EIRGRID SONI System Operator for Northern Ireland

winter outlook 2011 - 2012

Summary

This Winter Outlook report examines the capability of the generation portfolio available to EirGrid and SONI to meet peak demands in Ireland and Northern Ireland between November 2011 and March 2012 inclusive. The growth in demand and the capacity and performance of generation (both conventional and wind) are covered, along with the available import capacity to Northern Ireland via the Moyle Interconnector from Scotland. Both deterministic and probabilistic analyses were carried out. The expected outlook is that there should be sufficient capacity for the winter period to ensure the appropriate level of security of supply is maintained across both jurisdictions.

Demand Growth

Chart 1 shows the 3-month rolling electricity growth rate from January 2009 to April 2011 for Ireland and Northern Ireland. As can be seen, the overall energy growth rate was negative for most of 2009, increasing only during the winter period. During 2010, the energy growth was mostly flat, increasing again for the winter period. Both increases for the winter periods can mainly be attributed to the extreme cold weather conditions. Since January 2011, the energy demand growth rate has decreased again in both jurisdictions.

Chart 1 3-month Rolling Energy Growth Rate

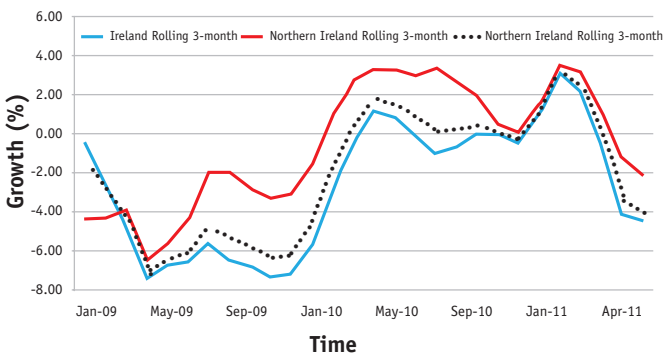


Chart 1 *3-Month Rolling Energy Growth Rate January 2009 to April 2011*

Chart 2 below shows the All-Island Historical Peak Demands[1] for each year from 2002 to 2010. The annual peak demand is dependent on a number of factors, including the decline in overall energy demand, which started in late 2008. Notwithstanding the overall decline in energy demand, the peak demand on some days during winter can be high due to weather and temperature conditions, particularly those experienced last year.

Chart 2 also illustrates the contribution of both the Ireland and Northern Ireland systems to the All-Island Peak Demand. It should be noted that the individual Northern Ireland Peak Demand and Ireland Peak Demand may occur at a different date and time to the All-Island Peak.

Chart 2 Historical Peaks: 2002 - 2010

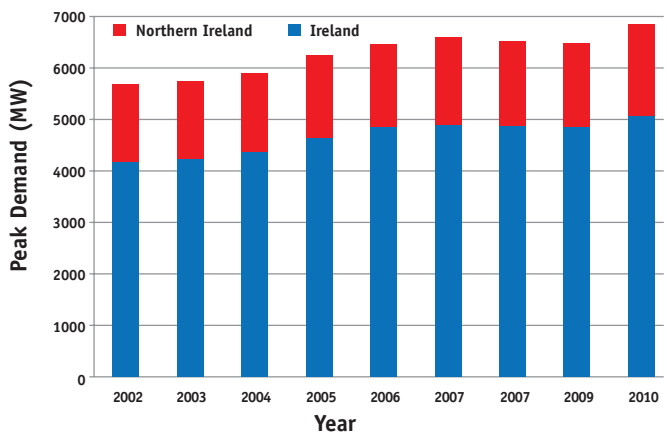


Chart 2 *All-Island Peak Demand from 2002 to 2010*

During the 2010/2011 winter period, the peak demand for electricity in Ireland was 5,090 MW. This occurred on 21 December 2010. In Northern Ireland, the peak demand for electricity during the 2010/2011 winter period was 1,777 MW and it occurred on 22 December 2010. For the 2011/2012 winter, it is forecasted that the All-Island Peak Demand will be 6,780 MW.

