

# Annual Renewable Energy Constraint and Curtailment Report 2016

---

Non – Technical Summary

---

03/04/2017



## Background

EirGrid and SONI are the Transmission System Operators in Ireland and Northern Ireland respectively. We have prepared this report on the dispatch-down of renewable energy in 2016, as required under European and national legislation.

In Ireland and Northern Ireland renewable energy is predominately sourced from wind. Other sources include hydroelectricity, solar photovoltaic, biomass and waste. These latter sources of energy are generally maximised in dispatch and due to their small overall contribution to renewable energy they are excluded from the report.

## What is Wind Dispatch-Down?

Dispatch-down of wind energy refers to the amount of wind energy that is available but cannot be produced. Dispatch-down due to overall power system limitations is referred to as curtailment. Dispatch-down due to a local network limitation is referred to as a constraint.

EirGrid and SONI have a role in facilitating EU and government energy policy. In relation to renewable energy sources we must ensure that generation from these are prioritised. We must also ensure that the power system is safe and secure at all times.

There are times when not all energy from wind generators can be used. For example, if there is too much renewable energy, then this could cause instability to the system. Alternatively, 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 than they could.

Each year we must report to our regulators, the Commission for Energy Regulation in Ireland and Utility Regulator in Northern Ireland on this. The full report<sup>1</sup> details 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.

## Wind Dispatch-Down in 2016

In 2016, the total wind energy generated in Ireland and Northern Ireland was 7,620 GWh. An estimated 227 GWh of wind energy was dispatched-down. This represents 2.9% of the total available wind energy in 2016, and is a decrease of about 215 GWh on the 2015 figure.

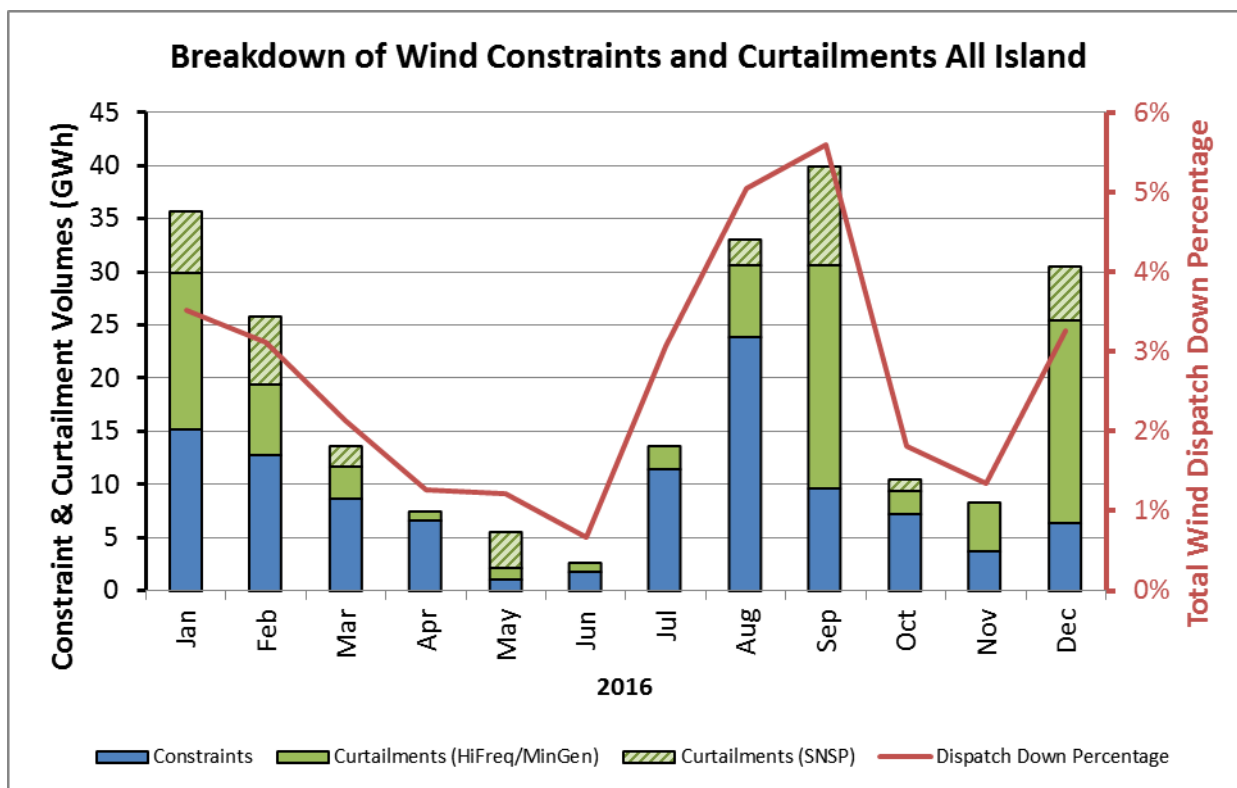
In Ireland, the dispatch-down energy from wind resources was 177 GWh; this is equivalent to 2.8% of the total available wind energy.

In Northern Ireland, the dispatch-down energy from wind resources was 51 GWh; this is equivalent to 3.2% of the total available wind energy.

The figure below shows the total annual dispatch-down of wind energy on the island by both volume and month for 2016.

---

<sup>1</sup> Available at [www.eirgridgroup.com](http://www.eirgridgroup.com) and [www.soni.ltd.uk](http://www.soni.ltd.uk)



Note: The bar chart shows the breakdown of dispatch-down energy by category (reason code), but only the three main constraint and curtailment categories are represented. The remaining categories are too small to display in this chart, but are detailed in the full report.

### Contributing Factors to Wind Dispatch-Down in 2016

The decrease in dispatch down of wind generation is predominately due to the decrease in the wind capacity factor in 2016. The total capacity of wind generation rose by 636 MW in 2016.

The System Non-Synchronous Penetration (SNSP) level, which is an indication of the maximum level of non-synchronous generation (wind and interconnection) which will be allowed on the system, increased from 50% to 55% in March 2016 and a trial of 60% started in November 2016.

The level of demand is another important factor which can vary from year to year. The average demand in Ireland in 2016 was 2.3% higher than in 2015 and in Northern Ireland it was 0.2% lower than in 2015.

Temporary outages of transmission equipment are sometimes necessary to allow the connection of new windfarms to the network or for network improvement works. These works can lead to reduced network capacity and consequentially increased levels of dispatch-down in the short-term.

During 2016 there were significant capital works undertaken to upgrade the transmission system. This helped facilitate increased levels of wind on the system at certain times.

## **Interconnection**

The principal benefits of the Moyle and East West interconnectors are in reducing the price of electricity in the Single Electricity Market and in improving security of supply. Additionally, they also facilitate the reduction of wind curtailment through the use of System Operator trades directly with National Grid Electricity Transmission or through the TSOs' trading partner in Great Britain.

## **Measures to Reduce Wind Dispatch-Down**

The fundamental issues which give rise to curtailment are being addressed by the DS3 programme (Delivering a Secure, Sustainable Electricity System). This programme will securely and efficiently increase the level of wind generation which can be accommodated on the system and other system wide limitations.

More information on the DS3 programme can be found here:

<http://www.eirgridgroup.com/how-the-grid-works/ds3-programme/>