Summer Outlook 2017

Gas Networks Ireland

Key Messages

- The Corrib gas field commenced production on December 31st 2015 and has been operating at full commercial production capacity since the end of July 2016. Corrib is anticipated to operate at full capacity during the summer period 2017.
- It is anticipated that storage operations at Kinsale storage facility will cease in 2017 and blowdown of Southwest Kinsale cushion gas will subsequently commence. As a result, injections to Kinsale storage facility are not expected to take place over the summer period.
- Based on the forecast indigenous supply scenario there will be a number of days over the summer period where maximum indigenous supply capacity will exceed the total RoI gas demand requirement.
- Gas imports via the Moffat Entry Point are anticipated to be available to full technical capacity over the summer period.
- System operability challenges are evident, particularly with system balancing intra-day where at times shippers (in aggregate) are leaving the system short earlier in the day and delivering the required gas molecules later in the day. This has implications in terms of both potential requirement to undertake balancing gas transactions and sub-optimal use of equipment on the network e.g. compressors at Moffat Entry Point (Beattock).
- On certain days, there will be a requirement on the South West Scotland Onshore System to switch on/off the compressor stations a number of times during the day to flow the daily gas nomination (batch flow).

Data Freeze

In order to complete the detailed analysis required to produce this document, the input data was defined in May 2017, based on the most up to date information available at the time.

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 this Summer Outlook 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 perspective investor or participant in the Republic of Ireland's gas market may need.

Gas Networks Ireland

PCI 5.2: Construction of 50km pipeline in Scotland

Overview

The Summer Outlook 2017 sets out Gas Networks Ireland's analysis and views of the adequacy of the gas network for the period ahead (April to October 2017). It is designed to inform the energy industry on the anticipated status of the gas system over the period, to help the industry in preparing for the summer months. It also allows for Gas Networks Ireland to provide insight on the increasing system operability challenges present on the system.

In the summer period 2015, prior to commencement of flow from the Corrib gas field, Great Britain (GB) imports through the Moffat Entry Point met 99% of RoI gas demand over the period, with the balance of gas supplies being met through Inch Entry Point. In the summer period 2016, resulting from the Corrib gas field reaching full commercial production, only 36% of RoI gas demand was imported from Moffat Entry Point, with the remaining 64% being met from indigenous supply sources over the period.

The Corrib gas field commenced commercial production on December 31st 2015. It initially operated at a reduced capacity of 5.7 mscm/d until the end of the Winter 2015/16 period, and then at 7.9 mscm/d from the period between April and June 2016. Subsequently in July 2016 Corrib increased to 100% production capacity (9.9 mscm/d), following successful completion of the Gas Networks Ireland pipeline commissioning programme.

PSE Kinsale Energy Limited have advised Gas Networks Ireland that it plans to cease full storage operations in 2017 and commence blowdown of Southwest Kinsale cushion gas. As a result, for the summer period, the facility will operate as a production source, where gas will be withdrawn from the facility, in contrast to previous years where the facility was operated in storage injection mode over the summer months (and thereby created additional system demand in the summer period).

The twinning of the 50 km section of pipeline on the SWSOS is currently under construction, and remains on schedule for completion in the gas year 2017/18.

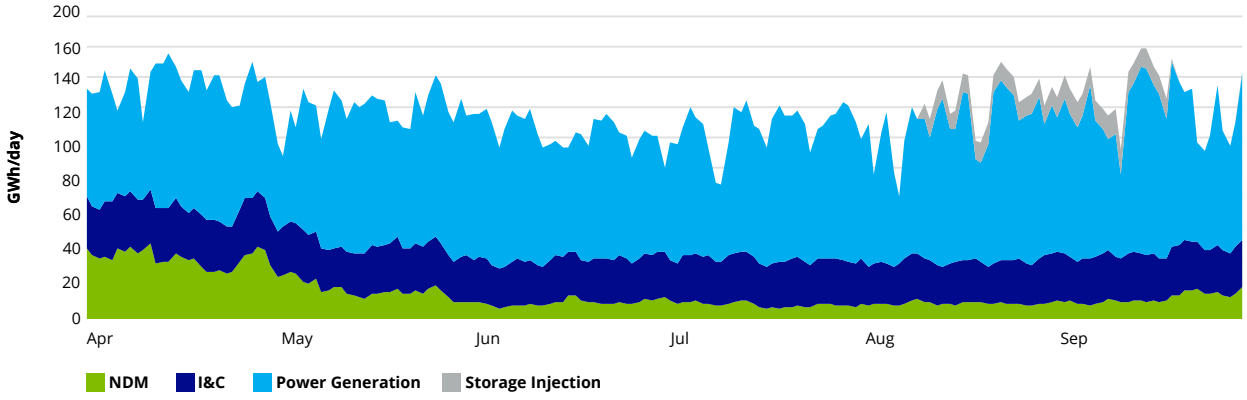
System operability challenges are evident, particularly with system balancing intra-day where at times shippers (in aggregate) are leaving the system short earlier in the day and delivering the required gas molecules later in the day. This has implications in terms of both potential requirement to undertake balancing gas transactions and sub-optimal use of equipment on the network e.g. compressors at Moffat Entry Point (Beattock).