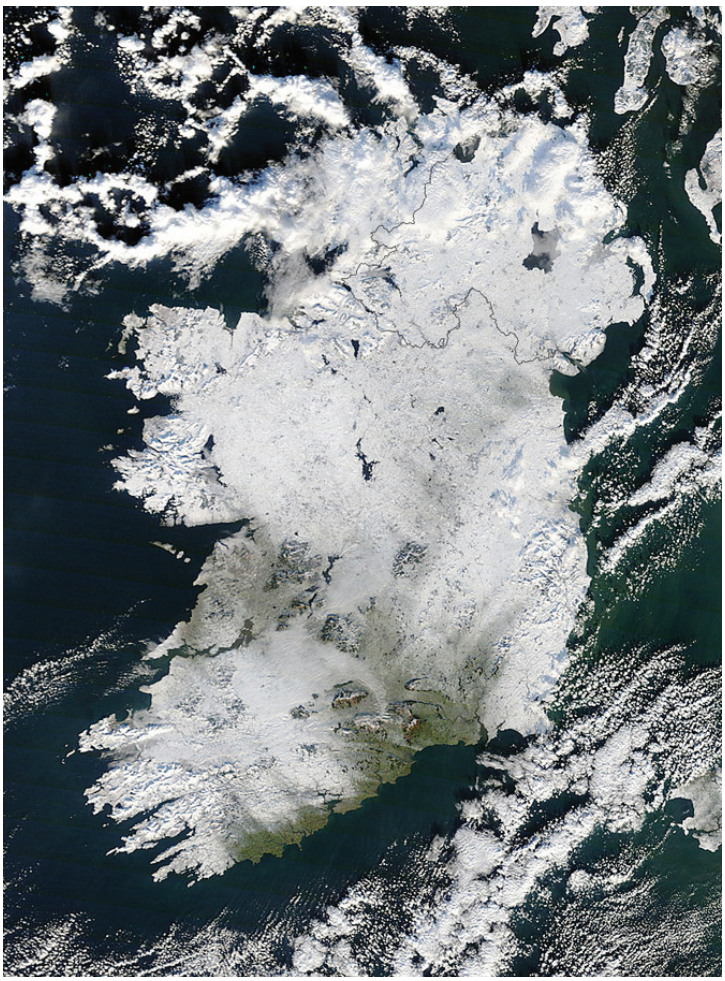
[1]In Sent-Out or Exported MW

Winter 2010-2011

The winter of 2010-2011 was the second extreme winter experienced in a row and was one of the coldest on record in Ireland and Northern Ireland.

In Northern Ireland, December 2010 was the coldest month recorded in the last 100 years with a mean temperature of -0.6° Celsius. A record low temperature of -18.7° Celsius was recorded on 23 December 2010. Some inland areas experienced the longest uninterrupted sub-zero spell since January 1881. There were exceptionally heavy winter snowfalls in November with a harsher and longer lasting snowfall from 17 December through to 26 December 2010.

In Ireland, spells of exceptionally cold weather during December brought some of the lowest temperatures ever recorded in Ireland, together with heavy snowfalls in places. Many areas had significant and disruptive accumulations of snow (27cm snow depth at Casement Aerodrome being the highest) making December 2010 one of the three biggest snow events ever[2]. The lowest December air temperature measured in Ireland since 1900 was -17.5 °C, was recorded at Straide, Co. Mayo, on 25 December 2010.



[2]Severe Cold Spell report at www.met.ie

[3]Assumptions based on discussions with Mutual Energy, owners of the Moyle Interconnector.

Dispatchable Generation

The installed capacity of conventional, dispatchable generation in Ireland will be 6,792 MW, including Meath Waste-to-Energy (17 MW), which is expected to become commercially available before the winter period.

The installed capacity of conventional, dispatchable generation in Northern Ireland will be 2,316 MW, excluding the Moyle Interconnector. There is no new large scale generation expected to connect in Northern Ireland.

At time of publication, both poles of the Moyle Interconnector are forced out. At this stage, it is assumed that 1 pole (250MW) will be back in service by 1st December 2011 with both poles (450MW) back in service by 1st January 2012. The studies in this report have been carried out to reflect these assumptions[3].

The installed capacity figures above do not take account of any forced outages which could be expected in the winter period.

Generation Unit Performance

Chart 3 shows the Daily Forced Outage Rates (FOR) and the overall 365-Day Rolling Average Forced Outage Rate from January 2010 to May 2011. As can been seen, Daily Forced Outage Rates can vary sharply on a day-to-day basis. However, the general performance of the plant portfolio has been relatively consistent over the past 18 months with an average Forced Outage Rate of 8%.

