



**ULSTER
FARMERS'
UNION**

10 September 2014

COM-01110

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Jim McManus
Clerk to the ETI Committee
Committee for Enterprise, Trade and Investment
Room 424
Parliament Buildings
Belfast
BT4 3XX

Dear Jim,

Electricity Policy Review (Grid Connections) – Additional Information

Background

Grid connection problems experienced by Northern Ireland landowners have already been raised to the Committee on 24 April 2014. However, there have been developments since, but we feel that there are now wider policy matters which need to be taken into consideration.

NIE and Conditional Offers

On 15 August this year, when NIE announced that conditional grid connection offers for small scale renewable electricity generation would have to be withdrawn. This announcement followed a determination by the Utility Regulation, which was linked to a Competition Commission ruling on RP5 which was published in April 2014. The Competition Commission's determination in relation to RP5 confirmed that it was not the public interest to allow NIE to make any further investment in the 33kV network. This impacted upon the integration of small scale renewables to the grid and NIE subsequently withdrew conditional grid connection offers.

The problems were attributed to two distinct issues;

- i. Urgently needed investment in 11kV reinforcement (and the subsequent very high grid connection cost)

and

- ii. Problems created by "conditionality" which came about due to inadequate 33kV volt network capacity.

As stated in the introduction, the grid connection cost for some developers had reached such high levels that it meant many renewables projects had become financially unviable. Coupled with the growing uncertainty created by conditionality, many landowners were growing increasingly frustrated.

Prior to the NIE announcement, the UFU had lobbied all stakeholders and decision makers to resolve the problems experienced by landowners attempting to connect small scale renewable generators to the grid; expensive quotations, uncertainty, lack of transparency and poor customer assistance in relation to the grid connection.

NIE are dealing with the management of the affected applications, with the likelihood that some projects will never see the light of day, namely those where is significant capital upgrade expenditure required, i.e. transformer changes at sub-station level.

The UFU would like the ETI Committee to note that should this process not be managed effectively, we will not hesitate to raise this NIE, but also if need be it will be escalated to include, the Utility Regulator (if they breach the terms of their duty to offer grid connections) and the ETI Committee if there is a deterioration in transparency and communication.

Despite Project 40 developments, the UFU are concerned that small scale renewables are still not reaching their optimum potential in Northern Ireland and many are unable to reap the full benefits from their adoption and integration on account of grid connection, infrastructure and capacity problems.

Security of Supply

There are also concerns over security of supply on the local grid. Last year, Northern Ireland Utility Regulator (NIAUR) and DETI issued an information paper "Security of Electricity Supply in Northern Ireland". They identified a risk to security of supply from 2016 onwards. This stems from the EU Emissions Directives, which is expected to result in the withdrawal of some generation capacity at Ballylumford and place restrictions on generation at the Kilroot plant from 2016 onwards.

An option was identified to procure additional short term generation capacity to address the security of supply. DETI, under the Electricity (NI) Order 1992, has the power to direct the Utility Regulator to invite tenders or to invite tenders itself for 'further generation capacity' or the provision of such energy efficiency or demand side management measures to meet any projected shortfall.

Time for Change

Despite the decision by NIE creating much needed certainty for some, grid connection problems remain. Consequently the UFU believe that there is a need for a change of policy thinking when it comes to how we connect small scale generators to the grid and it is this we wish to bring to the attention of the ETI Committee.

Small scale renewables grid connection policy is changing on the following fronts;

1. Managed Connections (known as Project 40)

NIE, in conjunction with the UFU and other industry representatives are looking into a solution whereby generator output could be curtailed in order to ensure that 33kV capacity limits are not reached. This will not only reduce connection costs (by removing the requirement to reinforce the 11kV network) but will allow the generator to connect to the grid where before conditionality would have been likely. This is one example where the policy landscape will change as it will involve a move from a shallow (or firm) to a deeper (non-firm) grid connection. The curtailment process will be set out by NIE when they review your grid connection.

Since this has not been done before in Northern Ireland it will involve changes to the Statement of Charges/and or the Distribution Code and will be subject to a formal consultation process with the Utility Regulator will needing to approve any changes.

When implemented this will change the way many people work with small scale renewables. The idea would be that where capacity is limited, the output of a generator could be curtailed to the grid via a managed connection.

The developer will need to factor this into their business plan and estimate in advance how much electricity they can produce and what the impact the curtailment will have. This will change how many landowners plan their projects and utilise the energy they produce.

