Security of Electricity Supply in Northern Ireland

An information paper prepared by the Utility Regulator and the Department of Enterprise, Trade and Investment

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Security of Electricity Supply in Northern Ireland from 2016

Key Messages

- A risk of security of supply from 2016 has been identified by the electricity system operator for Northern Ireland, SONI, in their Generation Capacity Statement for 2013-2022.

- There are three compounding factors giving rise to this risk:-

  i. The delay in delivering a planned second North/ South Interconnector, for which a planning application was initially submitted in December 2009.
  ii. The requirement to comply with EU Emissions Directives from 2016, which is expected to result in the withdrawal of some generation capacity at Ballylumford and place restrictions on generation at the Kilroot plant.
  iii. A fault on the Moyle Interconnector whose capacity has been halved and is unlikely to be permanently restored to full capacity using additional cables until 2017.(An interim reconfiguration of the Moyle may allow restoration to full capacity using the existing cables in advance of 2016.)

- ***It is therefore imperative that the second North /South Interconnector is progressed and delivered as soon as possible and that the Moyle interconnector is restored to full reliable capacity.***

- There are two other potential options to address the risk to security of supply to consumers in NI from 2016:-

  i. Interim repair of the Moyle interconnector prior to 2016 , and/or
  ii. The introduction of additional generating capacity in Northern Ireland by 2016. Thus far, there is no indication of planned market entry. Intervention may be required, in the form of a direction from the Department of Enterprise, Trade and Investment (DETI)to the Utility Regulator (UR) to invite tenders, or for DETI itself to invite tenders.

- A further option of a time banded derogation for compliance with the EU Large Combustion Plant Directive and Industrial Emissions Directive until such times as the North/South Interconnector is delivered has been explored with the Department of Environment, however it would seem unlikely that an appropriate derogation is available.

- To fully address the security of electricity supply issue will require additional investment in the network. The estimated cost of the North-South Interconnector is around £90m[1] and work to provide longer term repairs to the Moyle Interconnector is estimated to cost £60m[2]. However once operational it is expected that these two interconnectors have the potential to deliver significant annual savings to consumers, and resolve the security of supply concerns.

- DETI, the URand the SEM Committee, which all have a role in respect of security of electricity supply for Northern Ireland, are working closely on these issues.

[1] Estimated cost provided by NIE is £84m (http://www.nie.co.uk/documents/Policy-Statements/P-110404-Final-Capital-InvestmentRequirements-Publ.aspx) , plus costs spent to date.
[2] Estimated costs provided by Moyle Interconnector Limited http://www.uregni.gov.uk/publications/correspondence_between_the_ur_and_moyle_interconnector_regarding_the_repair

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KEY MESSAGES

1. Introduction

SONI and Eirgrid, the Transmission System Operators (TSOs) for Northern Ireland (NI) and Republic of Ireland (RoI) respectively, are required to submit an annual Generation Capacity Statement to their respective regulatory authorities. These statements outline the expected electricity demand and the level of generation capacity available over the next 10 years, together with an analysis of generation adequacy for a number of realistic scenarios. The Utility Regulator (UR) and the Department of Enterprise, Trade and Investment (DETI) have joint responsibility for ensuring the security of supply for consumers in NI , who both are required to 'have regard to the need to secure that all reasonable demands for electricity are met'.

This year's 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 results in the security of supply to Northern Ireland being at risk from 2016 and in deficit from 2021.***

There are three compounding factors giving rise to the risk of security of supply in NI from 2016, namely:-

i. The delay in delivering the planned second North-South Interconnector, for which a planning application was initially submitted in December 2009 and resubmitted in April 2013.
ii. The requirement to comply with EU Emissions Directives from 2016, which is expected to result in the withdrawal of some generation capacity at Ballylumford and place restrictions on generation at the Kilroot plant.
iii. A fault on the Moyle Interconnector whose capacity has been halved and is unlikely to be restored to full reliable capacity until 2017.

It is imperative that the second North-South Interconnector is progressed and delivered and that the Moyle Interconnector is restored to full, reliable capacity as soon as possible. It is however unlikely that these interconnectors will be fully operational before the EU Emissions Directive takes effect. It may therefore be necessary to consider alternative short term solutions.

