Enterprise, Trade and Investment Committee

Report on the Electricity Policy Review

Part III

Grid Connections

Together with the Minutes of Proceedings of the Committee Relating to the Report, Minutes of Evidence, Written Submissions and Research Papers

Ordered by the Enterprise, Trade and Investment Committee to be printed 18 November 2014

Mandate 2011/16 **Fourth Report - NIA 196/11-16**

Membership and Powers

Powers

The Committee for Enterprise, Trade & Investment is a Statutory Committee established in accordance with paragraphs 8 and 9 of the Belfast Agreement, Section 29 of the Northern Ireland Act 1998 and under Assembly Standing Order 46. The Committee has a scrutiny, policy development and consultation role with respect to the Department of Enterprise, Trade & Investment and has a role in the initiation of legislation.

The Committee has power to:

- Consider and advise on Departmental Budgets and Annual Plans in the context of the overall budget allocation;
- Approve relevant secondary legislation and take the Committee stage of relevant primary legislation;
- Call for persons and papers;
- Initiate inquiries and make reports; and
- Consider and advise on matters brought to the Committee by the Minister of Enterprise, Trade & Investment.

Membership

The Committee has 11 members, including a Chairperson and Deputy Chairperson, and a quorum of five members.

The membership of the Committee is as follows:

Democratic Unionist Party	Sydney Anderson[1] William Humphrey[2] Gordon Dunne Paul Frew[3]
Green Party	Steven Agnew
Sinn Féin	Phil Flanagan (Deputy Chairperson)[4] Megan Fearon[5] Máirtín Ó Muilleoir[6]
Social Democratic & Labour Party	Patsy McGlone (Chairperson)[7] Fearghal McKinney[8]
Ulster Unionist Party	Danny Kinahan[9]

1 With effect from 16th September 2013 Mr Sydney Anderson replaced Mr Stephen Moutray

2 With effect from 27 February 2012 Mr Paul Givan replaced Mr Robin Newton. With effect from 21 May 2012 Mr Robin Newton replaced Mr Paul Givan. With effect from 16 September 2013 Mr Sammy Douglas replaced Mr Robin Newton. With effect from 6th October 2014 Mr William Humphrey replaced Mr Sammy Douglas

3 With effect from 24 October 2011 Mr Paul Frew replaced Mr David McIlveen

4 With effect from 02 July 2012 Mr Phil Flanagan replaced Mr Daithí McKay as Deputy Chairperson

5 With effect from 10 September 2012 Ms Maeve McLaughlin was appointed as a Member. With effect from 2nd December 2013 Ms Megan Fearon replaced Ms Maeve McLaughlin

6 With effect from 23 January 2012 Ms Jennifer McCann replaced Ms Sue Ramsey. With effect from 10 September 2012 Ms Sue Ramsey replaced Ms Jennifer McCann. With effect from 21 October 2013 Mr Mitchel McLaughlin replaced Ms Sue Ramsey. With effect from 6th October 2014 Mr Chris Hazzard replaced Mr Mitchel McLaughlin. With effect from 10th November 2014 Mr Máirtín Ó Muilleoir replaced Mr Chris Hazzard.

7 With effect from 23 April 2012 Mr Patsy McGlone replaced Mr Alasdair McDonnell. With effect from 07 September 2012 Mr Patsy McGlone replaced Mr Alban Maginness as Chairperson. Mr Maginness rejoined the Committee as a member from 10 September 2012.

8 With effect from 7th October 2013 Mr Fearghal McKinney replaced Mr Alban Maginness

9 With effect from 06 February 2012 Mrs Sandra Overend replaced Mr Mike Nesbitt. With effect from 4th July 2014 Mr Danny Kinahan replaced Mrs Sandra Overend

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List of Abbreviations and Acronyms used in the Report

CC	Competition Commission
DETI	Department of Enterprise Trade and Investment
DNO	Distribution Network Operator
DoE	Department of the Environment
EU	European Union
GB	Great Britain
GIS	Geographic Information System
HH	Half Hour
ICAES	Isothermal Compressed Air Energy Storage
IME	Internal Market in Electricity
kV	kilo Volts
LPS	Land and Property Services Northern Ireland
MW	Mega Watts
NIE	Northern Ireland Electricity
NIMA	Northern Ireland Mapping Agreement
NIRIG	Northern Ireland Renewables Industry Group
RES	Renewable Energy Sources
RoI	Republic of Ireland
SEF	Strategic Energy Framework
SEIDWG	Sustainable Energy Interdepartmental Working Group
SEM	Single Electricity Market
SONI	System Operator Northern Ireland
TSO	Transmission System Operator
TUOS	Transmission Use of System
UFU	Ulster Farmers' Union

Executive Summary

Background and Context

1. During its previous reviews of electricity policy, the Committee for Enterprise, Trade & Investment was made aware of concerns relating to grid connections for renewable electricity developers. As a result, the Committee widened the scope of the review to include consideration of the issues and problems faced by these developers.

2. Northern Ireland has an ambitious target in place to have 40% of electricity consumed from renewable sources by 2020. To enable the achievement of the target there are around 31 wind farms totalling 552MW of large-scale generation and 250 small-scale generators totalling 65MW of electricity already connected. To achieve the target of 40% will require around 1,600MW of renewable capacity to be connected. There are currently 42 large-scale schemes in the pipeline at various stages of development. The current level of applications for small-scale renewables connections is extremely high. The high penetration of renewable electricity has already resulted in the distribution network having become saturated in some areas.

Time Scales and Costs

3. As a result of grid congestion in some areas, connection costs are two to three times higher now than they were in 2012. NIE accepts that, due to congestion on the grid, costs of grid connection in Northern Ireland are considerably higher than in Great Britain or the Republic of Ireland. The high number of applications for grid connections is also resulting in long delays for many developers. NIE concedes that there was a dip in service but states that increased staffing has resulted in significant improvements since last year.

4. There was concern among some witnesses in relation to NIE's requirement for full planning permission to be in place prior to making an application for grid connection. It was felt by some that delays and costs were being incurred as a result. Others were more supportive of the current system as it prevents developers reserving capacity on the grid which may not subsequently be used. Any move to permit planning and grid connection applications to run in parallel may result in some developers not taking forward developments for which they have secured a connection agreement and others being blocked because NIE has had to deny them access. Full implementation of the Planning Act coupled with current consultation on a hybrid solution should assist in addressing delays in the planning process. The Committee welcomes the efforts being made to address this issue and will keep the matter under review.

5. There were calls from a number of witnesses to have access to NIE's Geographical Information System (GIS). There are, however, considerable costs associated with such a facility. The Committee may consider this further in the future if moves by NIE to improve its 'heat map' do not result in a resolution of the problem. NIE has produced a heat map which provides information for developers on where capacity exists on the grid for developers to connect. The Co mmittee was made aware that the level of granularity on the heat map was insufficient for developers to make accurate investment decisions. NIE is planning to publish a revised heat map in the very near future which will allow a developer to more accurately estimate both connection costs and the likelihood of a development being constrained by congestion. This will help developers to avoid unnecessary costs in the planning process where the estimated connection or constraint costs for a development are considered too costly to proceed. **NIE must introduce its revised heat map at an early stage and support developers to gain an understanding of how to use it. The revised heat map should be regularly updated and should be reviewed in 12 months to determine if it is providing the adequate information for developers to make investment decisions (Recommendation 1).**

Competition and Contestability

6. Given the high costs and time delays associated with grid connections, there were calls for grid connection work to be opened up to competition. This would have to be in the form of contestability where, as the network owner, NIE would provide a cost for grid connection on the basis of a regulatory, approved cost base as set out in its statement of charges. This cost could be contested by other providers. The developer could have a piece of network built and then transfer ownership to NIE to manage it. NIE can then use that piece of network to connect others in the future.

