



Northern Ireland  
Assembly

Committee for the Environment

# OFFICIAL REPORT (Hansard)

Inquiry into Wind Energy:  
Northern Ireland Authority for Utility  
Regulation and Northern Ireland Electricity

19 June 2014

# NORTHERN IRELAND ASSEMBLY

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Inquiry into Wind Energy: Northern Ireland Authority for Utility Regulation and  
Northern Ireland Electricity

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

Ms Anna Lo (Chairperson)  
Mrs Pam Cameron (Deputy Chairperson)  
Mr Cathal Boylan  
Mr Colum Eastwood  
Mr Tom Elliott  
Mr Alban Maginness  
Mr Ian McCrea  
Mr Barry McElduff  
Mr Ian Milne  
Lord Morrow  
Mr Peter Weir

**Witnesses:**

Ms Tanya Hedley	Northern Ireland Authority for Utility Regulation
Mr Michael Atkinson	Northern Ireland Electricity
Mr Denis Kelly	Northern Ireland Electricity

**The Chairperson:** I welcome Michael Atkinson, the head of generation connections in NIE; Mr Denis Kelly, who is the network development manager in NIE; and Ms Tanya Hedley, director of electricity from the Northern Ireland Authority for Utility Regulation. I remind everyone that this session will be recorded by Hansard and included in our published report. We are a bit short of time. You can go ahead, Michael, and give us a brief presentation. Members have your papers.

**Mr Michael Atkinson (Northern Ireland Electricity):** Chairman, is it acceptable to circulate some images?

**The Chairperson:** Yes, of course.

**Mr Atkinson:** They are complete sets.

**The Chairperson:** For future reference, it would be useful to pass papers on to the secretariat team in advance of the meeting so that we can sort them out quickly.

**Mr Atkinson:** A follow-up query came back from yourselves, which was essentially to provide a bit more information to the Committee on the role of NIE in delivering infrastructure to support turbines; the processes involved in the planning applications; and, finally, plans or progress to support the

renewable generation that was outlined in the submission paper. So, essentially, I plan to speak initially, just for a few minutes, against those headings, if that is agreeable, and then we can take questions.

**The Chairperson:** OK.

**Mr Atkinson:** In summary, NIE's role is essentially to work along with a number of other stakeholders, including the Utility Regulator, DETI and industry participants, towards delivering the 2020 targets, particularly that of the 40% consumption from renewables. We arrived at a point at the end of 2013 where we were at around 16% in respect of that 40% target, and, over recent months, we have probably been climbing to around 18%.

We feel that it is important to outline, for better understanding, that the NIE infrastructure essentially comprises two main components: the transmission layer and the distribution infrastructure. The infrastructure was designed essentially to transport energy from the central large power stations from high voltage of 275,000 volts to industrial customers who use maybe 11,000 volts and down to domestic customers, and you will be more familiar with the voltage at your premises of 240 volts.

In order to connect renewables, NIE is effectively reverse-engineering the network to bring flow in the opposite direction for which it was designed, and the predominant flow of energy now is from the west to the east because the main sources of wind energy are coming from the western side. The transmission and distribution infrastructures are significantly stronger in the east of the Province, which is where the main sources of energy originally were and where the bulk of the population density is. However, the bulk of wind energy is located more to the west; that is where the better prevailing wind conditions are. So, we initially have to deal with an imbalance. There is around 45,000 km of transmission and distribution infrastructure, and around just 2,000 km of that is the transmission infrastructure.

We basically deal with two major categories of generation connection in respect of wind. The first is the larger-scale renewables that will typically be a group of wind turbines together at somewhere between about 10 MW and 40 MW, and the second major category that we deal with is what we refer to as smaller-scale renewables, which tend to be single wind turbines and are more akin to individual developers and farmers putting their own individual turbines up. Those are typically in the order of about 0.25 MW each.

I have outlined to you that there are essentially two major layers of the network, namely the transmission layer, which is the high-level backbone of the system, and the distribution system, which is much more voluminous in terms of kilometres but operates at a lower voltage. Basically, with the transmission development to support larger-scale generation connections, there is a very organised plan in place at the minute, and that is generally what we refer to as the medium-term plan. Much of the work associated with the medium-term plan is due to implement by around 2016-17. Beyond that, work is under way, including with the Systems Operator for Northern Ireland (SONI), which is the transmission operator, to determine what we refer to as a longer-term plan of investment, which would take us to 2020 and the achievement of the 2020 targets.

It is important to note that the medium-term investment is in the order of about £60 million. That investment, in the main, has been agreed with the Utility Regulator. That work essentially involves reinforcing our 110,000 volt network along corridors that you will perhaps recognise — Kells, Coleraine, Tamnamore and Omagh. When we get that work completed, which will be around the end of 2016, that will enable about 27% to be achieved versus the 40% target, and I suggest that, in that territory, the plans are reasonably well understood and under way to deliver against those targets.

