

Summer Outlook 2021



Overview

The Summer Outlook 2021 sets out Gas Networks Ireland's analysis and views of the adequacy of the gas network for the summer ahead (April to October 2021). 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.

Key messages

There has been no resulting interruption to gas network operation since the introduction of the first COVID-19-related restrictions in March 2020. The gas network has continued to maintain security of supply to houses, businesses and power generation customers without interruption during this period.

Gas Networks Ireland has observed a slight reduction in gas demand (c. 0.6%) in the summer of 2020 against the equivalent period in 2019.

In the summer period 2020, indigenous gas supply sources provided 37.3% of Republic of Ireland (ROI) gas demand (Inch 1.6%, Corrib 35.7%) with the remaining 62.7% being met from Great Britain (GB) imports through the Moffat Entry Point.

The final commercial flow of gas into the Inch Entry Point from the Kinsale gas fields took place on the 4th July 2020.

Based on the forecast indigenous supply scenario, Corrib is expected to supply c. 31% of daily summer demand in 2021, with the balance of gas demand to be met by imports from the Moffat Entry Point.

Moffat is set to continue as the dominant supply source. Corrib is anticipated to operate at its forecasted capacity during the summer period and is currently the primary indigenous gas source. The share of renewable gas in the network is set to grow over the coming years in line with the government target of 1.6 TWh of renewable gas in the network by 2030. This is supported by the commissioning of the first renewable gas entry point at Cush in May 2020.

Upstream planned outage is scheduled to take place at the Corrib Entry Point for 22 days in July 2021.

As part of a project to enhance security of supply at our compressor stations, a station upgrade project at Beattock is planned over the summer period. The upgrade works have been scheduled for the summer months to coincide with lower gas demand as the station will be operating at a reduced capacity to facilitate the works. This reduced capacity is forecast to adequately meet summer gas demand and will not result in gas shortages.

Gas-fired power generation continues to play a key role in complimenting the intermittent nature of wind generation. There were days in the summer period 2020 where gas accounted for up to 85% of electricity generation on the Single Electricity Market (SEM).

Gas Networks Ireland monitors transmission system imbalances as a result of shipper balancing activities on a daily basis. Increasing liquidity on the Marex Spectron Trading Platform allows Gas Networks Ireland to trade out system wide imbalances in an efficient manner. Following enhancements made to Gas Networks Ireland's Non-Daily Metered (NDM) forecasting algorithm in the spring of 2021, combined with improved Shipper nomination accuracy, the amount and frequency of Gas Networks Ireland balancing actions has reduced since 2020.

COVID-19 response

In March 2020, the first set of restrictions were introduced by the Irish government in response to the COVID-19 pandemic. There has been no resulting interruption to gas network operation since the beginning of these restrictions or due to any subsequent restrictions introduced since.

The gas network has continued to maintain security of supply to houses, businesses and power generation customers without interruption during this period. Gas Networks Ireland's Grid Control team in Cork is one of the business critical teams working day and night, seven days a week to ensure that gas flows reliably and safely across our network, and meets our customers' gas requirements in homes, power generation stations and other essential businesses around the country.

Gas Networks Ireland continue to utilise its backup control centre at Midleton, Co. Cork, a measure introduced last March 2020 at the onset of COVID-19 related restrictions. This has allowed the Grid Control team to alternate day-shift and night-shift crews between the locations in Cork City and Midleton, thereby adhering to social distancing guidelines, while scheduled deep cleaning of both locations is performed between shifts. An additional standby grid controller was appointed, trained and is available to replace any absent grid controllers should the need arise.

Gas Networks Ireland continues to provide essential support for vulnerable customers and works in support of other services and industries deemed essential by the Government in the current crisis. Gas Networks Ireland continues to offer its assistance to the COVID Engineering Alliance, which was setup to provide support to help increase resilience and capacity in the healthcare system. The Alliance requested support regarding equipment needs and professional expertise in the event that a surge in the number of COVID-19 patients occurs. Should the need emerge, Gas Networks Ireland has retained Nitrogen bottles which could be repurposed for use by the HSE.

