

## **ETI Committee**

### **Meeting on Grid Connection Issues**

Submission by Action Renewables

24/04/14

Prepared by Michael Doran (Executive Director), Jonathan Buick (Head of Projects)

### **Introduction to Action Renewables**

Action Renewables is the leading Northern Ireland renewable energy organisation. We facilitate, educate and advise the private and public sectors on all aspects of renewable energy development. Action Renewables is a not-for-profit limited company, with charitable status. We were founded in 2003.

### **Action Renewables Experience of Grid Connection**

Action Renewables facilitates renewable energy development. As an organisation, we assist everyone from individuals to large finance companies wishing to invest in renewables.

Two core activities of Action Renewables result in discussions with clients about grid connection issues. The first of these is carrying out renewable energy feasibility studies. To date, Action Renewables has completed over 130 feasibility studies for clients. All of these will involve an estimation of grid connection costs, when dealing with renewable electricity, but Action Renewables has always made it clear that this estimate assumes that the required connection capacity is available in the nearest feasible overhead line.

Within the past year, Action Renewables has had to take account of rising connection costs and revise its estimate of connection costs based on feedback from clients and information from NIE. Whereas in 2011 we would typically have suggested that a 225kW wind turbine could be connected for a cost in the region of £75,000, given suitable lines in the vicinity, we are now suggesting that this should be averaging in the region of £160,000. This is simply because we have become aware that in the majority of cases, an estimate of £75,000 for grid connection is unlikely.

The second element of Action Renewables' activities that involves discussions around grid connection is the trading of Renewable Obligation Certificates. This activity requires close liaising with project developers throughout their development, sometimes having begun over a year before the project generates electricity. Throughout this time, we are liaising with Ofgem in London regarding the technology and providing updates to Ofgem about the commissioning date. We are currently working with approximately 60 projects larger than 50kW at this stage of development.

Of fifteen clients we recently surveyed, the average quoted grid connection was £174,000 for turbines ranging from 90kW to 250kW, the average size being 200kW. £174,000 for grid connection is on a par with the actual installed cost of the average second hand refurbished wind turbine. Grid connection is therefore approximately 50% of the turnkey costs of many projects.

The least costly currently ongoing grid connection that Action Renewables is aware of, is £18,000 plus VAT. NIE were onsite laying out pegs marking the route of the connection within 10 days of the client having paid the full balance for the connection. However, this scenario is unusual and is considerably less expensive than the norm. What makes this all the more remarkable is that the connection is within an area where NIE has defined the grid as being at “saturation point” and “connection costs are likely to be very high”. Compare this to another client who accepted a quote of £63,600 plus VAT for a connection in June 2012 and has still not been connected. In this case all that was required were wayleaves for three poles on the client’s own land.

In a 2011 report to DECC, ARUP suggested that grid connection costs in the UK are 5% of total capital costs for onshore wind turbines. Even considering investment in new equipment, rather than second-hand, our survey shows that currently in Northern Ireland grid costs account for between 20% and 50% of total capital costs. For some projects, grid costs are even beyond this and are conditional upon NIE upgrading 33KV lines or substations.

Delays and lack of communication are also being felt by renewable energy developers in Northern Ireland. This uncertainty significantly increases the risk of investment in renewables, especially when it becomes impossible to accurately predict a timeframe for generation of income to allow return on investment. In some cases the delays are caused by the need to obtain wayleaves or planning permission for poles on third-party land. However, we also have clients who have waited almost a year for the wayleaves stage to be addressed after the route has been designed, and over a year for their wind turbines to be connected after all wayleaves have been signed, with little communication with clients about timelines for the construction phase. This has the potential to put projects at risk of failing, and investors, particularly individual landowners, in financial difficulty.

### **The issue**

Action Renewables recognises the need to integrate more renewable energy generation into the energy supply of Northern Ireland in order to improve energy security, energy price stability and meet targets (both domestic and EU) for renewable energy, energy efficiency and carbon abatement. However, we also recognise the challenges that an increasingly decentralised renewable electricity supply places on a grid infrastructure which was designed with large, centralised power stations as the primary energy source. The issue we currently face in Northern Ireland is not a problem caused by NIE, but the inadequacy of the grid infrastructure.

As early as 2016, Northern Ireland will be facing the possibility of electricity supply problems, imposed because of faults and delays in constructing interconnectors, and a reduction and restriction at Ballylumford and Kilroot, respectively. If this situation continues, Northern Ireland will have an electricity supply deficit from 2021.

Renewables offer a ready-made indigenous solution to the supply deficit. Large projects such as offshore wind farms and tidal generation are key to the long-term energy security of Northern Ireland. These projects do, however take many years to develop. In the short term, however, there are currently around 900 planning permissions granted for wind turbines in Northern Ireland which have not yet been constructed. Grid constraints and excessive connection costs are the most common barrier, as many 33kV/11kV primary substations in Northern Ireland currently have

“conditional” status, meaning that significant 33kV investment is already required at, or upstream of, the substations to facilitate any further generation export.

It is likely that around 700 of the wind turbines with planning permission will be between 50kW and 250kW, the size which is most commonly developed by individuals. It should be noted that the potential income stream from these turbines alone is in the region of £100million per year, which could feed directly into the economy of Northern Ireland, supporting local livelihoods. However, investing in grid reinforcement is key to allowing this to happen.

At the same time, Action Renewables recognises that there is no competition in the “grid connection” market. Competition for constructing connections exists in the rest of the UK, regardless of which company is the Distribution Network Operator. Introducing competition into this sector could go some way to alleviate the delays and high costs currently being imposed.

But the greater decision - where the required investment in the grid will come from - will not go away. There are alternatives, including smarter management of the 11kV network involving energy storage and a complete roll-out of truly smart metering, allowing NIE to monitor electricity flows through the 11KV system and demand side management. Action Renewables suggests that a combination of greater management, grid reinforcement and connection competition will enable Northern Ireland to move towards a more secure, affordable and renewable electricity supply.

#### **Addendum**

Although not within the general remit of grid connection issues, Action Renewables would like to make the ETI Committee aware of a related issue concerning the export of electricity from micro-generation. The most significant form of micro-generation in Northern Ireland is small-scale solar power, or photovoltaics (PV). This technology is rapidly becoming a common sight on roof-tops across Northern Ireland. However, it has been brought to our attention that any export of electricity to the grid from these panels is not being recorded by NIE and therefore cannot be assigned to any electricity supply company. This export effectively reduces the losses on the network that all customers have to contribute towards.

At the moment, only one electricity supplier, PowerNI, is actively stating that it will purchase this exported electricity. NIE tells us that this electricity is not attributed to PowerNI. Given the micro-generation export tariff offered by PowerNI is regulated by NIAUR, we are struggling to understand the logic of this situation. In an era where competition has been introduced into the domestic electricity market, Action Renewables feels that a monopoly in the domestic export market is an anachronism.

Action Renewables  
Block C  
Unit 1  
Boucher Business Studios  
Glenmachan Place  
Belfast  
BT12 6QH  
Northern Ireland

