Security of Electricity Supply in Northern Ireland

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

9th December 2013

Security of Electricity Supply in Northern Ireland from 2016

Key Messages

THE RISK

- A potential risk to security of electricity supply in Northern Ireland from 2016 and a deficit of supply from 2021 has been identified by the electricity system operator for Northern Ireland (SONI).

- This risk to security of supply applies only to Northern Ireland and arises because the second North-South Interconnector is not expected to be operational until the end of 2017at the earliest, and achievement of this date remains challenging.

FACTORS COMPOUNDING THE RISK

- Compliance with the EU Emissions Directive effective from January 2016 will require the withdrawal of 510MW of generation capacity at Ballylumford power station and place restrictions on generation at the Kilroot power plant, unless measures are taken to upgrade it. The Environment Minister has confirmed that no further appropriate derogation from this Directive can be granted.

- A fault on the Moyle Interconnector has reduced its capacity to 250MW. Two interim repairs are being progressed, which if successful will restore Moyle capacity to 450MW by the close of 2014.

- A permanent repair to the Moyle interconnector is being progressed through provision of new undersea low voltage cables, however this will not be operational until late 2017 at the earliest.

THE SCALE OF THE RISK

- The system operator's January 2013 'All Island Generation Capacity Statement' identifies that from January 2016, the supply margin in Northern Ireland reduces from 600MW to 200MW.

- The adequacy of this supply margin is considered sufficient except in the circumstance where there is a prolonged outage of a large generating plant.

- It is considered by the system operator (SONI) that an additional 250MW of suitable capacity would be sufficient to facilitate the management of this particular risk.

THE MANAGEMENT OF THE RISK

- The current and projected contribution from renewable and aggregated generation units, and any potential reduction in electricity demand, has been taken into account in the system operator's 2013 capacity statement. The system operator has also advised that any feasible additional contribution is not considered significant in the context of the risk to be managed and associated timescale.

- The Utility Regulator with DETI are continuing to progress feasible options and associated costs for securing additional generation capacity to operate from January 2016, at least cost for the consumer.

It remains crucial that the second North-South electricity interconnector is progressed and delivered as soon as possible if further risks are to be avoided from 2021 and energy costs kept to a minimum for consumers.

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KEY MESSAGES

1. Introduction

On 12 June 2013 the Utility Regulator (UR) and the Department of Enterprise, Trade and Investment (DETI) published an information paper[1] that identified a risk to the security of electricity supply in Northern Ireland. The paper stated that DETI, the Utility Regulator and the Single Electricity Market (SEM) Committee would work together to identify, assess and advance options for addressing this risk and that an update on progress would be provided. This paper provides that update.

2. Background

SONI and Eirgrid, the Transmission System Operators (TSOs) for Northern Ireland (NI) and Republic of Ireland (RoI) respectively, are required to publish an annual Generation Capacity Statement. These statements outline 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 2013, identified 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, combined with the requirements of the EU Emissions Directive from January 2016, results in a risk to security of electricity supply for Northern Ireland from 2016 and a deficit of supply from 2021. A key enabler to longer term security of supply in Northern Ireland is the second North-South Interconnector. This is, however, not expected to be operational until the end of 2017 at the earliest and achievement of this date will be challenging.

Factors compounding the risk from January 2016 include:-

i. The need to comply with the EU Emissions Directive from 2016 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 paper in June indicated that a derogation from this Directive could provide a means to address the risk. However, the 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. Given this circumstance the Environment Minister has confirmed that a further appropriate derogation is not permissible.

   However, some work is being taken forward by generators to assess the technical and cost impacts of upgrading existing generation plant to meet the Emissions Directive requirements.

[1] http://www.uregni.gov.uk/news/view/security_of_supply_information_paper_published/

ii. A fault on the Moyle Interconnector has reduced its capacity to 250MW. Two interim repairs are being progressed, which if successful will restore capacity to 450MW by the close of 2014.

While this is very positive and delivers in advance of January 2016, the original cables will remain in place and may be prone to further failure. This remains a risk which will need to be managed.

iii. A permanent and reliable repair to the Moyle interconnector is also being progressed, which will involve laying new subsea low voltage cables along the route of the existing Moyle cables.This will not be operational until late 2017.

iv. The second North-South Interconnector has to complete the planning process in both Northern Ireland and the Republic of Ireland. It is estimated that it will not be constructed and fully operational until the end of 2017 at the earliest, and this date remains challenging.

