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Robert Cope
Committee Clerk
Northern Ireland Affairs Committee
House of Commons
London
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Dear Northern Ireland Affairs Committee,

Northern Ireland Affairs Committee Inquiry into the electricity sector in Northern Ireland – Ulster Farmers Union Evidence

The Ulster Farmers Union is the largest representative of the farming/land-based sector in Northern Ireland with 12,500 members and we welcome the opportunity to provide evidence to this inquiry.

Section

1. Terms of Reference for Inquiry

As far as the Terms of Reference are concerned, these are the questions which will we will address in our response:

- What challenges does the Executive face in meeting its target for renewables to contribute 40% of electricity supply by 2020? **(Section 4/5)**
- What steps are required to prevent an anticipated shortfall in generating capacity in the coming years? **(Section 6)**
- What difficulties arise for Northern Ireland from the need to make UK energy policy work in the context of all all-island electricity market? **(Section 10)**
- How effective is the Northern Ireland Office and Department of Energy and Climate Change in ensuring that the aspirations of the sector and the Executive are taken fully into account in the development of UK energy policy? **(Section 7/8/10)**

2. Ulster Farmers Union role in electricity generation

Northern Ireland farmers have a three-part role in electricity; landowner, local demand customer and renewable energy generator.

- **Landowner** - The NIE Networks electricity infrastructure covers thousands of kilometres of cables, poles and transformers crossing our members land and there are thousands of wayleave agreements as well as formal and informal land access agreements with Northern Ireland Electricity (NIE).

- **Local Demand Customer** - Farm businesses are direct customers of NIE T&D consuming large and significant volumes of electricity. Farmers and landowners rely upon these lines which cross their land are reliant upon the electricity transmitted and distributed to run their farms.

- **Renewable Generator** - As well as being major load customers, over the last 10 years our members have become significant generators of renewable electricity; Small Scale Wind, Hydro, Anaerobic Digestion and Solar PV.

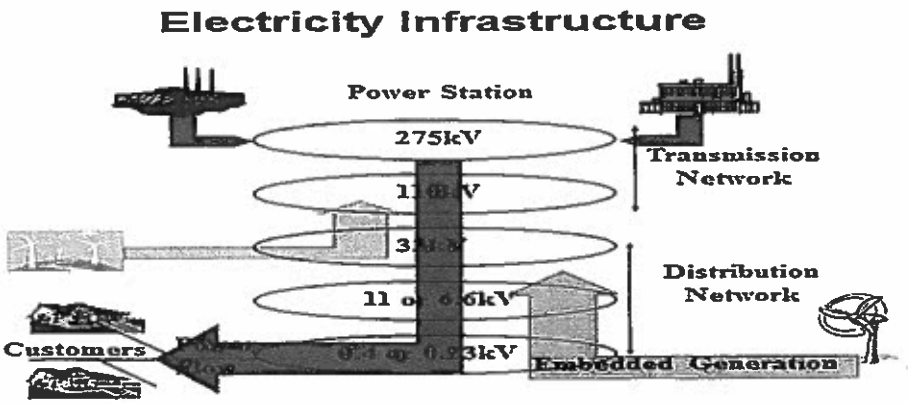
3. What Incentivised Land Owners to produce Renewable Electricity?

The Northern Ireland Renewables Obligation (NIRO) was introduced in 2005 and was the support mechanism which aimed to encourage the increased generation of renewable electricity and thereby contribute towards meeting the 40% target. This not only encouraged farmers to build single renewable generation units on their farms but also created a market for third party companies to lease land from farmers for a turbine site and to offer the landowner a sizable annual rental income.

4. Structure of the Grid and Small Scale Renewable Electricity – the Most Significant Barrier

The following illustration (Figure One) shows the electricity infrastructure in Northern Ireland. The lower voltage distribution network is where our members are connecting (11kV and 33kV). This figure illustrates the nature of the most significant barrier our members faced in connecting to the electricity grid.