Beyond that, for what we refer to as the longer-term plan, more substantial investment is required to take us to the next level and get up towards the 40% target. That may be in the order of about £420 million, we believe, with £100 million of that being in relation to the North/South interconnector, which is an important component of that delivery. At this point, whilst we have the initial plans and plenty of work has been undertaken to determine what that further investment will look like, it has not yet been finally agreed, and that, to me, from an NIE viewpoint, represents part of the challenge that we need to address in the more immediate term as to how we get to the final part of the 2020 target.

A vital part of NIE's strategy in delivering against those investments has been the development of what we call the cluster method. We have 31 large wind farms installed already and another 30 or so on the way. We wanted to avoid having a plethora of lines criss-crossing the Province, and, instead, in conjunction with the regulator, we developed a proposal whereby we essentially extend the

transmission out to appropriate points and connect the wind turbines back to what we call cluster substations. It means that there is a more efficient construct to the network. You can get a sense of what we refer to as clusters on the slide that is entitled "Large Scale Generation Cluster Connections". That gives a flavour of it. For example, you can see where we have circled in the areas of Magherakeel, Drumquin, Tremoge, Gort and mid-Antrim. Those are what we call cluster locations, where we have brought the network out to the centre of those circles so that we can connect the wind farms more locally rather than having very long lines developing across the countryside. That dramatically reduces the kilometre length of individual electricity lines required for giving volume on wind farms, and it also aligns with NIE's obligation to develop the network efficiently.

Importantly, although an organised plan is in place for developing the transmission network to accommodate the larger-scale wind generators that will deliver the vast majority of the targets, it is not the case with the distribution system, which is what the smaller-scale generators, such as the individual wind turbines, connect to. In that territory, we have run into difficulties as more and more small wind turbines have sought connection. We are seeing very high levels of application, particularly in the west of the Province. Essentially, the distribution network has run out of room. The last slide that I circulated is an indication of what we call our heat map. That is really just to show that there are a lot of red areas in the distribution system.

**The Chairperson:** Which map are you talking about?

**Mr Atkinson:** That is the one I am referring to. I was explaining that we almost need to consider the problem in two parts. That map gives an indication of the difficulties we are experiencing with what we call the distribution network, or the lower voltage levels of the network. It has become very congested as a result of the small turbines. It is less economically efficient to develop that network further because of not just the costs involved but the logistics of the further development of very vast kilometres of line to allow more small generators to connect. You will hear various reports of considerable frustration from a number of directions. One of the areas of frustration will be from parties trying to connect smaller single turbines to the distribution network and are struggling to get connected.

The transmission level is well under way. It is not without challenges. We have had some delays in getting the cluster method approved, which has led to frustration with a number of developers. However, in the main, plans are reasonably well understood and under way to deliver at that level. A problem exists at distribution level with the connection of small individual turbines. Those parties are not likely to contribute a significant proportion to the 40% target, but they have responded to incentives available to them. That has created a difficult situation for those parties.

That is a flavour of how we feel we are getting on. We will now refer to some of the processes involved in the planning applications. I was going to ask Denis to talk about that briefly.

**Mr Denis Kelly (Northern Ireland Electricity):** Hello, everyone. One of the frustrations in the planning process is that Northern Ireland has a very high percentage of planning permission grants to wind farm developers, but, for the reasons Michael stated, we cannot get those connected. We are very proactive in the planning process. There are two elements to it. Obviously, the person installing the wind turbine or any renewable applies for planning permission. We are advised through the DOE electronic planning information for citizens (ePIC) system as consultees, and we respond primarily in terms of safety. We want to know whether a wind turbine is going to potentially cause an issue on the infrastructure nearby or whether vehicular access to that site is going to be a safety issue. That is one aspect that we would comment on in terms of the applicant's planning site and development site directly.

As far as the connection is concerned, we then organise the way leaves, consents, easements and routes, and we do the design and development. We are proactively involved with the developers. We go out at an early stage to talk to landowners and the interested parties. It is important to note that we will not provide quotations or do any development on our side until such times as planning permission by the authorities is granted.

Whenever the planning involves a cluster development, we have to tie up with the regulator at various stages to ensure that the capital investment plan is understood. We then introduce additional timeline factors that we need to take into consideration. That is a high-level overview.

**Mr Atkinson:** Chairman, I will finish off our summary introduction. We have referred in our submission to the medium-term plan. We have alluded, I think, to the roll-out of this cluster methodology, which is very important to us. We have to acknowledge that getting those things up and running has caused some frustration. I think that it is worth noting that considerable progress has been made here. We need to meet the 40% targets and to have installed an order of what we refer to as 1,600 MW. We currently have around 600 MW installed. We have another 320 or more in the delivery pipe that is about to be connected over the next two to three years. As well as another 100 MW or so of live offers that we need to process, another 600 MW of large-scale wind farms is in the planning process at the minute, and we expect that to come through.

