



Northern Ireland  
Assembly

Committee for Enterprise, Trade and  
Investment

# OFFICIAL REPORT (Hansard)

Electricity Policy Review:  
Ulster Farmers' Union

25 September 2014

## NORTHERN IRELAND ASSEMBLY

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## Electricity Policy Review: Ulster Farmers' Union

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**Members present for all or part of the proceedings:**

Mr Patsy McGlone (Chairperson)  
Mr Phil Flanagan (Deputy Chairperson)  
Mr Steven Agnew  
Mr Sydney Anderson  
Mr Sammy Douglas  
Mr Gordon Dunne  
Ms Megan Fearon  
Mr Paul Frew  
Mr Danny Kinahan  
Mr Fearghal McKinney

**Witnesses:**

Mr Barclay Bell	Ulster Farmers' Union
Mr Gary Hawkes	Ulster Farmers' Union
Mr Chris Osborne	Ulster Farmers' Union

**The Chairperson:** With us here today to brief the Committee from the Ulster Farmers' Union (UFU) are Mr Barclay Bell, deputy president; Mr Gary Hawkes, chairman; and Mr Chris Osborne, senior policy officer. You are all very welcome indeed. It is good to see you again. Thanks very much for attending. We already have the papers in front of us, so it will be a bit of a dialogue between us as we seek to explore the issues and what they mean. Do you want to give us a brief overview? Are you kicking off, Barclay?

**Mr Barclay Bell (Ulster Farmers' Union):** Gary is going to lead here.

**The Chairperson:** OK, Gary, if you want to give us a brief overview, we will then have questions from members.

**Mr Gary Hawkes (Ulster Farmers' Union):** Thank you very much, Chairman. We are basically here today to talk about the microgrid, the situation and the benefits for Northern Ireland and where we are with the difficulties that, as you are aware, we have been facing in the agriculture sector. We are looking at moving forward and alleviating the difficulties that people have with conditional offers. They have spent a large amount of money over the last number of years being encouraged to take part in the developments in renewables in Northern Ireland. At today's figures, we estimate that the rural and agriculture sector has spent up to £20 million on planning fees, consultancies, wildlife requirements and surveys. It is now getting astronomical offers from Northern Ireland Electricity to get grid connection, due to congestion on the lines.

Most of the people are encouraged to go for a certain size of development. They were all advised, because nobody who was involved in it had any knowledge; it was all professional advice from leading authorities who told us the route to take. When most people did that, they found out that it was incorrect and was not the route to take. We have been left holding the child now in a really difficult situation. We are trying to relieve it for our members. We are looking at alternatives. The microgrid is one that we see as a great opportunity for the agriculture sector for the shifting of load and the creation of a mixed input.

We are trying to encourage NIE to put in a managed grid system. The 11 kV system, which is the system in all of the rural sector, is unmanaged. If you put in an offer for a 250 kW turbine, NIE will make you an offer for that size, but you do not actually use that. Basically, the requirement is only for a very small period of the year; and it could be as low as 6%. So, you are looking at and paying for something that you cannot manage, but they perceive that you may achieve it at one time of the year, and you have to have that capacity available to you. With a more-managed system, a lower cost for grid connection and a smart monitoring system, where loads can be monitored and dispersed among other producers to manage the load, we see quite a future in this.

The agriculture sector also faces quite a rigorous demand to reduce its carbon footprint. The sector is working, as I am sure you are aware, on anaerobic digestion (AD), and quite a bit of development on that is going on Northern Ireland. There are quite a few planning applications for AD facilities are in the planning process, but, again, people are unable to make progress on those issues.

These things are very important, not only to energy production but to the environment. There are environmental benefits from reducing the levels of methane, nitrous oxides and other carbons that are affecting the environment. So, we are not really here to have only an energy debate; we are also here to talk about our commitment to the environment.

**The Chairperson:** Thanks very much. You raised a number of issues about moneys being spent by farmers on planning consultancies and other consultancy. In some cases, did people who were touting for trade call with farmers and advise them to do this, that and the other when the wind speeds might not have been appropriate? One man came to me and told me that someone had advised him, rather improperly, that he should have stuck the turbine in a bit of a hollow, which is not a place where it would work. So, there are clear issues about the levels and quality of advice. Possibly, some of the less-than-scrupulous consultants are only thinking about the coupons in their back pockets rather than the longer-term benefits to the farmers. So, clearly there are issues there.

Have your members come to you and complained about the adequacy of the advice they have been given, or, in some cases, the improper advice they have been given?

**Mr Hawkes:** As I mentioned earlier, about four to five years ago, farmers were invited to consultancy shows and events in Northern Ireland. It was widely advertised that farmers should come along and take part in those events, and at the various stands they were advised by the organisations and the Government representatives, "This is the route to take, these are the people to consult and this is how to manage your project." We knew that that was the best advice available. However, a lot of the advice was from architects and consultancies who were looking at the possibilities for where developments could take place rather than at the reality of the financial situation.

With the state of the rural economy, if only 60% of what is in the pipeline achieved benefit due to a better support network system, there would be a potential income of between £45 million and £60 million a year to the Northern Ireland economy. That would not be a one-off figure, because that is underwritten by the Government for 20 years through the renewables obligation certificate (ROC) system or the tariff system, which farmers can avail themselves of. It has been calculated that the total income will be £1.2 billion, which is a substantial amount for the rural economy and is underwritten by Ofgem.