7. Contestability arrangements could bring both cost and time savings for developers. Contestability arrangements are already in place in Great Britain and the Republic of Ireland and there is widespread support for it in Northern Ireland. This includes support from NIE, the Utility Regulator and DETI. The capability also exists in Northern Ireland for others to deliver grid connections under contestability arrangements.

8. The Utility Regulator informed the Committee that the delivery of contestability arrangements would require a two to three year time frame. Given the widespread support for contestability, the Committee has considerable difficulty in understanding this requirement. Given the time delays and high costs currently incurred by many developers, **the Utility Regulator must review current plans with a view to introducing contestability within a much earlier timeframe than currently proposed (Recommendation 2).**

9. NIE has already set a precedent with the contestable delivery of a large-scale wind development at Slieve Kirk. This has brought time and cost benefits as well as economic benefits to the region. It is generally agreed that this has been a successful project. There are currently no barriers to NIE voluntarily agreeing future contestable delivery arrangements. There is no requirement for NIE to wait for formal contestability arrangements to be put in place. **DETI, SONI and the Utility Regulator should strongly encourage NIE to voluntarily work with appropriate providers to draw up a list of approved companies for contestable delivery of grid connections at transmission and distribution levels with a view to introducing informal contestability arrangements at the earliest opportunity (Recommendation 3).**

Smart Grids and Micro-grids

10. The Committee recognises the need for grid infrastructure development and for further interconnection however smart grid technology can play a significant part in supporting increased grid capacity and reducing costs for developers. Developers highlighted to the Committee the constraints on the network and the problems that could be alleviated, to some extent, by smart grid solutions. The high rate of development of renewable electricity on the island of Ireland has increased the need to consider innovative solutions and new technologies to maximise the use of renewable electricity.

11. One specific area where smart solutions can provide considerable support is in the development of micro-grids. The development of a number of localised micro-grids could help alleviate the need for future high levels of curtailment of renewable electricity, would enable more small-scale generation and would contribute to improved security of supply and cost reductions for industrial consumers. However, there is a lack of knowledge in Northern Ireland relating to the whole area of micro-grids and this knowledge deficit needs to be addressed. The concept needs to be explored in more detail before consideration can be given to widespread deployment. Given the potential of micro-grids, **all key stakeholders including DETI, NIE, SONI, the Utility Regulator and DoE Planning Service must work with the industry to gain a full understanding of micro-grids and their potential to assist in providing an effective addition to the electricity network. This must include involvement of the Sustainable Energy Interdepartmental Working Group (SEIDWG) and its Grid Sub-Group (Recommendation 4).**

12. NIE is currently restricted in the amount of money it can spend on the development of smart grid technologies. In its last price determination, the Utility Regulator allowed for assessment of projects on an individual basis. When the determination was referred to the Competition Commission this was overturned and NIE was allowed only £3m funding for the development of smart grid technologies. This compares unfavourably to a £500m Low Carbon Networks Fund established by OFGEM which offers support to Distribution Network Operators to trial new technology, operating and commercial arrangements. In the Republic of Ireland a fund of €18.2m was allowed to the Distribution System Operator to carry out research and development and sustainability activities including provision to explore technological advances in areas including smart grids. As a result of its low level of funding, NIE is constrained in its capacity to make the necessary advances in smart grid technology. **The Utility Regulator should, in the next price control determination, consider allowing NIE sufficient resources to fund smart grid solutions to modernise the grid and promote innovation (Recommendation 5).**

Transparency and Communication

13. There were a number of examples cited which suggest a lack of transparency in the way in which NIE deals with developers. The Committee also identified areas where NIE's communication with developers could be significantly improved.

14. There were examples of perceived inconsistencies in NIE quotations. Whether these are accurate or not is unclear however there should be no doubt regarding NIE's impartiality and fairness when dealing with developers. There are perceptions that NIE charges, for both work and equipment, are higher than could be achieved in a more competitive environment. NIE's charges are regulated through its statement of charges therefore there should be no doubt relating to the appropriateness of these charges.

15. Witnesses informed the Committee of problems relating to communications with NIE including the lack of provision of network information and on changes to requirements which could impact on costs for developers. There is evidence that delays and uncertainty about time frames for developments are leading to the withdrawal of investment. Communication problems with NIE are contributing to this uncertainty.

16. The absence of any clear strategy or planned approach within NIE for communicating with developers is causing considerable problems and is contributing to a climate of uncertainty. **The Utility Regulator must ensure that NIE has an appropriate and effective communications strategy for developers. The communications strategy must include transparency in how NIE's processes operate (Recommendation 6).**

Policies and Processes

17. Evidence demonstrates that NIE's policies and processes need to be reviewed to ensure they provide the most appropriate mechanisms for developers who are seeking grid connections. There is evidence of processes contributing to delays to developments and to costs for developers. There is evidence that NIE's rebate policy in not aligned to SONI's Connection Charging Policy. The time frame in Great Britain to get a project from feasibility to connection is much shorter. In Northern Ireland there is considerable uncertainty for many developers about how long a project will take.

18. The issues raised in relation to NIE's policies and processes need to be addressed. **The Utility Regulator and SONI must work with NIE to review and improve NIE's policies and processes relating to grid connections. This should include those relating to:**

- Communications & Transparency
- Delivery of connections
- Connection Agreements

- Payments policy as it relates to an agreed connection date
- Rebate policy
- Connection quotes
- Re-quotes arising from technical issues (Recommendation 7).

Vision and Strategy

19. Despite DETI's assertion to the contrary, there is little evidence of a long-term vision or plan for the electricity grid. It is notable that the System Operator for Northern Ireland (SONI) was critical of the management of the transmission infrastructure on a project by project basis. Other key stakeholders such as the Utility Regulator and the Northern Ireland Renewables Industry Group (NIRIG) would also welcome a more strategic approach to the development of the network.

20. NIE quoted a figure of £420m to move from 27% to 40% of electricity from renewable sources in order to achieve the Executive's target by 2020. Although this figure has not been verified, there is no other cost figure available on which the 40% target is based. It is of considerable concern to the Committee that there is a commitment to the 40% target without a clear understanding of the costs involved or the resulting long-term impact on charges to consumers. **As the lead body for electricity policy in Northern Ireland DETI must clearly state and communicate a long-term vision and strategy for electricity (Recommendation 8).**

21. DETI has overarching responsibility for energy policy but, in recognition that renewable energy covers the remit of many departments, DETI formed the Sustainable Energy Interdepartmental Working Group (SEIDWG) to ensure a coordinated approach across Government. SEIDWG has not met for some time and neither has the SEIDWG sub-group tasked with considering strategic grid issues. Key stakeholders agree that much better coordination is required. There is currently little evidence of a strategic oversight of grid issues at interdepartmental level. For this reason, **the Sustainable Energy Interdepartmental Working Group must be reconvened as a matter of urgency to establish and drive the long-term vision and strategy for electricity (Recommendation 9).**

Summary of Recommendations

Time Scales and Costs

1. NIE must introduce its revised heat map at an early stage and support developers to gain an understanding of how to use it. The revised heat map should be regularly updated and should be reviewed in 12 months to determine if it is providing the adequate information for developers to make investment decisions.

Competition and Contestability

2. The Utility Regulator must review current plans with a view to introducing contestability within a much earlier timeframe than currently proposed.

3. DETI, SONI and the Utility Regulator should strongly encourage NIE to voluntarily work with appropriate providers to draw up a list of approved companies for contestable delivery of grid connections at transmission and distribution levels with a view to introducing informal contestability arrangements at the earliest opportunity.

