the higher tier pressure pipelines being the optimal option for large consumers who consume large quantities of natural gas and require the delivery of high pressure at their site.

Equally, the distribution network has capacity to accommodate new loads, albeit on smaller scale and at lower pressures than that of the transmission system.

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² Subject to a network analysis of either the local transmission network or distribution network; network capacity is subject to connection type, connection location, predicted load and required pressure.

Network Reliability

Since its inception as the State Gas Development Agency in 1976, Gas Networks Ireland (formerly Bord Gáis Networks) has been committed to putting the needs of the customer first; ensuring gas is transported to the end user in an efficient, economic, safe and reliable manner. This commitment is reflected in the development and operation of a world leading and modern gas network over the last 30 years, with safety and customer service being the central focus of the organisation.

From 31 km of transmission pipeline in 1978 to approximately 2,200 km and 11,200 km of transmission and distribution pipelines in 2014, Gas Networks Ireland has demonstrated foresight and prudence in building an efficient gas network with sufficient capacity to meet the gas demands of a modern Ireland competing in the global economy.

The role of natural gas in Ireland's energy mix has grown significantly over the past 30 years, currently accounting for 30% of Ireland's Total Primary Energy Requirement (TPER). Approximately 650,000 Irish homes and 27,000 multinational and Irish businesses depend on natural gas and the natural gas network to meet their energy needs. Natural gas is also a critical component for Ireland's electricity generation, with 50% of the country's annual electricity produced from natural gas, and this figure can rise to 85% on certain days. The natural gas network has facilitated the connection of 2,300 MW of natural gas fired electricity generation capacity in the last 10 years.

The existing natural gas network has demonstrated resilience and robustness in maintaining energy security through recent severe winters, particularly during January and December 2010, when record subzero temperatures were recorded¹ combined with record gas and electricity demands.



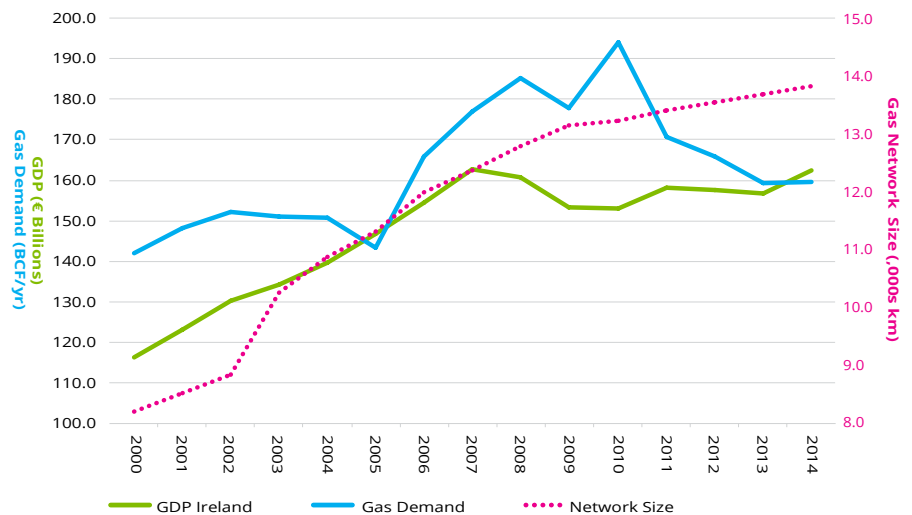
Gas Networks Ireland Pipeline System

- Existing Pipelines —————
- Planned/Under Construction - - - - -
- Pipelines Owned by Others ————

¹ Two separate severe weather events occurred in 2010, one in January and the other in December, when temperatures fell to -18°C in certain parts of the country. Such events would be regarded as 1-in-50 type events, i.e. statistically likely to occur once every 50 years.

Ireland's Economy and the Role of Gas

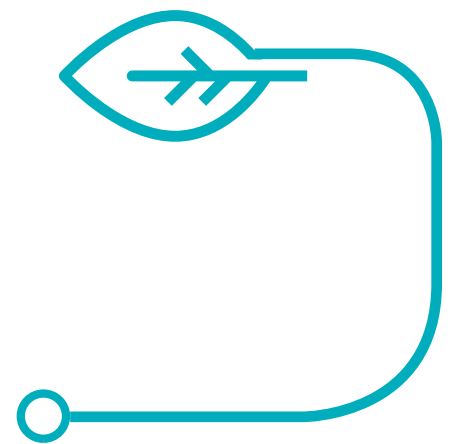
While the most recent winter events have been milder, other types of severe weather events have occurred, with storm force conditions in 2013 resulting in the widespread loss of electricity supplies. Ireland's natural gas network consists of buried pipelines, which are not subject to the vulnerability of storms that can impact the delivery of oil or the transport of electricity through overhead wires.