Figure One - Northern Ireland Electricity Infrastructure and Small Scale Renewable Generation



The stochastic and intermittent nature of wind makes generation difficult to predict for any Distribution Network Operator (NIE Networks). Traditionally the NI grid was a 'passive' system, providing electricity from bulk supply transformers in distribution sub-stations to customers on the

low voltage (LV) network. The grid was not built to accommodate "embedded generation" and connecting individual small scale renewable energy generation units to the 11kV electricity network in Northern Ireland proved to be a major problem for our members. Normally, load matching for generation capacity on the grid would have been achieved by adjusting the throttle control in the central power station (ie through generation). However, the embedded and intermittent nature of small scale renewable generators meant that when joining the grid, the equilibrium between demand and supply had to be met through load control as well as by generation.

Since 2005, the UFU were inundated with calls from landowners complaining about very expensive connection quotes when applying to connect small scale renewable generation units to the grid. The UFU were aware of quotes of £600,000 to connect a 250kW wind turbine to the grid. Yet, farmers and landowners still went ahead with projects, such was the allure of the sizeable ROC payment. "Circuit level" activity brought upon a congested queuing process for applicants attempting to join the grid (embedded capacity of small scale generation currently connected to the 11kV network). The situation worsened in 2014, with NIE identifying that capacity limitations are now arising on parts of the 33kV network. The main problem is that AD plants create permanent reverse power. By way of a solution, NIE identified Automated Network Management (ANM). Work is ongoing and whilst it will have come too late for the NIRO, it could have benefit in the long run.

5. Northern Ireland Agriculture Reliance Upon 11kV Network

In 2013, Utility Regulator referred their disputed Price Determination (RP5) with NIE to the Competition and Market Authority (CMA). The UFU were invited to submit evidence and we stated that NIE should be granted the level of investment they had originally submitted in order to improve and enhance resilience on the 11kV network.

With 25,000 farms throughout Northern Ireland, our members are dependent upon the 11kV network and lines. If you consider the fact that in NI there is approximately 3.5 times more overhead line per customer than the average Distribution Network Operator in GB, this illustrates the importance of a resilient, reliable electricity network being available.

The nature of a perpetual asset such as the 11kV lines is that re-investment and regular upgrades are needed to ensure that the system does not degenerate into a state of decay. It would only take another event such as the Ice Storm experienced in Northern Ireland in March 2010, to create major problems. In terms of the scale of the physical problem, there are c. 15,200kms (73%) of the 11kV overhead line network built with small cross sectional area conductors - 25mm2 Aluminium Conductor Steel Reinforced (ACSR) and these lines are susceptible to ice accretion. Another severe weather event could see thousands of rural homes and businesses without electricity for extended periods meaning the possible of loss of livestock or even human life.

NIE in their submission called for an ex ante allowance of £30m for distribution load-related expenditure on the 11kV network. NIE proposed that they could allow case-by-case approval with different approaches for low and high cost reinforcement work. The Utility Regulator rejected this immediately in their provisional determination and emphasised that it had no desire to change the connection policy. On 15 April 2014, the CMA concluded that it was not in the public interest to make an allowance for further network reinforcement on the network.

In April 2016, the UFU submitted a Cost Benefit Study to PwC (working on behalf of NIE Networks) backing up the need for further grid reinforcement of the 11kV lines within RP6.

6. Security of Supply Concerns

In July 2013, DETI and the Utility Regulator issued a joint press release airing their concerns on the security of supply on the Northern Ireland grid. EU Emissions Directive compliance meant that

510MW of generation capacity would have to be withdrawn and prolonged outages on the system would be likely if no action was taken. To remedy the situation, SONI assessed that an additional 250MW of generation capacity would need to be secured. Such are the security of supplies concerns, demand-side responses are being encouraged to ease the strain on the grid. This coupled with the current capacity problems on the 11/33kV means that the grid is under severe strain.

7. **Closure of Northern Ireland Renewable Obligation (NIRO)**

Shortly after the General Election in 2015, DECC announced its intention to close the Renewables Obligation across Great Britain to new onshore wind projects from 1 April 2016. This announcement was made shortly after the General Election.

