

Security of Electricity Supply in Northern Ireland

An updated information paper from the
Utility Regulator and the Department
of Enterprise, Trade and Investment

22 December 2014

Security of Electricity Supply in Northern Ireland from 2016

Summary

Management of supply risk

- The electricity transmission system operators, SONI and EirGrid, in the '2014-2023 All-Island Generation Capacity Statement' identify issues which need to be managed to ensure Northern Ireland's continued security of electricity supply into the next decade.
- In particular, it highlights three factors:
 1. The delay in the second North-South electricity interconnector - the 2010 Strategic Energy Framework assumed that the interconnector would be in place but current estimates suggest the end of the decade.
 2. The withdrawal of 510 megawatts (MW) of generation capacity at Ballylumford power station and restrictions on generation at the Kilroot power plant from January 2016 arising from the need to comply with the EU Emissions Directive. The Environment Minister has confirmed that no further appropriate derogation from this Directive can be granted;
 3. A fault on the Moyle interconnector has reduced its transfer capacity to 250MW.

If nothing was done in response to these issues:

- Northern Ireland supply margin could be reduced from 600MW to 200MW;
- Potential savings of the order of €20m per annum by 2020 and €40m per annum by 2030 could fail to be delivered by the absence of a second North-South interconnector;
- There could be increased risk of not delivering a stable and continuous supply of electricity.

Actions to manage the risk

To address these issues, the Utility Regulator and DETI (along with SONI):

- (1) Agreed that SONI should identify and competitively procure appropriate local reserve services to provide short-term additional generation capacity up to 2021. SONI has now commissioned AES to provide services that will lead to an additional 250 MW of capacity margin being available for a 3 year period from January 2016, extendable by a further 2 years if required. The provision of this additional local reserve capacity will involve AES upgrading two of the company's existing Ballylumford B Station units.
- (2) Agreed that Mutual Energy will work to install new low voltage cables to restore the Moyle to full capacity. Owing to a range of factors, including procurement of

the new cables, the overall cost of the repairs have not yet been finalised, but these will be published when available.

- (3) Notwithstanding actions being taken now to address the security of supply risk, it remains essential for the new North-South interconnector to be delivered, which will take advantage of excess generation capacity in the Single Electricity Market and therefore provide security of supply for Northern Ireland at least cost to consumers.

Overall, the impacts of the security of supply risk are likely to significantly exceed the costs of addressing the problem. Consequently, it is important that steps are taken now to manage the risk.

The Utility Regulator, DETI, and SONI will continue to engage regularly on security of supply issues and to monitor progress on delivery of additional measures, and explore options to further enhance our security of supply.

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1. Introduction

On the 9 December 2013 the Utility Regulator and the Department of Enterprise, Trade and Investment (DETI) published a further information paper¹ that discussed security of electricity supply in Northern Ireland. The papers advised that DETI, the Utility Regulator and the Single Electricity Market (SEM) Committee would work together to identify measures to ensure continued security of supply.

2. Background

SONI and EirGrid, the Transmission System Operators (TSOs) for Northern Ireland and the Republic of Ireland respectively, publish an annual Generation Capacity Statement which outlines the expected electricity demand and the level of generation capacity available over the next 10 years, together with an analysis of the adequacy of this generation to meet demand. The most recent Generation Capacity Statement, published in January 2014, concludes that while there is a considerable surplus of generation in the Republic of Ireland, current interconnector limitations restrict the amount of generation that can be transferred to Northern Ireland.

This limitation arises from delay to the construction of a second North-South interconnector, combined with the requirements of the EU Emissions Directive from January 2016. Delay to provision of the interconnector beyond the end of the decade could result in a deficit of supply from 2021. Both the Northern Ireland and Republic of Ireland elements of the project are approaching formal re-submission of planning applications early in 2015. DETI, the Regulator, and SONI, together with their Republic of Ireland counterparts, are monitoring this progress to assess whether there is any further slippage. An update will be provided on progress.

Compliance with the EU Emissions Directive is unavoidable. From 2016 it will require the withdrawal of 510MW of generation capacity at Ballylumford power station and place restrictions on generation at the Kilroot plant, unless measures are taken to upgrade the plant.

Our previous papers noted that as the Ballylumford B Station plant is already operating under an environmental permit from the Industrial Emissions Directive, part of which is a commitment to close operations by 31st December 2015, a further derogation is not permissible.

¹http://www.uregni.gov.uk/publications/security_of_electricity_supply_in_northern_ireland_updated_information_paper. An earlier paper was published on 12 June 2013.

The second North-South interconnector has yet to complete the planning process in Northern Ireland and the Republic of Ireland. It is estimated that it will not be constructed and fully operational until 2019.

These issues are compounded by a fault on the Moyle interconnector which has reduced its transfer capacity to 250MW. Efforts by Mutual Energy to complete interim repairs to the cable proved to be unsuccessful in restoring the Moyle to full capacity. A project to install new undersea low voltage cables is being progressed and expected to be operational by 2017.

3. Security of supply for Northern Ireland consumers

SONI/ EirGrid Generation Capacity Statement 2014-2023

The system operators' all island Generation Capacity Statement for 2014-2023 identified that the surplus of electricity supply in Northern Ireland from January 2016 reduces from 600 MW to 200MW and is in deficit from 2021. SONI's Winter Outlook statement for the 2014/15 winter period concludes that there will be sufficient generation capacity in Northern Ireland to ensure the appropriate level of security of supply is maintained over the winter period.