In terms of the impact of COVID-19 on gas demand, Daily Metered Industrial & Commercial (DM I&C) and NDM gas demands saw a reduction of 4% and 16.5% respectively in the summer of 2020 in comparison to the same period in 2019. These reductions can be related to the restrictions introduced in response to the COVID-19 pandemic as many non-essential businesses have not been operating as normal during this period. Gas demand in the Power sector remained unaffected by the restrictions with an increase in demand of 3.8% observed on the previous summer. Overall, this results in a slight reduction in total gas demand (c. 0.6%) in the summer of 2020 against the equivalent period in 2019.



Summer period 2020 supply

Figure 1 shows actual gas supply sources during the summer 2020 period. It shows that 37.3% of total ROI demand was met by indigenous supply sources during the 2020 summer period with the Moffat Entry Point supplying the remaining 62.7%.

Figure 1: Summer 2020 Actual Gas Supply¹

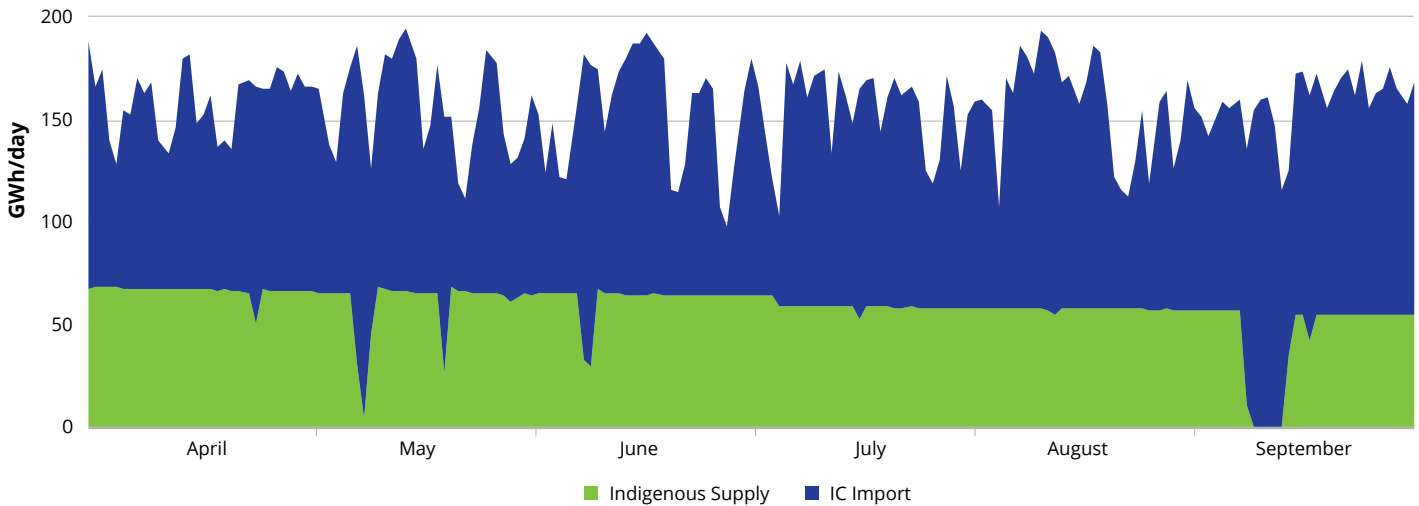


Table 1 shows the summer 2020 breakdown by entry point. Of the total ROI supply (including shrinkage) of 27,730 GWh, Moffat imports supplied 17,387 GWh (62.7%), with Corrib and Inch supplying 9,898 GWh (35.7%) and 445 GWh (1.6%) respectively.

Table 1: Summer 2020 Actual Gas Supply by Entry Point

Moffat	Corrib	Inch	Total ROI Supply
17,387 GWh	9,898 GWh	445 GWh	27,730 GWh

Kinsale storage facility

The Kinsale storage facility has been operated by PSE Kinsale Energy Limited (KEL) using the depleted Southwest Kinsale gas field. In July 2020, the KEL facility ceased production, and the final commercial volumes of gas from the Kinsale fields flowed onto the Gas Networks Ireland transmission system via the Inch Entry Point².

