Annual Wind Constraint and Curtailment Report 2013

Non-Technical Summary

EirGrid and SONI are the Transmission System Operators in Ireland and Northern Ireland respectively. We have prepared this report on the dispatch-down of wind energy in 2013, as required under European and Member State legislation.

Dispatch-down of wind energy refers to the amount of wind energy that is available but cannot be produced because of power system limitations, known as curtailment, or network limitations, known as constraints.

EirGrid and SONI have a role in facilitating EU and government energy policy. In relation to renewable energy sources we are required to ensure that generation from renewable energy sources can be used by customers as a matter of priority.

However, EirGrid also has a role to ensure that the power system is safe and secure at all times. And there are times when not all energy from wind generators can be used; when wind is strong, taking all the possible power could cause stability problems on the power system, or in some locations there may not be enough capacity in the transmission circuits to safely carry the power from a group of wind farms. In these cases, EirGrid and SONI may have to instruct the wind farms to generate less that they could. Each year we must report to our regulators, the Commission for Energy Regulation in Ireland and Utility Regulator in Northern Ireland, on the measures taken to dispatch-down renewable energy for system security reasons, and on the corrective measures that we intend to take in order to prevent inappropriate dispatching-down.

In 2013, the total wind energy generated in Ireland and Northern Ireland was 5,872 GWh, while an estimated 196 GWh of wind energy was dispatched-down. This represents 3.2% of the total available wind energy in 2013, and is an increase of about 86 GWh on the 2012 figure. However, it should be noted that the 2013 figure includes 12 GWh of dispatch-down of autonomous wind generation in Northern Ireland in 2013; this data was not recorded in previous years.

In Ireland, the dispatch-down energy from wind resources was 171 GWh; this is equivalent to 3.5% of the total available wind energy. The dispatch-down energy from variable price-taking generation (VPTG) was 118 GWh, and from autonomous generation was 53 GWh.

In Northern Ireland, the dispatch-down energy from wind resources was 24 GWh, up from 7.2 GWh in 2012; this is equivalent to 1.9% of the total available wind energy. The dispatch-down energy from variable price-taking generation (VPTG) was 12 GWh, and from autonomous generation was 12 GWh.

The increase in dispatch down of wind generation is partially due to the increase in wind generation capacity connected to the system, and the greater amount of energy delivered from the wind farms because of favourable wind conditions in 2013. The total capacity of wind generation rose by 200 MW in 2013 while the average capacity factor was 30.6%, up from the 2012 figure of 28.5%.

The level of demand is another important factor which can vary from year to year. However, the year-on-year changes were relatively small, with average demand in Ireland in 2013 just 0.4% higher than in 2012 and in Northern Ireland it was 0.1% higher than in 2012.

While the principle benefits of the Moyle and East West interconnectors are in reducing the price of electricity in SEM and in improving security of supply, they can also facilitate the reduction of wind curtailment through the use of System Operator trades directly with National Grid Electricity Transmission or through EirGrid's trading partner in Great Britain. As a result of counter-trading, mostly across the East West Interconnector, wind curtailment was reduced by 194 GWh in 2013, i.e. wind dispatch-down, which would otherwise have been 390 GWh, was reduced by almost 50%.

The fundamental issues which give rise to curtailment are being addressed by the DS3 programme (Delivering a Secure, Sustainable Electricity System). This programme has been specifically designed to securely and efficiently increase the level of wind generation which can be accommodated on the system and also address other system wide limitations. This programme of work is based on the published Facilitation of Renewables studies.

In order to address the network limitations which give rise to constraint of wind energy, the Grid25 programme was developed in Ireland and a similar programme is under development in Northern Ireland. The reinforcement of the network will increase the capacity of wind generation which can be accommodated. However, it should be noted that connections of new wind-farms to the network and general network improvement works necessary to provide priority dispatch can require temporary outages of transmission equipment which can lead to reduced network capacity and consequentially increased levels of dispatch-down in the short-term.

Figure 1 below shows the total annual dispatch-down energy by hour of the day, for Ireland and Northern Ireland. Figure 2 shows the total annual dispatch-down energy by hour of the day, split between curtailment and constraints.