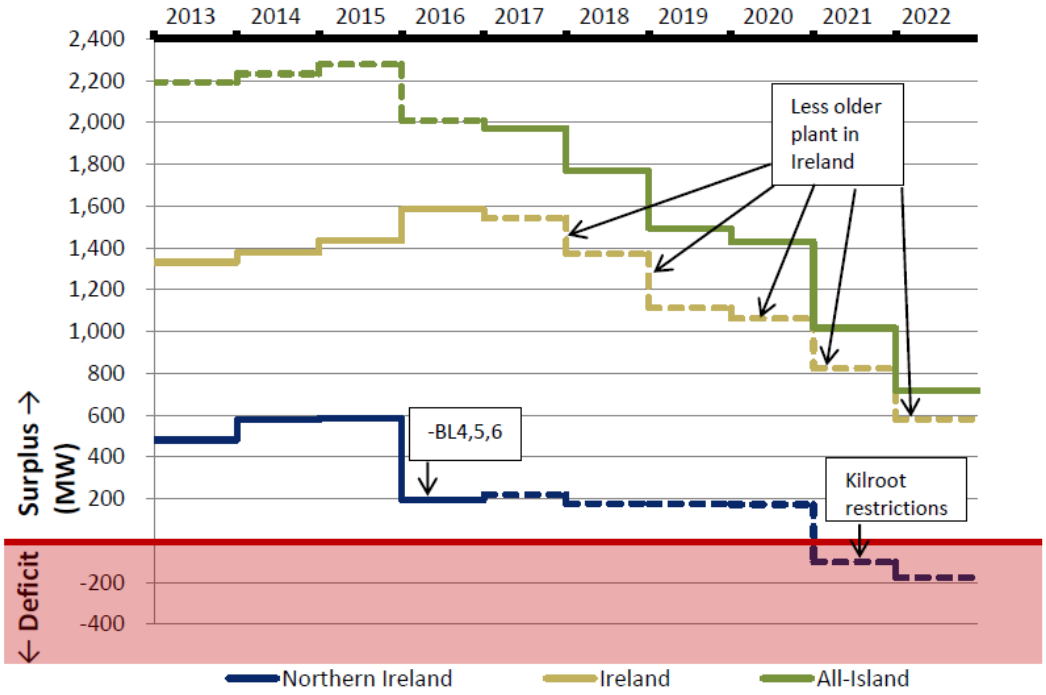
Electricity generation on the island of Ireland is provided through a Single Electricity Market (SEM). The SEM is designed to produce the most efficient wholesale market price benefiting consumers in both Northern Ireland and the Republic of Ireland.

The SEM is regulated by a SEM committee, which has representatives from the economic regulators; the UR in NI and the Commission for Energy Regulation (CER) in RoI. Two independent member are also appointed to the SEM Committee. The relevant policy departments, the Department of Communications, Energy and Natural Resources (DCENR) in RoI and the Department of Enterprise, Trade and Investment (DETI) in NI are responsible for related government policy for the respective jurisdictions.

2. Generation Capacity Statement 2013-2022

The all island Generation Capacity Statement for 2013-2022 identified potential concerns specific to Northern Ireland. These concerns are clearly identified in the diagram below which illustrates the surplus/deficit in generation (MW) using a base case scenario.

Figure 1 - Security of Supply for NI, ROI and All-island



Source: All-Island Generation Capacity Statement 2013-2022

Figure 1 above shows sufficient surplus capacity throughout the 10 years forecasted on an all-island and RoI only basis. However, for security of supply purposes we need to look at the system on a jurisdictional basis until the North-South interconnector is operational. The statement anticipates that this will not be until 2017. This is reflected in Figure 1 by attributing a solid line to both NI and RoI until 2017, from then capacity generation can be considered on an all-island basis, hence a solid all-island green line from 2017. The dark blue line representing NI shows the reduction in surplus generation from c600MW to c200MW from 2016. This reduction represents the decommissioning of the Ballylumford 4,5, and 6 generating units as a result of the EU Large Combustion Plant Directive.

The second North-South interconnector is fundamental to the Strategic Energy Framework, in providing sufficient surplus capacity and hence security of supply for consumers in NI. The absence of this interconnector means that from 2016 NI's surplus margin is reduced from c600MW to c200MW and from 2021 it is in deficit.