We can see a horizon where the target can be met, but it requires a lot of the infrastructure development to move forward in parallel to allow that to happen. From an NIE point of view, we do work hard to link up with the various stakeholders that are involved. There are various approvals and interfaces that need to play out. We have a close working relationship with the regulatory side now as we move forward to get the clusters approved and agreed, but it does require quite a joined-up approach. We feel that we certainly cannot afford to operate in isolation from each other. We need to work in a very joined-up way, and NIE certainly tries to explain the same things as it attends various forums with DARD and local councils. We have attended most of the local councils in the west of the Province to try to outline the situation. Admittedly, we do meet with considerable frustration out there that progress has not been as good in some areas, but that is part of the journey that we are on at the minute.

**The Chairperson:** Thank you very much indeed. Tanya, do you want to say something?

**Ms Tanya Hedley (Northern Ireland Authority for Utility Regulation):** I have a few slides to show you to clarify. Thank you very much for this opportunity to give evidence. I thought that there would be value if I were to clarify the Utility Regulator's role in relation to this issue. The Utility Regulator puts in place price controls for monopolies in gas, electricity and water, and, in this case, we are concerned about the electricity network. So, we are basically approving the investment that NIE is using to develop the network. What we are doing there is allowing NIE to charge all consumers in Northern Ireland who use electricity for the extra network that it is building. So, we are effectively signing the cheque for consumers, and you then pay the costs of that investment in your electricity bills.

It is also worth noting that we are a complaints body and a dispute body. If someone were to raise a dispute because they were unhappy with their connection or the process of their offer, we would go into a semi-legal role where we would determine the dispute and could make a direction that is binding on NIE at the end of that.

We also approve the charges that NIE puts in place for the methodologies that it applies, for example clustering, and what it charges in a connection offer to anyone who seeks to connect. We monitor the company to make sure that it is compliant with its licence. Within NIE's licence, there are different pieces that relate to legislation. If government puts in place legislation that is appropriate for NIE, we will reflect that in a licence so that we can monitor its compliance with that. That is very important in the policy context in relation to developments that are taking place at a European level as well as locally.

I think that it is worth mentioning the renewables journey that Northern Ireland has been on. In 2007, only 18 wind farms were connected, with a total of 227 MW. You can see that we have come quite far on that journey when you compare that with the figure of 18% of our energy that is now being used in Northern Ireland and the capacity that we now have of over 600 MW. It is also worth noting our ability to continue on that journey, and, in relation to that, I want to emphasise the need for the North/South interconnector. It was originally envisioned that that would be in place for 2012. It is still uncertain when it will happen, and that impacts not only on our ability to meet the renewable targets but on security of supply, which, I am sure, many of you have heard of before.

Finally, I was asked to mention the renewables grid liaison group, which was set up by the Utility Regulator to allow open and transparent interaction between all the various renewable-interested stakeholders, NIE and SONI. Rather than having individual companies or individual areas of development coming to us, the idea was to set up something open and transparent and to get everyone together to discuss the issues and to provide evidence and information in order to allow the policy to be implemented effectively.

We publish the minutes of that group. We have representation from all the different renewable stakeholder groups — small-scale, large-scale, onshore and offshore. The group was started in 2012. The terms of reference, the minutes and all the presentations are on the website for anybody who wishes to look at that. The group does not resolve the matters relating to specific individual connections, but it does talk about the general areas that impact everybody who is looking to develop in this area.

I have already mentioned that NIE is part of the group. SONI, which is the transmission system operator, attends. The Northern Ireland Renewables Industry Group (NIRIG), which represents many connections groups, is there. There are also individual representations from different sectors, including the Ulster Farmers' Union, which has many members who are interested in this area. DETI attends as an observer, so it is aware of how its policy is being implemented in this area.

I have provided some links in the few slides that I sent you, if anybody wants further information on that.

**The Chairperson:** OK. Thank you, Tanya. Michael and Denis, what you said in many ways confirms what we heard from stakeholders at last week's stakeholder event and in their submissions. There needs to be a strategic overview of the coordination of wind turbine development and the issue of capacity. As you said, that needs to run parallel with the infrastructure. There is the issue of the massive number of wind turbines being erected. There is also the issue of balance: is it better not to permit so many single turbines but to allow bigger-capacity wind farms to produce energy more efficiently? There needs to be coordination between planning and people being able to connect to the network. There is no point in getting planning permission if you cannot connect to the network or if it is too expensive to do so. It would be very useful for us to think about that if we are going to head for 40% by 2020. We are only sitting at 18%, you said.

**Mr Atkinson:** Yes, 18% is the most recent figure. The plans in place for infrastructure development, which have already been agreed, will allow us to get to around 27%. That will be at a cost of about £60 million to the Northern Ireland customer base. Part of the big decision then is that getting from 27% up to 40% will require another quantum.

**The Chairperson:** Of £420 million.

**Mr Atkinson:** Albeit that includes £100 million for the North/South interconnector. The balance of £320 million is for strengthening the transmission system at the very high-voltage level, so that we can get that final push on. It has to be said that it is expensive. It is a big step change in the amount per megawatt to connect.