So, our members are being offered this opportunity but cannot access it. It is a very frustrating situation for people when they can meet all the requirements and comply with all the legislation on wildlife and planning rules, only to come to a part of your business plan where you can go any further. That has a negative effect on the economy.

**The Chairperson:** I will not even go down the route of asking about ADs and how they are affecting conacre. That is another thing.

Some people were given poor advice from the word go. That is not because they were encouraged by government to go to a particular consultant, it is just that people have been going round various farms and saying to them, "You will gain x, y and z", when they were actually selling them a pup. I do not think that there is anything that we, as elected representatives, can do about that. That is just down to bad, ill-informed advice. People are being given that sort of advice too, on occasions, about planning, dwellings on farms, and I deal with that quite a bit of that. I think that maybe there is an issue. A note of caution should be given to the farming community about the level and quality of advice that we are being given on some occasions. Sometimes, people are being misled.

**Mr Hawkes:** Prior to this situation, the farmers' union did not have an organisation to deal with that. This is a new remit; it is rural enterprise. It is a new thing, this renewable energy, so the union has decided to take on that mantle and, since that, we have been advising people, through our offices, to be wary and careful and study where they are going. That has changed the situation. At the moment, we advise people to consult people who have the know-how.

**Mr Chris Osborne (Ulster Farmers' Union):** I still receive probably three or four telephone calls a fortnight from farmers who have been approached by third-party companies that want to lease a part of their land for the erection of wind turbines. The advice that we always give is to run the contract past a solicitor; but, first and foremost, there is a certain amount of land-grabbing going on. There is a lease part of the contract where there is no obligation for the "power company" to see the contract through to fruition. This is actually creating some of the problems that we are seeing in the grid. These grid applications go in, but they are never actually finished.

**The Chairperson:** They are never going to see the light of day.

I will move to an issue that you have highlighted, and I am very interested in finding out how it works. How are the microgrids managed? How do they operate? Can you explain that to me in a wee bit more detail? We have the briefing notes, but, when the Lecale one is up and running, it might be an idea for us to go down and see how it works.

**Mr Hawkes:** Chris will update you on some of the ones that are taking place.

Basically, we would like to see NIE managing things. Take, for example, an NIE district line, and four turbines have been approved for it. In theory, four turbines add up to 1 MW. What happens then is that NIE says, "Right. That line is overloaded." They are right, on paper, but, as I say, it only reaches that potential on 6% of the year. We want it managed, so that NIE is looking at what is happening on a day-to-day or hourly basis on that line to achieve more load and more freedom on capacity. Up to now, NIE have not done that. It just gave you, in black and white, what you put in your quotation for. Now, we are looking at a situation where we need to have it managed. NIE is offering Project 40, which you may have some details on, whereby curtailment might come into place. If there is too much capacity, you might be cut back; but that is a better situation, possibly, than not been able, at the early stage, to get your business on the go.

**The Chairperson:** There are other ways to tease that out. Usually, NIE does not really do anything for the value of it. What is in it for them, that they might take on management of it?

**Mr Hawkes:** There is quite a bit in it for them. There is voltage control. NIE has a big issue about voltage, spiking and additional loads of uncertainty. A managed grid can control that; you can control your suppliers and the loads on it. That is what a managed grid is; it is something that we do not have in Northern Ireland. It is not really in the UK much, either; but it is the future and the way forward to incorporate an awful lot more small-scale energy on the 11 kVA system, not the 33 kVA, which the bigger wind farms are on. At a local level, it creates local security of energy and distribution within a district or area. You have fewer weaknesses and better quality.

**Mr Osborne:** I would like to add that NIE would probably be able to get cost avoidance out of this as well. At the moment, NIE faces significant bills to upgrade certain substations in the country. A microgrid would avoid those particular costs. So when NIE goes to the Utility Regulator for RP6, which is coming up shortly, for example, that would probably be significantly reduced if there were a microgrid system in place.

You asked about how a microgrid would work. If you want to look at that, you should google Fort Bragg in North Carolina. There is an army base there, from which an area of 100 square miles is run

as a microgrid. You may want a little bit more detail about that. Do you want me to give you a bit more detail about how we envisage Lecale would work as a microgrid?

**The Chairperson:** I think so, yes. Ultimately, we will go and visit the place because we could probably theorise about it all day and still not get right what it means. What input does the System Operator for Northern Ireland (SONI) have in terms of fluctuations if, say, the microgrid is not generating enough power or has to be reduced or fluctuated up or down? What input would it have to this?

**Mr Hawkes:** SONI complains about not being able to recognise the smaller scale. It can monitor the production of big wind farms and bigger connections, but what is being proposed, scatter control, will be in every situation, at a cost, of course, to people but if it can manage the connection, it is something we can accept.

That means that it will have a focus. There will be facilities on your site that SONI can control and curtail your output. What it does not have at the moment is controls at substations locally to see the heat. Heat is SONI's big concern and to be able to recognise that if there is a power failure somewhere else on the network, it can switch off a link-up or manage and disconnect that sector and leave the rest on.

In Northern Ireland, as I am sure you are aware, when the electric goes out, it can go out for a whole quarter of the country because that is how it is divided. You can have the whole north-west or south-east off, but in a managed system that would not happen. It can be very localised.

**Mr Osborne:** It is what they call islanded.

**The Chairperson:** Oh, islanded. Right.

**Mr Hawkes:** Island — where there is still supply available to meet a certain demand but they can sit and function and say, "This demand can go this far". You go to the limit of your consumers' downtime.

