



Northern Ireland
Assembly

Committee for the Environment

OFFICIAL REPORT (Hansard)

Review of Wind Energy: Briefing by
Professor Geraint Ellis

7 November 2013

NORTHERN IRELAND ASSEMBLY

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Members present for all or part of the proceedings:

Ms Anna Lo (Chairperson)
Ms Pam Brown (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

Witnesses:

Professor Geraint Ellis Queen's University Belfast

The Chairperson: I welcome Professor Ellis. You are no stranger to the Committee. You have been very vocal about planning issues for some time. If you could give us a five- or 10-minute briefing on the paper that you sent us, which members have already, you can then take questions from members.

Professor Geraint Ellis (Queen's University Belfast): I put together something that is fairly brief and that, in some ways, raises more questions than answers yours, but I am happy to respond. I have not followed your inquiry closely so I am not entirely sure whether there are some issues that you feel that you have resolved or whether some are still outstanding.

The paper covers three key issues, one of which questions the policy and policy objectives for renewable energy here. In support of that, there are a few diagrams at the end, which have not been reproduced in great quality but which show the capacity in Northern Ireland up to 2011 and how that compares to other regions. It is a good way to start to try to understand whether the policy is having some success and on what terms you want to judge PPS 18 and the renewable targets.

I raise issues on how effective planning and energy policy have interacted and whether any more questions can be asked to make sure that their objectives fit a bit more closely together. I saw that there were questions over other types of renewables. I do not have a great deal to say on that, but I have highlighted the outstanding issues on the large scale, which are on anaerobic digesters or solar farms. As far as I am aware, there is not really a clear policy context for those at the minute, although there are likely to be quite a few applications for them.

I draw some questions from a recent study that I have completed with colleagues throughout the UK looking at how each of the devolved regions has considered renewables. You can see some of the

graphs that have been taken from that study. We looked at the planning policies that differ across the UK on how the regions are seeking to plan and zone for renewables, particularly wind energy. There is a very different set of objectives, and I think that Northern Ireland stands out as being fairly different to the others.

In brief, Scotland and, latterly, England are encouraging local authorities to identify and zone sites for wind energy. In Wales, and I have attached figures at the back of my paper, they have taken the most different and potentially innovative approach. They have identified eight strategic zones in which they are encouraging large-scale developments of wind energy, and that has some pros and cons that we might want to discuss. Comparing the evaluation of planning policy here with other jurisdictions is a quite a useful thing to do in order to draw out some principles. That is all that I wanted to say briefly on planning.

Clearly, there are a lot of concerns about the local impacts, particularly of wind energy. I know that you have been looking at set-back distances, and I have said a few things on that point that draw attention to the implications of extending those. My biggest issue here is to ask the question: what is the purpose of a set-back distance? It is never quite clear what that is supposed to deliver. If it is to do with noise, then there may be other aspects such as shadow flicker and so on. Having a clear idea about what the set-back distance is supposed to achieve is the biggest issue, I think. If it is to do with noise, then there are probably other ways that you can do that.

I very quickly talk about land values and try to encapsulate some of the research on that. There is no evidence to suggest that wind farms have a major impact on land values in the research so far. There are some aspects on visual intrusion, which comes back to the zoning issue, and I talk about noise issues as well. There have been a lot of studies on noise and I know that local residents complain about that. It is a difficult issue for which there do not appear to be a lot of successful solutions. I suppose that the key point there is on a very interesting initiative in Denmark, which has huge amounts of wind and a lot of wind turbine manufacturers as well. They are trying to lower the threshold for noise in an attempt to get the manufacturers to improve. I am not entirely sure whether Northern Ireland has enough leverage in using planning policy to put pressure on wind turbine manufacturers.

Finally, I go on to say a few things about community engagement and participation aspects. There is some interesting work being done on the role of intermediaries working between communities, agencies and local authorities. That might be something you could consider in the context of planning powers being devolved further to local authorities. There may be a bigger role for that. I talk a little bit about community benefit schemes, which I am sure have occupied some of your discussion.

One thing I very much urge you to think about, as a way of leveraging greater levels of community acceptance, is a much bigger role for community-owned schemes or co-ownership. In a very different cultural context, and which has been very successful in Denmark, is a law passed in 2008, requiring every major wind farm to offer 20% ownership of the wind farm to local communities. That is taken up a lot there, and it seems to be very successful in engaging communities and spreading the benefits of the development.

Finally, I tie up some of those key things in a number of set questions at the end, which is just a summary of what I have just said.

The Chairperson: Thank you very much, Professor Ellis. You have given us a lot of food for thought.

You mentioned zoning. Some planners have talked about the fact that we do not have a zoning policy, but wind energy developers would say that we have plenty of areas of outstanding natural beauty (AONBs) that they are not allowed to go into. What will be the effect of having a zoning policy? You said that there may be drawbacks from it. What are they?

Professor Ellis: One important issue is whether it is too late for that because there has been so much development. Some of the benefits would have been in the protection of some areas for habitats and other things. We have maybe gone past that stage. That maybe one of the drawbacks.