Summer Period 2016

Figure 1 shows actual gas demand for the 2016 summer period. Total gas demand over the period was 16.0% above demand from the 2015 summer period. In the power generation sector, gas demand was up 25% from the 2015 period. This can be attributed primarily to increasing electricity demand and to increasing electricity exports to Great Britain (GB). The Industrial and Commercial (I&C) sector gas demand for the period increased by 5.7 % on the 2015 period. Non-daily metered (NDM) demand was the only sector which showed a reduction in total gas demand on the previous summer period (-2.2%). This reduction can be attributed almost entirely to annual weather variation; the weather corrected NDM sector demand was up by 10.4 %.

The storage injection element of gas 'demand' is shown in Figure 1 in grey. It is notable, that based on the working assumptions at the time of the data freeze, the portion of 'demand' attributed to storage is not anticipated to be on the system for the 2017 Summer period as a result of cessation of storage operations at Inch. The cessation of storage will lead to up to 27.6 GWh/day less 'demand' to be supplied for the 2017 and indeed subsequent summer periods.

Figure 1: Summer 2016 Actual Gas Demand



Power generation demand was again the most variable of the demand sectors, continuing on historical trends. The volatility of Power Generation demand is associated with the interdependency between this sector and renewable energy sources such as wind powered generation (and general demand conditions) on the Single Electricity Market (SEM). The flexibility of the gas network to respond to the intra-day, daily and annual trend changes in demand in the power generation sector is further demonstrated in Figure 2, which compares the contribution of gas to the power generation fuel supply mix on the SEM over the summer 2015 and 2016 periods in stacked order. Gas contributed an average of 38% to the power generation fuel mix over the summer 2016 period, up from 24% in 2015.

Figure 2: Gas as a portion of Power Generation Fuel Supply Mix[1]