Chart 3 Daily & 365-Day Rolling FOR

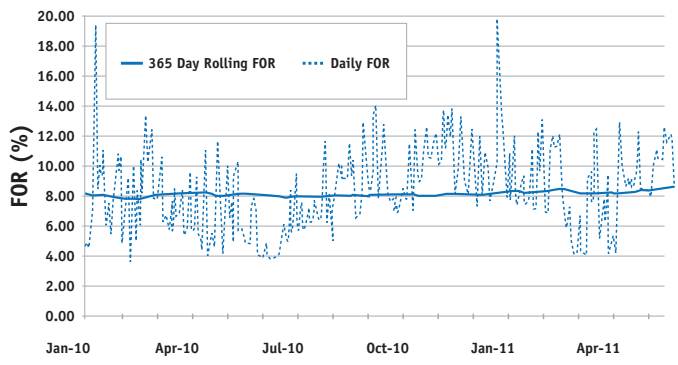


Chart 3 *Daily FOR & 365-day Rolling Average FOR January 2010 to May 2011.*

The Forced Outage Probabilities for this Winter Outlook analysis are based on the past performance of the generation units and information submitted by the power plant operators. The overall Forced Outage Probability for the analysis is 8%.

Wind Generation

Wind generation makes an important contribution to meeting All-Island system demand. Table 1 shows a summary of the key wind statistics for Ireland and Northern Ireland during last winter.

	Ireland	Northern Ireland
Average Installed Wind Capacity	1,407MW	347MW
Highest Wind Output at Peak Demand	1,276MW *(90.6% of Installed Wind Capacity)*	311MW *(89.6% of Installed Wind Capacity)*
Average Wind Contribution at Peak	354MW *(25.2% of Installed Wind Capacity)*	85MW *(24.5% of Installed Wind Capacity)*
Minimum Wind Output at Peak Demand	13MW *(1% of Installed Wind Capacity)*	0MW *(0% of Installed Wind Capacity)*

Table 1 *Summary of Key Wind Statistics for Winter Period 2010/11.*

Chart 4 shows the wind generation at the time of peak demand in each jurisdiction for each day during the winter period 2010/11. The contribution of the wind to meeting system demand can vary significantly on a day-to-day basis.

Chart 4 Wind Generation at time of Peak

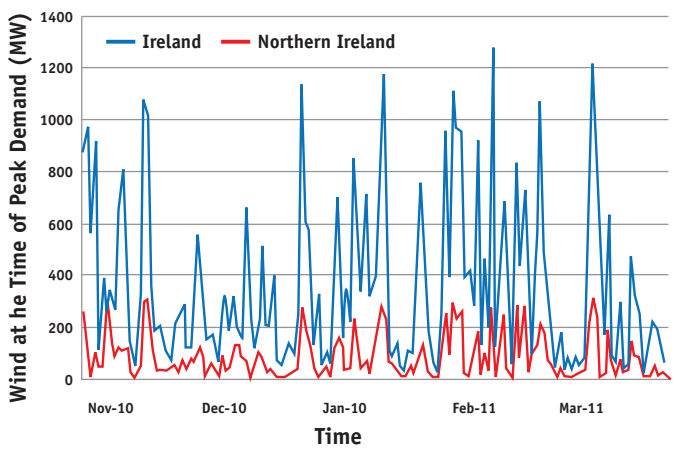


Chart 4 *Wind Generation at the time of Peak Demand in Ireland and Northern Ireland*

Wind Capacity Credit

The capacity credit of a generation unit is a measure of its contribution towards generation adequacy. Wind generation provides a limited capacity credit for two principal reasons:

1. The annual energy provided by wind generation is limited by actual wind conditions; and
2. Wind conditions provide a link between all wind generation in the country. Wind farms which are geographically and electrically separate from each other may still tend to act in unison when common wind conditions exist across the country[4].

[4]*Wind Power Generation Analytical report, 2007 update at* **www.eirgrid.com**
[5]*It is assumed that 1 pole (250MW) will be back in service by 1st December 2011 with both poles (450MW) back in service by 1st January 2012*

There is currently 1,892 MW of wind capacity connected to the Ireland system and the Northern Ireland system. It is expected that an additional 100 - 300 MW will connect up to the end of March 2012. For analysis purposes, an overall wind capacity credit of 375 MW is assumed for this winter.

Interconnection & Tie-Lines

Interconnectors

The Moyle DC Interconnector links the electricity grids of Northern Ireland and Scotland. The expected available Net Transfer Capacity (NTC) from Scotland to Northern Ireland is 450 MW and an NTC from Northern Ireland to Scotland of 287 MW once the cable fully returns to service[5]. The availability level attributed to the Moyle Interconnector includes an assumption that there would be capacity available in the Great Britain system, which has approximately 78.5 GW of installed generation capacity. For the purpose of this analysis, it is assumed that the Moyle Interconnector has a Forced Outage Probability of 1.43%.