Gas Networks Ireland acknowledge the key role the Kinsale gas fields have played in the supply of natural gas to Ireland since 1978, marking over four decades of operation and delivering all of Ireland's natural gas from 1978 to 1995. The facility was Ireland's only indigenous source of natural gas until 2015, when Corrib was connected to the network. Gas Networks Ireland is fully committed to ensuring that gas will continue to flow through its other entry points and that security of gas supply will not be negatively impacted.

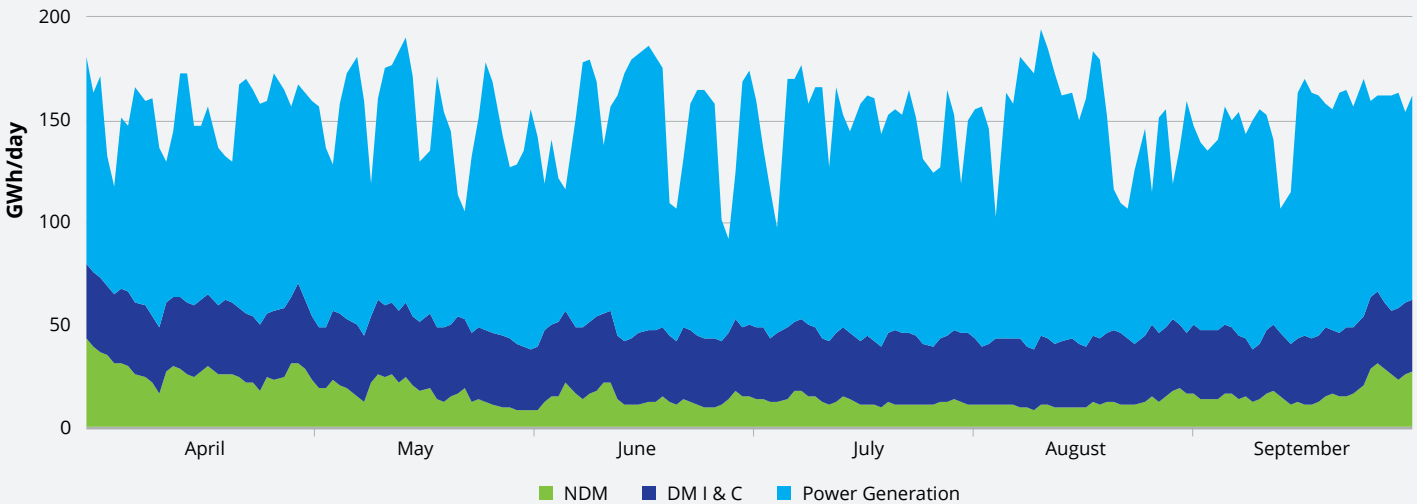
¹ Scheduled Upstream Maintenance works at Corrib took place between 7th and 13th September 2020.

² To facilitate the decommissioning of the terminal and associated infrastructure, there have been some small flows of gas to KEL via the Inch Exit Point since July 2020. These flows will cease permanently upon full decommissioning in June 2021.

Summer period 2020 demand

Figure 2 shows actual gas demand for the 2020 summer period. Total gas demand over the period was slightly below (c. 0.6%) demand from the 2019 summer period.

Figure 2: Summer 2020 Actual Gas Demand



DM I&C sector gas demand for the summer 2020 period was down by 4.0% on the 2019 period. NDM demand was down by 16.5% on the 2019 period; with weather correction taken into account the NDM sector demand was down by 14.7%. Table 2 shows the summer 2020 gas demand by sector.