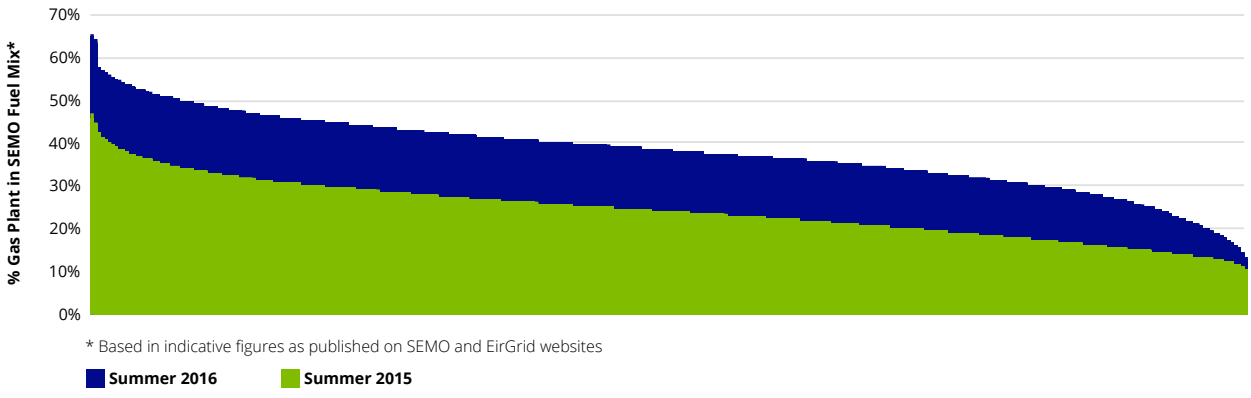
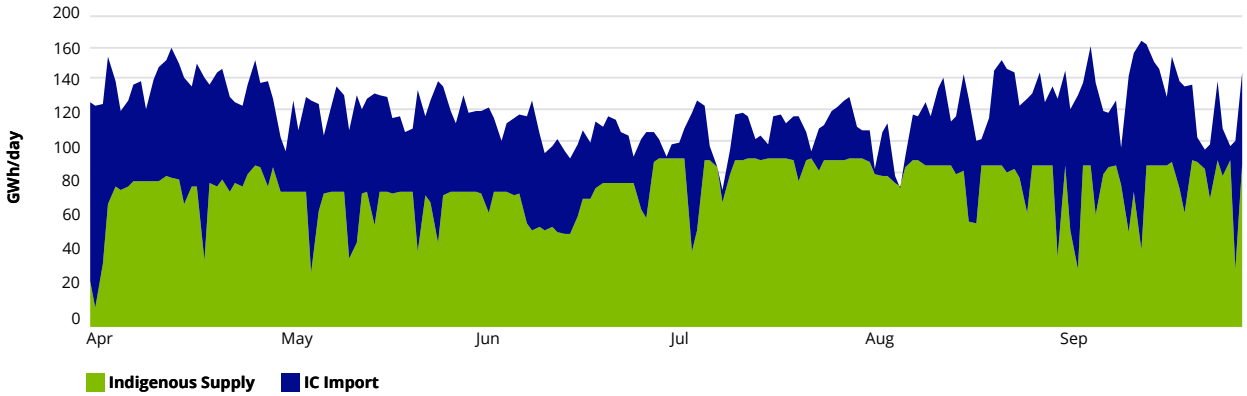


Figure 3 shows actual gas supply sources during the summer 2016 period. It can be seen that Corrib increased to full production capacity at the end of June 2016 during the final commissioning phase. As a result, 64% of total RoI demand was met by indigenous supply sources during the 2016 summer period. It should be noted that the Moffat Entry Point supplied 99% of RoI demands during the previous summer period (2015).

Figure 3: Summer 2016 Actual Gas Supply



Summer Period 2017 Forecast Supply Position

Table 1 shows the forecast maximum indigenous supply scenario[2] for the summer period 2017. It is based on the outcome of consultation between Gas Networks Ireland and gas producers and suppliers, run as part of the Network Development Plan 2017.

Table 1: Summer Period 2017 Forecast Indigenous Supply Scenario

Forecast Indigenous Maximum Supply Scenario	
Corrib	KEL
103.5 GWh/day	17 GWh/day

It is anticipated, based on the supply scenario presented in Table 1 that there will be a number of days over the summer period where the maximum RoI indigenous supply capacity may exceed the daily RoI gas demand. In practice, this may lead to a reduction in indigenous gas supplies on the day to re-adjust to the prevailing demand on the system.

On days where demand exceeds the indigenous supply capacity, the balance of gas demand would be anticipated to be met by imports from Moffat Entry Point[3]. This leads to a positive security of gas supply position for the summer period 2017.

[1] The data presented in Figure 2 was downloaded from the SEMO and EirGrid websites and is indicative only.

[2] The supply scenario represents maximum daily supply capacities at indigenous sources. Actual supply profiles on a given day may differ from the maximum daily scenario assumed in Table 1.

[3] The Moffat Entry Point has a current technical capacity of 342 GWh/day and supplies gas to RoI, Northern Island and Isle of Man.

South West Scotland Onshore System Pipeline Twinning (PCI 5.2)

Co-financed by the European Union
Connecting Europe Facility

The twinning of the 50 km section of pipeline on the SWSOS is currently under construction, and remains on schedule for completion in the gas year 2017/18. The project will result in a fully twinned pipeline between Beattock and Brighouse Bay compressor stations and an entire dual interconnector system between Great Britain and Ireland, thereby enhancing Ireland's security of supply.

Planned Summer Maintenance Activities

Standard scheduled maintenance works continually take place on the Gas Networks Ireland transmission system. Of the maintenance works scheduled on the network for the summer 2017 period, none are anticipated to impact on gas shippers or suppliers.

