

# Submission to the Review of the Security of Energy Supply of Ireland's Electricity and Natural Gas Systems

28<sup>th</sup> October 2022

In the 158 weeks since Government initiated a review into the security and sustainability of Ireland's energy supply, the reality of our exposure to the lack of secure energy stocks has been belatedly understood.

If we link security and sustainability too closely and plan on the basis that wind and other technologies such as hydrogen will provide security, then we are exposing the country for decades more to the risk that we could have shortages of energy supply.

It is inevitable that our reliance on hydrocarbons will continue for some time. Gas Networks Ireland's *Gas Demand Statement* for September 2022 is typical of what we can expect to see for many years to come with a high proportion of our electricity being generated by gas (55% over the month) but with that proportion varying widely day to day depending on the wind (from 16% to 81%).



In its Introduction, the consultation paper of 19<sup>th</sup> September 2022 says that *The Government needs to consider ... how to use the resources available to mitigate against the likely impacts on citizens and businesses.*

*Resources* implies large infrastructure projects and such projects - including ones to deliver energy security and sustainability - take decades to move from concept to completion.

Recognising the immediacy of the risk Ireland faces, it is important that the Government policy now being finalised does not have the effect of inhibiting projects which could make some contribution to our energy security in the near-term.

One such project is the Shannon LNG project, already under consideration by [An Bord Pleanála](#). This project (with which I have no connection) is the only project I am aware of which could make some contribution to our energy security needs and which is within sight of being constructed. While this contribution would not be decisive in terms of our national requirements, it would be significant (see **Appendix**).

As offshore wind energy is developed and as wind provides an ever increasing proportion of our electricity, far more energy storage than would be provided by the Shannon LNG project will be required to insulate Ireland from the impact of energy supply risks, including long periods of low wind. For example, there was a six week period in August and September 2021 of virtually no wind in Ireland, in the UK and in Northwest Europe.

There are no engineering options in the near-term (ten to twenty years) other than gas storage which can provide Ireland with the type of energy security which the NORA regime provides and the only live gas storage project that exists today is the Shannon LNG project.

While green hydrogen storage is frequently spoken of as a solution to ensure continuity of energy supply, the technology is decades away. Likewise battery storage and pumped hydro schemes cannot conceivably make any significant contribution to Ireland's energy security.

I believe that the needs of citizens and businesses require Government to achieve a policy balance which mitigates, as soon as possible, the now well understood energy supply risks to which Ireland is exposed while, at the same time, expediting the development of sustainable energy options. Unfortunately, sustainable energy storage options are much further into the future than the security options which exist today.

An explicit inclusion of projects such as the Shannon LNG project in the policy being finalised is important to allow An Bord Pleanála to complete its environmental impact assessment based on clear and unequivocal Government policy. Subject to ABP's ultimate decision on the Shannon LNG planning application, Ireland could take a significant step to achieve some measure of energy security within the next few years.

## Appendix

The known weakness of the country's electricity sector was highlighted in EirGrid's *Ireland Capacity Outlook 2022-2031* published on 6<sup>th</sup> October 2022.

EirGrid included the diagram below showing the projected deficit in electricity generation capacity over the four years from 2023 to 2026 (the black line) and the mitigating impact if all of the measures in the CRU's *Security of Electricity Supply Programme* ([CRU21115](#)) of 29<sup>th</sup> September 2021 are implemented (the green columns).