3. The risk to Security of Supply for Northern Ireland Consumers

The system operator's all island Generation Capacity Statement for 2013-2022 identified that the electricity supply margin in Northern Ireland from January 2016 reduces from 600 MW to 200MW and is in deficit from 2021. However, it should be noted that SONI's Winter Outlook statement for the 2013/14 winter period concludes that there will be adequate generation capacity in Northern Ireland to ensure the appropriate level of security of supply is maintained over that period.

The 200MW supply margin from 2016 meets the generation security standard and therefore in normal operational situations is satisfactory. A risk however arises in the event of a prolonged outage of a large generation plant or of a further fault on the Moyle interconnector. Without the second North-South Interconnector, and with the Moyle interconnector operating at half capacity, Northern Ireland is dependent on a small number of 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.

The system operator has been working with the Utility Regulator and DETI to advise as to the likelihood of the risk materialising, and to assess the additional generation capacity required to allow such a risk to be managed.

It should be noted that any additional generation capacity will only be necessary for a limited period, i.e. until late 2017 when the Moyle should be fully restored and the end of 2017 when the new North-South interconnector should be in place. Hence the need to ensure that any additional generation capacity required for a time limited period is provided at least/ acceptable cost to consumers

The system operator SONI has advised that circa 250MW additional supply margin, equivalent to c.250MW of reliable generation capacity would facilitate the management of this particular risk. This capacity is considered necessary in addition

to the interim works to restore the Moyle Interconnector to 450MW in 2014, and in advance of its permanent restoration which, subject to the necessary approvals, is expected in 2017.

Given the above analysis, the risk can be viewed as falling into one of the following categories:-

i. That the low likelihood of the risk arising and the short timeframe within which Northern Ireland is exposed to it (until late 2017 when the permanent repair to the Moyle interconnector is planned to restore it to full capacity) is such that no additional measures need to be taken to reduce the risk; or

ii. That the consequence of such a risk occurring is so significant that despite the likelihood being small, measures must be taken to manage the risk;

iii. That the low likelihood and unacceptable consequence of such a risk occurring is such that, within a reasonable cost to consumers, measures should be taken to manage the risk.

Following discussion between the UR, DETI and the SONI it was agreed that the risk falls into the third category. Options to manage the risk are therefore being progressed.

4. Options to manage the risk

Two options for securing additional generation capacity from January 2016 were further investigated.

i. Renewable Energy Sources and Demand Side Management

The system operators in preparing their 2013 'All-Island Generation Capacity Statement' take into account the contribution of intermittent renewable power, the contribution of other non intermittent renewable, and demand management activity in the form of aggregated generation units. While this is the case, we thought it important to explore fully any further measures or contribution which could be made by these elements in managing the risk to supply from January 2016 and requested SONI to look into this further.

SONI's conclusion from this review was *' that while both increased renewable generation and demand side have a potential to contribute to increasing adequacy margins that such increase, either separately or when taken together, is not expected to be significant relative to the overall level of system demand, particularly peak demand, and is not such that the risks previously identified in relation to maintaining adequacy of margin in Northern Ireland post 2016 would be reduced materially'.*

ii. Securing Additional Generation

As stated in the 2013 Generator Capacity Statement, no new conventional generation is expected to be connected in Northern Ireland until 2022.

SONI has assessed that securing an additional 250MW of generation capacity from January 2016 would be adequate to manage the risk of a prolonged outage of a large conventional generation plant. The means of securing this additional capacity is being assessed by SONI in liaison with the Utility Regulator and DETI. It is expected that this assessment will be concluded in early 2014.

5. Conclusion

There is a 200MW electricity supply margin in Northern Ireland from January 2016, however a risk exists should a prolonged outage of a large generation plant occur. If no action is taken a deficit of supply occurs from 2021.

The likelihood and consequence of a risk to security of supply from January 2016 is such that the UR and DETI have concluded that, if measures can be taken within a reasonable cost to consumers to provide additional generation capacity, then they should be taken.

Options to manage the risk are therefore being progressed by UR and SONI, working with DETI. This workstream with an action plan will conclude in early 2014.

While action is being taken to manage the risk from 2016, a deficit of supply continues to be projected from 2021. It therefore remains imperative that the second North-South interconnector is progressed and delivered as soon as possible The North South Interconnector will also reduce energy costs for NI energy consumers.

Work to restore the Moyle Interconnector to full capacity remains an important objective, with work ongoing by Mutual Energy to provide both interim and permanent solutions.

The system operator, SONI is currently in the process of producing an updated All Island Generation Capacity Statement which is expected to be published in early 2014.