Upstream of the Gas Networks Ireland transmission system, the following scheduled maintenance works as listed in Table 2 are currently anticipated, as advised by gas producers.

The Gas Networks Ireland SWSOS[4] and subsea systems are anticipated to be fully available over the summer period, facilitating supply of gas from the GB National Transmission System (NTS) via the Moffat Entry Point, up to its full technical capacity of 342 GWh/day.

[4] South West Scotland Onshore System

Table 2: Scheduled Summer Maintenance Upstream of Entry Points

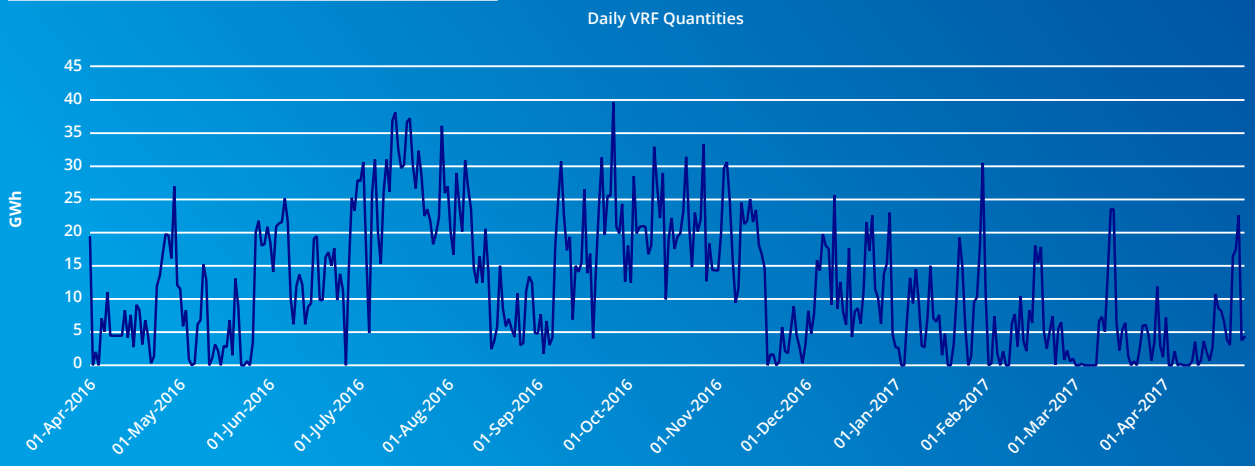
Entry Point	Scheduled Upstream Maintenance	Period	Duration
Inch	Planned Maintenance Outage	26th August – 17th September 2017	23 days
Corrib	Planned Annual Maintenance	11th – 14th September 2017	4 days

Gas System Operability

Gas Networks Ireland witnessed large volumes of gas being left on the system over the summer months in 2016. This resulted in a corresponding increase in the frequency and volume of balancing sells by the Transporter over the period. The Code of Operations sets out the cash-out prices for shippers who close the day with excess (or deficit) gas. Gas Networks Ireland recently proposed a code modification which altered these cash-out prices and sought to provide more incentives to shippers to balance their respective portfolios. This Code Modification was approved by CER in August 2016 and was implemented September 1st. This appears to have had a positive effect on aggregate imbalances.

Following the introduction of an interruptible within day Virtual Reverse Flow (VRF) product at the Moffat Interconnection Point in April 2016, this commercial product continues to provide an outlet for shippers to 'export' surplus gas, helping shippers to reduce the quantity of imbalanced gas, by facilitating virtual reverse flow of gas into the UK. During the summer period 2016 (April – September inclusive), within day VRF enabled an aggregate virtual flow of 2,633 GWh of gas to the UK market, which may otherwise have been left on the network as imbalanced gas. Figure 4 shows daily VRF usage, since introduction of the product.

Figure 4: Daily VRF Usage April 2016 – April 2017



The following mechanisms continue to be available to Gas Networks Ireland for addressing shipper imbalances and maintaining the integrity of the transmission system:

- Issue of constraint notices at Entry Points
- Completion of Balancing Buys/Sells via the balancing contract

On certain days, when flows at Moffat will be less than the minimum flow limits associated with the compressor stations in Scotland, there will be a requirement to batch flow the daily gas nomination. Gas Networks Ireland is currently seeking to introduce modifications at Beattock Compressor Station which will serve to reduce the frequency of when batch flows are required.