Smart Grids and Micro-grids

4. All key stakeholders including DETI, NIE, SONI, the Utility Regulator and DoE Planning Service must work with the industry to gain a full understanding of micro-grids and their potential to assist in providing an effective addition to the electricity network. This must include involvement of the Sustainable Energy Interdepartmental Working Group (SEIDWG) and its Grid Sub-Group.

5. The Utility Regulator should, in the next price control determination, consider allowing NIE sufficient resources to fund smart grid solutions to modernise the grid and promote innovation.

Transparency and Communication

6. The Utility Regulator must ensure that NIE has an appropriate and effective communications strategy for developers. The communications strategy must include transparency in how NIE's processes operate.

Policies and Processes

7. The Utility Regulator and SONI must work with NIE to review and improve NIE's policies and processes relating to grid connections. This should include those relating to:

   - Communications & Transparency
   - Delivery of connections
   - Connection Agreements
   - Payments policy as it relates to an agreed connection date
   - Rebate policy
   - Connection quotes
   - Re-quotes arising from technical issues.

Vision and Strategy

8. As the lead body for electricity policy in Northern Ireland DETI must clearly state and communicate a long-term vision and strategy for electricity.

9. The Sustainable Energy Interdepartmental Working Group must be reconvened as a matter of urgency to establish and drive the long-term vision and strategy for electricity.

Introduction

Background and Purpose of the Inquiry

22. During its review of electricity policy relating to security of electricity supply and electricity pricing, the Committee for Enterprise, Trade & Investment became aware of concerns relating to grid connections for renewable electricity developers. The Committee agreed to widen its review in order to investigate the issues and problems faced by developers.

23. The purpose of the review is to:

- Explore the strategic approach to electricity grid investment;
- Explore the relationship between grid strength and connection costs for developers;
- Review processes in place for developers applying for planning permission and grid connection;
- Review any requirements there are for renewable electricity developers to connect to the grid;
- Consider the feasibility of introducing competition into grid connections; and
- To bring forward recommendations on how these problems can be resolved in the interests of consumers, renewable energy developers and the local economy.

Terms of Reference for the Review

24. The Committee critically examined the legislation, the policies and the practices that are currently in place relating to electricity transmission and distribution, including grid investment and grid connections. The review will identify the key issues faced by developers and consumers.

Key Issues and Findings

Context

Electricity Grid Structure

25. The Northern Ireland electricity grid (the grid) is made up of high voltage transmission lines and lower voltage distribution lines. Transmission lines, which transport power along large steel pylons over long distances are 275 kV and 110kV. Distribution lines, which transport power along smaller steel pylons, wooden poles and, in urban areas underground, are 33kv and 11kv.[1]

26. Northern Ireland Electricity (NIE) has an organised plan in place for the reinforcement of the transmission network. Small-scale generation connects mainly to the 11kV distribution network.[2]

Growth of Renewable Electricity

27. Large-scale renewables generation units (mainly wind farms) have an output of typically 10MW to 40MW. A capacity of 5MW would be sufficient to supply a small town. NIE has commissioned and connected 31 large-scale wind farms to date with a total capacity of around 552MW. There are a further 42 schemes in the pipeline at various stages of development.[3] Overall, large-scale renewables generation will contribute 85-90% of the 40% target. NIE states that further investment of around £420 million will be required to enable this to happen.[4] However, this assessment has not been verified by the Utility Regulator. In oral evidence to the Committee, NIE stated that around 1,600MW capacity will be required to reach the 40% target.[5]

28. Small-scale renewables generation (mainly single wind turbines) tend to have an output of less than 250kW (0.25MW). NIE has connected about 250 small scale generators with a total output of around 65MW.[6]

29. There has been considerable activity in the last year on micro-generation. This is mainly the installation of solar panels on homes. These connections do not have to go through a complicated application process, they are installed on a 'fit and inform' basis.[7]

30. DETI informed the Committee that, since the target for 40% of electricity from renewable sources by 2020 was introduced in 2010, total renewable electricity installed capacity has almost doubled from 336MW to 611MW by May 2014. The number of individual generating stations has increased from 590 to 4,977 and small-scale capacity has increased from 26MW to 87MW over the same period. The vast majority of generating stations are below 5MW and most are under 250kW.[8] The Utility Regulator described the current level of applications for small-scale renewables as 'phenomenal'. This has resulted in saturation of the distribution network in some areas and presents a considerable challenge for the grid. The Utility Regulator must strike a balance between approving investment and facilitating renewables targets while trying to keep costs for consumers as low as possible.[9]

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1 Appendix 3: NIRIG Written Submission

2 Appendix 2: NIE Oral Evidence

3 Ibid

4 Ibid

5 Ibid

6 Ibid

7 Ibid

8 Appendix 2: DETI Oral Evidence

9 Appendix 2: Utility Regulator Oral Evidence

31. The Committee received the report on electricity consumption and renewable generation for the year ending March 2014.[10] The report shows that for the 12 month period to March 2014, 19.5% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This equates to 1,595 Gigawatt hours.

Grid Connection Costs

General

32. The general trend of grid connection costs in Northern Ireland is upwards.[11]

33. In very congested networks in the west and north, due to the substantive growth in small scale generation, connection costs are two or three times higher than in 2012. Whereas the costs of connections for a 250kW wind turbine, which is the standard size, may have been £60,000 or £70,000 in 2012, it is currently nearer £200,000 on average and in some circumstances in excess of £300,000.[12] NIE stated that it is not because it is applying a high unit cost to the work but that the work content is very high due to congested networks.[13]

Comparisons with Great Britain and the Republic of Ireland

34. In Northern Ireland, the cost of grid connection for onshore wind turbines accounts for between 20% and 50% of total capital costs, whereas in England the cost is around 5%.[14] There have been instances of projects in Northern Ireland not going ahead because the quotations for grid connection costs have exceeded 50% of the total capital cost of the project.[15] Action Renewables quoted grid connection costs in the Republic of Ireland (RoI) as also being at around 5%.[16] However, System Operator Northern Ireland (SONI) and EIRGRID maintain the cost in the Republic of Ireland is closer to 10% or 12% of total capital cost.[17] Action Renewables received quotes from a contractor in Scotland on the cost of constructing a comparative amount of work with NIE's conditions and found the cost typically about one third of NIE's.[18]

35. The Northern Ireland Renewables Industry Group (NIRIG) stated that, in Northern Ireland, large-scale generators face higher connection costs per MegaWatt (MW) than in Great Britain and the Republic of Ireland and also pay higher deposits than most of Great Britain and the Republic of Ireland.[19] The Utility Regulator believes that an average for the whole of Great Britain is slightly misrepresentative. Every individual case will be based on where the development is in relation to the network. This results in a very wide variation in cost. Northern Ireland has more kilometres of line per person than elsewhere and does not equate to a network in the south of England.[20]

36. NIE accepts that the costs of grid connection in Northern Ireland are considerably higher than in Great Britain and the Republic of Ireland. NIE qualified the higher costs as caused by technical issues that have arisen from congestion where further reinforcement of the network is required, not just the immediate connection. These costs, which are levied on developers,

10 Appendix 6: Correspondence
11 Appendix 3: NIRIG Written Submission
12 Appendix 2: NIE Oral Evidence
13 Ibid
14 Appendix 2: Action Renewables Oral Evidence
15 Ibid
16 Ibid
17 Appendix 2: SONI and EirGrid Oral evidence
18 Appendix 2: Action Renewables Oral Evidence
19 Appendix 3: NIRIG Written Submission
20 Appendix 2: Utility Regulator Oral Evidence

have gone up markedly.[21] In Northern Ireland, developers are charged for all of the work required to connect. In Great Britain and the Republic of Ireland, for certain elements, the cost is passed onto the general customer base.[22]