An earlier closure for the GB RO (compared to NI) was understandable as GB have had ROC payments from 2002, they were only introduced in Northern Ireland from 2005. The ETI Minister Jonathan Bell MLA in a statement on 18 June 2015 said "DETI recently consulted on closing the Northern Ireland Renewables Obligation (NIRO) to new generation in 2017 and I will shortly publish the formal government response to the consultation. I want to make it clear now however that I do not intend to follow the Westminster government's policy to close the existing scheme early. Onshore wind has made a valuable contribution to our renewable energy aspirations in Northern Ireland. This has enabled the Executive to reach its ambitious Programme for Government target to have 20% of our electricity generated by renewables by 2015."

Yet in a very public u-turn, three months later, DETI announced a two week consultation proposing the early closure of the NIRO (from 1 April 2016). This was to apply to new onshore wind projects which did not meet specific eligibility criteria. Projects that met the early closure eligibility criteria would be able to apply to accredit under the NIRO to 31 March 2017, with a further 12 month grid and radar delay grace period for projects which can meet key criteria.

On 22 December 2015, the UFU in conjunction with Simple Power and Wind NI, launched a Judicial Review against DETI.

8. **Government Policy**

When the ROCs were introduced, no consideration was given by government as to how small scale renewable generation units could be integrated into the local infrastructure (other than the electricity grid). Integration would mean a more sustainable contribution to the local electricity market.

UK Government Energy Policy - The policy at Westminster is at best unclear and at worst contradictory in terms of Energy. The early closure of both ROs has been justified by Government by the perceived increased electricity bills faced by domestic consumers to pay for renewable energy.

However, consider a recent IMP publication. They provided data highlighting the difference between Fossil Fuel Subsidies and those paid to Renewables. The UK's fossil fuel sector received more than £26 billion in subsidies this year, which over £400 per citizen, which accounted for 1.4% of UK GDP, interesting to note that UK defence spending is 2.1% of GDP. The cost of supporting renewable energy in 2014/15 was £3.5 billion. In other words £22.5 billion less.

NI Government Policy – In Northern Ireland, there have been 3 Government Departments involved in the policy formulation for small scale renewable electricity generation; DARD and DoE (now DAERA) and DETI (now DfE).

- **DETI (now DfE)** - The UFU fails to understand how Energy policy can evolve in Northern Ireland without an Energy Bill. Consultation work was carried out on this up until late 2012 and since then the Bill has stalled and the UFU would like to know why. The question has been asked of the Department yet no one has been able to provide an answer.

- **DARD (now DAERA)** - In June 2015, the UFU wrote to the then DARD Minister Michelle O'Neill highlighting our concerns about on-going problems facing the small scale renewables sector and uncertainty going forward. In early 2007, DARD launched Renewable Energy Action Plan (REAP), setting out the challenge promoting renewable energy and achieving sustainable development. In this time, our sector has experienced years of policy and infrastructural hurdles and many proposed renewable energy cases have not been completed, costing our sector a considerable amount of money and time wasted.

  The UFU policy line has been that DARD should facilitate the selling of energy, especially considering the potential of Micro-grids and we continue to call for this.

GB and Northern Ireland Government Interaction – During discussions surrounding the closure of the NIRO at the end of 2015/early 2016, the UFU sought meetings with the then DECC Minister Amber Rudd and every time our request was turned down. The reaction in one correspondence was "as energy policy is devolved in Northern Ireland, it is for DETI to consider how best to incentive small-scale renewables". Yet it was a London decision not to socialise costs of the NIRO for the 12 period 1 April 2016 to 31 March 2017 that led to the decision to close the NI scheme early.

9. Going Forward - Time for Alternative Thinking

The UFU have been at the forefront of offering blue sky thinking in terms of how renewable electricity can be distributed and consumed in Northern Ireland.