The 200MW surplus from 2016 meets the generation security standard and therefore in normal operational situations is satisfactory. However, in the event of a prolonged outage of a large generation plant, or of the Moyle interconnector, this margin may not be sufficient. Without the second North-South interconnector, and with the Moyle interconnector operating at half capacity, Northern Ireland is dependent on three large generating units (Kilroot, Coolkeeragh and Ballylumford power stations). The removal of 510 MW from the Ballylumford plant from January 2016 together with the impairment of any other plant for a prolonged period is the risk identified by the system operator SONI.

Consideration of Managing the Risk

Following their Generation Capacity Statement assessments, SONI was commissioned to further examine the likelihood of the risk materialising and in doing so to assess the additional capacity margin required to allow such a risk to be managed.

SONI confirmed that an additional 250MW of suitable capacity margin would be sufficient to facilitate the management of this risk.

Given the above analysis, the risk to security of supply is considered to be low likelihood, but the unacceptable consequence of such a risk occurring is such that, within a reasonable cost to consumers, measures have been taken to manage the risk.

4. Actions to manage the risk

Competition for additional generation adequacy

Following the risk assessment, SONI conducted a market test exercise for interest in the provision of local reserve services that could provide an additional adequacy margin of between 220MW and 300MW. The market test was issued on 14 March 2014 and concluded on 14 April 2014. Following analysis of submissions, on 30 May 2014, SONI proceeded to a competitive process to invite bids for provision of services that would provide additional capacity margin to be available from January 2016.

Following this process it was agreed that SONI would enter into a contract with AES Corporation, which will provide 250MW of additional generation capacity available from January 2016. The contract is for a 3 year period, with an option to extend for a further 2 years.

The additional capacity is estimated to cost £8.9m per annum over the 3 year period. This equates to around 0.1 pence per kWh which is less than 1% of the average electricity bill. For domestic electricity consumers this represents around £5 per year on the average bill. For business customers the cost will vary depending upon their consumption. For example, for a business with an annual consumption of 400,000kWh the annual cost is estimated to be around £400. Given the consequence of the identified risk occurring and the potential impact on the wider economy of Northern Ireland, the cost is considered reasonable in managing the risk and thereby ensuring the security of electricity supply to consumers and businesses in Northern Ireland over the contract period.

Moyle interconnector restoration

DETI and the Utility Regulator met with Mutual Energy, owners of the Moyle interconnector in July and September 2014 to review their plans for its restoration to full transfer capacity. While interim repairs have proved unsuccessful, Mutual Energy has been progressing the environmental approvals and establishing contracts to deliver a sustainable long term solution. With current information, the installation of new low voltage Moyle cables is expected to be completed by 2017.

The cost of this project is still to be fully defined, and is subject to the completion of competitive arrangements by Mutual Energy. Costs will be funded through company

reserves and capacity revenue, with the remainder being passed through to consumers. Further information in relation to the costs and progress of restoring the Moyle interconnector to full capacity will be published separately by the Utility Regulator when these are known.

North-South Interconnector

SONI and EirGrid are working to advance the proposed North-South electricity link. It is expected that the Planning Appeals Commission will recommence its consideration of the project in 2015, and that following a pre-application process EirGrid will submit a formal planning application to authorities in the Republic of Ireland, a process that is expected to conclude by the end of 2015. Additionally the project has been designated as a Project of Common Interest under the EU TEN-E Infrastructure Regulation. The Regulation aims to facilitate improved co-ordination and consenting for large energy projects in recognition of their strategic importance to EU energy policy commitments.

The absence of the North-South interconnector not only contributes to security of supply issues for Northern Ireland, but also results in higher than necessary electricity prices. Delivery of the interconnector is estimated to reduce network constraint costs across the all-island market by €20m per annum in 2020 and by €40m per annum in 2030².

Other Measures

It is accepted that increased renewable generation and electricity demand side management have the potential to increase adequacy margins. However any contributions are not expected to have a sufficient impact, particularly in respect of peak power demand, to negate the risks previously identified to security of supply without additional generation capacity.

Other sources of additional capacity may contribute to security of supply, and these include ongoing interest by Gaelectric in the development of Compressed Air Energy Storage in East Antrim, which would provide up to an additional 268MW of generation, and interest by AES Corporation in the development of battery storage units.

² Based on the latest information provided by SONI/EirGrid.

5. Conclusions

- Security of supply issues in Northern Ireland are being managed.
- The risk to security of supply in Northern Ireland from 2016, relates to a prolonged outage of a large generation plant in the context of EU emissions reductions, and delay to the second North-South interconnector.
- To mitigate this risk SONI has commissioned AES to provide system services, which will lead to additional capacity margin being available for a 3 year period from January 2016 (extendable by a further 2 years if required).
- Restoring the Moyle interconnector to full capacity remains an important objective, with work ongoing by Mutual Energy to provide a sustainable long term solution by 2017.
- The additional generation capacity comes at a cost estimated to be £8.9m per annum over the 3 year period and alleviates concerns about security of electricity supply from 2016. The Utility Regulator will publish information on Moyle costs in due course.
- Given the consequence of the identified risk occurring, we consider the additional capacity represents a reasonable cost to manage the risk.
- Delivery of the new North-South interconnector, which will take advantage of excess generation capacity in the Single Electricity Market, provides security of supply for Northern Ireland at least cost to consumers. It is essential to help manage security of supply beyond 2021.