



ULSTER FARMERS' UNION

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Shelia Mawhinney Clerk Committee for the Environment Northern Ireland Assembly Room 247 Parliament Buildings Belfast BT4 3XX

Committee for the Environment Inquiry into Wind Energy – UFU Submission

The Ulster Farmers' Union (UFU) is the largest representative of farmers and landowners in Northern Ireland with over 12,000 members. We are the largest single representative of small scale wind generators (<250kW), with many of our members involved in a wide range of renewable projects and we welcome the opportunity to reply to the Committee for the Environment Inquiry into Wind Energy.

The last 5 years has seen a rush to install small scale wind turbines in Northern Ireland with the lure of 4 ROCs to assist uptake. Planning Policy has been seen as one of the significant barriers facing landowners and the following examples are evidence of such.

1. Planning Backlog

As of 31 December 2013, there were 686 single wind turbine planning applications outstanding in Northern Ireland. The Graph One illustrates the outstanding planning applications grouped by council area.

Graph One – Outstanding Single Turbine Planning Permission

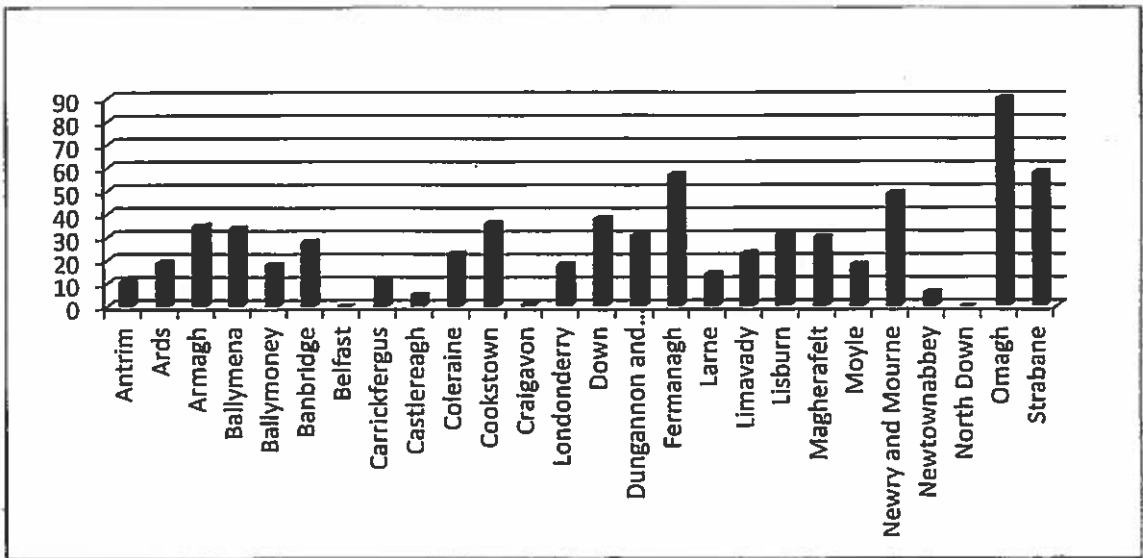


Table One below is a snap shot of single turbines approved in selected Local Government areas over the last 10 years.

Table One – Approved Single Turbines 2003 to 2013

| | Approved Total 2003-2013* |
|---------------|------------------------------|
| Omagh | 276 |
| Fermanagh | 229 |
| Strabane | 177 |
| Craigavon | 46 |
| Carrickfergus | 20 |
| North Down | 16 |

*31 December 2013

There is an East/West split in terms of the granting of planning permission for single wind turbines in Northern Ireland. Point has been made that this reflects that the wind speeds are more accessible in the west of Northern Ireland.

- i. Preference to the West – there are parts of the East where they are as good (if not better) sites for wind turbines. Yet these are ignored either due to the existence of ASSi's or in the eyes of some, preference to the west of the country.
- ii. Gap in expertise - There is a view that there is a gap in renewables expertise between the various planning offices, with the first 3 areas having more experience of renewables than those who approved only 16 over a 10 year period.