It looks as though Wales will eventually lever in much bigger schemes into its zoned areas than elsewhere. Compared to England, just over the border, Wales is probably competing better when it comes to attracting major wind energy schemes. The benefits of attracting very large schemes is that usually there is much more leverage to get much better community benefit schemes. That is one key issue.

The other key issue to think about is the area per megawatt of visual intrusion. If you can concentrate turbines and have them closer together, the overall area taken up by them will be smaller. The Northern Ireland aspect, particularly with the financial regulations for single turbines, is that it will come to the point where there might not be anywhere from which you cannot see a wind turbine. That might be fine, depending on your viewpoint.

On the one hand, you can concentrate turbines; on the other, you can get them everywhere. Developers prefer non-zoning: they made that quite clear when PPS 18 was put into practice. The downside, coming from Wales particularly, is that zoning is much stricter and less flexible, so it might come to the point where you are limiting the overall renewable capacity in the country. It becomes a very big issue if you want to open up other areas. The downside is the inflexibility and uncertainty involved. There would be far more protection for non-zoned areas, which would become prohibited from that type of development. Maybe, we want more flexibility.

It is a very difficult call, and only time will tell in the UK about the experiment in Wales. In Scotland, zoning has been pushed down to local authorities, which might be a little bit better because communities then have a little bit more control over it. Maybe, in the single strategic policy for here, asking local authorities to zone areas may be the potential midway for doing it. There is quite a bit of research to be carried out on the Northern Ireland context and what could be done here.

Lord Morrow: You say that there is no evidence that land values have been affected. What about the value of other properties, such as homes? When you say "land", are you talking about houses also?

Professor Ellis: The research done has been on house values. There have been quite a few studies, and they are very dependent on local house markets. As far as I know, there has been no research done on Northern Ireland. There was a little bit of work done quite a long time ago on Cornwall, but most of the research tends to have been done in the US. There was a major study issued in August this year that looked at 50,000 home sales in the US ranging from one mile to 10 miles away from wind farms. They did some very sophisticated modelling and could not see any effect on house values from that. In some ways, it seems as though there would be, but, actually, the evidence from the research does not seem to support that. I think a lot of people who are concerned about this aspect are concerned about that, but there does not seem to be rigorous evidence to support it.

The other point I will make is that lots of different land uses affect land values and home values as well. I know that wind energy has been the focus, but, if you are to consider an approach, it is a bit odd to just look at wind energy and not waste tips, schools or anything else. There have to be very good grounds —

The Chairperson: A school would add value.

Professor Ellis: Of course, some land uses increase value, like new public parks, schools or swimming pools. Clearly, it is not the intention, and never has been, to retract the positive value that people get from development either.

Lord Morrow: Schools are not something new. They have been around for a long time. This contraption is somewhat new. Therefore, people might be apprehensive. Maybe it is due to lack of knowledge and the fear factor of what will happen. I see that in your report you state that the most commonly quoted noise standard is ETSU-R-97, which is specified as 5 Db above background noise, an absolute maximum of 35 to 40 Db for daytime and 43 Db for night-time.

To be truthful, I do not think I would buy a home where there was a wind farm sitting a short distance from me. Whether it would make a noise or not, I would always be fearful that it might. We have listened to different delegations coming in here. They are very apprehensive and have cited incidents. We went to visit a wind farm and were locked out of it on one occasion. Whatever was going on, they did not want us to see it, or they did not want us there. Maybe we were trespassing and we should not have been there in the first place. There is genuine community apprehension about that aspect of it, which I think needs more reporting on. I am concerned about land values too, but you are telling me that this has not affected them, and I will accept that. I am not questioning what you are saying.

Professor Ellis: That is in what evidence there is. There have not been any studies done on Northern Ireland, so I would certainly not want to say that in this context it does not.

Lord Morrow: Any agent selling property would have a statutory obligation to state in the brochure that such a thing exists so many metres or yards away. That declaration alone —

The Chairperson: Do they have to put that in?

Lord Morrow: Yes, of course, they have to put in anything that could impact on the property. For instance, a large quarry sitting some distance from the property should be included in the brochure to notify the would-be buyer that it exists. Schools have been mentioned. When you lift a brochure for a new home, if there is a school nearby, it will tell you that the school is within five minutes' walking distance. Let us see if they are going to say, "And five minutes the other way, by the way, you have this wonderful, beautiful wind farm". It is something that must go into the brochure, as you would understand.

Professor Ellis: There are two things that I want to offer on that. One is that, when we understand reactions to wind farms, we often think of one thing, which is opposition; we never think of the nature of the dispute between supporters, which is far more complex and dynamic. We always tend to get obsessed with the opposition.

Also, we tend to look at it in a static way. The research tends to suggest that opposition to or dislike of wind farms generally — and again, this is a generalisation — takes a V shape. People tend to be relatively supportive of wind energy before there is any announced proposal near them. When one is announced, support drops because of the fear factor, as people become apprehensive of what might happen. Research shows that, over time, support tends to recover, not to the former limit, but there is a sense of getting to live with it. I do not claim that that happens to everyone. It depends on the siting and everything. However, research suggests that it follows that pattern. Support does not end up as high as it was before.