**The Chairperson:** The question is whether we have the money to invest in it.

Many members have put their names forward for a question. I will start with Alban.

**Mr A Maginness:** Thank you very much for the documentation. It is very useful, and the illustrations are very helpful.

You are talking about an investment of roughly half a billion pounds. There was disagreement between you and the Utility Regulator on pricing and so forth. I think that that went to the former Competition Commission in London and there was then a determination. Did that determination give you the amount of money necessary to make that half-a-billion-pound investment between now and, I presume, 2020?

**Mr Atkinson:** I will begin answering that, and others may want to chip in. Broadly speaking, those investments to support renewables have almost been dealt with outside of that formal price control, and the debates, disputes and whatever we have had with the regulator have been more about the day-to-day further development of the network. All the investments that we have talked about so far, such as the medium-term plan — the £60 million — have almost been developed outside the formal price control on a case-by-case basis of investment, and have been agreed on that basis. Certainly, our expectation and understanding from the outcome of the Competition Commission is that it should not affect us in seeking further investment. The renewables work is essentially being dealt with outside the formal price control.

**Mr A Maginness:** That is extremely helpful. Does that include the interconnector as well?

**Mr Atkinson:** Yes, that is right.

**Mr A Maginness:** I suppose that, decoding what you said about the increase in capacity, there is a weakness in the way that capacity is being developed. That relates to single turbine development, which is the less productive and effective way of increasing capacity. Is that a fair comment?

**Mr Atkinson:** Yes. If you considered the situation in terms of what is the best strategic and most practical logistical method of getting the 2020 targets, you would definitely concentrate on the large wind farm size. The development of the transmission system, whilst relatively expensive, is of much less physical length and easier to work with and develop than if you try to meet the targets by connecting a high volume of smaller machines through the distribution network. The distribution network is pretty much at maximum capacity at the minute, and the logistics— not just the money — associated with developing the distribution system to help you to make significant inroads towards the target are such that it does not make a lot of sense.

We have to recognise that, in parallel, incentives have been introduced that are making small single turbines attractive to investors. Unfortunately, it is the case that some of the individuals will have made significant investments and got to the final stages of getting their applications into NIE for grid connection and found out that it is going to be quite expensive or maybe not viable. That is very problematic territory. However, at a strategic level, it makes sense to concentrate more on transmission and connection of large wind farms.

**Mr A Maginness:** When smaller investors with single turbines come to you and tell you that they have got or are confident of getting planning permission and all the other work has been done and completed and asks you for the price of a connection, what is your response? Obviously, there is a response in the form of figures, but are you saying to them, "Look, the price is quite high here, and the reason for that is the difficulty in getting connections because of the work that has to be carried out, etc"? Is that really what you are saying to small investors?

**Mr Atkinson:** Consider the small investor going through the decision-making process: he will look at a site and decide whether he wants to try to get planning permission agreed for a turbine. If he can, he would like to know at an early stage how much it will cost. By systematically going to local events, local councils and the DARD events that a lot of the agricultural attendees come to, we have been trying to alert the various stakeholders — the Ulster Farmers' Union is one — that it is going to be potentially problematic and costly to connect.

When a developer actually decides that he is going to go ahead and get planning permission for his turbine and is going to come to NIE, he would normally pay us an application fee of £6,000. As the problems become more acute, we have agreed that, as we go through that application process and if he has paid the £6,000, he will get a pretty good idea at an early stage whether his connection is likely to be prohibitively expensive. If so, we contact him at an early stage, give him an indication that it might be £300,000 or something very high, and offer to rebate them back down to just the cost of what we call a feasibility study if he is unable to afford it —

**Mr A Maginness:** Yes, I am opting out.

**Mr Atkinson:** In that way, we try to reduce the cost impact that they suffer in going through an application with us. Whilst that maybe alleviates the problem a bit, it is not an entirely satisfactory situation. I suppose that, by issuing a heat map and working to bring that to another level of granularity, we are going to encourage people to do almost a form of self-assessment at an early stage. We give them better information, for example on the website, that could give them an indication of whether they are in a zone or territory where it could be quite problematic. If they want to come to us and get a feasibility study done before they go through the whole process of planning, they can do that.

It is a wee bit of a catch-22 because, literally, with each week that goes by the situation can change. If somebody decides to maybe spend a bit of time getting a feasibility study done with NIE, by the time we have given them the study and they have gone to get planning permission for their turbine and got back to us with a formal application, the situation could have changed or worsened dramatically. So, what appeared to be viable in April or May may not be as attractive by the time they get to us with a formal application in June or July.

It is not a pretty picture out there. I think that the best that we can do at the minute is to try to forewarn as best we can through the website information and the communications that we have generally with stakeholders. In essence, the room is running out very rapidly on that work to connect.

