

Electricity Transmission for Renewable Generation- What's needed in the Western Region?

The Western Region has some of the best resources for onshore wind generation in Europe, and in the future as technology improves, for offshore renewable energy. It is therefore important to the Region, and to Ireland, that there is sufficient electricity transmission infrastructure capacity for both immediate and long term development needs, so we can maximise the potential of the Region's resource and increase the level of renewable generation.

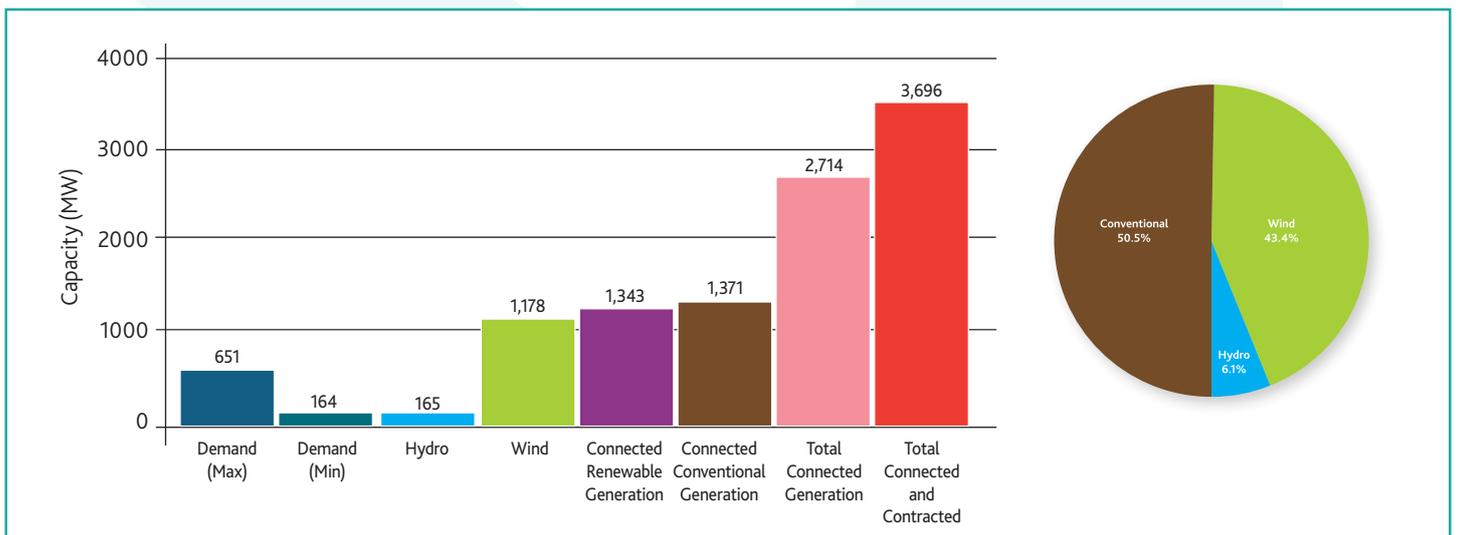
The Western Development Commission (WDC) has recently conducted a review¹ of electricity transmission infrastructure capacity in the Western Region.² It considered how increased renewable electricity generation, new ways of using and managing electricity and new methods of improving the use of existing transmission infrastructure, might impact on the need for investment.

Renewable Electricity

The Western Region already has a significant connected renewable generation (almost half of the generation in the Region is renewable) and the Region is currently producing enough renewable electricity to meet more than 100% of its own demand (Figure 1). By 2020 there could be 1,760MW of renewable generation connected in the Western Region, consisting of 1,595MW of wind generation and 165MW of hydro generation. By then renewable electricity from the Western Region will provide approximately 15% of the total national electricity demand and make a significant contribution to Ireland's share of the EU 2020 renewable energy targets.

Further ahead, to meet European targets for 2030, the new Renewable Electricity Support Scheme (RESS) aims to almost double the amount of renewable electricity by 2030 compared to 2020. This provides the opportunity for further development of renewable generation in the Western Region potentially making it a major provider of renewable electricity to the rest of Ireland. As well as onshore

Figure 1: Current Generation and Demand in the Western Region



Source: www.esb.ie, www.eirgrid.com and MullanGrid Consulting

1. The WDC was supported in this review by MullanGrid <http://mullangrid.ie/>
2. Counties under the WDC remit (the Western Region) are Donegal, Sligo, Leitrim, Mayo, Roscommon, Galway and Clare.



wind, there is also the potential in the Western Region for the development of other renewable technologies such as solar and marine generation.

The transmission system has been essential in enabling the Western Region to achieve relatively high levels of renewable generation. There has been substantial investment in the transmission network in the Region³ the majority of which, recently, has been in upgrading the existing electricity transmission network to provide additional capacity. However, to allow for the continued growth of renewable generation in the Region, further investment in new transmission infrastructure is required.

Transmission Capacity

There is capacity in the current transmission system for more renewable generation in areas of the Western Region including large parts of Co. Roscommon, Co. Clare and Co. Galway. However there is concern in the medium term for Co. Donegal and North Mayo. In Donegal, by 2022, it is expected that the connected renewable generation will have exceeded the capacity of the existing transmission system. While the planned North Connacht project⁴ will provide critical infrastructure for currently connected and some of the planned renewable generation in development in North Mayo/West Sligo, it will not provide capacity for additional renewable generation in the area. In the medium to long term there could also be a need for new transmission circuits to Co. Sligo/Co. Leitrim. Considering the extended timelines (at least 10 years) to deliver new transmission infrastructure it is important to take a long-term view of the generation needs and potential in these areas.

New Developments

In future, the electrification of heat and transport (as part of the move to a low carbon economy), smart controls, and development of data centres in the Region could bring about increased demand. Significant new electricity demand in the region could reduce⁵ but would be unlikely to remove the requirement for new transmission investment in the Region. Other changes in the electricity sector could also impact on the transmission system in the Western Region including new smart grid technologies that will allow EirGrid to maximise the use of existing transmission infrastructure.

Conclusions

Following publication of the National Energy and Climate Action Plan in 2019, which will set out the overall targets and a plan for climate action, national electricity transmission objectives should be operationalised by EirGrid in a new Grid Development Strategy with clear targets and a plan to achieve them.

It is important that there is a three-pronged approach to developing the transmission grid in the Region:

1. Upgrading existing transmission infrastructure;
2. New transmission infrastructure;
3. Implementing smart grid solutions.

Although new transmission infrastructure is the most challenging to deliver it is critical for the development of more renewable generation in the Region. Other factors that will impact on growth of renewable generation in the area are the planning process and public acceptance of onshore wind generation. Recent new transmission projects have faced strong local opposition.

To achieve long term ambitious climate action increased renewable electricity generation will be essential. Therefore further investment in transmission grid with sufficient capacity for new generation connections is crucial.

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3. EirGrid and ESB Networks, regulated by the Commission for the Regulation of Utilities (CRU), invest in and develop the electricity grid.

4. <http://www.eirgridgroup.com/the-grid/projects/north-connacht/the-project/>

5. As more of the electricity generated could be used locally and not have to be moved outside the Region