Some research has shown that any impact on home values tends to follow the above trend. In the example you gave, if a wind farm were announced, it would put people off buying. However, once established, people would see the effects for themselves and take the decision on whether to buy. That is an important aspect: the dynamic of opposition.

The other thing you said was that, from your own personal experience, you would not buy a house in that situation. This is a vital issue.

Lord Morrow: I would certainly look twice at it.

Professor Ellis: I think that there is a real problem with policy, because I have been looking for evidence and there is none. However, you know that people feel that way. It is the same with noise. The noise standard suggests that there is not a problem, but you know that some people really suffer from noise. I think that, to have a smarter policy, we must take into account how people feel about this because, in the long run, that is the best thing for the wind energy industry.

If people feel that they are being dealt with in an unjust way, or whatever, there is going to be more and more opposition. So, in the long run, instead of discounting people's feelings just because they cannot be proven, we have to be very sensitive and somehow have a policy that is a bit more reactive to that. If people keep feeling that they are being hard done by, by wind energy or other things, there will be a much greater and increasing level of opposition and it will be much more difficult, in the long term, to provide renewable energy facilities and so on. Just because there is no evidence, we should not deny the fact that people feel very affected by these aspects. There are some very difficult subjective and objective issues here.

Lord Morrow: Community benefit schemes are perceived as being a selling point or making a wind farm more friendly. When they come in with us, they are perceived to be intruding in a very quiet rural community that has never witnessed this before. You state in your report that wind energy developers offer benefits to those living in proximity to the proposed wind farm. What sort of benefits are on offer?

Professor Ellis: There is a huge variety of schemes. The most common is the tendency to pay, per megawatt, into a community fund. It can be offered for environmental schemes, educational trusts and so on. The level varies. At the minute, it cannot be enforced in planning because it is not a planning issue and cannot be taken into account. The protocol of the Northern Ireland Renewables Industry Group, issued during the year, suggests that it should be £1,000 per megawatt. In Scotland it

is £5,000. It varies. Some companies, and there is such a company now in Northern Ireland, offer discounted electricity to local places.

A huge number of issues arise from community benefits. In the UK, there tends to be an onus on the developer to offer them in a voluntary way. In other countries, they do not see a need for that. For example, Denmark has co-ownership, so why offer other benefits if a person can buy into it? A lot of other countries recoup local taxes through wind farms, so the money circulates. We do not have that model in the UK, because the local tax base is centralised and, as far as I understand, there is no link between local authority funding and wind farms or any other commercial development.

The other question that I would ask is this: what is the purpose of the community benefit scheme? You could think of four reasons why it might be in place. As far as the developer is concerned, it might be just to try to sweeten the local population in order to get planning permission. The developer increases the social acceptance of the development by being seen to be doing something.

The Chairperson: Some might call it bribery.

Professor Ellis: You could do that, but I do not think that the evidence that that works is strong. Some developers see it, maybe genuinely, as part of their corporate social responsibility to give something back to the host community. A lot of the wind energy companies have come out of social responsibility companies, so that might be an issue. Some might see it as an issue of compensation for some of the effects that you have talked about, but that is not really enshrined in any law or policy because if companies admit that, you start to try and put a quantified limit on what level of compensation you should have. I will come back to that, because there is an interesting Danish example of that.

The other aspect is that the communities have to put up with this, so they should share in the benefits in some way. Whether the benefits amount to any of those reasons, I do not know, but we do not really have a clear idea of what these benefits should be delivering. If we had a clear idea of that, we could design them to have a sharper focus to deliver those various aspects.

Lord Morrow: You have come quite close to it. What is the difference between a benefit and a bribe? Sometimes, the two can be misunderstood. I am thinking of some of the big power companies and the profits that they have been generating, which has caused considerable debate out there. Do you see the day coming when everyone who lives within an x mile radius of these will get their electricity free? That would be a wonderful experience, would it not?

Professor Ellis: It is an onus on the companies, I suppose. If you think of a continuum of the very largest schemes owned by multinationals with shareholders throughout the world, people tend to object more to them, and then there might be a nationally owned co-operative where you can buy shares in UK companies down to local co-operatives, local landowners. It tends to be the scale and more local ownership that there is less objection to. So, the other, bigger companies maybe need to invest more in thinking of social acceptance issues.

I mentioned compensation. There has been a scheme in Denmark since 2008, in which they offered that if you could prove that your house value had decreased by more than 1%, it would be recompensated. I was discussing that with some Danish colleagues last week, and it looks like an interesting initiative, but it seems that it has not worked. Administratively, it is very difficult, and it seems to be that there are people taking advantage of it. So, while it is an interesting initiative, a full evaluation is under way, but I do not think that the compensation issue is going to run.