37. In parts of Great Britain, as networks have become more congested Distributed Network Operators (DNOs) have experimented with other methods of connecting wind turbines, offering choice and introducing smarter solutions, which means the immediate connection costs in some of those cases are a lot lower than they are in Northern Ireland, because they remove the need for the same level of reinforcement. Currently in Northern Ireland, a small-scale wind turbine is effectively guaranteed its full output under the network when it connects.[23]

Statement of Charges – Transparency and Consistency

38. When NIE provides a connection offer to a developer it will give a quotation and an outline of the amount and content of work required in its Statement of Charges. NIE accepts that it may not provide the full breakdown of costs that all developers would like to see but emphasises that the information in their Statement of Charges has proved acceptable with the Regulator.[24]

39. Developers believe there is a lack of clarity on what the NIE connection process is and a lack of detail in connection offers. Some developers have requested a full breakdown of costs in order that they may understand how quotes have been arrived at but NIE has declined to provide this information.[25] The client does not receive a technical report setting out how NIE has arrived at the connection capacity (in MWs) and it is not clear what planning standards NIE has adopted, or more generally, what methodology.[26]

40. Developers have reported perceived inconsistencies in NIE quotations. Action Renewables gave evidence to the Committee that the least costly currently ongoing grid connection that it is aware of is £18,000 plus VAT and is within an area where NIE has defined the grid as being at "saturation point" and "connection costs are likely to be very high". Action Renewables compared this to another client who accepted a quote of £63,600 plus VAT for a connection in June 2012 in which all that was required were way-leaves for three poles on the client's own land, yet the developer has still not been connected.[27]

41. NIRIG stated that, with regards to large scale developers, the cost of grid connections in Northern Ireland is likely to be higher per MW than in Great Britain mainly due to the scale of projects. However, a smaller number of turbines per project suggest that the "fixed" costs of grid and access are disproportionately high.[28]

42. Action Renewables, in oral evidence to the Committee, stated that it is finding that equipment its clients are being charged for, such as a span of line or a transformer of a certain size, could be sourced elsewhere for a lot less cost. The additional cost of a Half Hour (HH) meter, required to record the electricity being exported is typically about £450 in Northern Ireland. Action Renewables gave evidence to the Committee that they were able to source the meter elsewhere at typically about £150.[29]

43. The Utility Regulator informed the Committee, through written evidence, that NIE charges suppliers for the provision of a number of metering fieldwork services, which are known as

21 Appendix 2: NIE Oral Evidence

22 Appendix 2: SONI and EirGrid Oral Evidence

23 Appendix 2: NIE Oral Evidence

24 Ibid

25 Appendix 3 Manufacturing NI Written Submission

26 Ibid

27 Appendix 3: Action Renewables Written Evidence

28 Appendix 3: NIRIG Written Submission

29 Appendix 2: Action Renewables Oral Evidence

transactional charges and are approved by the Utility Regulator. The Utility Regulator stated that, as outlined in the published transactional charges, the price for installation of a HH Communications is £323 excluding VAT. The £323 transactional charge for installing a HH meter was developed based on the following breakdown of costs: - Labour - £106 and Materials – £217. The materials cost covers communications equipment including modem, aerial etc, as well as some provision for installing a BT line. In comparison, published charges for UK Power Networks and ESB Networks in the Republic of Ireland are £369 and €450 respectively,[30] suggesting that NIE costs are broadly in line with elsewhere.

44. The Utility Regulator assesses the NIE Statement of Charges annually. As is the case in Great Britain, their role is to assess and approve the methodology and principles that NIE use in developing the Statement of Charges. They do not approve the costs but scrutinise and seek information to justify any major changes from one statement to the next. The Utility Regulator has a dispute role in which developers can raise an issue with a Statement of Charges. In autumn 2013 the Utility Regulator carried out a baseline comparison of the Statement of Charges levied by NIE to other comparable Distribution Network Operators in the UK. Following this assessment they challenged NIE and required them to fully explain any differences between the Statements of Charges.[31]

45. In May 2013, the single electricity market (SEM) committee determined that SONI should increase its responsibilities to include the transmission planning function, previously the responsibility of NIE. SONI is responsible for the safe, secure, economic and reliable operation of the Northern Ireland transmission grid and the all-island transmission network. SONI now makes all the investment decisions on the transmission network and liaises and interacts with the regulator for approval. SONI believes that, in its new role, it will have to be able to justify costs identified by NIE and challenge them as and when necessary.[32]

NIE Communication

46. Considering the high costs involved, developers believe NIE needs a better communication strategy for dealing with its clients, for example appointing an account manager for each project. Developers have reported to the Committee their frustration when NIE has not replied to their emails or telephone calls.[33]

47. NIE has also failed to provide clients, in a suitable and timely manner, on change of circumstances that have a major effect on costs. For example, Manufacturing NI member, R Hogg and Sons Ltd, received a conditional offer to connect to a turbine which was so costly that the turbine, as well as an asphalt plant which was going through planning, became financially unviable. R Hogg and Sons Ltd had been making commercial decisions on the understanding that they were being connected to a 33kV line. They had not been informed that, if they reduced their availability, NIE would reduce the capacity from 33kV to 11kV. The cost the company of connecting to the 33kV line was a lot less as the infrastructure already exists.[34]

48. NIE stated that, as there is a much smaller number of large-scale developers than small-scale developers, there is more frequent and regular engagement with those large-scale developers at all stages including planning. However, they stated that with small-scale developers it is a more challenging area for engagement during the planning process as the small-scale environment is much faster moving. NIE stated that, as a small scale developer moves

30 Appendix 3: Utility Regulator Written Submission

31 Ibid

32 Appendix 2: SONI and EirGrid Oral Evidence

33 Appendix 3: Manufacturing NI Written Submission

34 Ibid

through the application process, if it transpires that a potential development is likely to incur very high costs, they will actively contact the developer to discuss the matter.[35]

Policies and Processes

49. Certain NIE policies and processes associated with the delivery of connections may be causing unnecessary delays and costs. SSE stated to the Committee that delays increase costs and undermine the investment case for projects that could deliver tangible economic and employment benefits to Northern Ireland.[36]

50. Lightsource Renewable Energy informed the Committee that, unlike in Great Britain, NIE does not allow developers to tee off an existing line. In Great Britain, where a perfect field for solar exists and a wire running over the top of it a developer can tee off that and get a connection. That does not happen in Northern Ireland. NIE will insist that the developer goes all the way back to the substation.[37] The reasons for this approach are not clear.

51. In Great Britain, third parties are permitted to carry out work on the grid on behalf of developers. This does not happen in Northern Ireland which means there is currently no competitive market for grid connections. This leads to timescales and costs being affected as there is a limited number of individuals carrying out the work.[38] There are no independent connection providers established in Northern Ireland, only NIE can carry out grid connection work.[39] The Northern Ireland Renewables Industry Group (NIRIG) believes introducing competition into grid connections, for large-scale generation, would be a positive step towards helping to address high connection costs.[40] This is covered in more detail later in the report.