**Mr Osborne:** The microgrid would work in conjunction with NIE as the distribution network operator (DNO) and also with SONI, because the idea, as Gary mentioned, would be islanding. Enthusiasm has been generated in the US by, among other things, Hurricane Sandy, where they knew that some substations would go down but the microgrid would be able to work with the other system and bring in load or whatever else it might be.

**The Chairperson:** Thank you for that.

**Mr Agnew:** Thank you for bringing this to us because the microgrid is an interesting concept. What stage is it at? Is it at the idea stage? Where are you in negotiations, for example, with NIE, or how far on are we?

**Mr Hawkes:** We were very frustrated for quite a while earlier this year not going anywhere with this development. We were just sitting with conditional offers moving nowhere at all. Conditionality was that you got a big quote plus additional conditional costs and it was not viable. So we had to encourage NIE to look at alternatives, and one was SONI's Project 40, which, since midsummer, has allowed limited and more-managed connections to the standard grid.

The problem is that NIE is a large and cumbersome organisation and operates under a lot of legislation and requirements. NIE's view is that it is working to its licence conditions. As long as it meets those conditions with DETI, it will not alter from that. Stepping into a new development or way of working, it is there only to keep the lights on and keep the grid safe and manage it in accordance with the requirements of the consumer.

To move onto another development and phase, it is difficult to turn that ship around and get NIE to place an emphasis on how to modernise. We are coming from a farming background and trying to tell NIE to modernise its grid. You understand where we are coming from there, if you know what I mean: a culchie coming up telling us how to run our system.

**The Chairperson:** You'll not get lost at the same time.

**Mr Osborne:** Steven, further to what Gary was saying in terms of movement, I go back to Lecale again because that is probably the most high profile project that we have. Farmers have come together in a conglomeration and B9 Energy and David Surplus are working on it as well to integrate a storage system. David Surplus has been in contact with the architects in NIE because nothing can happen until they give the go ahead. I am due to brief Michael Atkinson, who is in charge of connections, on how we see microgrids working in Northern Ireland.

**Mr Agnew:** I am just trying to get a sense of how likely this is to happen. It is certainly a very interesting idea at this stage. Does it feel like this is going to happen? Is it a possibility? Is it a probability?

**Mr Osborne:** With regards to the specific location in Downpatrick, it is going to happen. There are no ifs or buts about it; it is definitely going to happen. We are experiencing problems in contacting some of the farmers who are going to be involved, but that is nothing to do with legislation; that is just down to farmer practice. As we know, they are never available due to other obligations. We are working with an independent consultancy on that to get farmer buy-in. That is crucial.

**Mr Agnew:** On what kind of scale would the Lecale project be? What sort of generation do you envisage in the area?

**Mr Osborne:** We envisage that it is going to be able to run probably a small village. There is going to be a business park. I think that the chairman talked about how it is going to be managed. It will be managed from where Bishopscourt airbase was. In terms of generation capacity, there will be five 250 kW wind turbines, two 500 MW AD units and quite a lot of solar photovoltaics (PV). It is also going to link in with the SeaGen project in Portaferry.

**Mr Agnew:** That is excellent.

In the brief that we were provided with, the scale of jobs was referenced. Can you give a bit more detail around what you envisage in terms of job creation?

**Mr Osborne:** Job creation will come from the business park. I would rather that David Surplus was sitting here answering that question. It is envisaged that it will be at least two dozen jobs in the community, which is a start. That can be expanded on. The key is job creation.

**Mr B Bell:** That is a very important thing about the whole project. It is very much a community project. It is not just farmers benefiting; it is local businesses and local community groups. The whole community will feel the benefit from this.

**Mr Agnew:** I know that there is quite an active Lecale conservation group. Are you working with it or trying to bring it along at this point? They are quite a suspicious bunch, I think it would be fair to say.

**Mr Osborne:** The idea that the UFU supports is a community solution. The Lecale environmental group is a part of that because it is a part of the community solution; its buy-in will be crucial. Gary mentioned Project 40. That is not going to be the solution to all farmers and all people wanting to connect to the grid. NIE has identified a number of substations in Northern Ireland that will cost millions to upgrade. That is why we feel that this would be a possible solution to work side by side with Project 40. Where the substation is absolutely full to capacity and will never be upgraded, this would work side by side with NIE's Project 40.

**Mr Dunne:** We appreciate you coming in today and making your presentation. The Committee has received evidence of changes in attitude towards small-scale wind and single wind turbines due to the visual and noise impact. How do farmers work alongside local residents and other farmers who have concerns about developments?

**Mr Hawkes:** We have two situations in Northern Ireland. We have the small scale, which is mostly community involvement and farmer involvement. You bring in community involvement because the majority of the people who are building the turbines are consulting their local people. It is well enough debated locally that the development is going on. My encouragement to people is that, if they are successful in their development, they contribute something to their townland or district. They all have established community set-ups, so everybody is very interested in that, and the farmers are keen to encourage people and supply some funding to little projects. That involves the community. You then

have larger organisations, for example, SSE and others that have put up huge facilities which you can see for miles about. One has a big impact and the other a much lesser impact.

**Mr Dunne:** OK. What advice do you give to farmers on consultation with their neighbours?

**Mr Osborne:** There is no definitive advice that you can give. When one farmer is dealing with another, they are often related to each other in terms of neighbouring location. There can be a falling out, not as a result of the turbine, but for other reasons.