**Mr A Maginness:** Can I ask one further question?

**The Chairperson:** Yes.

**Mr A Maginness:** A quarter of a megawatt is the sort of capacity that you might get from a single wind turbine. What contribution does that make to the overall system capacity?

**Mr Atkinson:** In the region of the targets? I said to you earlier that we have a total of around 600 MW installed to date — it is just over 600 MW; about 620 MW — in the context of the overall 1,600 MW target we are working to. Of that 620 MW, around 70 MW or so comes from small-scale generation. It tends to —

**The Chairperson:** Sorry, did you say 17 MW?

**Mr Atkinson:** No, 70 MW. It tends to represent, and we would see it continuing to represent, a proportion of maybe about 10% of the total. So, 10% small-scale and 90% large-scale wind.

**Mr A Maginness:** So it is not very significant really.

**Mr Atkinson:** In general terms, no. We are not saying that to be demeaning to the people who are trying to connect small turbines, but, at a strategic level, it is not going to contribute a major proportion.

**The Chairperson:** That is what we have heard as well.

I want to take up what you said about people coming to you for a feasibility study. You said that, down the line when they get planning permission, things may have changed. What may have changed within months?

**Mr Atkinson:** To try to explain it, we get around 600 applications —

**The Chairperson:** It just makes sense for people to have an understanding of how much it will cost, the route for connection and all that before they go ahead with a planning application.

**Mr Atkinson:** If I could maybe just explain the point? It is only at the point when you get your planning approval and get your application into NIE that you can effectively book your place in the queue. Until you get your formal application in with us and book your place in the queue, other people can come in ahead of you. There may be 3 MW or 4 MW of remaining capacity on a line when you have the initial discussion with us, but by the time you have said, "I'm interested now; I'll get my turbine and my planning permission, and I'll get an application in", and you go through that process, that 2 MW or 3 MW may no longer be there. That is the circle we get ourselves into.

**The Chairperson:** Right, I understand.

**Mr Denis Kelly:** It is probably important to note, as well, that customer loads and demands change as well. Energy flowing in one direction can have an impact on planning as well. It is a whole dynamic model that is continually changing.

**The Chairperson:** Can you put on your website what capacity is currently available in a certain area for further development?

**Mr Atkinson:** It pretty much changes on a day-to-day basis, so we have tended to use the heat map. That will be taken to another level of detail, but maybe not quite the level of detail you would like to see in saying, "There's 3 MW here at the minute", or, "There's 2 MW here". Probably the most practical way to provide the information is to colour-code it; red indicating that we have pretty much run out of capacity at a certain point, amber maybe indicating that there are a few megawatts left, and white indicating that there could be 8 MW or 10 MW of capacity remaining. To be honest, it is a quickly changing situation. It would be unwise, and probably not entirely accurate, to try to put very

specific numbers down. It has to be done in terms of broad guidance. We try to update that broad guidance as frequently as we can.

**Mr Elliott:** Thanks very much for the presentation. I could go on for quite a long time on this one, but you will probably restrain me, Chair. Quite a lot of renewable energy resources have gone into the electricity grid over the last number of years, but electricity prices have risen enormously over that same period. Why is that? Are the renewables not efficient?

**Mr Denis Kelly:** It is primarily to do with the wholesale energy cost. Renewable energy still bids into the wholesale market at system marginal price, so the prices are set by the market. There is a misconception that, just because it is from a renewable source, it is a lot cheaper, but it bids into the market as a commodity.

**Mr Elliott:** So, it is not cheaper.

**Mr Denis Kelly:** It is not necessarily cheaper; it depends on the time of day, merit orders and dispatch instructions from the central system operators. The renewable bit does not necessarily pull the wholesale cost down.

**Mr Elliott:** Is it actually increasing the price?

**Mr Denis Kelly:** You could debate the structure of the market and the way pricing works in the market.

**Ms Hedley:** I probably have a little bit more knowledge of the wholesale market. Most renewable energy on the island of Ireland is a price-taker. It does not bid in; it goes in at zero price. The price is set by the last generator that is brought on. By having the renewables there, you reduce the need to get the more expensive gas or oil plant up and going. Therefore, the price is reduced from that point of view. However, like all these things in electricity, there are a lot of complications. You have issues with security of supply and other services that are also needed. Sometimes, renewable energy can increase those costs. The wind energy group has done a lot of analysis to show how the wholesale price is brought down.

**Mr Elliott:** Are you telling me that renewables actually help to increase or decrease the price of electricity?

**Ms Hedley:** Overall, renewables have brought the wholesale price down, but the actual wholesale price normally reflects —

**Mr Elliott:** So who is ripping the consumer off? *[Laughter.]*

**Ms Hedley:** Electricity is regulated, and we hope that consumers are not being ripped off. The main —

**Mr Elliott:** That is not the feedback that I get as a representative. I am sure that others are the same. Electricity prices are very significant to the consumer at the moment. People are finding it hugely difficult to pay, especially older people. Electricity prices have risen hugely, and you cannot tell me why that is.

