

# Winter Outlook 2015/16



## Key Messages

- The Corrib gas field is anticipated to commence full commercial production by year end, and will greatly enhance Ireland's security of supply, meeting approximately 56% of Gas Networks Ireland system forecasted annual demand in its first full year of production.
- Corrib will initially operate at a reduced capacity of 5.7mscm/d, due to the inline pipeline inspection required to facilitate the pressure restoration process, accounting for up to 20% of Republic of Ireland (ROI) demand over winter 2015/16.
- Gas supplies from Great Britain (GB) via the Moffat Entry Point are expected to account for 68% of the ROI annual gas demand for winter 2015/16 with 12% met from Inch production and storage.
- The outlook for ROI indicates sufficient gas supplies and network capacity to meet the anticipated demands over the winter period, subject to acceptable flow profiles and pressures at the Moffat Entry Point.
- The latest gas demand forecast for the forthcoming winter is as per the Network Development Plan published in September 2015.
- The South West Scotland Onshore System (SWSOS) is likely to be within 84% of its capacity limits in the event of severe weather causing peak gas demands in winter 2015/16. This assumes that Corrib is available on the peak day.
- Inch production and storage gas supplies are assumed to be fully available during the forthcoming winter.
- There would be limited system flexibility to accommodate within-day shipper re-nominations at the Moffat Entry Point should severe weather conditions occur and if Corrib supplies were unavailable.

## 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 Republic of Ireland's (ROI) 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.

In 2014/15, GB imports through the Moffat Entry Point met 96.3% of annual ROI gas demands and 86% of peak day gas demands. The balance of gas supply was met by supplies through the Inch Entry Point.

The Corrib gas field is anticipated to commence full commercial production by year end, and will greatly enhance Ireland's security of supply, meeting approximately 56% of Gas Networks Ireland System forecasted annual demand in its first full year of production. However Corrib will initially operate at a reduced capacity of 5.7mscm/d, due to the inline pipeline inspection required to facilitate the pressure restoration process, accounting for up to 20% of Republic of Ireland (ROI) demand over winter 2015/16.

PSE Kinsale Energy Limited has recently advised the Commission for Energy Regulation (CER) that it plans to cease full storage operations in 2016 and commence blowdown of Southwest Kinsale cushion gas. However it is anticipated that the gas storage and production facility will continue normal operation throughout the winter period accounting for 12% of supplies. Gas Networks Ireland will continue to engage with PSE Kinsale Energy Limited regarding the blowdown schedule for the Southwest Kinsale gas field.

The majority of ROI gas demands will continue to be met by GB imports through the Moffat Entry Point for winter 2015/16 accounting for circa 68% of the overall requirement. The latest gas demand forecast predicts Moffat flows will approach 84% of the capacity limit in the event of 1-in-50 winter peak conditions occurring, assuming that Corrib is available on the peak day. If Corrib were unavailable on the peak day then the capacity limit for Moffat would be reached, in which case there would be limited system flexibility to accommodate within-day shipper re-nominations at Moffat.

## Winter Period 2014/15

The 2013/14 winter period was unusually mild, however the 2014/15 winter was more in line with long run average weather conditions. As a result there was an increase in Industrial and Commercial (I/C) and residential gas demands. However in the power generation sector reductions in gas demand were driven by the continuing dominant position for coal fired generation on the Single Electricity Market (SEM) and further growth in wind powered generation.

The 2014/15 system peak day throughput of 25.2 mscmd occurred on 2nd February 2015. This figure includes flows to ROI, Northern Ireland (NI) and Isle of Man (IOM) of 18.5 mscmd, 6.2 mscmd and 0.5 mscmd respectively.

Based on a Degree Day (DD) comparison, the 2014/15 winter temperature was approximately 9.6% colder than the previous year, 2013/14. The coldest day in winter 2014/15 occurred on the 3rd of February with an average temperature of -2.0°C; the equivalent day in 2013/14 occurred in mid-February with an average temperature of 1.5°C.

Wind capacity factors for winter 2014/15 were 2.5% lower in absolute terms compared to 2013/14, however the average overall installed wind generation capacity increased by 16%. The total wind powered generation increased by 8.8% compared to the previous year. Wind powered generation reached a maximum daily output of 2,512 MW, which occurred in January while wind powered generation during the 2014/15 peak gas demand day varied between a minimum of 9 MW and a maximum of 95 MW.





## Great Britain National Grid Outlook

National Grid UK report that there will be sufficient gas available to meet demand from across a wide and diverse supply base for winter 2015/16, although there may be some uncertainty around the mix of supply sources.

The GB gas demand for winter 2015/16 is expected to be similar to last year. In the power generation sector there may be some potential for higher gas-fired generation demand due to the narrowing of the price differential between coal and gas.

National Grid expects exports through Moffat to decrease when Corrib commences production.