**Mr Dunne:** There could be a history, then?

**Mr Osborne:** Yes, and that takes away from the reason why we are sitting here today. One of the things that might change relations a little bit, with respect to the microgrid, would be if a number of turbines were going to reduce energy bills. That could change the arguments quite a lot. If somebody thought that they were going to get a reduced energy bill, he might be a bit friendlier with neighbours who are putting up a small wind turbine.

Am I correct in saying that you represent North Down?

**Mr Dunne:** Yes.

**Mr Osborne:** I notice that, at the top of Ballymiscaw, a small-scale wind turbine has been erected. That is very interesting, because that turbine would be capable of producing an awful lot of energy. I would like to know how many objections there were to it in comparison with a 250 kW one. What I am saying is that the microgrid will probably result in those higher turbines getting smaller. There will probably be fewer of them.

**Mr Dunne:** Chairman, I hope that I am not encroaching on other members' points. Generally, we have heard a lot about a lack of resources from NIE to manage the renewables sector, engage and all the rest of it. Is that a major problem? Are they not putting in the resources or the people on the ground to do the work? Is that what you are finding and, as a result, are response times too slow?

**Mr Hawkes:** Absolutely. I totally agree with that point of view. Up to now — I mean this year, midsummer — NIE had a certain number of staff involved in dealing with ever more demand and actually being overcome by the amount of work that they had to do. They were not really able to deal with it. Lately, NIE has increased the staffing quite a bit. It has also increased the equality, and the latest development is that you can look at their new website, which we encouraged them to produce. We explain to people that, rather than ringing up NIE all the time, they can look at the website, see where they are and what is feasible in that area. They have designed a new website. The issue of funding —

**Mr Dunne:** Is the heat map available?

**Mr Hawkes:** Yes.

**Mr Osborne:** Let me just add that I dealt with NIE yesterday about this. The new heat map will be launched next week. It will be a lot more interactive. It was launched at the end of last year, and, within a week, it was out of date, because the amber areas turned red very quickly. Now, if you put in a postcode — somewhere in Comber, for example — you can focus in and see the 33 kV network and the 11 kV, and it is a more detailed and itemised heat map.

Just to follow on from what Gary was saying, by engaging with NIE, we have improved customer relations for landowners, and landowners have approached us over the last couple of months to say that things have improved on the ground. There is now a call centre to deal with specific queries, and it is actually working at the moment.

**Mr Dunne:** Good. We had quite a heavy meeting with the Utility Regulator here. That was some months ago; time flies. I had a meeting with the chief executive recently; in fact, this week. She believes that the regulator has put quite a bit of pressure on NIE to make improvements. So, I am glad that things are starting to improve, but obviously there is quite a long way yet to go. NIE is a major challenge. We feel that NIE has a Civil Service-type mentality. The organisation has staff in place and is slow to move and change, and it has not really stepped up to the mark. However, we are glad that there has been some movement. Thank you very much.

**Mr Frew:** Thank you very much for your information up to this point, gentlemen. There are a couple of things that I want to talk about. I will be as quick as I can. One is managed connections. How does Project 40 sit with you as an organisation, and the fact that we could be limiting some of our businesses with regard to what they produce and what profit they make out of it. What is Ulster Farmers' Union's stance on that? I can understand why it would be done and that it will move things forward, but ultimately we will have to put more into our infrastructure. I know of a couple of substations, one at Kells in my constituency, that people are telling us are, as you said, nearly maxed out. How can we allow that to continue? Whilst we should look at other avenues and things to be done, ultimately things will have to be improved upon and enhanced. How do you see it as a long-term strategy?

**Mr Hawkes:** The way I look at it, it is a tiered system. We have to do something immediately, something now to resolve some of the issues that we have in line — not the future ones. Project 40 will deal with the smaller scale that fits onto farms, such as solar PV or a small AD, which we deal with in the agriculture sector. They may have to lower their planning expectations compared with what their architects or consultants told them and go for what is realistically available and the grid can offer.

The managed system means that you have to manage and maximise your output. If NIE give you a 100kW of a grid connection, you, as the promoter of that, would have to manage it as best you could in a mix of energy outputs. You may have a turbine, but you may also need solar power because you need to be maximising that 100kW connection as much as possible.

If I go back to what I said earlier, if you have 250kW in a turbine, a turbine is only 25% efficient and meets that target only 6% of the time, so you need to get that target way up, and your income will increase on the smaller connection.

**Mr Frew:** Is it not the case that you are putting a limiter on the amount that they can produce? That is not necessarily a bad thing, but the rationale for that being done is so that you do not have to put in a bigger cable along the line. That is OK for one farmer, but if you had five, seven or 10 landowners down one strip in the same area, all going for a managed solution, you are still going to have the same problem in that you will still have to increase the infrastructure. Am I correct?

**Mr Osborne:** The most important point is that the managed connection will change the way people look at small-scale renewables. I had an article in the newspaper a couple of weeks ago saying that big was not necessarily best. What will happen with the managed connection is, say, you want to put up a 150kW wind turbine that will cost you £500,000 — which is what we were hearing on the ground that people were being quoted to connect — that £500,000 is going to become £50,000.

When you are doing your business plan, that will change how you look at the output. You are not going to be trying to get as much as possible. You are going to be able to make a living and a decent return on a smaller turbine and a grid connection of £50,000.