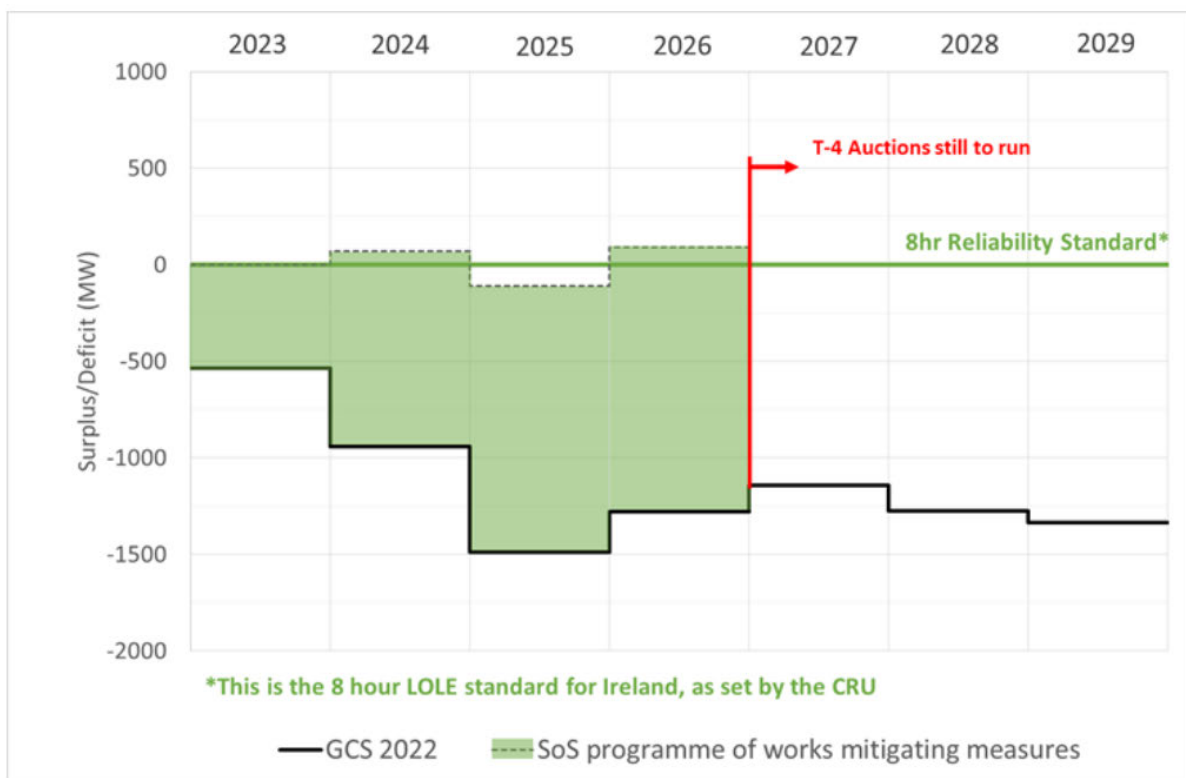


Figure 1 – Adequacy Results including SoS programme of works mitigating measures

Ireland is in an extraordinarily weak position because of the country's failure to plan its energy security and the CRU's *Security of Electricity Supply Programme* includes unprecedented emergency measures to provide 1,500 MW of generation capacity (which would have been unnecessary in decades past). This is on top of planned new capacity of 2,000 MW to be procured through EirGrid auctions:

- Delivery of an additional 2,000 MW of generating capacity following:
  - T-3 auctions (2024 / 2025)
  - T-4 auctions (2025 / 2026)
  - Subsequent capacity auctions
- Installation of up to 300 MW of temporary emergency generation capacity

- Extension of the operating life of up to 1,200 MW of old generating plant
- Demand side mitigation measures

The proposed 600 MW of CCGT generation plant in the Shannon LNG project would provide essential additional capacity to shore up the gap between electricity demand and generation capacity in future years and would make a large contribution to the additional generating capacity which the CRU has identified as being urgently needed.

In addition, the gas storage capacity of the proposed floating storage and regasification unit (FSRU) would provide significant capacity to offset short-run gas supply shortages as discussed below under four headings.

### Gas storage equivalent to up to eight days of the country's average daily gas demand

The EIAR for the Shannon LNG project says that the storage capacity on the FSRU will be up to 180,000 m<sup>3</sup>. This is equivalent, in energy terms, to about 99 ktoe.<sup>1</sup>

In 2020, natural gas supplied 34.2% of Ireland's primary energy requirements of 13,350 ktoe. The proposed FSRU storage capacity of 180,000 m<sup>3</sup> of LNG would be equivalent to nearly eight days of the country's average daily gas demand of 12.5 ktoe.

| 2020                     | Primary Energy (ktoe) | %             |
|--------------------------|-----------------------|---------------|
| Coal                     | 448                   | 3.4%          |
| Peat                     | 418                   | 3.1%          |
| Oil                      | 6,010                 | 45.0%         |
| Natural gas              | 4,564                 | 34.2%         |
| Renewables               | 1,778                 | 13.3%         |
| <i>of which wind</i>     | 993                   | 7.4%          |
| Waste                    | 147                   | 1.1%          |
| Net electricity imported | -13                   | -0.1%         |
| <b>Totals</b>            | <b>13,350</b>         | <b>100.0%</b> |

Source: SEAI Energy Balance, 2020

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<sup>1</sup> kilo tonnes of oil equivalent

## Gas storage equivalent to up to 16 days of the average demand for gas for power generation

Of the 4,564 ktoe of energy from natural gas, 2,291 ktoe was used to produce electricity.

| Headings in Energy Balance, 2020 |                                | ktoe<br><i>for the year</i> | ktoe<br><i>daily average</i> |
|----------------------------------|--------------------------------|-----------------------------|------------------------------|
| Primary Energy Requirements      | Natural gas                    | 4,564                       | 12.5                         |
|                                  | Gas for electricity generation | 2,291                       | 6.3                          |
| Final Energy Consumption         | Electricity                    | 2,464                       | 6.8                          |

Source: SEAI Energy Balance, 2020

The 99 ktoe storage capacity of the FSRU would be equivalent to up to 16 days of the average demand for gas for power generation.

## Electricity generation capacity equivalent to 18% of the country's average daily consumption

Electricity from all sources, including natural gas, contributed 2,464 ktoe to the country's Final Energy Consumption of 11,246 ktoe.

With a continuous supply of natural gas from the proposed LNG importation and storage facility, the 600 MW of power plant could produce 1.2 ktoe of electrical energy per day equivalent to 18% of the country's average daily consumption of electricity.

## Comparison with NORA's emergency oil stocks

The National Oil Reserves Agency ([NORA](#)) is required to hold a minimum stock of 90 days of the country's oil requirements. This requirement is primarily met by the storage of 1,416,000 tonnes of refined products (notably diesel). The energy equivalent of this stock holding is approximately 1,430 ktoe.

The energy storage capacity of the proposed FSRU would be equivalent to up to 7% of the NORA's energy stocks. Small though this percentage is, it is significant in going some way to meet the country's needs in a situation where Ireland has no gas storage.