



## Overview

This Winter Outlook report sets out Gas Networks Ireland's analysis and views of the adequacy of the gas network for the coming winter. The gas supply position is dependent on both the supply of gas and on the system's ability to transport the gas to the end user.

The Corrib gas field commenced production in December 2015 and has been operating at full capacity since the end of July 2016. This has led to a dramatic change in the ROI supply position and to gas interconnector flows.

In 2016/17, indigenous gas supply sources met 69% of annual ROI gas demand. Corrib met 62% of ROI demand, and Inch met 7%. Imports from GB through the Moffat Entry Point accounted for the balance of 31%. Indigenous gas supply sources met 52% of annual GNI system demand<sup>1</sup>: (47% from Corrib and 5% from Inch). Imports from GB through the Moffat Entry Point accounted for the balance of 48%. In terms of peak day supplies, Moffat accounted for 46% of ROI peak day gas demands, with Corrib accounting for 46% and Inch contributing the balance of 8%. Moffat, Corrib and Inch accounted for 59%, 35% and 6% respectively of GNI system peak day gas demand.

The Corrib gas field is expected to meet approximately 49% of GNI system demand in 2017/18. Corrib will be flowing at its full capacity over the coming winter period and the Gross Calorific Value of Corrib Gas is consistently 37.7 MJ/scm.

Gas supplies from Great Britain (GB) via the Moffat Entry Point are expected to account for circa 46% of the GNI system demand in 2017/18 with 5% met from Inch production.

PSE Kinsale Energy Limited has advised Gas Networks Ireland that it plans to cease full storage operations in 2017 and commence blowdown of Southwest Kinsale cushion gas. There will be no further injections into Southwest Kinsale. Production gas will be supplied from the Inch Entry Point for winter 2017/18, and onwards until production ceases completely, currently anticipated in 2020/21.

In the case of a 1-in-50<sup>2</sup> winter peak day, Moffat would be expected to account for 72% of GNI system demand, with Corrib and Inch contributing 25% and 3% respectively.

## Winter Period 2016/17

The 2016/17 winter period saw an increase in gas demand across all 3 demand sectors. The 2016/17 winter period was approximately 3.5 % colder than the previous winter period, based on a Degree Day (DD) comparison. However the winter of 2015/16 was exceptionally mild. Winter 2016/17 residential gas demand increased by 4.5% on the previous winter period, driven primarily by the colder temperatures.

In the Industrial & Commercial sector, strong economic growth (and growth in new connections) has driven up gas demand in this sector by 1.4% over the previous winter period.

In the power generation sector there was a substantial increase in gas demand of 15.1% over the previous winter period, driven by changing dynamics in the power generation sector. Among the factors which have the potential to contribute to increased demand in the power generation sector are: prevailing market conditions on the SEM<sup>3</sup> and its UK equivalent BETTA<sup>4</sup> continue to result in a predominantly IE-GB flow direction on the EWIC, following introduction of the carbon price floor in the UK; lower fuel prices may pronounce the impact of the carbon price differential; despite further growth in renewables, wind generation load factors were lower in 2016 compared to 2015; electricity interconnector and generator outages can impact the demand for gas-fired power generation.

The 2016/17 GNI system peak day throughput of 27.6 mscmd occurred on the 30th of November 2016. This figure includes flows to ROI, NI and IOM of 21.1 mscmd, 6.0 mscmd and 0.4 mscmd respectively.

The coldest day in winter 2016/17 occurred on the 21st of January 2017 with an average temperature of -0.25 °C; the equivalent day in 2015/16 occurred on the 25th of February 2016 with an average temperature of 0.25 °C.



1 GNI System Demand refers to the combined demands for ROI, NI and IOM.  
2 Gas demand under weather conditions, statistically likely to occur once every 50 years.  
3 Single Electricity Market.  
4 British Electricity Trading and Transmission Arrangements.

## Forecasted peak day demands for Winter 2017/18

Table 1 presents the 1-in-50 peak day and average year peak day system demand forecasts for 2017/18 in line with the Gas Networks Ireland 2017 Network Development Plan. The forecast indicates that for a 1-in-50 peak day, Moffat flows would be within 80% of its technical capacity. An average year peak day would require 62% of the available capacity at Moffat to meet GNI system demand.

**Table 1: 1-in-50 year peak day flows for Winter 2017/18**

	1-in-50 Peak day 2017/18 (mscm/day)	Avg. Year Peak day 2017/18 (mscm/day)	Annual total 2017/18 (bcm)	Winter total 2017/18** (bcm)
ROI Demand	26.1	22.4	4.9	2.8
GNI System Demand*	35.0	29.3	6.4	3.6
Inch Supply	1.1	1.1	0.4	0.2
Corrib Supply	9.0	9.0	3.2	1.7
Moffat Supply	24.8	19.2	2.9	1.8
Total Supply	35.0	29.3	6.4	3.6

\* GNI system demand refers to the combined demands for ROI, NI and IOM as per NDP 2017.

\*\* Winter total refers to the aggregate forecast demand / supply for the period between 1st of October 2017 and 31st of March 2018.

Gas Networks Ireland notes that the power generation forced outage rate can vary sharply on a week-to-week basis; and the general trend is flat with an average outage rate of approximately 7%<sup>5</sup>. Gas Networks Ireland carried out a sensitivity analysis on the forecast peak day gas demands for winter 2017/18 to incorporate a 10% generation plant forced outage rate. This sensitivity resulted in an increase in gas demand in the power generation sector, of 2.4% on ROI gas demand, and 1.8% on GNI system gas demand. The increased gas demand in this scenario remains within the capacity of the Moffat Entry Point and on the GNI system as a whole to maintain gas supplies in the event of a 1-in-50 year peak day.