52. Manufacturing NI member, PowerHouse Generation Ltd, stated that NIE appears to have poor records in regards to Connection Agreements for existing demand sites (some with on-site generation). Even though the on-site generators already were properly tested (G59 test), commissioned and operated in the past, NIE does not have Connection Agreements, and is making Demand Side Unit/Aggregated Generation Unit generators start the connection application process again at a significant cost.[41] PowerHouse Generation Ltd, would like to see a review carried out by the Utility Regulator on how NIE policy is facilitating small scale embedded generation in order that NIE is held more accountable.[42]

53. NIRIG believes there is potential to remove, or at least minimise the risk of development being unable to proceed due to impossible financial demands, by postponing the request for a security payment to a later stage.[43] Developers may be asked for up to 70% of connection costs within 90 days of receiving planning consent and making a grid connection.[44] The Utility Regulator stated that NIE is not passing risk on to consumers in that it is not spending money when the whole project is not paid for. There was a stage when developers had to pay 100% up front before it would even start. The Utility Regulator has asked NIE to look at this again and will continue to discuss this with NIE.[45]

35 Appendix 2: NIE Oral Evidence
36 Appendix 3: SSE Written Submission
37 Appendix 2: Lightsource Renewable Energy Oral Evidence
38 Ibid
39 Ibid
40 Appendix 2: NIRIG Oral Evidence
41 Appendix 3: Manufacturing NI Written Submission
42 Ibid
43 Appendix 3: NIRIG Written Submission
44 Ibid
45 Appendix 2: Utility Regulator Oral Evidence

54. SONI's Transmission Connection Charging Methodology[46] allows an existing user, connected in the preceding ten years, to receive a partial rebate of the original connection charge where a new user connects to the infrastructure for which the original developer has been charged. Under NIE's Connection Charging Statement a rebate policy extends for 5 years and is only in relation to domestic customers.[47] NIRIG believes that a rebate policy would help small generator connections that are increasingly facing high and at times prohibitive costs of connection involving many kilometres of line upgrade. Further, NIRIG believes large (non-cluster) generator connections at 33kV, facing substantial lengths of 33kV new construction with spare capacity after the connection, could have substantial upfront costs alleviated in a rebate policy.[48] Under the Transmission policy there is a rebate system if generators have a Connection Agreement with the Transmission System Operator (SONI). As 33kV connections have Connection Agreements with NIE, this transmission rebate is not clear: many 33kV connections have to pay for transmission assets (under the 'one voltage level above' policy). NIRIG believes that this disconnect should be addressed. Given the development life cycle of many of these larger developments (in many cases 8-10 years from concept to build) NIRIG considers 10 years is a more appropriate timeframe for rebate for this group of developments.[49]

55. Companies in Great Britain have adopted 'smart' solutions to providing reasonable cost connections to the 11kV networks and to the congestion problems on their 33kV networks.[50] NIE informed the Committee, in oral evidence, that it has enlisted the services of a recognised expert from Electricity North West and is reviewing its current practices and looking at how it can learn from other jurisdictions. For small scale development, other approaches may allow more capacity to be released from the system. There may be an alternative to the current approach where a developer would have the opportunity to have a solution that is less firm which would mean they would have a lower connection cost. NIE expects that its next step will be to liaise with the industry, the Utility Regulator and DETI with a view to making changes in the third quarter of 2015.[51]

56. SONI informed the Committee that charging arrangements in Northern Ireland are consistent with the Single Electricity Market (SEM), making it an all-island charging arrangement and is described as "shallow". The developer contributes only to those assets that are required to connect it to the system. If other reinforcements are required on the system, those costs are not paid by the connecting generator; they are generally paid by the Transmission Use of System (TUOS) customers in Northern Ireland.[52] The aim of the "shallow" connection concept is to be non-discriminatory to all parties. They choose where they wish to establish their generation or demand, and, based on that choice, they are charged from that point to the nearest point on the existing network. The connecting party contributes only to those assets that are required to connect it to the system. The client pays 100% of that connection arrangement. SONI described the charge as the "least cost technically acceptable" solution where the charge levied is the least cost to the developer.[53]

Planning Permission

57. In Great Britain, planning permission and grid connection can be processed in parallel but in Northern Ireland planning permission must be granted before applying for grid connection. The Ulster Farmers' Union states that small scale developers are finding that often by the time planning permission is granted, the grid is full to capacity and either they are unable to

46 http://www.allislandproject.org/en/generation.aspx?article=16f054e8-4338-4c77-a6bb-0c6eb1fa18cf

47 Appendix 3: NIRIG Written Submission

48 Ibid

49 Ibid

50 Ibid

51 Appendix 2: NIE Oral Evidence

52 Appendix 2: SONI Oral Evidence

53 Ibid

connect, if issued with a conditional offer, or are facing very expensive grid connection costs making it not worthwhile to proceed and upfront costs become written off as lost.[54]

58. Simple Power informed the Committee that planning permission and grid connection applications being in series rather than in parallel was originally a sensible arrangement, to ensure the best utilisation of available capacity, but it was predicated on the assumption that the connection cost was likely to be reasonable. Given the current problems with connection to the network they believe it is unreasonable to require developers to spend money progressing sites through the planning process when the probability of an acceptable connection offer is extremely limited.[55]

59. NIRIG believes large scale developers are largely supportive of the current process in that it prevents the reservation of capacity by developers.[56] DETI was concerned that if the two processes are run side by side, it may result in developers making planning applications but not subsequently taking the development forward. This would result in NIE having to close down possible access to other developers.[57]

60. SONI informed the Committee that a consultation process is ongoing to look at a hybrid solution, whereby different parties may not require full and final planning permission before they can apply.

Early Indication of Costs or Conditional Offers

61. NIRIG[58] and Simple Power believe that some facility where a request can be made by a developer for an indication as to whether a potential site is likely to incur a high connection cost or be constrained by 33kV congestion, in effect be a 'budget estimate', would help developers decide whether to pursue costly planning consents. Simple Power believes that the 'budget estimate' would need a quick turnaround of about 2 weeks.[59]

62. Currently NIE will, for a cost, undertake a feasibility study at the pre-planning stage where it will give an indication of how much it may cost to connect to the grid. However it does not reserve that capacity in the grid.[60] NIRIG states that if there is a charge for a feasibility study it has to be substantially less than what it is currently being charged.[61]

Provision of Network Information

63. NIE has published a heat map which gives an indication of where there is limited potential for additional connection without significant line upgrades. They intend to take the heat map to another level of granularity and accompany that with some general mapping information on the website. With the intention that developers may, fairly quickly, be able to get an early view on whether their schemes may or may not be viable. NIE expects to deliver this 'in the relatively short term'. NIE intends that combining this information with the distance between the area being considered and the nearest substation will provide the user with 'a fairly broad indication' of cost, for example is the cost closer to £100,000 or £200,000. NIE stated that going beyond this level of detail of information requires quite sophisticated design calculations.[62] The Utility Regulator has welcomed this.[63]

54 Appendix 3: UFU Written Submission
55 Appendix 3: Simple Power Written Submission
56 Appendix 2: NIRIG Oral Evidence
57 Appendix 2: DETI Oral Evidence
58 Appendix 2: NIRIG Oral Evidence
59 Appendix 3: Simple Power Written Submission
60 Appendix 2: Action Renewables Oral Evidence
61 Appendix 2: NIRIG Oral Evidence
62 Appendix 2: NIE Oral Evidence
63 Appendix 2: Utility Regulator Oral Evidence

64. The current design of the NIE heat map will not prevent the risk that, by the time the user has gone through planning, somebody else may have moved in ahead of them and the cost has significantly increase.[64]

65. Simple Power[65] and NIRIG[66] would like NIE to provide applicants with access to its Geographic Information Service (GIS) in conjunction with a revised heat map. NIRIG stated that with knowledge of the overlay of where the lines and the substations are, the more technically minded small-scale developers could do their own studies and reach their own conclusions. That would allow them not only to make their own decisions but to challenge NIE decisions and avoid late shocks.[67] SSE does not see the benefit of NIE providing this level of detail as the expertise involved in analysing the information is not widespread.[68]

66. NIE is not currently minded to make its full GIS records available. In justifying it approach NIE informed the Committee that it believes there are concerns relating to data protection. Also if the GIS records are used in isolation to do calculations about connection costs, they will not show reinforcement work attributed to connecting parties that have not yet connected. NIE takes account of those parties when doing its own design calculations. NIE believes this has the potential to confuse the situation.[69]