Northern Ireland, while meeting the Generation Security standard, is at risk of deficits from 2016 onwards in the event of a prolonged outage of a large generation plant or of the Moyle Interconnector. This paper examines the options to mitigate the risk to security of supply from 2016. The criticality of ensuring the second North-South interconnector is delivered as soon as possible and well in advance of 2021 is emphasised.

3. Security of Supply for NI Consumers

NI currently relies on a small number of large generating units, (Kilroot, Coolkeeragh and Ballylumford power stations), the Moyle interconnector with Scotland, and the current North- South interconnector. DETI's 2010 Strategic Energy Framework addressed the vulnerability for consumers in NI to security of supply issues by endorsing a second North-South Interconnector, which in 2010 was assumed to be delivered by 2013-14. The removal from service of three generating units at the Ballylumford plant at the end of 2015(required for compliance with the Large Combustion Plant Directive) and any failure or impairment of the other conventional generation units would significantly increase the risk of electricity demand not being met.

This risk is heightened, as the Moyle Interconnector has continued to suffer impairment and is currently operating at half its capacity, providing only 250MWs.

Mutual Energy Limited, the owner of the Moyle Interconnector, has written to the UR, setting out options, costs and associated timeframes to address reliability concerns around the current two high voltage direct current poles. Current indications are that the proposed works are unlikely to be delivered before 2017. With the earliest delivery of the second North-South Interconnector being 2017, this escalates concerns regarding the security of supply to consumers in NI.

Government and wider society places a high value on security of electricity supply. The above reductions in generation and interconnector capacity will result in an increased risk to security of supply from 2016, should a prolonged outage of a large generation plant occur. It is therefore important that potential remedies and their associated costs are considered.

4. Potential remedies and associated costs

Potential and feasible solutions to address security of supply issues are set out below. The timeframe for delivery is crucial in terms of addressing the short-term security of supply issue arising from 2016. The timeframe for delivery and costs are high estimates at this time.

i. Restoring full capacity on the Moyle Interconnector

Mutual Energy Limited is currently exploring the feasibility of possible interim solutions to enable the return to full capacity of the Moyle Interconnector ahead of the installation of a new and long-term solution. An interim seabed repair and reconfiguration of the Moyle Interconnector may allow restoration to full capacity using the existing cables in advance of the permanent repair and before the critical 2016 deadline associated with the EU Emissions Directives. Restoration of the Moyle Interconnector to full capacity would add a further c250MW to the system giving a surplus of c450MW.

Given the more recent history of faults on the Moyle Interconnector, Mutual Energy are pursuing the development of a long term reliable solution. They have written to the UR providing detail on their current considerations, likely timeframes for repair/ replacement, benefits and costs. This correspondence, along with the Utility Regulator's response, was published on the Utility Regulator's website on 13 May 2013. The correspondence supports Mutual Energy's long-term repair proposals to lay new low voltage cables alongside the routes of the current Moyle Interconnector cables. Completion of this work

would result in restoration of the Moyle Interconnector to its former reliability and full transfer capacity.

It is however worth noting that for the long-term solution, Mutual Energy points out that '*such a project would typically take 4-5 years. However in order to condense the project programme as much as possible and restore the valuable interconnector benefits to customers we are proposing to run the consents process and cable procurement process in parallel.'* Even with these best endeavours to reduce the project programme they indicate that a realistic commissioning date would be in autumn 2017.

Mutual Energy at this stage, estimate (noting a degree of uncertainty) the cost of their proposed long term solution to be of the order of £60m.

ii. The North/South Interconnector

The second North-South interconnector is fundamental to ensure that the security of supply position in NI is fully compliant with both the present NI and all-island generation adequacy standards. It addresses the risk to security of supply discussed in this paper for 2016 and 2021.

There is however, considerable uncertainty regarding the timeframe for implementation as the Northern Ireland planning application, originally submitted in December 2009, received considerable resistance. The application was referred to the Planning Appeals Commission (PAC) and has been subject to public inquiry, which was suspended in early 2012.

In April 2013, NIE re-submitted a planning application for the northern section of the interconnector. Suffice to say, there remains considerable uncertainty regarding the granting and timing of planning approval for both the northern and southern elements of the project. However, a working assumption is that it may not be delivered until 2017 at the earliest.