## Great Britain National Grid Outlook

National Grid UK forecasts predict sufficient gas availability from a wide range of dynamic supply sources to meet GB winter 2017/18 demand. Gas demand in GB for winter 2017/18 is expected to be slightly lower than experienced in winter 2016/17.

A reduction in gas use for power generation represents the biggest change from last year – a reflection of the higher than forecast gas demand for electricity generation observed last winter as a result of lower than expected electricity imports to GB from France. This year, it is expected that electricity imports into GB will be higher than last year and therefore more in line with previous winters.

Gas exports from GB to continental Europe are expected to be slightly lower than 2016/17, with forward prices suggesting sufficient price differential to encourage gas flow from Belgium to GB. GB gas exports to Ireland through

Moffat are expected to remain stable, with Corrib gas continuing to reduce Ireland's demand for GB exports.

The indigenous GB supply forecast range is slightly higher than last winter's forecast. Best available information does not suggest that flows will reach the actual high levels observed last winter, which were higher than forecast. Imports to GB from Norway are expected to be similar to winter 2016/17 levels.

Following ongoing technical problems, the Rough long-range storage facility site is expected to close. As a result, it is expected that nearly 1 bcm of the gas left in Rough will be withdrawn this winter. There remains 1.4 bcm of storage space and 121 mcm/day of deliverability available across the remaining GB medium-range storage facilities, which last winter experienced more cycling of gas to/from storage than in previous years following the

restriction of gas available from Rough. National Grid anticipates slightly more storage withdrawal and re-injection than last year.

Deliveries of LNG into GB were lower in winter 2016/17 than the previous winter as demand (and therefore prices available) for LNG increased in many Asian markets. The three LNG terminals in the UK have an aggregate capacity of around 1 bcm, and forecast cold day range for LNG flows reaches 100 mcm/day. There is no indication that LNG imports into GB will be interrupted by the diplomatic crisis in Qatar.

Based on a 1-in-20 peak day demand, National Grid projects a peak day GB demand forecast of 502 mcm/day. National Grid's analysis suggests that there would be a significant potential excess of supply of 116 mcm/day and that there is sufficient supply capability to cope with a significant supply loss during a severe winter.





## Commercial Arrangements

Since the implementation of the EU Network Codes in late 2015, gas shippers will be aware that re-nominations must now be submitted not later than 3 hours before the end of the gas day, to be effective for the last hour of the gas day (previously, this had been 4 hours 15 mins). Gas Networks Ireland has observed a continued pattern of re-nomination behaviour which results in significant upward Entry re-nominations very late in the gas day. Shippers and their end-users are often using gas throughout the day without sufficient re-nominations at entry points into the network. These re-nominations are becoming increasingly difficult to accommodate and can lead to financial costs for the aggregate gas shipping community, as Gas Networks Ireland may have to undertake balancing actions which could otherwise have been avoided with more timely re-nominations. Gas Networks Ireland continues to reiterate the importance of accurate and timely re-nominations in order to operate the gas network in an effective and efficient manner. Gas Networks Ireland continues to engage with industry on developing an appropriate solution(s) to this issue in the context of general discussions around balancing arrangements on the network. GNI are currently looking to introduce changes to the Code of Operations to incentivise shippers to nominate earlier in the day to GNI. The changes will seek to place an obligation on shippers to match their Entry nominations to their metered Exit flows at a number of points within the gas day. These proposed changes will be issued to industry for consultation in December 2017.

## Operational challenges for Winter 2017/18

The most efficient flow profiles at each of the Entry Points are those that are flat and predictable. Therefore, shippers at each Entry Point are advised to:

- Ensure D-1 nominations/re-nominations are as accurate as possible;
- Avoid large within day imbalances where possible;
- Provide re-nominations in a timely and accurate manner in compliance with contractual arrangements; and
- Operate in accordance with the flow nomination information they have provided to the TSO.

In addition to the occurrence of 1-in-50 winter peak day demands, there are a number of other factors which need to be considered with regard to system flexibility.

- Within day pressure volatility at Moffat on the GB NTS also impacts on compressor station operations. The frequency and magnitude of such volatility has increased in recent years, as a result of a change in demand/supply patterns in the GB NTS.
- Gas with a lower Gross Calorific Value (GCV) at Moffat means higher volumes are required to meet downstream energy requirements.
  - *Current technical capacity (31 mscmd) is based on a GCV of 39.8 MJ/scm<sup>6</sup>. Though the GCV at Moffat typically ranged between 39.0 MJ/scm and 40.0 MJ/scm during winter 2016/17, there were instances of the GCV approaching 38.5 MJ/scm.*

## Storm Ophelia - Gas Networks Response

Storm Ophelia hit Ireland's southern coast on the morning of 16th October 2017, bringing wind gusts in excess of 130 km/h, with the impact resulting in widespread damage to the electricity network. This resulted in the loss of mains power to approximately 31 Above Ground Installations on the Gas Networks Ireland network. These locations switched to alternative power sources in the form of back-up generators and battery power to maintain supply to all customers during the storm. No gas outages were experienced as a result of storm Ophelia.