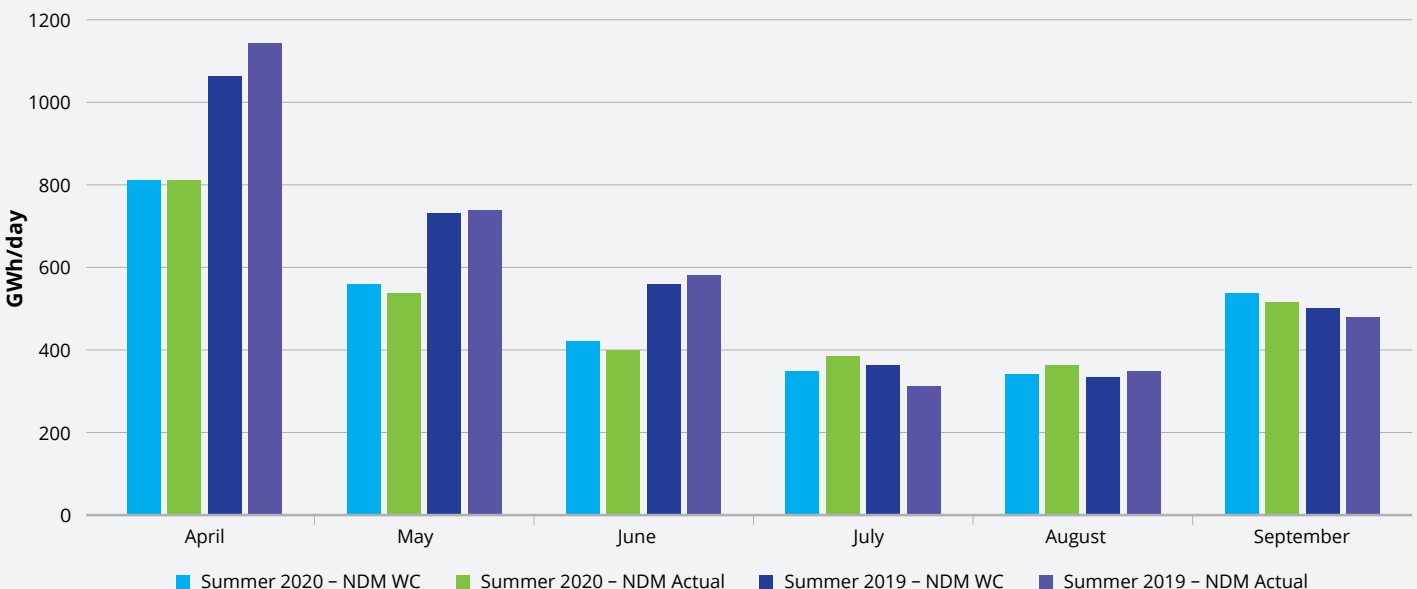
Table 2: Summer 2020 Actual Gas Demand by Sector

Power Generation	Total DM I&C	NDM	Total ROI Demand
18,347 GWh	6,013 GWh	2,990 GWh	27,350 GWh

A significant portion of the drop in I&C demand can be related to the impact of the restrictions introduced in response to the COVID-19 pandemic, since only essential businesses have been operating as normal during this period.

The first half of summer 2020 showed a larger reduction in NDM demand than the latter half of the period when restrictions were temporarily eased and industries, businesses and homes returned to more typical gas demand behaviour. This is illustrated in Figure 3 below which shows actual and weather corrected NDM gas demand for summer 2020 vs. 2019, with April to June clearly showing higher reductions in demand in comparison to the July to September period.

Figure 3: Actual and Weather Corrected NDM Demand Summer 2020 vs. Summer 2019



Summer period 2020 demand continued

In the power generation sector, gas demand was 3.8% higher than the 2019 summer period and accounted for 62% of the total fuel mix compared to 58% in summer 2019. During summer 2020, wind generation supplied 29% of Ireland’s electricity demand compared to 27% for the same period in 2019. ROI was a net exporter of electricity across the summer 2020 period, whereas ROI was a net importer of electricity in summer 2019.

Power generation was the most variable of the gas demand sectors across the 2020 summer period, continuing historical trends. Low wind generation typically results in an increase in gas-fired generation and vice versa. The flexibility of gas-fired generation compliments both the intermittent nature of wind generation and the intra-day changes in the electricity demand profile. The partnership between flexible gas-fired power generation and intermittent renewable generation will be a key factor in enabling Ireland’s renewable integration ambition into the future, as set out in the Climate Action Plan and the National Energy and Climate Plan.

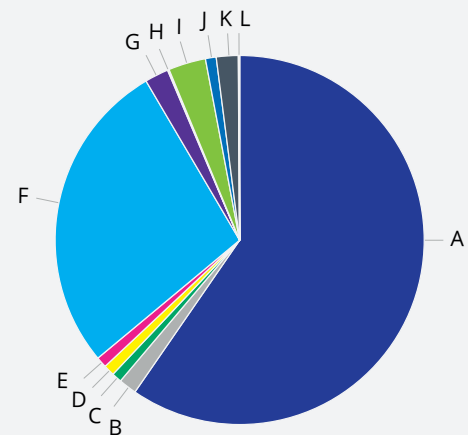
Over the summer 2020 period, on high wind-days, up to 68% of Ireland’s electricity demand was met by wind generation. On the low wind days, this figure was as low as 1%.

