IRELAND ENERGY UPDATE

Taking Stock of Energy Supply and Security

Irish Offshore Operators' Association

A Look Back

Having recently passed the first anniversary of the Russian invasion of Ukraine approaches, it is timely to look back at the major changes that have taken place in gas and oil supply to Europe, the impacts felt in virtually every economy of the world and the global responses.

Before the Invasion

- Russia supplied the EU with almost 25% of its total energy requirements: more than 40% of natural gas needs, 37% of crude oil and oil products, and almost 20% of coal needs.
- Russian gas was supplied through a network of major pipelines. Nord Stream1 provided 55 billion cubic metres (bcm) a year of gas to Germany. A similar quantity flowed to Europe through Ukraine, with a smaller amount going to Poland through Belarus. The Nord Stream 2 pipeline, with a similar capacity to Nord Stream 1, was completed and ready for commissioning.
- Russia exported 11 million tonnes of crude oil by ship to the EU each month. This comprised 60% of all Russian seaborne crude oil exports and 30% of the EU's seaborne crude oil imports. Russia provided approximately 20% of the crude oil for European refineries. It also exported ~750,000 b/d of diesel to Europe in 2021, meeting 10% of European diesel demand.

Current Situation

The western world has been at one in condemnation of the invasion of Ukraine and the resulting humanitarian crisis. Around 8 million people (almost 20% of the population) have been displaced from Ukraine into other European countries. The EU response, in particular, was co-ordinated rapidly in order to accommodate Ukrainian refugees, imposing sanctions on Russia, decreasing energy usage and securing alternative energy sources. Some of the major changes and initiatives are as follows:

- Less than 15% of the EU's gas is now supplied from Russia. This is largely due to Russia stopping the flow of gas to many EU countries.
- The Nord Stream 1 gas pipeline is inoperable due to underwater sabotage damage while the Nord Stream 2 pipeline project has been abandoned.
- Gas is still being supplied to Europe, albeit at relatively low rates, through the TurkStream pipeline to Turkey and via a pipeline route through Ukraine.
- Overall gas demand in the EU fell by 13% in 2022, a drop of 55 bcm, helped by EU and national policies, consumer actions and overall mild autumn and winter weather. Although domestic gas production in Europe (EU27 + UK) continues to fall, the shortfall in Russian gas supply has been partly compensated by an increase in liquified natural gas (LNG) imports, particularly from the USA. Between January and November 2022, LNG imports from the USA accounted for over 50 bcm, more than double the amount received in 2021. Many countries are increasing their LNG import facilities. The first Germany floating LNG unit was inaugurated in December 2022, taking less than a year from start to first gas arrival. Europe has also leaned more heavily on gas imported from Norway, as well as from Algeria, Qatar and Nigeria.
- The European Commission implemented a number of measures to decrease energy usage and increase gas storage.

- The EU agreed to ban seaborne imports of Russian crude oil and oil products, effective from 5 December 2022. The UK and USA also ceased importation of Russian oil and oil products. The ban on imported Russian diesel will be particularly challenging for a number of EU countries such as France which usually imports around 20% of total seaborne diesel exports from Russia.
- In December 2022, the EU and G7 countries imposed a price cap of $60 dollars per barrel on seaborne Russian crude oil. In early February, price caps for Russian petroleum products were also agreed.

Challenges at European level

- Total gas volumes delivered by pipeline from Russia to the EU over the course of 2022 are around 60 bcm, just over half the volume delivered in 2021. Russian deliveries are likely to be considerably lower in 2023 and could drop to zero, leaving an even larger hole in gas supply for next winter and beyond.
- Europe's ability to secure high LNG imports in 2022 was enabled in large part by lower import demand from China. With a predicted recovery in the Chinese economy, an increasing demand could intensify competition for LNG cargoes, with many countries chasing a limited amount of LNG.
- While a number of producing countries are ramping up LNG export facilities, construction of these takes time. In addition, where either geopolitical (e.g., Middle East tensions) or technical problems (e.g., a fire at the large LNG export facility at Freeport, Texas, kept it offline for the seven months in 2022) occur, supply shortages can result.
- The International Energy Agency predicts that, of the overall supply-demand gap of 57 bcm that could arise in the EU in 2023, around 30 bcm is covered by actions that are already in place. Closing the remaining deficit of 27 bcm will be challenging and may result in even more stringent measures required in the winter of 2023.

Implications and risks for Ireland

Ireland remains one of the most energy import dependent countries in Europe. At the edge of Europe, we are not connected to the EU energy grid and are increasingly reliant on gas imports through a single interconnector system from the UK. We have no LNG facilities and have decommissioned our only subsurface gas storage facility. We have a ban on nuclear power generation and, as the Corrib gas reserves rapidly deplete, we have a ban on issuing new gas or oil exploration licences beyond those already in place. Risk factors for Ireland include:

- We have an increasing reliance on wind energy electricity generation. Intermittent in nature, wind generation is often very low during very cold (and very hot) periods when high-pressure weather system dominate. During the recent December-January cold spells, wind energy generated little more than 10% of required electricity.
- Ireland relies on gas and some electricity imports from the UK, itself importing ~50% of its gas and currently experiencing weather-related electricity challenges. Twice this winter, the UK electricity system operator (National Grid) requested three coal-fired plants to warm up as a precautionary back-up option for power generation. It also activated its demand flexibility service to financially incentivise customers to cut peak hours consumption. In its contingency plan for gas shortages, the UK will treat exports of gas to Ireland in a similar manner to UK industry with similar curtailments in supply. Ireland will not be treated as a preferential customer and therefore supplies cannot be guaranteed.

- The review of the security of Ireland's energy supply of electricity and natural gas systems, commissioned by the Department of the Environment, Climate and Communications, was published in late 2022. Concerns have been voiced regarding many aspects of the review. A vital review such as this should involve the carrying out of a full Cost Benefit Analysis on all mitigation options, together with the inclusion of a detailed assessment of the potential for interruption of energy supplies from various risks. These risks include cyber-attacks and infrastructure failure through accident, war or sabotage.
- Recognising the essential nature of gas to ensure back-up for renewable electricity generation beyond 2030, a number of new gas-powered generating plants are planned, with completion of the first of these planned for the end of 2024. However, with regulatory and planning challenging facing most infrastructure projects, any delay in completing these will result in further insecurity to the Irish energy system.
- With the need for gas as a backup for intermittent renewables into the foreseeable future, there is a compelling argument for developing Irish offshore gas resources to replace imported gas. There is considerable potential for further gas discoveries in the lightly-explored general vicinity of the Corrib gas field. Any new gas finds could be rapidly tied back sub-sea to the existing infrastructure without the need for new onshore developments and with negligible environmental impact. Corrib gas has an extremely low emission intensity, currently approximately one fifth of the emission intensity for natural gas produced in the UK North Sea, and one thirteenth of that from LNG imported from Qatar to Europe.
- Irish natural gas is not fracked, has low emissions, and benefits the local and national economy. All exploration and development is carried out at no cost to the Irish state. Exploiting additional indigenous gas sources is an obvious solution for new power-plants (as well as replacing coal-fired power which has increased in the past year), and could replace imported gas, increase energy security and decrease emissions.
- The coming years will present serious challenges to Ireland's energy security, with predicted increasing energy demand, significant regulatory and other delays in renewable energy rollout, decreasing indigenous natural gas production, and a Europe-wide shortfall in gas that still needs to be filled.

24 March 2023