Ordnance Survey 'open data'

67. SONI wished to get access to maps and network information. NIE's topographical network information is overlaid on Ordnance Survey maps. For copyright reasons NIE cannot give out Ordnance Survey information to third parties. SONI told the Committee it will have to incur an upfront cost in the region of a quarter of a million pounds and ongoing copyright fees.[70] This cost occurs in Northern Ireland but not in Great Britain.[71]

68. Land and Property Services Northern Ireland (LPS) does not offer an Open Data Licence that can be exploited for commercial purposes. Northern Ireland Government Departments pay a charge to LPS for the Northern Ireland Mapping Agreement (NIMA) on behalf of each and all of the bodies which fall under their remit to access 17 Ordnance Survey NI products. Commercial entities wishing to use Ordnance Survey data are required to purchase it.[72]

Grid Connection Time

Timeframe for the Provision of a Connection Quote

69. NIE must work within a time frame of 90 days to provide a quote. Small-scale developers find this overly long. In Simple Power's experience NIE will routinely not go to the site until at least 70-80 days have elapsed.[73] There is a perception that NIE treats the 90 days as target rather than the absolute maximum limit.[74] NIE states that there are some complexities to this. It is often the case that people in a community will have the idea of installing small-scale projects all at the same time and the technical interaction of each connection needs to be carefully managed.[75]

64 Ibid
65 Appendix 3: Simple Power Written Submission
66 Appendix 2: NIRIG Oral Evidence
67 Ibid
68 Appendix 2: SSE Oral Evidence
69 Appendix 2: NIE Oral Evidence
70 Appendix 2: SONI Oral Evidence
71 Appendix 5: Assembly Research, NIAR 388-14 Ordinance Survey 'open data'
72 Ibid
73 Appendix 3: Simple Power Written Evidence
74 Appendix 2: NIRIG Oral Evidence
75 Ibid

70. NIE does not support a reduction in the 90-day time scale because of the large increase in applications.[76] The current connection process is very intensive overall, not least because, as the network becomes busier, the nature of the actual assessment of each application changes. The electrical analysis needs to look much deeper into the system once the network gets congested.[77] The Utility Regulator believes 90 days is appropriate for small scale connections because of the technical analysis that needs to take place to make sure that any connection is safe and does not impact on the quality of supply to other clients.[78]

71. Large scale developers are broadly content with the 90-day time frame because it has a particular degree of certainty to it which means they can plan for it. Their main issue is thereafter getting the timelines for the connection dates.[79]

Current Connection Times

72. Developers are experiencing very long timescales for grid connection in Northern Ireland. In the experience of Simple Power, when a suitable connection offer is available, the length of time to provide the connection is between 12 and 18 months.[80] SSE has experienced delays of over 5 years in the delivery of connections.[81]

73. Winters Renewables described to the Committee their experience of getting a connection to the grid. They paid a grid connection deposit in September 2012. An earth study was completed in February 2013. Their anaerobic digester build started in June 2013 and it was completed in January 2014. The NIE engineer got in contact mid December 2013. The final lease document was made ready to sign on 7 May 2014. Winters Renewables was informed that it would be a further eight weeks before the connection would be completed once the lease was been signed.[82]

74. In connecting wind turbines, a large portion of NIE's time is occupied in the design of the earthing arrangements for the substations, and particularly the way-leaves and consent arrangements that need to be agreed with local landowners. Further, NIE is finding in many cases, in busier areas there is much greater reluctance on the part of local landowners to permit access. It takes time to progress the full legalities before moving into the final construction stage. Once construction work starts, the connection is normally completed within six to eight weeks.[83]

75. The Utility Regulator states that NIE, whilst dealing with an unprecedented level of applications, is successfully connecting around 150 micro-generators every month. However it expects NIE's performance to improve and will be working with it on a new connection policy and its internal review which includes looking at new practices in Great Britain.[84] In correspondence to the Committee, NIE stated that the significantly increased volumes of applications and construction activities resulted in a dip in customer service during 2012-2013 however during late 2013 and 2014 staffing in these areas has significantly increased and this has resulted in considerable improvements. In 2012 fewer than 20 jobs were sent to construction, in 2013 the figure was 103 and to date in 2014, more than 180 jobs have been sent to construction.[85]

76 Appendix 2: NIE Oral Evidence

77 Ibid

78 Appendix 2: Utility Regulator Oral Evidence

79 Appendix 2: SSE Oral Evidence

80 Appendix 3: Simple Power Written Submission

81 Appendix 3: SSE Written Submission

82 Appendix 4: Winters Renewables Case Study

83 Appendix 2: NIE Oral Evidence

84 Appendix 2: Utility Regulator Oral Evidence

85 Appendix 6: Correspondence from NIE

Comparisons with Great Britain and the Republic of Ireland

76. In Great Britain, according to Action Renewables, a quotation will normally be given to a client within three to four weeks.[86] In the Republic of Ireland there is a 90-day period for quotation.[87]

77. There is a considerable discrepancy in the amount of time taken to make a grid connection here in comparison with what it takes in Great Britain. In Great Britain, it takes nine months to get a project from feasibility to connection.[88] In the Republic of Ireland, the average time varies and is dependent on the 'Gate Process'. This is considered in detail in Assembly Research Paper NIAR 387-14, Grid Connection: Measures to Prevent 'Capacity Hoarding' at Appendix 5.

Delays

78. Developers perceive NIE as not being proactive in ensuring projects are moved along. Manufacturing NI member, Michelin, stated that during the renewing of the Michelin/NIE substation lease, the NIE legal team appeared not to be very proactive and very slow to respond.[89] SSE has experienced delays of over five years in the delivery of connections and seen connection dates continually moved in projects, such as the Slieve Divena II wind farm.[90]

79. Lightsource believes delays damage Northern Ireland's attractiveness as an investment location.[91] Developers with global interests will decide to allocate capital funding to a development elsewhere in the world, including the Republic of Ireland, because they can do it much more quickly there and the process is much more streamlined.[92] Delays increase costs and undermine the investment case for projects that deliver tangible economic and employment benefits. For example, Slieve Kirk was a £125 million capital investment, of which £36 million was invested in 75 local businesses. Had that connection continued to be delayed, SSE would not have built the wind farm.[93]

Uncertainty

80. In Great Britain when a developer gets a grid connection offer, they also get a date for grid connection. When a Northern Ireland developer receives a grid connection offer and pays the deposit, the developer is given no indication when the grid connection will be made.[94]

81. Timelines need to be stable for large scale developers to successfully attract capital investment to Northern Ireland.[95] Certainty of timelines is required in order for Northern Ireland to deliver a competitive, secure and sustainable energy portfolio. Uncertainty significantly increases the risk to investment in renewables, especially when it becomes impossible to accurately predict a timeframe for generation of income to allow return on investment.[96] For example, DETI reported that NIE was not able to commit to a timeline with a developer in which it was also asking for a potential charge for upgrade of between £2-4m. This resulted in the project not being considered at the company's current site.[97]

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86 Appendix 2: Action Renewables Oral Evidence

87 Appendix 2: SSE Oral Evidence

88 Appendix 2: Lightsource Renewable Energy Oral Evidence

89 Appendix 3: Manufacturing NI Written Evidence

90 Appendix 2: SSE Oral Evidence

91 Ibid

92 Appendix 2: NIRIG Oral Evidence

93 Appendix 2: SSE Oral Evidence

94 Appendix 2: Action Renewables Oral Evidence

95 Appendix 2: SSE Oral Evidence

96 Appendix 3: Action Renewables Written Submission

97 Appendix 6: Correspondence from DETI regarding grid connection

82. Lack of communication by NIE is contributing to uncertainty for renewable energy developers in Northern Ireland. Some Action Renewables' clients have waited almost a year for the way-leaves stage to be addressed after the route has been designed, and over a year for their wind turbines to be connected after all way-leaves have been signed, with little communication from NIE about timelines for the construction phase.[98]