**Ms Hedley:** The Utility Regulator has done a piece of work to compare domestic and commercial electricity prices in Northern Ireland. We are now looking further and in more detail and will publish further information on how those costs break down, why there are variations between Northern Ireland and other European countries, and where those variations occur. You can see that our costs for domestic consumers compare quite favourably, but issues have been raised about some of our more commercial costs compared to other places in Europe, and that investigation is under way. The price comparison has been published, and further work will be published. It is one of our flagship projects, and we think that it is very important that people understand and that there is transparency on both how your costs are made up and why they are what they are.

**Mr Elliott:** I will leave this point only to say that renewables are heavily subsidised. We are paying for them through our government subsidies, and the consumer is also paying additional.

I have a couple of other points on renewables, and wind energy in particular. This map is quite worrying, especially for someone who represents people in Fermanagh and South Tyrone. Does that mean that people who have renewable sources like wind turbines cannot access the grid at the moment?

**Mr Atkinson:** There are significant areas in those red zones where, at the minute, we have to issue what we call offers. On one side, they are quite expensive to get connection, but they are also conditional on further work being done on what we call the 33,000 volt network to allow those generators to get on and connect. So, at the minute, it is a very gloomy picture in those areas for single turbines trying to connect to the distribution system. There is no doubt that, to make some of the investments that will potentially enable more generators to connect in those areas, some lower-order investments will potentially help. In some cases, the investments required on the 33,000 volt network are quite sizeable, and there is a question to be answered as to whether it is fair to levy those additional costs on the Northern Ireland consumer, because they certainly would not be affordable to the individual generators.

The only positive thing that I can say to that is that, at the minute, we are looking at alternative methods by which generators may consider connecting. For example, at some point in the not too distant future, we may offer them a method to connect whereby they simply connect without further sizeable investment but have to take a chance that there may be some level of curtailment or reduction on their machine at such times as the network is becoming overloaded. It may provide a method that is of some help. We are trying to look at that in some detail, but there is no easy quick fix with all the answers at the minute. Basically, the network was not designed to take all this generation, and it is very heavily congested now.

**Mr Elliott:** Is it right that some people cannot get connected at all, irrespective of the price that you may charge them? I am told that people who have made applications to NIE have been told that they just cannot get connected. It does not matter what the cost might be.

**Mr Atkinson:** That is correct. In some cases, unless investment of several million pounds is made to allow those parties to connect, they will not be able to connect and export their energy on the network. We are in fairly intense discussions with the Utility Regulator on that subject but, unfortunately, at the moment, in some cases, we cannot connect and allow parties to export their energy on to the network.

**Ms Hedley:** It is maybe worth mentioning that there is a legal duty on NIE to develop its network economically, efficiently and in a coordinated way. It submits proposals to us for approval for investment that it deems to meet that legal requirement, and then there is a duty on us to only approve money that is economically viable. We have approved all the money that NIE has requested for investment to date because we have assessed it as being economically viable. If you were talking about millions of pounds for one connection of a substantially reduced size, it would be difficult to see how that would pass that test. If that sort of investment was required, the legislation would, because of NIE's legal duties and the Utility Regulator's legal duties, need to be changed.

**Mr Elliott:** I assume from the map that the areas marked red cannot take much more power. Does that mean that the red areas want to get more power than the other areas, or is it that there is a lower grade of system in those areas?

**Mr Atkinson:** The answer is both. Historically, because of the population density, the network in the west of the Province was built to a lighter construction. That means that, in many cases, when customers in the west want to connect, significant reinforcement is needed, which adds quite a lot to the cost of reconnection. However, it is equally the case that, in the east of the Province, because the case for wind is not as strong, there has not been as much interest. Certainly, at the minute, there are areas in the east of the Province where, if wind developers came to us looking for a connection, they would be able to get one at a relatively low cost. The wind strength has tended not to be as good in the east as in the west.

**Mr Elliott:** Does the Utility Regulator consider that it has any responsibility to bring the grid in the west up to the same level as in the east to give equality to the people in the west? Obviously, if they have a lower grade or lower transmissions system, they are being disadvantaged.

**Ms Hedley:** I do not accept that they are being disadvantaged. The network was built to meet the need that was there, and it was deemed economic at the time. If there was a need to build more

network, it would have to be economic, and NIE and the Utility Regulator would, as part of their legal duty, have to be assured of that. We are looking at the connection policy. The Utility Regulator has committed to review that. However, it goes back to your point about electricity prices. Somebody has to pay for this. So, if the person who wants to connect does not pay, bills go up.

**Mr Elliott:** Yes, but those in the west pay the same for electricity as those in the east.

**Ms Hedley:** You pay for the electricity that you use —

**Mr Elliott:** Yet the system in the west is not the same.

**Ms Hedley:** You pay for the electricity that you use. Basically, you pay for the use of the network that you have, and that is the same throughout Northern Ireland.