Figure 4 shows the power generation Fuel Mix for ROI for summer 2020. Gas contributed to approximately 62% of ROI’s power generation fuel requirement, demonstrating its important role in electricity generation.

The importance of the role of gas in the Power sector is further illustrated in Figure 5 below which shows the fuel mix across a particular week in August 2020 which exhibited very low wind conditions. During this week, on average, wind supplied only 6% of the fuel mix with thermal generation providing the majority of the demand. This incidence demonstrates the essential role played by gas-fired generation on days

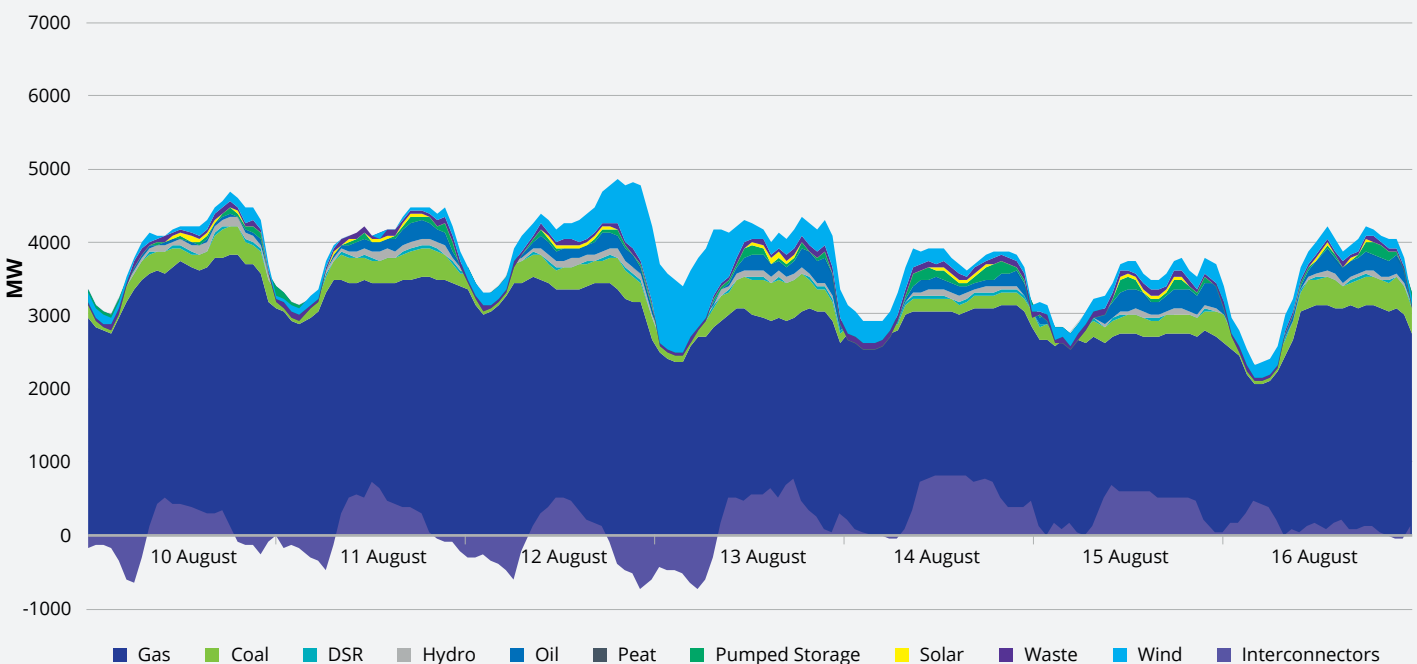
where low wind conditions are prevalent. Furthermore, gas demand in the power generation sector on the 10th August (148.4 GWh/day) represented the peak day gas demand in this sector for the entire gas year 2019–20. This occurred on a day where wind provided just over 2% of the fuel mix.