83. The Utility Regulator informed the Committee that it is currently engaging with NIE and renewable developers regarding discontent over the 90 day quotation period and is looking at whether developers not getting timely information from NIE may be part of the issue.[99]

Policies and Processes

84. Currently any changes to the technicalities of a grid connection offer for a project can result in a requirement for a re-quote for that project resulting in the project being put to the back of the queue. If this was to occur a developer could lose the capacity on the network due to another developer taking their place. This is not in line with the other UK Distibution Netowrk Operators (DNOs).[100]

85. NIE states that it receives in the region of 60 small-scale wind connection applications per month and is trying to treat those in an equitable way, creating a grid connection queue that it had established against a background of existing large-scale applications.[101] DETI explained to the Committee that NIE had adopted the policy to try to avoid instances in which large-scale developers try to push ahead and hold up grid applications but understands that small scale developers have concerns about the policy.[102] Any connection offer is for a fixed period. If whoever is being connected does not act within a certain period after the acceptance of terms, the offer becomes null and void.[103]

Planning Permission

86. Following receipt of a planning application The Department of the Environment (DoE) goes to statutory consultees but there is no defined timeline for statutory consultees to reply. This will be addressed in the full implementation of the Planning Act.[104] Provision of timelines for submissions by statutory consultees will make for a more efficient decision-making process.[105] The DoE has become much more efficient in processing applications. For a good application, planning approval can be as quick as six months. Five years ago, it was between 12 months and 18 months.[106]

87. NIRIG believes that the requirement in Northern Ireland to have valid planning permission before making a grid connection application is positive, has worked well for NI and prevents reservation of capacity.[107] SONI informed the Committee that planning permission was seen as a proxy for a date-order queue of parties presenting themselves. In other words, if a developer has been developing a project for a period, someone else should not be able to come in and get capacity which that developer has committed to. The acquisition of planning permission was seen as a proxy of intent by the developer that they were moving ahead.[108]

98 Appendix 3: Action Renewables Written submission
99 Appendix 2: Utility Regulator Oral Evidence
100 Appendix 3: Manufacturing NI Written Submission
101 Appendix 2: NIRIG Oral Evidence
102 Appendix 2: DETI Oral Evidence
103 Appendix 2: SONI and EirGrid Oral Evidence
104 Appendix 2: SSE Oral Evidence
105 Appendix 3: SSE Written Submission
106 Appendix 2: Action Renewables Oral Evidence
107 Appendix 3: NIRIG Written submission
108 Appendix 2: SONI and EirGrid Oral Evidence

88. SSE agrees with the requirement that planning permission is granted before making a grid connection application and is of the opinion that this respect.[109] SONI believes that not as good a job has been done in the Republic of Ireland as has been done in Northern Ireland in regards to planning permission requirement, stating that, in the Republic of Ireland, there is a queue of 25,000 MWs of wind projects wanting to connect. Some have offers; others are waiting and trying to work out which are credible projects and which are not is very difficult.[110]

89. Action Renewables informed the Committee that it can see why large scale grid applications would be run in series with planning applications but would like to have small scale grid applications run in parallel with planning applications.[111] Action Renewables further stated that it can understand why NIE does not want to give out any more quotations than are absolutely necessary. Without the adequate resources, it is easier for NIE to only give a quotation where there is already planning approval, because that means that it is likely to have to process fewer quotations.[112]

90. NIE believes that the requirement for planning permission before an application is recognised is the right approach for both large and small scale developers.[113] SSE feels that all generators need to be treated equitably and would be concerned about an approach that differentiates between different types of generators.[114] SONI informed the Committee that a consultation process is ongoing to look at a hybrid solution, whereby different parties may not require full and final planning permission before they can apply.[115]

Network information

91. Simple Power believes a scheme whereby NIE could provide more network information and what lines/substations still have the capability to connect small scale generation would save a significant deal of nugatory work for both developers and NIE.[116]

92. NIRIG suggested a two week period in which developers could review NIE's geographical information systems along with their conditional offer would allow for joined-up thinking around a solution for a connection in an area and may therefore expedite the process and reduce the timelines.[117]

NIE Resources

93. NIRIG believes that support should be given to NIE to enable work on small-scale connections to be taken forward within a reasonable timeframe.[118]

94. NIE currently has 3,000 applications in for small scale solar connections, last year there were 600 applications in total. These types of connections require relatively small administration work. Single wind turbines applications, the larger small scale generation, are NIEs main source of business and have increased from 400 applications per annum in 2011-2012 to currently 600 per annum.[119]

95. NIE has recognised the increase in applications, and addressed it by devoting more resources to this area of its work. For small-scale generation, a year or so ago they had 15 staff, this

109 Appendix 3: SSE Written Submission

110 Ibid

111 Appendix 2: Action Renewables Oral Evidence

112 Appendix 2: Ibid

113 Appendix 2: NIE Oral Evidence

114 Appendix 2: SSE Oral Evidence

115 Appendix 2: SONI and EirGrid Oral Evidence

116 Appendix 3: Simple Power Written Submission

117 Appendix 2: NIRIG Oral Evidence

118 Appendix 3: NIRIG Written Submission

119 Appendix 2: NIE Oral Evidence

has increased to 23 or 24 to help meet the demand.[120] The level of expertise that is required in this area to process applications is quite high. NIE say they have devoted or deployed some of their best people in that area.[121]

Contestability in the Grid Connection Market

Understanding Contestability

96. Contestability differs from competition. Under contestability NIE would present the cost at which it would deliver a project. If the developer believes they can deliver the same project at lower cost they would be permitted to do so. Unlike a directly competitive arrangement, NIE would still have to charge on the basis of a regulatory, approved cost base as set out in its statement of charges and would not be permitted to vary costs to directly compete with the developer.[122] The developer would be permitted to build a piece of network themselves and then transfer ownership to NIE to manage it long-term. NIE can then use that piece of network to connect others in the future.[123]

97. Contestability could be introduced at the transmission and/or distribution levels. It can cover large connections at the 33kV level for wind farms and it can cover small developers seeking to build their own substation for a single wind turbine.[124]

The Current Position in Northern Ireland

98. Under current arrangements generators in Northern Ireland must engage and pay the system owner, NIE, to construct connection assets in accordance with rates and procedures set out by the Utility Regulator.[125] NIE is the only company in Northern Ireland which is permitted to make grid connections.[126]

99. NIE owns the electricity network in Northern Ireland and is responsible for people connecting to the grid. There is a need for individuals and organisations to access the grid for demand, supply, generation and export of electricity. NIE is legally obliged to offer grid connections to facilitate this.[127]

The Current Position in Great Britain and the Republic of Ireland

100. Contestability for the construction of connections exists in Great Brtiain. Action Renewables believes similar arrangements in Northern Ireland could help alleviate delays and high costs currently charged here.[128] SSE has found that the contestable delivery of connections in the Republic of Ireland delivers cost savings and reduces delays in connecting projects.[129] The System Operator for Northern Ireland believes that contestability has been the answer in Great Britain and the Republic of Ireland because, once a developer is given the option of procuring an alternative connection provider, it eliminates any uncertainty around whether best value is being provided.[130] NIE informed the Committee that, in its opinion, contestability has worked well in Great Britain and the Republic of Ireland.[131]

120 Ibid
121 Ibid
122 Ibid
123 Ibid
124 Appendix 2: NIRIG Oral Evidence
125 Appendix 3: SSE Written Submission
126 Appendix 2: Action Renewables Oral Evidence
127 Appendix 2: Utility Regulator Oral Evidence
128 Appendix 3: Action Renewables Written Submission
129 Appendix 3: SSE Written Submission
130 Appendix 2: SONI Oral Evidence
131 Appendix 2: NIE Oral Evidence