**Mr Elliott:** Finally, and then I will leave it, £420 million is a huge figure. You said that the Utility Regulator, to use your term, "writes the cheque" on behalf of the consumer, who then has to pay it back. So the upgrade, which includes the North/South interconnector, could cost the consumer, as Mr Maginness said, almost half a billion pounds. Is that how it works?

**Mr Elliott:** If NIE were to submit investment of that level to us, which it has not done, we would assess it and decide whether there was economic value from that investment for the people paying their bill. For the North/South interconnector, which Michael said would be about £100 million, we know that there are costs to the consumer, because it has not been built. They are clearly and easily identified, and there is a clear need. As for the remaining investment, we have not assessed it. There has not been the detail for us to carry out any assessment at this stage.

**Mr Elliott:** Can you give us a hint or a ballpark figure? If the cost was £420 million, by what percentage would that increase consumer electricity prices?

**Ms Hedley:** I do not have the figures with me, but we have the analysis, which we did as part of NIE's price control. I should also flag that technology moves on. As Michael said, there is value, perhaps, for people connecting and not having a 100% guarantee of being able to access the network, 24 hours a day, seven days a week. If people use more electricity, we can, of course, get away with connecting more generation. However, we also have the energy efficiency directive, which is pushing us to use less electricity, so competing areas have to be balanced as we go forward.

**Mr Elliott:** I will leave it at that, Chair. Thank you.

**The Chairperson:** That is a good point.

**Mr McElduff:** My interests were well served by Tom, given the way in which he put forward his case. Some of the questions that I planned to ask have been covered in his contribution.

Michael said that it was quite expensive, and maybe not viable, for an individual farmer to have a single turbine, for example, connected to the grid. Will you give us some examples of the prices being quoted? I am aware of some of the prices in the Omagh district and in rural parts of mid-Tyrone, but I would like to hear from Michael what the typical prices being quoted to farmers are.

**Mr Atkinson:** The popular size is a quarter of a megawatt — a 250 kilowatt machine — because that maximises the renewable obligation certificates (ROCs). They get four ROCs for every megawatt hour. About 18 or 24 months ago, a typical connection cost was £50,000, £60,000 or £70,000. Essentially, that was for a wind turbine being connected to the closest bit of electrical line. Since then, as more and more wind turbines have connected on to the feeders coming out of our primary substations, as we describe them, the backbone feeders have started to get overloaded, resulting in more investment being required further away from where the generator sits. Those costs, which are chargeable to the developer, have increased maybe twofold or threefold. In the west, for example, instead of the average bill being £60,000 or £70,000, it could be £180,000 or £200,000. In some cases, the cost is £300,000 or £400,000, which clearly will not work for developers. We are not happy about that, but those are the sorts of numbers that are starting to come out.

**Mr McElduff:** Is it common for the price quoted to be in the region of £750,000?

**Mr Atkinson:** There have been a few such examples, but by no means all come out at that level. I have seen a lot at £200,000 or £300,000, which is still very high for individual developers. I have seen individual cases for which the cost was £700,000 or £800,000.

**Mr McElduff:** What is the ceiling figure? What is the highest figure that you have seen to date? I am aware of a figure of £750,000.

**Mr Atkinson:** For that kind of money, it would not work anyway, but, in theory, if the lines were getting so congested locally that the only way for a turbine to get connected was to build an entirely new line back to the primary substation, the bill could be £800,000 or £1 million. I am not suggesting for a minute that that sounds good to anybody.

**Mr McElduff:** I seek an assurance from all sides at the table that the Agricultural Producers' Association (NIAPA) will be consulted on these matters in addition to the Ulster Farmers' Union. The Ulster Farmers' Union represents a significant number of farmers — of course it does — but NIAPA is another union representing the interests of farmers. So I seek an assurance that NIAPA will be included in any consultation processes and discussions.

**Mr Atkinson:** That is a fair point.

**Ms Hedley:** The Utility Regulator's consultations are open to everybody; they are not restricted to any individual. We will engage with anybody who wants to speak to us.

**Mr McElduff:** Tanya, you mentioned a round-table format, which is systematised, and to which UFU has input but NIAPA has not.

**Ms Hedley:** UFU approached us and asked to join. NIAPA is also welcome to do so.

**Mr Boylan:** Thank you very much for your presentation. I just wonder how much of the £100 million would be invested in the underground cable for the North/South interconnector. I am not being flippant, but I have to be realistic. As you know, it is a major issue in my area. It had gone off the radar, but I take it that it is back on. I am glad that you brought it up in your presentation because you will not be able to do anything to move forward without that being achieved.

**Mr Atkinson:** Technically, it is a very important part of the jigsaw. I am not the best person to answer the question about the interconnector. There is still a lot of debate to be flushed out on the Republic of Ireland side about the method of connection and all the undergrounding issues that you raise. We have said in other forums, such as the ETI Committee, that, technically, we do not think that undergrounding is a workable solution. Various opinions have been exchanged on that. Whilst more detailed information was submitted to NIE as part of the planning process during the latter part of last year, we are still waiting for some issues in the South to be resolved before re-engaging in the public inquiry process that is expected to reconvene shortly.