Indigenous GB supplies are expected to be similar to winter 2014/15, as are imports from Norway. Liquid Natural Gas (LNG) flows have the potential to be higher due to increased availability globally. Continental flows are however uncertain for the coming winter given production restrictions in the Netherlands. There is also a reduction in storage space compared to previous winters.

## Forecasted 1-in-50<sup>1</sup> year peak day demands for winter 2015/16

Table 1 presents the 1-in-50 year peak day system demand forecast for 2015/16 in line with the 2015 Network Development Plan. This forecast assumes that the Moyle interconnector will continue on partial outage until year end and takes account of the outage schedule required to restore Moyle to full capacity in 2016. The forecast indicates that Moffat supply flows could be within 84% of its technical capacity limit. On such a peak day flows through the Moffat Entry Point are expected to be high, hence system flexibility will be low and pressures may approach 56 barg at Twynholm, particularly if Corrib supplies were unavailable.

**Table 1: 1-in-50 year peak day and total flows for winter 2015/16**

|               | Peak day 2015/16<br>(mscm/d) | Winter total 2015/16**<br>(bcm) |
|---------------|------------------------------|---------------------------------|
| ROI Demand    | 26.0                         | 2.49                            |
| Total Demand* | 34.9                         | 3.25                            |
| Inch Supply   | 3.0                          | 0.29                            |
| Corrib Supply | 5.7                          | 0.53                            |
| Moffat Supply | 26.2                         | 2.43                            |
| Total Supply  | 34.9                         | 3.25                            |

\* Total demand includes for NI and IOM gas demand as per NDP 2015.

\*\* Winter total refers to the forecast demand / supply from the 1st of October 2015 until the 31st of March 2016

It is to be noted that an extreme weather event late in the winter period, in conjunction with possible low withdrawal rates from storage, due to low quantities of stored gas from higher withdrawals earlier in the season, could expose the Moffat Entry Point to flows in excess of its technical capacity if Corrib supplies were also unavailable.

## Operational Challenges for Winter 2015/16

The latest gas demand forecast predicts Moffat flows will approach capacity limits in the event of 1-in-50 winter peak conditions occurring, if Corrib were unavailable due to commissioning works or operational requirements. Consequently, there would be limited system flexibility to accommodate within-day shipper re-nominations at Moffat.

The flow profile at the Moffat Entry Point will need to be flattened and predictable; therefore, shippers at the Moffat Entry Point are advised to;

- Ensure D-1 nominations/re-nominations are as accurate as 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 could impact on the capacity and/or system flexibility at the Moffat Entry Point;

- Lower pressures available from the GB National Transmission System (GB NTS) at Moffat – implies lower station capacity and/or station discharge pressure;
  - *The current technical capacity of the Moffat Entry Point is based on an Anticipated Normal Offtake Pressure (ANOP) of 47 barg.*
  - *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.*

- It is anticipated that for the winter 2015/16 period, prevailing operating pressures on the Gas Networks Ireland transmission system will be lower than the typical pressures provided in previous years due to temporary operational constraints on the network.

- 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>2</sup>. Though the GCV at Moffat typically ranged between 39.0 MJ/scm and 40.0 MJ/scm during winter 2014/15, there were instances of the GCV approaching 38.6 MJ/scm.*

- It is anticipated that the Gross Calorific Value (GCV) will be lower for Winter 2015/16, in comparison to previous winter periods. This is as a result of Corrib Gas field commencement of commercial operations. The Gross Calorific Value of Corrib Gas is assumed to be 37.7 MJ/scm (as per NDP 2015).

- Gas Networks Ireland has recently deployed a planning tool in Grid Control to support the decision making associated with the day to day operation of the transmission network. The tool comprises of a series of hydraulic models of the Interconnector pipelines and the Irish onshore network (excluding 19 barg), and provides key real-time information and predicted information over a 24 hour time horizon. The tool will play a pivotal role in ensuring the optimal operation of the transmission network, particularly with the onset of Corrib flows and the continued impact of renewable generation on gas flow volatility.

## Security of Supply - Interconnector Linepack

Subsea Interconnector pressures will be maintained to ensure minimum operational requirements and sufficient linepack to meet an amount of ROI non-power generation gas demand, in the event of a supply disruption, in line with Gas Networks Ireland's winter balancing policy

At times of peak demand, such a stock position (high linepack in subsea Interconnectors) may need to be reduced in order to free up transportation capacity, thereby ensuring end of day volumes are met.

## Commercial Arrangements

With the implementation of the EU Network Codes since October 1st 2015, shippers will be aware that the last time for submission of re-nominations is now only 3 hours from the end of the gas day (previously this was 4 hours 15 minutes from the end of the gas day). Due to the new shorter timeframe for responding to re-nominations, late (upward) nominations may be difficult to accommodate. 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.