With Renewable Obligation Certificates no longer available for small scale renewable generation, the UFU have taken an alternative look at how renewable electricity could be used in the Northern Ireland countryside and in a way which renewable technology could be integrated into rural businesses. This is one of the failings of renewable policy in the UK. Previously generators were rewarded financially for large single installations (often only connected to the electricity grid and not their own farm business).

A change of thinking is needed where the design and construction of local power systems is needed so as to meet the exact needs of rural consumers. There needs to be a move from a supply-side infrastructure to "the other side of the metre", in other words, a bottom up approach and smart metering (for example) would support this. Going forward this would involve Distributed Generation, a different way of managing demand and supply of generated renewable energy. This would improve the incorporation of alternative generation sources, allowing the ability to "switch-on" controllable site-loads.

- **Local Supply (Microgrids)** – a local farm could produce renewable electricity via wind turbine/AD unit/solar PV and sell it to a nearby business. This is not currently permitted (a practice known as wheeling) and should be considered with advantage being the value to the rural economy and energy efficiency improvements.

- **Zero-Net Energy** – this is where the renewable energy produced on a farm meets the exact needs of business, with no spill or wastage (unlike under the ROC system).

This is will involving upsetting the status quo and the challenge will be turning these ideas into action and implementation.

An integrated energy storage solution for small scale electricity generators - Renewables support in Northern Ireland has traditionally taken the form of ROCs (Renewable Obligation Certificates), where a renewable generator is rewarded for each unit of electricity they generate and export to the grid. Producing electricity in this way is very inefficient with a considerable amount wasted. If a storage solution was available, the farmer could store the electricity generated and use it when it is

needed most. This would improve on-farm energy efficiency and reduce greenhouse emissions generated by using traditional fossil fuels.

The advantages of storage are that it is seen as an alternative to traditional grid reinforcement, reduces peak demand (reducing losses and reducing asset allocation) and leads to carbon savings from the displacement peak generation. They are challenges to on-farm energy storage and the UFU are prepared to tackle these going forward. Firstly, switch gear will need be developed to allow storage to integrate with the single farm system. Secondly, single applications are often not cost effective (economies of scale only apply for network solutions). Finally, regulatory obstacles will need to be addressed.

This is already being looked at on a larger scale at AES Kilroot with their 10MW lithium ion battery facility but by their own admission, further commitment is needed in the next Regulatory Period. UFU are currently in discussion with AES about rolling out an on-farm solution in relation to battery storage. In our submissions to RP6 we have called for the support for storage and to ensure that any solution brings about the integration of storage.

10. Impact of BREXIT

SEM – The Single Electricity Market (SEM) is the wholesale electricity market operating in the Republic of Ireland and Northern Ireland and is a joint venture between Eirgrid plc and SONI Limited.

Capacity Market Scheme – There is uncertainty over the future of these schemes and this will add to concerns over the security of energy supply. However, through storage, renewable electricity could be utilised to offset load pressure during peak times rather than reverting to carbon-intensive diesel generators. One of the implication upon capacity market schemes of Brexit is the possible cost to the consumers and this could be mitigated against by accessing stored electricity.

F/X Volatility – With Sterling already under downward pressure exasperated by the Brexit decision, electricity prices are likely to rise and alternative energy sources could be sought after once again.

11. Concluding remarks

The UFU feels that the NI Office and DECC have failed to take into consideration the full potential of the sector in the development of UK Energy policy. Northern Ireland farmers and landowners have spent significant amounts of money in the rush to connect small scale renewable generation units to the grid to avail of the NIRO. On account of the barriers mentioned in this evidence many were never connected and many lost money (consultancy and planning fees).

There is no denying the continued potential for wind generation in Northern Ireland even without subsidy but there is a need for government both in Belfast and London to undertake alternative thinking on how this will be carried forward and to consider suggestions on how the small scale generation of electricity could be supported. We will contribute our innovative suggestions to RP6 and continue to lobby to have the local Energy Bill revived. Without an Energy Bill, there is little hope for the small scale renewable electricity sector in Northern Ireland.

Chris Osborne
UFU Senior Policy Officer