Mr Boylan: Thank you very much, Professor, for your presentation. Following on from some of the comments, the Chair raised a relevant point about zoning. I agree with you. I think that we have gone too far. In some cases, there is no doubt that there is saturation there. If we go back to the original thing and bring the whole planning issue into it, there are 132 landscape areas right across the North, and I remember talking a number of years ago about identifying certain areas where it would be most viable for these things. I think if we had used that map properly, whether you were agreed with them or were for or against — your views on whether we have used that map for it. I also think that we have gone past the point of community benefit, because more and more now, there are a lot of people are reacting. There are applicants who are proactive in what they are doing about policy, but, on the other side of that, there are people who are reacting to the policy and trying to challenge it. That is the concern, and that is where we sit at the minute. I have two or three specific points that I want you to comment on, but I would like you to comment on that, just in relation to the planning issue.

Professor Ellis: I am probably not the best person to talk about how the landscape areas are used on a day-to-day basis, but, anecdotally, I think that whole exercise is not used a great deal. When it comes down to policy, it is largely criteria-based policy, as in PPS 18. As far as I know — maybe the DOE will be able to confirm the position — those 132 landscape areas are not used a great deal to inform policy, as far as I understand.

Mr Boylan: If they had used them, we might be in a better position.

Professor Ellis: There is another aspect to that, because zoning is not necessarily just about protecting landscapes; it is about protecting wind resource as well. You could take advantage of that. You could actually say: "We are not going to allow any houses in this area, because it is zoned for wind." It has a number of dimensions to it that are not just about landscape.

Mr Boylan: It was a good starting point; that is all I am saying.

Professor Ellis: Yes. I think that that was the intention but, as far as I understand it, the industry thought it too restrictive to take that.

Mr Boylan: Just let us go back to some of the key points. I know that you are talking about policy, and I want to specifically concentrate on that. We agreed this 40% target by 2020, but we are sitting here with a policy, and I want to know your views as to whether it is now fit for purpose. The policy is actually about renewables, and it seems to me that the industry is taking us down the avenue of achieving the target for electricity provision through wind. However, there are a number of other renewables. I want your view on that. Do you believe that that is it? Is it now possibly time to look at the policy in the light of the wind energy element of it?

Professor Ellis: Again, my expertise is in planning more than in the economics of energy. Clearly, onshore wind is the cheapest renewable resource, and we have buckets of it here. That is probably the simple reason for it. We are now coming online to start taking advantage of the marine resource that we have, and that could make a huge contribution.

The Chairperson: There is always offshore wind.

Professor Ellis: Yes, there is also offshore wind — and tidal, of course. Clearly, other parts of the UK have been leading globally on offshore wind and, particularly in Scotland, on tidal and marine power.

Mr Boylan: I agree with you, professor. However, let us look at planning specifically, because it is the policy we are looking at here, and it reads that way. What I am saying is, it is not adhered to, and there does not seem to be any impetus to look seriously at other renewable technologies. Let us be honest about that. That is where we are caught, and that is what the objections are about. My fear is that, as we look at wind farms per se, there is a saturation of them. There are that many complaints that they cannot go further than that. However, now we are making it up in terms of single wind turbines, which are even more damaging in their impact. That is my concern.

Professor Ellis: In the second bullet point in my paper, I raise the point that the 40% target was set clearly for energy policy reasons. I am unclear as to whether that was ever translated into a specific spatial output. Similarly, when the financial mechanisms were changed for single turbines, I do not know whether that was thought of, at the time, as a spatial policy. It is encouraging for individual landowners, but whether it is the best way to deliver the target is questionable. Take the example of Wales. Concentrating on very large schemes might be the best way to get the percentage of capacity. Single turbines have advantages because they are spreading the benefits amongst the rural population much more widely. There might be greater landscape impacts, but the economic impact is spread much more evenly. We are not talking about single multinationals holding the revenue from that, but individual farmers or communities.

Mr Boylan: Well, there is a perception that they are driving in terms of single wind turbines, to be honest with you. The perception out there is that the industry is driving the single turbine industry now.

I will try to tidy up these last three points very quickly, Chair. How will this policy, PPS 18, impact in a single policy statement? How do you think it will read in the future? I forgot the other point that I was going to make; I will have to go with that. How do you feel about that?

Professor Ellis: If you look at an equivalent, the English national planning policy framework, there are two paragraphs on wind which, on their own, do not really add up to effective regulation. However, what that does is pass it on to the local authorities to develop robust development plans. That could work in the context here, if we can be sure that local authorities have complete plan coverage. We know that, at the minute, our local development plan system is not quite up to that process. Therefore, I am a bit concerned that we might deliver a single planning policy statement, but take our eye off the ball of developing or enhancing capacity at the local plan level. Clearly, given all the local concerns then, strategic targets might be compromised if it is going to be locally driven. So it is a very difficult thing to achieve. You want to have some strategic guidance from the DOE but give communities some ownership in the context of having to deliver renewable energy targets and so on. One idea is to not just give local authorities planning powers to control and protect the landscape and so on, but give them responsibilities to deliver a certain percentage of renewable energy, so that the two things are being made by the same body. They are not trying to deliver targets for central government on the one hand and trying to respond to the needs of local communities on the other.

Mr Boylan: I have forgotten the other point, but it may come back to me.