EirGrid is building further interconnection between Ireland and Britain. The link, known as the EirGrid East-West Interconnector, is being built between Woodland, Co. Meath in Ireland and Deeside in North Wales in Great Britain. Construction of this project is progressing well with ducting work almost complete and the construction of the Converter Stations in Woodland and Shotton (Deeside) underway. The link is on target for commissioning in 2012.

North-South Tie-Line

The ability to exchange power over the North-South tie-line between the Ireland transmission system and the Northern Ireland transmission system is an important feature of the Single Electricity Market (SEM). The level of import/export available at any point in time is dependent on the generation availability in Ireland and Northern Ireland, the status of the Moyle Interconnector (from Northern Ireland to Scotland), the status of the transmission network on both the Ireland and Northern Ireland systems, the physical constraint of the tie-line itself and operating reserve requirements.

Typically, 200 MW of capacity is available from Northern Ireland to Ireland and 100 MW of capacity is available from Ireland to Northern Ireland.

Expected Outlook

Deterministic Analysis

Deterministic analysis was carried out to examine the ability to meet peak demands over the winter period. The analysis shows that there should be sufficient generation capacity this winter to meet peak demands and reserve requirements and that the appropriate level of security of supply should be maintained throughout the winter period. Chart 5 shows the expected overall margin during the week of projected peak demand.

Chart 5 Illustrative Expected Margin at Peak

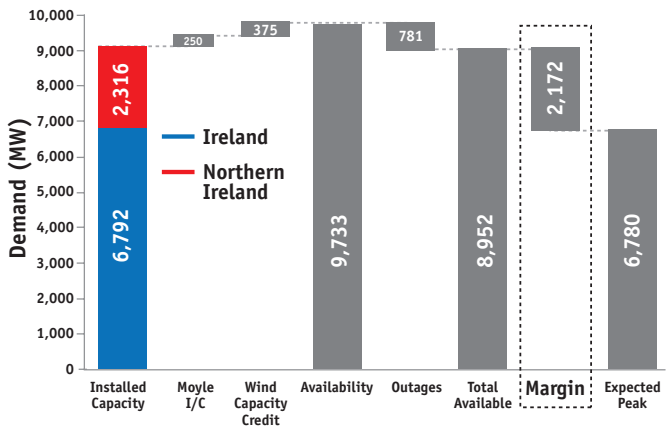


Chart 5 *Expected Overall Margin at Peak Demand*

This overall margin includes the available generation capacity (including typical forced outage probability), the wind capacity credit and the imports assumed available from Scotland via the Moyle Interconnector.

Probabilistic Analysis

The generation capacity adequacy standard is based on a probabilistic analysis and is defined as a Loss of Load Expectation (LOLE) of 8 hours per year for Ireland and 4.9 hours per year for Northern Ireland[6]. The results of the probabilistic analysis for the expected scenario indicated that both systems remain within their relevant capacity adequacy standard. Chart 6 shows the LOLE and capacity margin for each week during the winter period.

Chart 6 LOLE & Capacity Margin

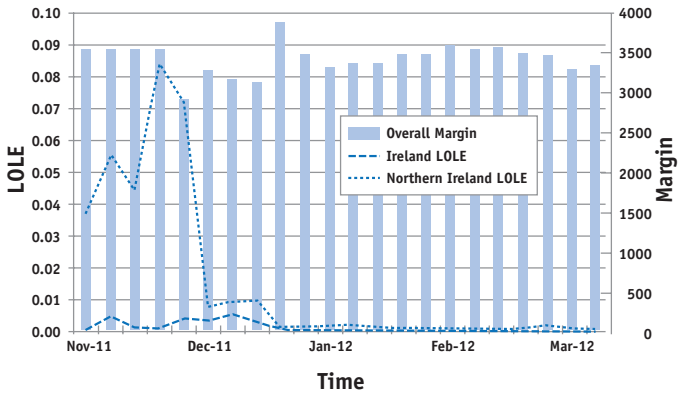


Chart 6 *Winter 2011/12 LOLE and Capacity Margin*

Expected Outlook – All-Island

Considering all the factors, it is expected the capacity margins across both jurisdictions will be sufficient to maintain security of supply standards. Wind is expected to make a contribution in line with its capacity credit. Despite the Moyle forced outage at time of publication, interconnection with Scotland will continue to be an important feature of the SEM and the demand/supply balance.

Conclusion

The outlook for the winter period is that the generation capacity should be sufficient to ensure the appropriate level of security of supply is maintained in Ireland and Northern Ireland. EirGrid and SONI will continue to manage and monitor the system carefully and to keep all stakeholders updated.

[6]A single All-Island standard is not possible until the 2nd North-South tie-line is commissioned.

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