**Mr Frew:** Ultimately, is that not a false economy? You have reduced that man's potential to generate electricity and just kicked the can down the road with regard to advancement in the grid, which will ultimately have to happen anyway.

**Mr Hawkes:** NIE tells us that, if we insist on that system of improvement, it will take years. We will sit exactly as we are now, and nothing will happen. The first phase is Project 40 to get some relief and additionality onto the 11kVA system, which is a more managed control system, and the expectation is that people will get at least something moving forward. The next phase is capital investment, moving the grid into the 21st and 22nd centuries, moving it forward into a system that can cope with a lot more potential.

**Mr Frew:** I can understand the logic behind it, but it is still a short-term fix, would you agree?

**Mr Osborne:** Yes, we were quoted in the press as saying as much. However, this brings in the microgrid as well, and the microgrid is long-term.

**Mr Frew:** Yes, that is my next point. How does it work? I understand the concept of microgrid and what we are looking at, but how does it work in practice, and how do you connect into the grid that is not of a grid, if you know what I mean? How will you protect the security of supply while running it in conjunction with the grid?



**Mr Osborne:** If you have a substation, you already have the infrastructure in place and you will be running it along with what is already there. Should anything go wrong, it is in one area. There are 210 substations in Northern Ireland. If you have a microgrid in one of those areas, it could be cut off automatically. However, should the other 209 go down, you will still be running.

I talked about the security of supply. I do not know whether you were here when I mentioned the US. The US has 55,000 substations. It worked out that it would take nine of those to be identified by terrorists for the whole United States to go down. Basically, you are working on a localised solution. It is more secure.

**Mr Frew:** So, it is a microgrid within the main infrastructural grid.

**Mr Osborne:** Yes.

**Mr Frew:** The most basic form of microgrid is a renewable heat source that supplies heat to a housing development. I assume that it will be something of that nature, only on a grander scale, with more of a mix of generation. How do the wires work? How do we get to the generators, suppliers, businesses and households? Where do we connect into the main grid?

**Mr Osborne:** Through a substation.

**Mr Frew:** You are talking about a source of power going one way and one going the other way.

**Mr Osborne:** Yes.

**Mr Frew:** Is the grid able to cope with that intelligent design?

**The Chairperson:** I presume that you have checked out the capacity of the substation. One thing that has been coming back to us, particularly from west of the Bann, is how much the substations needed upgrading. Presumably, your substation has enough capacity to work with this.

**Mr Osborne:** Yes. That is why Lecale was identified by B9 Energy and the collection of farmers there.

**Mr Hawkes:** Up until now, NIE did not consider it demand that you were close by and could mop up some of this. At the end of the day, NIE does not mind you connecting, as long as you can identify demand or use it. The agriculture sector can be very adaptive. It can use quite a bit of the energy in the sector. However, we have to meet the legal requirements for the grid, and we have to meet the Ofgem requirements for the legal use of the energy.

**Mr Frew:** But are you off the grid or on the grid? If you are off the grid, it is going to cost us all more.

**Mr Osborne:** If the whole microgrid is producing more than the net level of electricity, that can go into the substation, and NIE can avail itself of that as it sees fit. The substation allows NIE to take some of the electricity that has been produced out of the Lecale substation and bring it to Strangford, Ballynahinch, or wherever.

Gary touched on a point that sort of answers your original question, Paul, about how it is going to work. You identify the demand. That is the whole point of what a microgrid does. At the moment, we have a supply-sided solution. If you move to an individualistic approach, you can identify the demand that is going to be in the Lecale area. That is easy to do, and it is what we are doing on the ground at the moment. We have looked at the village of Ardglass and at the fishing side of things. We are bringing together how much electricity and heat is needed.

You must remember as well — I have not touched on this — that a storage solution is central to a microgrid working. You will have the storage there that will also manage the heat and the electricity to be used during peak times, should the turbine not be turning for whatever reason.

**The Chairperson:** Paul raised this very important point: for all intents and purposes, is it off or on the grid? Obviously, if it is off the grid, everybody else's costs start to go up to compensate for that. That is one of the cases that have been made. Is the microgrid off or on the grid? Perhaps you want to check that out and get back to us.

**Mr Hawkes:** We are not the people who are designing the Lecale system and proposal. It is a concept. The basic way in which these things work, if they were to multiply out, is like a circle. If you draw a circle on a map, you —

**The Chairperson:** I have the concept all right. It is —

**Mr Hawkes:** One will overlap the other one. The circle will overlap the next one by 25%. The circles will interlink.

**Mr Frew:** How do they interlink and overlap? Ultimately, it is going to come down to a piece of cable going into a piece of plant that will flow electricity one way or the other. I understand the reason and rationale for it. It is the same as the managed connections. To me, it is the future — there is no doubt about it — but it would have to be managed well, and we would have to have a grown-up conversation about what we do with the existing infrastructure, and where and when we upgrade it.

**Mr Hawkes:** Absolutely.

**The Chairperson:** To whom do people pay their bills?

**Mr Hawkes:** Npower. Of the money from your bill, so much goes towards different allocations. NIE has a budget of £100 million to £110 million to look after the management and improvement of the grid, but that is for maintenance and management, and new lines where necessary. That does not include money for any improvements or for the requirements of this type of development. NIE's attitude is that additional funding would have to be found. The regulator says that it cannot be taken in the form of consumer charges, so we have to find additional funding for this type of modernisation. NIE will allocate small amounts, but it will not take on this second phase.