The Chairperson: If I may just jump in, are you saying that we should review PPS 18?

Professor Ellis: My view is that it seems to be very successful in delivering renewable capacity. If that is the basis that you and the Government want to base it on, that is fine, but already this morning we have heard a lot of other concerns that may not be adequately reflected in the policy. It is to try to get that balance that we need a review. I would have thought that the wind industry would be relatively happy, because it has delivered a lot of capacity very quickly. My concern in the long term is with safeguarding our renewable resource and allowing social buy-in. It is on those two grounds that I think the review will be most useful. Is it the most effective policy you have got to deliver those two long-term goals?

The Chairperson: You do have to question the fact that in west Tyrone, as the local group told us, 40% of wind turbines are based in that area. What does it say about PPS 18 when it allows that cumulative effect in one area?

Professor Ellis: If you have a criteria-based policy, clearly, any areas that fit the criteria are going to be attractive. Clearly, where there is a high wind resource, they are going to be even more attractive, so in some ways you could have foreseen that that was going to happen. It is not unusual. I do not know whether that clustering impact was considered, but it is certainly a natural outcome of the policy. Again, what we are doing here is allowing the private sector to see where the greatest opportunity is and to exploit that for our renewable energy purposes. Whether the community sees it like that — clearly it does not, so the policy may be lacking in trying to encourage the community to come with it and having some opportunity to buy into it. I know that there are some concerns about how much say the community has had, but I think it is a natural outcome of the policy.

The Chairperson: I thought what you said about the Danish model of community co-ownership was very interesting. I think that is something that we really should look into.

Mr McElduff: Thank you, professor, for your presentation. I will refer to set-back distances. Will you elaborate a wee bit more on the Australian experience of stringent set-back distances and how they have got on there? Secondly, you said that the previous policy on one-off housing in the countryside would present particular problems for set-back distances here. Those two points, please.

Professor Ellis: In Australia, in the state of Victoria — they have policies at state level, not national policy — a new Government came in that were not very sympathetic to wind, so they said that no wind farm was allowed within 2 km of a habitable house unless the people living in that house gave it consent. Australia as a nation is really not very densely populated, but the wind coincides, on the coast, with where the population is, so actually it is quite dense in that particular location. As far as I have seen in reports, which are largely newspaper-based, that has more or less meant that there are no more wind developments in that area. It is very difficult to find sites that are 2 km away, and then there might be several houses, and all it needs is for one person not to give consent. So, effectively, it cuts off the wind industry. That might have been the intent of doing it; I do not know.

The Chairperson: Barry, Suzie has done some mapping to show us the distances of 500 metres. Two kilometres is massive.

Mr McElduff: Thank you.

Professor Ellis: There have been Private Member's Bills in England and down South that have proposed similar things, and their intent was largely to cut off the wind resource. The relationship to the one-off housing is that we have a very scattered population now, and actually finding wilderness sites on which you can develop large wind with very large set-back distances is inevitably going to compromise how you exploit the wind resource. We are always trying to balance those issues, but it is a consequence of the type of settlement pattern that we have. If we zone areas for wind, do we stop houses being built there? That flows into all sorts of issues. I am sure that that is going to be a big issue if or when fracking is introduced. The distributed housing distribution is going to be a big issue with that, as well, which is another type of energy exploitation.

The Chairperson: We are now talking about solar farms, and people are objecting to green areas being —

Professor Ellis: Very little is known about how people will take to that. Clearly, there is no noise, but there could be all sorts of other issues — run-off, house values. Who knows what will happen with that? As far as I know, DOE does not have a strong policy on large-scale solar, but that could have been anticipated as well, really.

The Chairperson: I got a letter through my letter box about solar panels for my roof. I need to look into that as well; do my bit for the environment. We will see.

Lord Morrow: I am not sure that that is what they had in mind when they put the leaflet through your door.

The Chairperson: No. That is right.

Mr A Maginness: Thank you very much, professor. I am new to this, but it is very interesting. What you are really saying is that PPS 18 has been highly permissive — I think that that is the term that you used — and that it has been successful in assisting the rapid development of wind energy here in Northern Ireland. That must be a good thing, if it is part of a public policy objective. However, in your critique, you seem to focus on single turbines as being problematic. Is it fair to say that single turbines, as opposed to wind farms, seem to pose a specific challenge?

Professor Ellis: In terms of whether the public policies deliver against the targets, I think that having lots of small ones is not as effective as having clusters of big schemes — which might have problems, but you can focus, have action, community support — all sorts of things with the big ones. Single turbines generally do not bring community benefits or anything like that. I would not like to be definitive about anything, but if the policies are about delivering large amounts of renewables, the larger schemes deliver that. However, with the larger schemes, you substantially magnify the social acceptance problems.

Mr A Maginness: I know the problem of visual amenity and the negative or adverse impact that these could have. Is it purely the turbines themselves, or is it the attendant linkage to the grid, that is part of the problem?

Professor Ellis: By "problem", do you mean why people object?

Mr A Maginness: Yes.