The current proposed overhead North-South interconnector will deliver substantial economic benefits to all consumers on the island. The estimated investment cost (for the NI section only) is of the order of £90m, however the benefits in terms of reduced production costs and enhanced capacity sharing, which would result from the project's development are assessed to be of the order of €30m per annum for all island consumers (NI's savings would be approximately £7m).

iii. Other generation options

Options one and two (above), while ultimately bringing substantial net benefits, will not be delivered in time to improve the security of supply situation in NI from 2016. While an interim repair of the Moyle Interconnector is expected to be delivered in advance of 2016, it is worth mentioning other generation options.

As stated in the Generator Capacity Statement, no new generation is expected to be connected in NI until 2022, other than renewables. The expectation of wind and other renewable connections to meet the NI Executive's 40% renewable target by 2020 have been incorporated into the base case scenario presented in Figure 1 of this paper. Additionally, the intermittency and disparate nature of connections of wind generation do not make such generation a reliable source for addressing a security of supply issue arising

from a large generation outage from 2016. Other renewable generation options are not likely to be available until after 2016.

An option to procure additional short term generation capacity to address the security of supply issue from 2016 exists. DETI, under the Electricity (NI) Order 1992, has the power to either direct the UR to invite tenders or to invite tenders itself for 'further generation capacity' or the provision of such energy efficiency or demand side management measures to meet any projected shortfall. Further consideration will therefore be given to the need and viability of procuring additional generation through an assessment of options and on how energy efficiency or demand side management measures might contribute to improving security of electricity provision.

Options for additional generation could range from upgrading of current generation plant to meet EU Directive requirements to the provision of new generation plant. However, all options will have a cost to consumers, and both DETI and the UR must be mindful that provision of increased interconnection in due course could obviate the need for significant investment in long term generation in Northern Ireland and therefore avoid unnecessary additional consumer costs.

iv. Derogation of compliance with the EU Directive

Meeting the requirements of the Large Combustion Plant Directive and Industrial Emissions Directive will result in the withdrawal of 510MW of generating capacity in NI from January 2016. Given the absence of the North-South interconnector this gives rise to the security of supply risk to consumers in NI.

The Ballylumford B station is already operating under an environmental permit from the Industrial Emissions Directive, part of which is its commitment to close operations by 31st December 2015. Any scope to extend the deadline for compliance until 2017 or until the second North/-South Interconnector is operational will be tested. However, while the Directives have provision for potential derogations, discussions to date with the Department of the Environment on the possibility of an appropriate derogation for current generating plant at Ballylumford is not considered a realisable option given the formal undertaking to close.

5. Conclusions

The SONI/ Eirgrid All-Island Generation Capacity Statement 2013-2022 states that in the base case scenario the Northern Ireland Generation Security Standard is met until 2020. Thereafter, Northern Ireland will be in deficit. However, Northern Ireland is at risk of deficits from 2016 onwards in the event of a prolonged outage of a large generation plant or of the Moyle Interconnector. With the North-South interconnector in place and the restoration of the Moyle Interconnector, all concerns and deficits are avoided.

It is therefore imperative that the second North/south interconnector is progressed and delivered at the earliest opportunity. In tandem it is also important that the Moyle interconnector is restored to full reliable capacity as soon as possible. These projects will deliver benefits of security of supply, increased trading resulting in lower costs and improved ability to promote renewable generation. They also form part of 2010 DETI's Strategic Energy Framework for Northern Ireland.

The uncertainty over planning permission and project delivery for the North/-South interconnector and time to effect the long-term solution for the Moyle Interconnector, means that short to medium term actions to address security of electricity supply issues from 2016

may be required. This will require additional investment and therefore potential additional costs to consumers.

Interim and longer term solutions to restore the Moyle interconnector to full capacity as soon as possible are being progressed. The potential scope for further emission derogations seems unlikely, however this will continue to be tested. The remaining risk and the need to procure additional conventional generation capacity in Northern Ireland will also be further explored. Action will continue to be taken to advance proposed options to manage risks and an update on the position will be provided over the summer months.

DETI, the UR and the SEM Committee will continue to work together to assess and identify options for addressing the risk to security of supply from 2016.