**Mr Frew:** You see, the microgrid is something similar to the problem facing a lot of farmers, whereby they want to produce energy just for their farm. They do not want to sell the electricity to the grid; they just want to produce it to make their farm more efficient. This is on a grander scale, where you have a community wanting to do that for themselves.

**The Chairperson:** Perhaps the concept has not been worked through at this level of detail. I am not asking whom people pay their bills to for the fun of it. We have had issues here where, if you move off the grid, it is the rest of the consumers who pick up the tab. We have already heard that from bigger industries and from firms around Belfast. They are talking about moving off the grid, and, as a consequence, everybody else pays for the maintenance and upkeep of the networks. Has it been worked through to the stage of knowing to whom you pay your bills and what the implications are for everybody else if people set up their power semi-statelet as a result? Clearly, that has an impact on what we are working through, given its potential effect, or not, on other consumers.

**Mr Osborne:** You touched on the issue of the community. The community would own that grid.

**The Chairperson:** I am sorry, but I am talking not just about the effect on the community but about, potentially, the community moving off the grid or being seen to move off the grid. Other people's bills have to compensate for that happening. The implications of, for example, some of the big businesses moving off grid have been explained to us. As a consequence, people have to pay for maintenance and upkeep of the electricity network. The less that they are contributing to that, the more that everybody else has to pick up. This is an important point, because everybody else is saying, "That is grand for the people of Lecale, but what about the people of Belfast, Cookstown or other parts of mid-Ulster if their bills start to go up as a consequence?".

**Mr Hawkes:** Some of these solutions are not here yet in totality, but the difficulty with the renewable energy sector supplying into the grid is consistency. It is just the one big problem.

**Mr Frew:** For wind, anyway.

**Mr Hawkes:** Wind, but AD not so much. Solar is variable, too. If you mix them together, you can integrate a storage system, which has been developed. You do not just take electricity from here, send it over there and say that you will take it out in a week's time. This is managed, where the

production can increase for a few hours higher than the consumption. It can be stored retrospectively and then, as production goes down, you can tailor it out. This is a very critical part of NIE's problem —

**Mr Frew:** Storage is key.

**Mr Osborne:** This is more than managed to a grid. Instead of this going on here — production from eight o'clock to 10 o'clock, and then there is calm weather and nothing happens. We can manage it. There are ways of doing that.

**Mr Frew:** Storage is the key, then.

**Mr Osborne:** Absolutely.

**Mr Frew:** If you cannot store it, it will not work. It still does not resolve the issue of who owns that generated electricity, who pays for it and whom do you pay to?

**The Chairperson:** And how many meters do you have? Do you have one meter or two meters? Who owns the meters? Those types of things.

**Mr Osborne:** My understanding is that there would be no risk outside the substation. That would answer your question about a bill payer in Ballynahinch, for example, having to put some money towards Lecale. My understanding is that it will stay within the Lecale area, as will ownership and management.

**Mr Frew:** Who puts the grid up?

**Mr Osborne:** The grid is already there.

**The Chairperson:** If you are talking about NIE managing it, there would have to be some bang for its buck in it. It would not just do it for the fun of it.

**Mr Osborne:** Yes. That level of detail is not —

**The Chairperson:** There are questions, and perhaps the consultants whom you are dealing with will have to answer those questions. Although it would be good for Lecale, we are looking at the overall picture right across the North and the potential issues that might be raised as a result.

So, who do you pay your bill to? Who owns the meters? Is there one meter or two meters? Are you off-grid or on-grid? If you are off-grid, there is the potential ramification of every other consumer in the North having to compensate for that. Clearly, those things will need to be worked through. As a consequence of what we are talking about here, a fair number of technical questions remain to be answered.

**Mr Osborne:** That is something that we intend to do with the Utility Regulator. We need to speak to her about the licence and that type of thing.

**Mr Frew:** I have one final question, which is important to the inquiry. I alluded to the point about dual connections on farms. Let me take it right down to the basic level of a farm. You want Farmer Jim to put up a turbine. He wants it only to help his broiler house or cattle shed, but he cannot do that because that means that there are two connections to supplies. There is the grid supply — ordinary NIE — and the wind turbine supply. NIE will not allow that at present. What are your views on that? Have you been doing any exploratory work with NIE on that to allow that to happen?

**Mr Hawkes:** That is a very important point, and it raises something that I have an issue with NIE about. Different farmers in different areas can do different things. One might be in a good area to produce energy, where there might be a large chicken unit, pig unit, dairy unit or processing facility not too far away — perhaps a kilometre away. You could have a meal company supplier. Those are big energy sources. Why can we not sell against our output as metered to those customers? As you said, can NIE take its management charges out of it?

**Mr Frew:** Yes, I know what you are saying, but the question was more about the practicalities of you having two electricity supplies going into one place — the NIE grid and the turbine. You are not allowed to do that at present. You are forced to sell your generation to the grid.

**Mr Hawkes:** That is a problem. If the farmer wants to use the generation on his own facility, he will have to apply to NIE for spill-out for the maximum that you can possibly do for safety reasons. That is where the problem lies. Even though he could use most of it on his own facility —

**Mr Frew:** He is not allowed to do that.

**Mr Osborne:** The only other way is to go off-grid completely. NIE will disconnect you.

**The Chairperson:** Chris, come in very briefly, because other members are looking to come in.

**Mr Osborne:** I know where Paul is coming from. It is to do with rural development funding and farm diversification measure 3.1. There was a requirement in that that said that you would be given a 50% grant for the building of a wind turbine to go on your farm. However, the condition was that you had to export 100% of your electricity. That is where the dual connection is coming from.