2. Microgrid

A Micro-grid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. The Lecale area near Ardglass, where grid capacity has been reached, has been identified as an area where the local community could benefit from an alternative way of connecting small scale renewables to the grid.

The Down Area Farmers for Renewable Energy (DAFRE) and the UFU on a micro-grid/storage solution for the area. This is an innovative community initiative involving local farmers, businesses and community groups. The Micro-grid will utilise local renewable generation provided by a structured mix of renewable technologies; small scale wind, Solar PV, on-farm AD and the Sea-gen tidal test site at Portaferry.

Whilst the UFU acknowledge that NIE are making progress on a managed solution, it should be noted that Project 40 will not provide the answer to everyone.

The idea of a micro-grid is not as eccentric an idea as it first sounds. In the US there is 1,051 MW of micro-grids, including the Central Hudson Utility Company in upstate New York. Here they have a generator and islandable micro-grid in the Frost Valley, providing reliable power since it was set up in 2010. It has led to an improvement in security of supply, having survived a dozen other major storms since 2010 including Hurricane Sandy.

Micro-grids such as the Frost Valley is backed up by conventional energy generation. You have to look further west to California, to see micro-grids more relevant to the Lecale project. In California microgrid projects are utilising renewable energy and heat. The California Energy Commission (CEC) has identified “high penetration renewable based microgrids”. These are defined as projects which can incorporate “high amounts (up to 100%) of renewable energy to meet the community load whilst avoiding adverse grid impacts, through the use of a microgrid controller/energy management system”. These are seen in action at several of the University of California campuses, including San Diego where they are managing 42MW of CHP, Solar PV and back-up on-site generation capacity with a campus-wide energy management and load control platform.

Advantages of a microgrid;

- Increased efficiency and consequent environmental benefit
- Security of supply – mitigate against any black outs
- Smart solution available to end users
- Improve market intelligence
- Wealth and job creation for the local rural community
- Improved reliability
- Security of supply to load customers is improved
- Possible financial savings

If implemented in Lecale, this Microgrid could provide an alternative to traditional grid connection currently being experienced on the ground in Northern Ireland.

3. Storage

Central to the Lecale micro-grid will be a storage solution in the form of IAES (Isothermal Compressed Air Energy Storage). The concept of Storage will address the load management complications associated with embedded generation. Storage is a way of managing the load mitigating against the need for curtailment. Storage facilities to be based at the Northern Ireland Energy Storage Demonstration Park located in the local area. This will be the first of its kind outside USA.

When the Lecale project is implemented and is successful, it could be rolled out to other areas in NI and potentially ease the grid connection problems, working alongside Project 40. Lecale is an "intelligent" solution but for it be rolled out it will require many policy makers to think outside the box.

It should be noted that the UFU have already briefed both Agriculture and Environment Committees on the Lecale Project and received a favourable response.

Change of thinking

- **What is the role of ROCs Going Forward?**

Under the Project 40 proposals, the likelihood is that by choosing a smaller sized generator, both capital and grid connection costs will be greatly reduced. The landowner could still export to the grid (and avail of the financial incentive) and make both cost and efficiency savings using renewable energy on farm. With the ROC system due to come to an end in 2017 and replaced by a Feed-in Tariff for small scale renewables, the UFU are calling for DETI to consider a banded approach where smaller size generation units will receive greater incentives such as those described under Project 40.

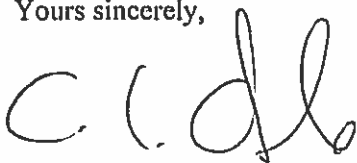
- **Need for policy support on Storage**

It is the view of the UFU that not enough policy consideration and support has been given to storage in the small scale renewables policy environment. The idea is that the energy/heat which is generated at night (or at a time when it is not needed), it could be stored to be used at a later date. Storage solutions could range from 2nd life traction batteries (used in electric cars etc) to IAES above. For small scale renewables to be sustainable in Northern Ireland this will need to change. The storage policy debate needs to be progressed if small scale renewables are to be a sustainable part of our industry in the future. With the introduction of a small scale FIT still being designed, there is an ideal opportunity for storage support to be included and the UFU will be lobbying for this to happen.

- **Grid Outlook and Changing Expectations**

There is no quick fix to help those experiencing problems connecting small scale renewable generators to the grid, but the UFU can commend NIE for actions taken to address these and will continue to work on Project 40. However, this will not help all renewable developers. Managed connections, Microgrid and storage are integral parts of a sustainable solution going forward. For these to work it will need a change in expectations amongst land owners and how they plan their renewables projects.

Yours sincerely,



Chris Osborne
Senior Policy Officer