Professor Ellis: That has been pored over by a lot of researchers. The main issue seems to be visual intrusion. However, it is complex because what sensitizes people to object might be who owns the wind farm. There have been examples where people think that community-owned wind farms are better than externally owned ones. People might react badly to the process of decision-making, so although they might like the scheme, they have a feeling that it is being imposed on them, and therefore object. There also might be issues of noise. Some people are very concerned about bird strikes and other things. So, there is a whole bundle of drivers for opposition or support.

Mr A Maginness: So what you are saying is that central to all this is getting significant community buy-in to any scheme that is being developed.

Professor Ellis: I think that that will increasingly be an issue, to the point where it might ultimately limit the amount of wind that we can exploit in Northern Ireland, or Ireland as a whole. We often think of the amount of wind or the infrastructure as being the limiting factors, but I foresee a time when actually social acceptance will be a limiting factor. We are starting to see those schemes. I would like the industry and government to have a sharper focus on that, seeing it as almost an economic limit on what we can do, being driven by social issues. I do not think that that has been explored fully yet. If we are going to secure renewable resources, we have to focus on the social impacts and be very sensitive to those. It is in the interest of the industry, DETI and whoever.

The Chairperson: We are saying that we are taking people's feelings into account. However, unfortunately, when you have a PPS and a Programme for Government, people's feelings are not seen as material aspects for determining planning applications. That is why people feel so powerless.

Professor Ellis: I am doing work at the minute where we are trying to develop future scenarios of energy based on differing limits of social buy-in. One of the scenarios, which may be unlikely but is possible, is that a wind project goes so badly that all wind applications, even small ones, become toxic. There are murmurings of that happening in the Republic of Ireland at the moment. Very big schemes are seemingly being handled very badly and turning people off to wind schemes hundreds of miles away. There is a duty on the industry not just to secure planning permission but to have a long-term view of the industry.

Mr A Maginness: May I ask you about the various diagrams that you have described? Figure 5 shows that Northern Ireland is doing extremely well in comparison to England, Wales and the Republic and is second only to Scotland, which seems to be miles ahead of everybody else. Is that the pertinent diagram that shows our growth and success?

Professor Ellis: It is. To take away from Scotland, a lot of its renewable capacity is hydro that has been established for 50 years or so. Take that out — I did not do it for the purposes of this. The Northern Ireland's one is almost entirely onshore wind, while a large proportion of Scotland's is hydro; I cannot remember exactly. If you were to look at renewable capacity of onshore wind per kilometre squared, I am fairly sure that Northern Ireland would come out the highest. Given that, largely, that is the only resource that we have exploited so far, that both underlines the success of the policy and shows that we are now occupying more per kilometre squared. I would not like to claim that absolutely without looking at the statistics, but that is certainly the suggestion.

Mr Eastwood: Thanks for your presentation, Professor. May I ask you about the 20% law in Denmark? How has that been working? How do they define the community in terms of the 20%?

Professor Ellis: I think it gives a distance away from the actual wind turbine — I cannot remember, but it is a number of kilometres. They have to offer 20% there. There is another law that they should voluntarily offer it to a wider population as well.

Denmark has a tradition of the wind industry being cooperatively driven. That is why I would be a little bit sceptical about saying that you can immediately take that policy and drop it into Northern Ireland. Denmark has a very strong tradition of agricultural cooperatives, and particularly wind. It has had wind cooperatives since the 1980s; that has delivered huge amounts of wind for a long time. The landscape there is largely saturated, but it is saturated by cooperatively developed wind farms.

Social acceptance was not an issue until they put in a major national test centre, which was handled very badly. It was one of the projects that started to turn public opinion against wind. There is now a much bigger reliance on large multinationals to develop the thing. That is why Denmark has introduced a law to try to push a cooperative aspect in these very large schemes. Of course, in Denmark they even benefit economically, because most of our turbines, traditionally, have been built in Denmark. Their locally manufactured goods are going up, so the economic multipliers are much higher there.

Mr Eastwood: Does the money go into a community fund?

Professor Ellis: No, it is individual ownership now. It is limited only to people who can take advantage of it if they have the spare capital to put into it. There are distribution benefits that come from that.

Mr Elliott: I apologise for missing the start of your presentation. I have just one question. There are indications that there are significant environmental benefits to having renewable energies, but significant environmental disadvantages to having wind farms and wind turbines. Which do you believe holds the greater weight?

Professor Ellis: I think, on the latter part, there are local environmental disbenefits. Some of those are subjective, so some would not see any disbenefits at all. Some would see bird strikes and noise, but, in some cases, those things can be fairly minimal, so I would not want to portray every wind farm causing major local environmental disbenefits. Personally, I think that, with the challenges of climate change and energy security, it is absolutely essential that we develop more renewable energy. That is my own feeling; it far outweighs any local disbenefits.

Mr Elliott: Professor, you would make a good politician because you have not really answered the question. *[Laughter.]* I am trying to establish which, in your opinion, holds the greatest weight in this instance? Is it the weight of the environmental benefits of wind turbines or the environmental disbenefits of having them?