**Mr Frew:** It is not even that. It is the fact that there is a safety issue with NIE. It will not allow it.

**Mr Osborne:** Yes, but that is not a problem if Gary has a 50 kW wind turbine on his farm. He can still use the electricity himself if he built the turbine without availing himself of funding. He can then export the excess on to the grid and get his ROCs. That is not a problem at the moment.

**Mr Frew:** Are you sure?

**Mr Osborne:** Yes. Dual connection comes under measure 3.1. Barclay has one on his farm at the moment.

**Mr B Bell:** We have a small-scale wind turbine on our farm, and there is not a problem there.

**Mr Frew:** So, you can supply a shed with the energy created through your wind turbine.

**Mr B Bell:** We have a small-scale wind turbine on our own farm and there is not a problem there.

**Mr Frew:** So, you can supply a shed with the energy created through your wind turbine?

**Mr B Bell:** We are using it in an overall farm situation.

**The Chairperson:** But the energy is coming directly from it into your farm?

**Mr B Bell:** Straight to the meter board.

**The Chairperson:** Right.

**Mr Osborne:** Dual connection was a condition under farm diversification measure 3.1. It is not a problem at the moment, because that has gone.

**Mr Frew:** And it is not an issue with NIE?

**Mr Osborne:** It was an issue with NIE. A lot of guys did not get funding because NIE would not give a dual connection for health and safety reasons. However, it is not a problem, if I were to want to build a wind turbine, to use some of the electricity and sell the excess. That happens every day with guys putting turbines up around the country.

**The Chairperson:** OK. Thanks for that.

**Mr Frew:** I will check that out.

**Mr Douglas:** Thank you for the presentation. I had a couple of questions, but they have been answered already. I hope that you have not touched on this. It is just a point of information, because I was not present. My apologies for that. Are there any existing examples of microgrids operating in either the Republic of Ireland or elsewhere in the United Kingdom? That question is for Chris.

**Mr Osborne:** Not that I know of, Sammy. I know that Lecale will be the first of its type in the UK at least. We are looking to the US for examples. Harvard and Princeton have microgrids as well.

**Mr Hawkes:** There is one 11 kVA isolated demonstration grid system in Norfolk, which includes storage. It has a managed storage facility. It is the only one at the moment, and it is a demonstration-type system. How that is doing, I am not sure.

**Mr Anderson:** I will be as brief as possible. Thank you for your presentation. You have updated us by showing us this letter about conditional offers, Gary. NIE has withdrawn the offers that were sitting around. What is the significance of all that? How do you see that going forward? Is it now the case that the only offers coming forward will be the ones that NIE can guarantee to connect?

**Mr Osborne:** The most important thing, and we have had this clarified by the Utility Regulator, is that you will not lose your place in the queue if you want to go ahead. However, what may stop your project from going ahead is if NIE finds that, at the end of the day, it is going to cost several million pounds to upgrade the substation. That is where we can identify some people who are going to be very annoyed. What that has done, though, is to create more certainty, because, when we had conditional offers, guys did not know whether their projects were going to go ahead.

**Mr Anderson:** So, that has given more certainty to a lot of people.

**Mr Osborne:** Yes, because, before, guys did not know, whereas now they are going to be told, one way or the other.

**Mr Anderson:** Are they now under the impression that they are going to get connection? Or are the applications just sitting there, stacking up in the queue?

**Mr Osborne:** No. NIE is working through the applications to tell people yes or no.

**Mr Anderson:** So, there are no guarantees as yet? NIE is just working through them?

**Mr Osborne:** Yes. It is a work in progress, which is more favourable than what it was.

**Mr Anderson:** Well, it is better than what it was.

**Mr Osborne:** Yes. It is movement.

**Mr Anderson:** It is movement in the right direction, with the help, obviously, of the Utility Regulator and all who —

**Mr Osborne:** The improved heat map is going to be crucial.

**Mr Anderson:** Yes, my colleague said so. You talked about that earlier. That is fine.

**Mr Dunne:** We heard a lot from various people about the planning permission issue. We heard that NIE will not touch it or really get engaged properly without planning permission being in place. What is your opinion about that? Do you think that NIE should move on and at least make some effort to try to help farmers and potential developers with an application before this is finalised?

**Mr Osborne:** We have gone on record as saying that we believe that it should be the same as in GB. In GB, you can work to have a grid connection at the same time as you are working to have a planning application.

**Mr Dunne:** They run in parallel?

**Mr Osborne:** Yes, whereas here you must have one before the other.

**Mr Dunne:** So, that is still a big issue. Planning can take so long, as we all know.

**Mr Hawkes:** Then you are waiting in a queue system, your whole business plan could be missed by a few weeks, and that is you finished. You do not have any control of that. You cannot do anything to improve your situation. It is a lottery, so it is not a very good way in which to manage it. If someone comes in in front of you, that is you out. At least we can allow people on on a smaller scale, and it will be the last person on who will be the first off.

At least people will have some hope of getting on. Although it may not meet their full expectations, at least the situation will move forward in a more prosperous way. The grid will be better managed than it is at present, and then we will have to look, at the next stage, at how we move forward the renewables sector in totality, adding to this. There does not seem to be another show in town. That is our issue with NIE. It does not accept this system. There is nothing else, and, without it, it is the end of renewables in Northern Ireland. There is no point in carrying on otherwise.