Figure 4: Summer 2020 Power Generation Fuel Mix



- A. Gas **62%**
- B. Renewable Hydro **2%**
- C. Pumped Storage **-1%**
- D. Other Renewable **1%**
- E. Net Import **-1%**
- F. Wind **29%**
- G. Waste **2%**
- H. Other Non-Renewable **0.1%**
- I. Coal **3%**
- J. Oil **1%**
- K. Peat **2%**
- L. Distillate **0.1%**

Figure 5: Electricity Fuel Mix for Low Wind Spell in August 2020



Summer period 2021 forecast supply position

With the Kinsale gas field having ceased production of commercial gas in July 2020, Corrib and renewable gas are the remaining indigenous gas sources. Corrib is the dominant indigenous gas source. The share of renewable gas in the network is set to grow over the coming years following the commissioning of the first renewable gas entry point at Cush last May 2020.

The maximum forecasted supply³ from Corrib during this period is 52.3 GWh/day. During the summer period, Corrib gas supplies are anticipated to decline to approximately 48% of initial peak production levels. Based on this supply scenario, Corrib is expected to supply c. 31% of daily summer demand in 2021, with the balance of gas demand to be met by imports from the Moffat Entry Point⁴.

Summer period 2021 forecast demand

Gas demand for summer 2021 may be slightly lower than the same period in 2020. This position is driven by ongoing generator outages in the SEM, which are likely to impact gas demand in the power generation sector, albeit some of the replacement generation will be met from other gas plant in both ROI and Northern Ireland (NI).

While summer 2020 exhibited slightly lower than normal daily metered I&C gas demand in the early summer months (April to June), coinciding with the first wave of COVID-19 restrictions, recovery is anticipated in summer 2021 but is contingent on a successful easing of restrictions.

NDM sector gas demand, being seasonal, is typically reduced throughout the summer months. Summer 2021 demand in this sector is expected to remain similar to the same period in 2020.

Gas system operability

Gas Networks Ireland monitors transmission system imbalances as a result of shipper behaviour on a daily basis. Increasing liquidity on the Marex Spectron Trading Platform allows Gas Networks Ireland to trade out system wide imbalances in an efficient manner. Following enhancements to Gas Networks Ireland's NDM forecasting algorithm in the spring of 2021,

combined with improved Shipper nomination accuracy, the amount and frequency of Gas Networks Ireland balancing actions has reduced since 2020.

The increased price of gas to date in 2021, and the associated 3.5% of the System Average Price that is levied as a penalty against the Shippers for imbalances, appears to be serving as an incentive to Shippers to appropriately balance their portfolios.

The previously highlighted issues of Shippers providing very late Entry Nominations to Gas Networks Ireland at Moffat and its associated impact on the efficient running of the compressor stations has improved. This improvement is attributable to improved Shipper behaviour following repeated highlighting of the issues by Gas Networks Ireland and is also due to a natural increase in flow requirements at Moffat as indigenous production at Corrib declines.

Planned summer maintenance activities

Standard scheduled maintenance works continually take place on the Gas Networks Ireland transmission system. The scheduled Gas Networks Ireland maintenance works for the summer 2021 period are not anticipated to impact on gas shippers or suppliers in any way.

As part of a project to enhance security of supply at our compressor stations, a station upgrade project at Beattock is planned over the summer period. The upgrade works have been scheduled for the summer months to coincide with lower gas demand as the station will be operating at a reduced capacity to facilitate the works. This reduced capacity is forecast to adequately meet summer gas demand and will not result in gas shortages.

Upstream of the Gas Networks Ireland transmission system, the following scheduled outages are currently anticipated, as advised by gas producers/connected system operators:

Table 3: Scheduled Summer Outages Upstream of Entry Points

Entry Point	Scheduled Upstream Outage	Period	Duration (Days)
Corrib	Planned Outage	5 th – 26 th July 2021	22

Data Freeze

In order to complete the detailed analysis required to produce this document, the input data was defined in April 2021, 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.

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³ 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.

⁴ The Moffat Entry Point has a current technical capacity of 387 GWh/day and supplies gas to ROI, Northern Ireland and Isle of Man.