Professor Ellis: I am sure that no one would vote for me, unfortunately. When you say "the weight", is that in relation to public interest?

Mr Elliott: I am talking about the environmental impact. Do the environmental positives of renewable energy outweigh the environmental negatives of the community impact and the overall environmental negatives?

Professor Ellis: In my direct view, they do. The environmental and economic benefits of renewable energy outweigh the local environmental disbenefits, but we must be aware that those local environmental benefits could hamper opportunities to exploit the environmental goods in the long run if we are not very sensitive to how we do those.

Mr Elliott: That is useful. Thank you.

Ms Brown: Thank you for your presentation. It was very interesting. On the back of Tom's question, you said that you see the environmental advantages as being greater. Is that in the context of renewable energy as a whole, as opposed to what appears to be happening here in Northern Ireland, where we are chucking up wind turbines left, right and centre? Would your view change if we change the question and specifically said "wind turbines and wind farms" as opposed to renewable energy as a whole?

Professor Ellis: I think that it is renewables in general, but it probably would still apply because the cost of delivering renewables by other means to the level of capacity probably would not be acceptable by the public, given all the issues that we have had with electricity generation. So, it is clearly the cheapest, and it is clearly the one that Northern Ireland has the most to exploit. It does not mean that we could not do it better though. The key question for me is this: how can we improve policy and ensure that we are in a very good position to exploit all sorts of renewables in the long term by encouraging the community to come with us? That is very difficult, and I suspect that questions have not been fully grasped and grappled with. Putting those two things together and capturing the renewable resource but with public buy-in tends not to be the way that we have thought about policy here, up until now anyway.

Ms Brown: Finally, on the back of what the Chair asked about zoning, you talked about drawbacks. Is it too late for zoning? Is the process happening too quickly now?

Professor Ellis: It is, because we have areas zoned out, which are areas of outstanding natural beauty, and we should try and keep —

The Chairperson: The communities said that there are some examples where wind turbines have been bordering on, or are very close to, areas of outstanding natural beauty (ANOBs).

Professor Ellis: One aim of the zoning in Wales is to protect some of the areas for wilderness, or to give that sense of wilderness, and national parks and other things that are important for tourism and other aspects. Those aspects are rapidly declining here, because there are lots of places with turbines now. You would have to do a proper spatial analysis, so that we are not basing this solely on

my impressions. Zoning may be useful in giving local authorities the opportunity to think of where they would want to encourage development. We might have lost the opportunity to think rationally about how we can concentrate turbines and turbine sites in Northern Ireland. That is probably lost, because we have them over the place. However, I think that zoning might still be important with regard to the local development plan issue, because it will give ownership and some direction to the local authority. I think that that will be very important.

The Chairperson: Are you saying that that could be included in the PPS?

Professor Ellis: Yes, I think that it should be. It is included in the national planning policy framework in England, encouraging local authorities to zone. Maybe we should go further than that and say that it is a requirement.

The Chairperson: You made the point that wind energy is cheap and that we get plenty of it. However, do you accept the criticism that wind energy is not particularly efficient?

Professor Ellis: Again, I am not an energy economist, but it depends on the terms of the comparison. Yes, we know that it is intermittent, but if you have effective —

The Chairperson: And there is no storage of energy.

Professor Ellis: No.

The Chairperson: So, you lose a lot of energy if the wind is blowing and there is no demand for that energy.

Professor Ellis: That is why, if we are going to fully exploit the wind resource here, more north, south, east and west interconnection would start to overcome those issues, as would the electrification of transport, for example, where you can store energy. I think there are potentially a lot of innovative ways to tackle that problem.

The Chairperson: OK. There are no more questions.

Lord Morrow: Chair, I would like to ask a question.

The Chairperson: Sorry, let Cathal come in. He has been wanting to come in.

Mr Boylan: I signalled about half an hour ago, but I will bow to your good judgement on this.

Mr A Maginness: You always bow to a lord. *[Laughter.]*

Lord Morrow: You always bow to the Lord. *[Laughter.]* Professor, you courageously nailed your colours to the mast when you said that the advantages outweigh the disadvantages, in relation to the environment. I know that I am digressing slightly, but I will bounce this off you to hear what you say. Those who are emphatically in favour of fracking tell us that the advantages of fracking far outweigh the disadvantages. In some instances, however, they are not winning that argument. Are we being told today, and these are my words, that it is because we do not understand it? I think that that is what the frackers are saying. They are saying, "It is because you do not understand it that you are opposed to it or have reservations about it". Many people and many active groups are passionate about this issue. When they come to talk to us, privately or at our offices, they tell us of the disadvantages. For every report of an advantage, you are going to get another scientist saying, "Hold on a moment, this is the real story". At the end of the day, it is but one man's view. Are we going to have to suck it and see before we realise where we are in the whole idea?

Professor Ellis: On fracking?

Lord Morrow: No, on what we are discussing here today.

Professor Ellis: In some ways we have had that experience. Perhaps, we should be drawing some conclusions to that now, some way into the experiment. When you say that I have nailed my colours to the mast, I would like to think that I have done so on the basis of hard evidence. Most in my mind

are the very persuasive — clearly, not everybody accepts this, unbelievably, but, within the academy, everybody accepts it — huge risks of climate change. I know that that is not accepted by everybody.