**Ms Hedley:** None of that cost relates to undergrounding. That is a figurehead solution.

**Mr Boylan:** I know. To be honest, that is why I made the point.

I want to try to thrash, or tease, this out with you: is the 40% target realistic and achievable?

**Mr Atkinson:** At this time, we are of the view that it remains achievable. To achieve it from the amount currently installed and commissioned represents a very sizeable challenge. It requires us to progress all the approvals that Tanya mentioned and to get all the various parties joined up and working together on it. So, yes, it remains achievable, but, as time goes on and we still have difficulties with the interconnector, it becomes more challenging every day.

**Mr Boylan:** I have two other points to make, Chair. Tanya, I know that electricity is a product and that the consumer always pays for it, but I take it that a consumer's ability to pay is not an element in all of this. Clearly, the market dictates the price for the product, and that is it. Is that a fair assumption?

**Ms Hedley:** The costs for electricity have to be recovered, and they have to be recovered from consumers. We have a duty to be mindful of vulnerable customers, and we always look to that duty.

However, in Northern Ireland, there is no cross-subsidy between people who have issues with paying and people who do not. For us to do that would probably require a policy direction.

**Mr Boylan:** That is grand. The reason I asked was that Tom mentioned subsidising renewables. No matter whether the interconnector goes overhead or underground, and no matter how long the life cycle — people have put forward different arguments on that — the customer will pay for it. That is the point that I am getting at.

I have one final point, and I would like you to look at it. It seems strange to me that people are allowed to apply to the Planning Service for planning permission before going through the process of trying to connect to the grid. We need to tie that up. You may be doing that, and I get the feeling that you are doing so for wind farms. I am dealing with a case in which someone got planning permission but cannot get connected to the grid. The lack of connection is not the only issue, there are other concerns, too. This happens with single dwellings in the countryside as well. Somebody, somewhere needs to be part of the process. It does not make any sense whatsoever.

**Mr Denis Kelly:** The expectation of someone who gets planning permission is that they will be able to connect, but that is not always the case.

**Mr Boylan:** I would like you to tie that up if you can. We are transferring planning powers to local government, so somebody needs to tie the two together.

**The Chairperson:** There needs to be better communication so that people think about that before —

**Mr Boylan:** Chair, I can apply for planning permission, build a house and then find that it will cost me £25,000 to connect to the grid or even to a renewable energy source. All that I am saying is that there needs to be better communication, or maybe we need to look at a policy or a legislative process to tie people into all of that. I do not know, but it seems incredible that the process has not been —

**Mr A Maginness:** On Mr Boylan's point about the North/South interconnector, is there an additional cost to cable it underground? I presume that there is. Is there any estimate of how much it might cost?

**Mr Atkinson:** We need to be a wee bit careful about answering that question, but it tends to be multiples; it is not a small —

**Mr Denis Kelly:** It is hundreds of times as much. We are not cable experts, but it is normally *[Inaudible.]*

**The Chairperson:** Sorry, will you speak up a bit, Denis?

**Mr Denis Kelly:** Sorry. The cost of going underground is usually hundreds of times the cost of going overhead. We are not cable experts.

**The Chairperson:** I have heard that.

**Mr A Maginness:** I have one further question about the North/South interconnector. At the moment, the consumer bears the cost of the lack of connection. Can anybody estimate that cost?

**Mr Atkinson:** I think that we have previously indicated figures of an annual inefficiency of £25 million or £30 million by not having the interconnector in place.

**Ms Hedley:** That will increase as more renewables enter the market in Southern Ireland and Northern Ireland.

**Mr Boylan:** On that point, that is why I come back to the case of the 40% target being reasonable and achievable. We have set the target, and then we say that we need to hit it. We should be saying, "Hold on a minute. What can we achieve? What is reasonable?". That is another part of the argument.

**Ms Hedley:** Yes, but we are aware that DETI is reviewing that.

**The Chairperson:** We have the capacity; we just do not have the infrastructure to develop it. Not only could all of Ireland — North and South together — be totally self-reliant on renewable energy but there could be enough to export to Europe. That is my reading of a recent report.

We have been told repeatedly in submissions, and by stakeholders at our last event, that, because of the lack of storage facility for wind turbine energy, it is only about 30% efficient. Is that correct?

**Mr Atkinson:** The larger wind farms — the 10 MW to 40 MW ones — are typically in the order of 30%. The typical efficiency for single turbines, which tend to be smaller, lower and do not catch the same wind distribution, is about 18% to 20%.

**The Chairperson:** What is the efficiency of conventional fossil fuel, such as gas or coal?

**Mr Atkinson:** The gas turbine efficiencies probably range from about 55% up to 70%, depending on the nature of the gas turbines. The percentages are much higher.

**The Chairperson:** Thank you very much. That was really interesting, and it will certainly form part of the consideration for our final report.