**Mr McKinney:** Thank you for your presentation and answers. You already touched on the storage thing. Can you tell me a wee bit about compressed air storage?

**Mr Osborne:** That is a conversation you need to have with B9 Energy and David Surplus. We are looking at more of a short-term solution in the form of second-life traction batteries. Dare I say, that is something that would be coming from, say, Wrightbus. Wrightbus has a large number of batteries that have no life after they come out of a "Boris bus". A large number of those batteries could be a storage solution on a farm, probably on the back of a large lorry. That would be achievable a lot quicker than compressed air storage, because that is still very much a work in progress.

**Mr McKinney:** What would be the efficiency of a battery formerly used in a bus? Is it refurbished, or what is the expression?

**Mr Hawkes:** The issue is with curtailment, as we believe it. NIE would be able to give developers an idea of what curtailment they are facing. They are calculating a complex situation, but they are able to calculate what they perceive curtailment may be in that line looking over the previous history of loads. The situation will leave the person, rather than investing hundreds of thousands of pounds in a grid connection that he does not have any ownership of whatsoever, able to invest in a reasonably good connection, with a system between you and NIE, with you producing your energy from one or two sources. If NIE notified you to say that it had an overload system on the line coming up, you would have to curtail your production or switch off.

The storage would take that oversupply — that 10kW, 15kW or 20kW that may be interfering with the overall load on the line — and store it. You can buy in one-, two-, three- or four-hour capacities. You can block it up to whatever you think your need is. Then, when demand changed on the line, that would be fed back in. It would not be stored. It is what is called a "shaving", so you are shaving off overproduction. If you happen to go very high over, you face switch-off, but NIE would be able to give a developer an indication. That is what we are waiting for.

**Mr McKinney:** Yes, but it comes back to Paul's point about the security of supply. If you are off-grid for whatever reason, you have to rely on the battery to supply your area. How long can it do that for? What stress-testing has been done on that?

**Mr Osborne:** At the moment, at farm level, you would not want to be relying on purely a battery. There would still be a diesel generator sitting there as backup.

**Mr McKinney:** What about the village?

**Mr Osborne:** That type of solution would be like in Lecale, whereby you would have a compressed air storage system. That was more focused towards the village solution. The second-life traction battery would be a farm solution; that is, one small business as opposed to one small village.

**Mr McKinney:** Sorry, I was dealing with the Lecale solution in general.

To go back to the original point, how efficient is the compressed air system as it would apply to that bigger microgrid project?

**Mr Osborne:** B9 Energy tells me that it is a very efficient system. It is possibly the most efficient system that can work alongside renewable energy, as far as storage is concerned.

**Mr McKinney:** I assume from your previous answers that it compares much more favourably than anything to do with batteries.

**Mr Osborne:** Yes. Battery is a small-scale, on-farm solution.

**Mr McKinney:** Has anybody done anything about the export of the battery from the farm to elsewhere if there were a greater uptake of battery usage in cars, etc. In other words, you get the milk lorry leaving the farm in the morning and the battery lorry leaving the farm in the morning.

**Mr Osborne:** That is definitely more of a long-term consideration, but I know what you are saying.

**Mr Hawkes:** The main thing that we are trying to achieve here, which NIE does not like, is voltage spiking. That is a big problem. NIE creates an auto capacity for that — unused capacity — so there is quite a bit of capacity in the system for safety reasons in case you have a voltage spike. At present, the producer does not have to control that. NIE accepts it. We are saying that, if these were controlled on-site and managed and did not enter the grid, it would create more capacity, because NIE would have fewer risks to take. Those are the things now where we were trying to place more onus on to the producer of energy to spend some of his excess capital that he had to spend on the grid on something with an asset value that he could sell or lease. The units of storage, batteries, or whatever, will be leasable.

**Mr Frew:** I know about the concept of the battery and the saving from the electricity, but should that onus be placed on the community and on the individual renewable generator, or, as a concept, should NIE, SONI, Eirgrid or whoever is doing that anyway throughout its system? The second part of that question is this: are we going the wrong way about this? Should we not be looking at interconnection throughout Europe as opposed to trying to go the other way?

**Mr Osborne:** Can I answer that, Paul? The answer to the first part of your question is that we have opened up the debate on storage, and my most recent article in 'Farming Life' asked the questions. We should have had the conversation about storage four or five years ago when four ROCs were introduced. So, we are pushing that along at an organisation level.

Your second question concerned interconnection. Moyle is only working at 25% at the moment. Yes, it is already there, but if that were working properly, we would not be having this conversation.

**Mr Frew:** Yes, and the North/South interconnector is fresh.

**The Chairperson:** Phil, you are back with us. You had your name on the list.

**Mr Flanagan:** If you are going to close the meeting, I will ask one question with my mouth full. I hope that Hansard can understand me.

**The Chairperson:** They can understand you anyway.

**Mr Flanagan:** It usually sounds like I have my foot in my mouth.

I am sorry that I missed your presentation. I will read Hansard, but I am sure that nobody has asked this question. There is a perception in the non-farming community that small-scale wind is the new subsidy for the farming community and has replaced the sale of a site for a bungalow. How do you respond to that?

**Mr Dunne:** Planning Policy Statement 21.

**Mr B Bell:** I think that there is probably another angle to it. We mentioned carbon emissions. It is another factor that farmers will have to consider, because it will play a big role going into the future.