This is reflected in a breakdown of the 686 single wind turbines (as of 31 December 2013) still awaiting planning permission. The geographical breakdown is shown below in Table Two below;

Table Two – Pending Planning Decisions for Single Turbines

| | Pending Total 2013/14* |
|---------------|---------------------------|
| Omagh | 90 |
| Strabane | 58 |
| Fermanagh | 57 |
| Carrickfergus | 12 |
| Craigavon | 1 |
| North Down | 0 |

In Omagh, a ratio 90/276 (one in three) shows the magnitude of single turbines awaiting a planning decision.

2. Time to Process Planning Applications

| | Awaiting time (weeks) | Approval rate (%) |
|--------------------|--------------------------|----------------------|
| Ballymoney | 38 | 100 |
| Limavady | 49.4 | 71 |
| Londonderry | 81.2 | 76 |
| Down | 72.2 | 73 |

The question which this table asks the question as to why would it take nearly 81.2 weeks for a turbine to be passed in Londonderry where they have 18 single turbines pending, whilst in Ballymoney it is 38 weeks where they have the same number of turbines pending approval.

3. Visual Impact

I hear from many UFU that when planning permission is granted, NI planners tend to prefer lowly located sites with lower visual impact. This has adverse impacts since more often than not it means lower wind speeds. Lower the wind speed, less viable the wind project.

4. Grid Connection Capacity Problems

NIE released a heat map in October 2013, showing areas where the electricity grid is full (or approaching full) to capacity. Connecting individual small scale renewable energy generation units to the electricity network is proving to be a major problem for our members, on both the 11 and 33kV lines.

- **11kV lines** - On electricity grids there is the necessity for generated capacity to match the load. Traditionally this would have been achieved by adjusting the throttle control in the central power station (in other words through generation). However, the nature of small scale renewable generators (embedded and intermittent) joining the grid, means that equilibrium between demand and supply has to be met through the control of loads as well as a generation. Initially, the UFU were inundated with calls from landowners complaining about very expensive grid connection quotes. It transpired that this was attributed to lack of capacity on the 11kV network. This congestion has been brought about by "circuit level" activity. In other words, embedded capacity of small scale generation currently connected to the 11kV network.
- **33kV lines** - The situation worsened last year, with NIE identifying that capacity limitations are now arising on parts of the 33kV network. The Aggregated Volume of generators building up created problems at 33kv level and led to what is known as reverse power activity. The "conventional" power flow is from high to low. Yet, when connecting small scale renewables to the grid, this is done through embedded generation. Embedded generation alters the characteristics of the distribution network as it changes this network from a passive network with power flows in one direction to an active network with reverse power activity. The main problem is that AD plants create Permanent reverse power and this is unprecedented in network systems. In light of these problems with the 33kV lines, NIE have issued conditional offers for those landowners applying to connect to the grid. The conditionality means that the project will not proceed until a decision is made from the Competition Commission

and then the Utility Regulator. This means that there will be a delay to many projects and a significant number will not be completed due to the significant upgrade/infrastructure costs likely to be borne by the landowner.

Whilst this matter has been raised with NIE, DETI and the Utility regulator, but in line with this inquiry, the UFU believes that it is linked to the planning permission problems as set out below. “Conditional offers” have led to uncertainty for applicants and could have been avoided had our planning policy mirrored that in GB;

5. Distribution Grid Connection and Planning Permission

In Northern Ireland, grid connection offers can only be made by NIE after planning permission has been granted for a site. The problem is that with many cases, by the time planning permission is granted, the grid is full to capacity and either the applicant is unable to connect (it issued with a conditional offer) or facing very expensive grid connection costs meaning it is not worthwhile proceeding and upfront costs are written off as lost.

This is in contrast to GB where the two applications can be made simultaneously.