Natural Gas Supplies

Natural gas supplies in Ireland are more secure than ever;

- Indigenous Corrib gas field will enhance Ireland's security of supply for the next 10 years, making a significant contribution to generating Ireland's electricity, heating Irish homes and providing the energy for industry and businesses to drive the Irish economy.
- Ireland is connected through subsea interconnector pipelines to Great Britain which is one of the most liquid and transparent natural gas markets in the world. Great Britain has a diverse range of natural gas sources from indigenous production, Liquefied Natural Gas (LNG) and subsea interconnector pipelines to Europe.
- Ireland has two subsea interconnectors up to 200 km in length which can be utilised as a significant storage facility and provide backup to indigenous natural gas supplies.
- The Kinsale natural gas field operates as a seasonal storage facility and meets 6% of annual gas demand providing further diversity in terms of gas storage for Ireland.
- Biogas sources in Ireland, which are in development, will complement natural gas and provide a self-sustaining, clean, green and reliable source of energy, potentially supplying up to 10% of Ireland's gas requirement by 2025.
- The International Energy Agency (IEA) has noted the potential for a 'Golden Age' for natural gas. The 'shale gas revolution' in the United States has resulted in a revised gas supply outlook; recent estimates indicate 250 years of potential gas reserves.



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The Operation of the Network – Ensuring the Safe and Secure Supply of Natural Gas

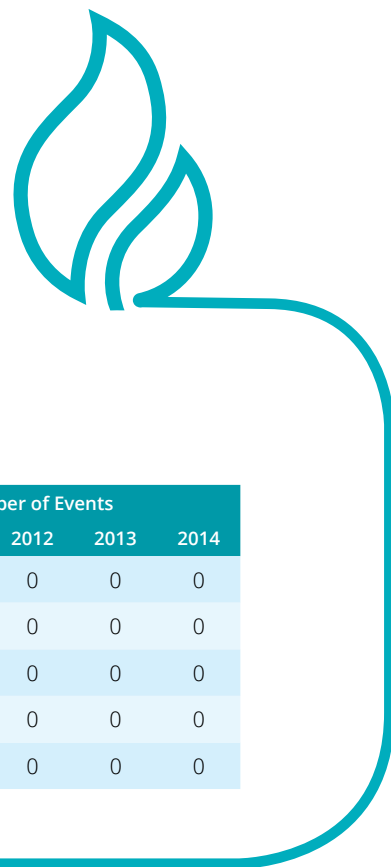
Gas Networks Ireland has set safety as its top priority and considerable resources have been invested to ensure that our operations, procedures and processes benchmark favourably with the best of international utility safety standards.

There are dedicated resources within the organisation responsible for formulating and implementing strategies which maximise the integrity of all the network assets, ensuring a secure and reliable supply of gas that is delivered in a safe, economic and efficient manner.

In addition to this, Gas Networks Ireland has legal and regulatory obligations to operate the natural gas network in a manner that ensures the safe, efficient and

secure supply of natural gas, 24 hours a day, 365 days a year. These obligations are governed under the Transmission and Distribution System Operator Licences issued by the Commission for Energy Regulation (CER).

The following table reflects Gas Networks Ireland's excellent track record with regard to the safe operation of the transmission network and the security of gas supplies.



KPI	Description	Number of Events				
		2010	2011	2012	2013	2014
Pipeline Leak	Pipeline-break/damage resulting in a major leak	0	0	0	0	0
Gas Supply Emergency	The partial or full interruption of gas supplies	0	0	0	0	0
Pressure Control	Pipeline pressures outside allowable range	0	0	0	0	0
Forced Outage	Unplanned outage at pressure control facility	0	0	0	0	0
Gas Quality	Gas constituents outside allowed specification	0	0	0	0	0

Gas Networks Ireland has legal and regulatory obligations to operate the natural gas network in a manner that ensures the safe, efficient and secure supply of natural gas, 24 hours a day, 365 days a year.

Gas Networks Ireland also supports the CER in undertaking a biennial risk assessment and preventative action plan with regard to security of natural gas supply, and participate in various national and regional emergency planning and preparedness groups, involving regulatory authorities, transmission system operators (natural gas and electricity) and government departments from Great Britain, Northern Ireland and Republic of Ireland.

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