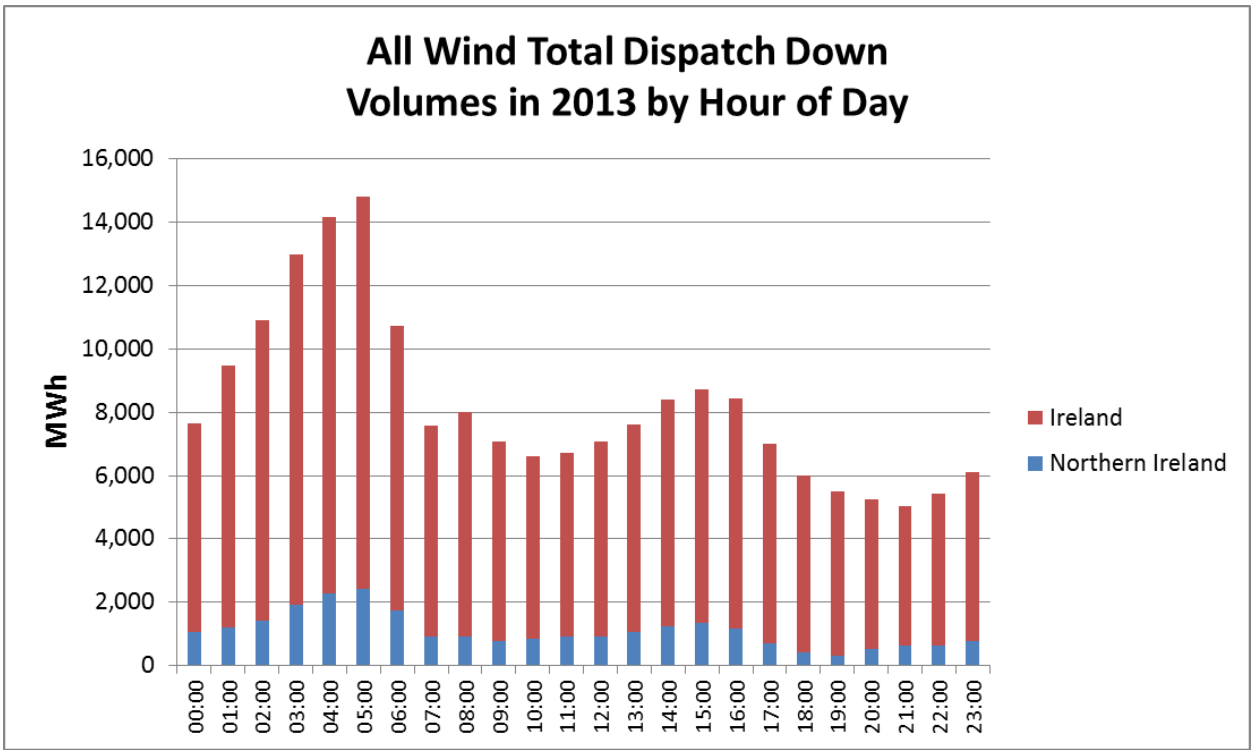

Figure 1: Total Wind Dispatch-down Volumes in 2013 by Jurisdiction and Hour of Day

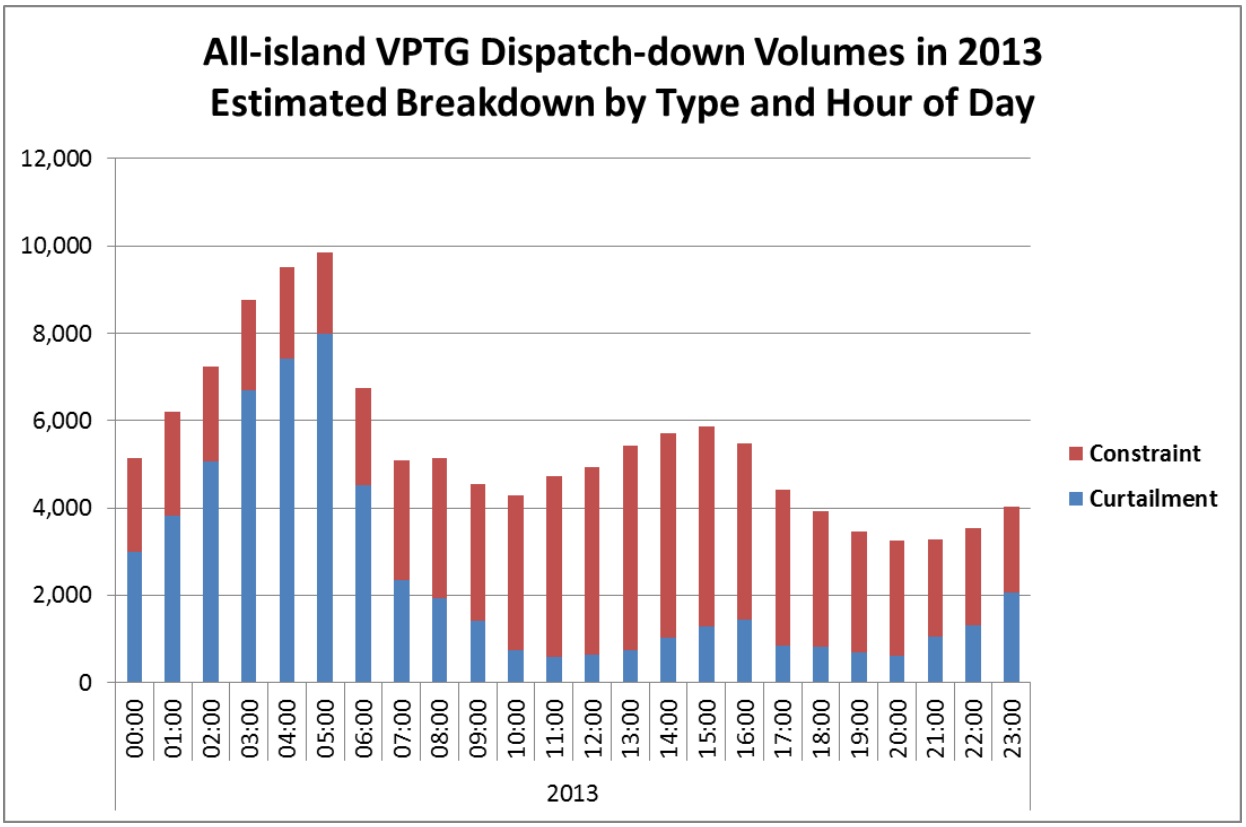

Figure 2: Estimated Breakdown of VPTG Dispatch-down Volumes on the Island in 2013