Lord Morrow: Some scientists do not accept that.

Professor Ellis: I think that that is very, very rare. The academy accepts it, and it accepts that the impacts will be very, very profound. I think that it is on that basis that renewable energy should be a huge priority for us.

The Chairperson: We also need to look at the fact that oil and gas are going to run out within 50 or 60 years.

Professor Ellis: Absolutely. Energy security is important. Also, there is a cost issue. If fossil fuel reserves are running down and the price fluctuates, having indigenously generated electricity can have a positive economic impact. As far as I am aware, I think that there is very hard rational evidence to suggest that an expansion of the renewable capacity is a very good thing for Northern Ireland, the UK and the island of Ireland.

Lord Morrow: Did you want to comment on fracking? *[Laughter.]*

Professor Ellis: Is it helpful to your inquiry? *[Laughter.]*

The Chairperson: That is another topic, Lord Morrow.

Professor Ellis: I would have a precautionary principle in that I do not think that we know enough yet, and I certainly would not want to nail my colours to the mast one way or the other. However, applying a precautionary principle, there are many things that we need to clarify before we let it go ahead.

Mr Elliott: You would definitely make a good politician. *[Laughter.]*

The Chairperson: Are you going to join the Ulster Unionist Party? *[Laughter.]*

Mr Boylan: I love the terminology "precautionary principle", because I have adopted that when it has come to the North/South interconnector. It is a great line.

Coming back to planning policy, and that is the key element, I have an issue over distances. The policy at the minute states that wind farms must have a separation distance of 50 metres from occupied property, with a minimum distance of 10 times the rotary diameter for single wind turbines. It seems to me that we have reached a point of wind energy exhaustion here in the North. The numbers of those for and those against have plateaued, and we need to look seriously at that.

One element that you mentioned in your presentation was social acceptability. I will be honest, in a lot of cases, I do not think that it is socially acceptable that wind farms and turbines should go up in most areas. That begs the question of the need to look at a strategy and a policy if we intend to go forward with this target and with wind energy. How do we bring that forward in a single policy statement and avoid all the legal challenges that will come with it? That will be the problem here. We are going to set a policy that will say, "This is what we need to do and this is what we want to achieve, but, by the way, there is still that legal argument". No matter what way we go, it is all about terminology. No matter how we go forward with this, through the report that we are considering, we want to bring forward a policy that will get that balance right. What are your views on that?

Professor Ellis: I do not think that there is an objective sense of saturation because saturation is subjective. Some people would be more than happy to have their entire house surrounded, while some people would want not one turbine as a speck on the landscape. We must understand that that issue is variable. Everybody will have a different sense of saturation. Having said that, I think that one very important piece of work to do would be through a geographic information systems (GIS) model to see on what proportion of Northern Ireland landscapes wind turbines are visible. Again, there has been some excellent work done in Denmark on that, so you can model using GIS to see whether there are any places in Northern Ireland where you cannot see them. That would be a very good way to inform the development of policy. I do not think that we should necessarily set the policy on that basis, but I think that it might be difficult to go forward without that sort of analysis.

The other thing is something that I mentioned earlier. You said that we are now hitting saturation point, but I think that now is a good time to consider the future of what we call re-powering. The early wind farms are now 10, 15 or 20 years old, and there will come a point where they come to the end of their economic life. The question then is what we do with those sites. Usually, they were much smaller, noisier, less efficient turbines, and I think that to have a policy on re-powering, now that those sites have accepted wind turbines, we should question whether we focus all new developments on those sites but with larger turbines. Should we increase capacity through redevelopment or should we increase capacity through new development? That is an issue. There is going to be a timescale to that because a lot of the wind developments are fairly recent, so they might not come up for redevelopment for the next 10 or 15 years. It might be a long-term issue, but that is another way of thinking about how we increase capacity in the future. Or do we actually think that those communities have hosted these for 10 years and they have had enough; let us move on to somewhere else?

Mr Boylan: I have a final point, Chair, because the word being used all the time is Nimbyism. People have the right to object and air their views. Obviously, we need to solve that issue. From your experience, how can we deal with that and include those people in a proper process?

Professor Ellis: I and others in the academy feel strongly that Nimbyism is a myth, and it is a very unhelpful thing that we should almost abolish from the policy process for a number of reasons. First, by calling people Nimbys, you are particularly saying that their views do not count because they are irrational or deviant in some ways, and that is not helpful. That will increase opposition and not decrease it. If you ask people about why they object, they usually have some very good reasons. It is not just to protect selfishly. They might think that it is their duty to protect the local landscape, because their ancestors have lived there and so on. Therefore, that aspect is something that we should completely eradicate, and we should think that those people are obviously objecting because they have good reason to and look at how we can tackle those reasons rather than dismissing them completely.

The Chairperson: Thank you very much. As you can see, there is a lot of interest from Committee members. Thank you for your input. Your paper will be included in our report.