Had this been the case the above log jam could have been eased. We will clarify this point by say that it would not have been avoided, rather it formed part of the structural barriers we have described above. Parallel planning and grid connection applicants would mean that less farmers would not be left in a state of limbo.

6. Emerging Technologies and Engagement with local Communities

The terms for reference points “Emerging technologies” and “Extent of engagement with local communities” can be covered by the following evidence;

Lecale DSU is a joint initiative involving the Down District Farmers for Renewable Energy (DDFFREE), B9 Technology, South West College, East Down Rural Community Network, Invest NI, local residents groups and the UFU.

The proposal is to develop a “micro-grid” and storage solution for the area, generating and storing their own energy and utilising the surplus for their own use and even selling it to local community in Ardglass/Ballyhoran.

“Load Control” is one way to relieve grid capacity problems on the distribution network and this can be achieved through Storage and/or heat transformation such as suggested by Lecale DSU. Storage up until now has been the “holy grail” for small scale renewables, the problem up until now has been the electricity has been generated when it was not needed and there has been no way to store it.

The former airfield at Bishopscourt airfield has been identified as the preferred location for a “centre of excellence”/demonstration park for the micro-grid serving the energy and heat requirements of 300 homes in nearby Ballyhoran. The project will incorporate a broad mix of renewable technology; small scale wind, Solar PV, on-farm AD and the Seagen tidal test site at Portaferry.

Storage will initially be in the form of 2nd life traction battery charging (from Electric cars). Longer term, the storage solution will be met by ICAES (Isothermal Compressed Air Energy Storage) will be central to a Northern Ireland Energy Storage Demonstration Park located in the local area. This will be the first of its kind outside USA. As well as being stored, excess wind can be put to other uses; Ammonia Production. An Ammonia production plant is proposed for Ardglass. Ammonia can be used to power tractors, fishing trawlers and in charging Electric Vehicle. However, this project will take it to another level. Excess wind can be converted to hydrogen, via electrolysis, reacted with scrubbed nitrogen to produce ammonia.

Curtailement of renewable energy has been mooted by some as a means of getting more small scale generation capacity on to an already stretching grid. However, storage such as this will provide load and therefore avoid the need for curtailment. The System Marginal Price is very low during curtailment. Yet storage helps maximise the opportunity for arbitrage to the benefit of generator and customer alike. The idea would be that the electricity could be sold to the 300 specified homes in Ballyhoran at a cheaper price than what they currently pay and hence of benefit to the local community.

Going forward, there is much work to be done (interaction with the Utility Regulator and NIE) but if this "intelligent" solution does get off the ground it could be rolled out to other areas in NI and ease the grid connection problems. By creating a Northern Ireland Energy Storage Demonstration Park, this will promote Northern Ireland as a Centre of Excellence and the idea could be exported to other parts of the world. In addition to regulatory specific consideration being paid to Competition Law if the micro-grid revenue stream is to be realised and made available.

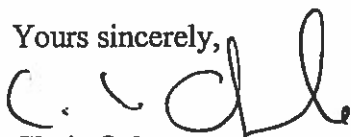
Lecale DSU proposal allows existing grid to be used and avoid the significant cost to the industry and wider consumer as already noted by NIE/Utility Regulator.

The UFU along with Lecale DSU met with Environment Minister Mark H Durkan in January and made the case that microgrid and storage projects should be given due consideration in any Area Plan revisions.

7. Overview of UFU position

More needs to be done to accommodate small scale renewables (energy and heat) into planning policy in NI. The UFU believe that previous planning policy focused too much on large scale applications and any future policy should be adapted to take better consideration small on-farm generators who utilise the generated electricity/heat on their farms and/or those who provide energy to a micro-grid which serves a local community. The UFU have been calling for this for many years and any resulting revision in the Local Area Plans would be an ideal opportunity to incorporate this scale of renewable into Northern Ireland Planning Policy.

Yours sincerely,



Chris Osborne
Senior Policy Officer
Dairy and Rural Enterprise