101. The basis for delivering contestability in Great Britain is to promote competition in order to drive down costs. It transfers the risk of developing the infrastructure at best market price from the system owner to the developer.[132]

102. In the Republic of Ireland, once a developer has elected to contest connection works, they get detailed technical specifications from ESB Networks which provide information on exactly what is required to be built. The developer can then tender for the works and manage the delivery themselves. There are then regular site visits and meetings with ESB Networks and EirGrid to ensure that the developer is delivering to the required standard. Once a project is completed, there is a handover process where the asset is transferred to ESB Networks.[133]

Support for Contestability in the Northern Ireland Market

103. All witnesses who provided relevant evidence to the Committee agreed that contestability should be introduced to the Northern Ireland electricity market. SSE believes contestability should be introduced for both transmission and distribution connected generators. This would require the Utility Regulator to amend NIE's licence and introduce a process which would include the definition of the necessary technical interface specifications between the connection and the grid.[134] NIRIG called for an early stage consultation on detailed proposals with a view to introducing contestability as soon as possible, in order to maximise efficiency and reduce costs to consumers.[135] The Ulster Farmers' Union (UFU)[136] and Action Renewables[137] informed the Committee that they would welcome the introduction of competition for grid connections. When the Utility Regulator consulted on contestability in 2010 all respondents who addressed the issue of contestability believed it was a good idea.[138]

104. DETI would be content to see contestability introduced and informed the Committee that it is the responsibility of the Utility Regulator and NIE to introduce it.[139] NIE fully supports the introduction of contestability and would welcome proposals from the Utility Regulator. NIE informed the Committee that the company would work with the Utility Regulator to try to ensure that contestability is introduced without delay.[140] The Utility Regulator informed the Committee that they are committed to introducing contestability.[141]

105. There are no barriers to the introduction of contestability in the current legislative framework.[142] According to NIE there are no major obstacles to the introduction of contestability. It is up to the Utility Regulator to define how contestability will happen and engage with the industry and NIE.[143] It will then require changes to NIE's licence agreement.[144] There are no obstacles at EU level. The Renewable Energy Sources (RES) Directive and the Internal Market in Electricity (IME) Directive state that member states may allow producers of electricity from renewable sources to issue a call for tender for grid

132 Appendix 2: SSE Oral Evidence
133 Ibid
134 Appendix 3: SSE Written Submission
135 Appendix 3: NIRIG Written Submission
136 Appendix 3: UFU Written Submission
137 Appendix 2: Action Renewables Oral Evidence
138 Appendix 2: SSE Oral Evidence
139 Appendix 2: DETI Oral Evidence
140 Appendix 2: NIE Oral Evidence
141 Appendix 2: Utility Regulator Oral Evidence
142 Appendix 2: DETI Oral Evidence
143 Appendix 2: NIE Oral Evidence
144 Appendix 2: NIRIG Oral Evidence

connection work.[145] SONI is aware that, if contestability is introduced, it will have to work within the agreed guidelines.[146]

Capability within the Industry for Contestable Delivery

106. SSE has experience in the contestable delivery of large-scale projects in the Republic of Ireland. The company also reached agreement with NIE for the contestable delivery of a large-scale project in Northern Ireland at Slieve Kirk.[147]

107. At the distribution level, NIRIG believes there are a large number of operators who are capable of building connections at lower voltage levels with many currently seeking work due to the economic downturn.[148]

108. The Utility Regulator informed the Committee that, the skill sets are already there as some of the large-scale wind projects are currently building electrical connections inside their sites.[149]

Benefits of Contestability

109. Manufacturing NI informed the Committee that current delays arising from NIE's inability to provide timely connections is starting to affect business and employment in the renewables sector.[150] NIRIG believes a major benefit of contestability is that it will drive down connection costs.[151] In the experience of SSE it has found that the contestable delivery of connections provides cost savings of 20% to 40% and reduces delays in connecting projects. The reduction in delays can sometimes be measured in years. It sees a key benefit as giving the developer control over the delivery time frame.[152]

110. The Utility Regulator cautions that, in reality, projects delivered under contestability will be building the same lines, using similarly skilled staff who would realistically expect similar salaries. Therefore financial savings may not be significant. The key benefits may be in the timing of delivery rather than in the cost.[153] In acknowledging that it has been criticised for issues around cost and time, NIE informed the Committee that it believes that there are genuine reasons for some of those difficulties that will not be entirely resolved by the introduction of contestability.[154]

Responsibilities Under Contestability Arrangements

111. A key concern for NIE is that it would have to take over any contestable connection that is built. NIE would have to take responsibility for the connection including its operation and maintenance. The connection must be built to the appropriate standards, however NIE believes this can be easily worked through.[155] The required standards are laid down by DETI. Overhead line design must be submitted to DETI and the Department then has responsibility for approving the design.[156]

112. The role of the Utility Regulator in developing contestability arrangements would be to structure what NIE will take responsibility for. This will include deciding who is responsible

145 Appendix 2: SSE Oral Evidence
146 Appendix 2: SONI Oral Evidence
147 Appendix 2: SSE Oral Evidence
148 Ibid
149 Appendix 2: Utility Regulator Oral Evidence
150 Appendix 3: MNI Written Submission
151 Appendix 2: NIRIG Oral Evidence
152 Appendix 2: SSE Oral Evidence
153 Appendix 2: Utility Regulator Oral Evidence
154 Appendix 2: NIE Oral Evidence
155 Ibid
156 Appendix 2: Utility Regulator Oral Evidence

for the design and how the asset is handed over with assurances that it is built to the appropriate standards including legal requirements. It will also include agreeing the costs that NIE may charge for those assurances. The Utility Regulator will put in place the structure that NIE must conform to as part of any handover. For different types of connections, different structures will be needed.[157]

113. Under current arrangements, there is nothing to stop a developer gaining the agreement of NIE to the contestable delivery of a connection without regulatory approval or structures. However, following the introduction of regulatory approval and structures NIE would be required to permit contestable delivery and there would be transparency around how this is done. Under current arrangements a developer may not have permission to be on a third party's land to carry out work. NIE has such permission in law. Under agreed contestability arrangements this would have to change.[158]

The Slieve Kirk Experience

114. SSE reached agreement with NIE for the contestable delivery of a large-scale wind development at Slieve Kirk. SSE informed the Committee that, if this arrangement had not been in place the project would not yet be built with a loss in local economic benefit in the region of £36m.[159]

115. The Utility Regulator considers Slieve Kirk a good example of how two organisations can work together for the successful contestable delivery of a project. The Utility Regulator is engaging with NIE to understand how agreement was reached and what made it work, in order to help learn lessons for other developers. NIE was responsible for the design and obtained planning permission and then SSE did the build. NIE then carried out an assessment, agreed that it was built to the appropriate standard and then took ownership.[160]

Time Scale for the Introduction of Contestability

116. It is widely known in the industry that the Utility Regulator's work plan contains an objective to deliver contestability. The Utility Regulator informed the Committee that contestability is a priority project in the organisation's corporate strategy and, in its Forward Work Programme, there is a commitment to start the project this year. The Utility Regulator is currently scoping the work. One of the desired outcomes is to offer greater choice in connecting to networks, promote a decrease in price and reduce connection times. Contestability is work which will be done in parallel with other work the Utility Regulator is doing with NIE. Part of the scoping exercise is to look at other distribution network owners to identify best practice and to ensure safeguards are maintained.[161]

117. Because the Utility Regulator sees contestability being introduced differently for different types of connection they do not intend to do it all at the same time. Rules will have to be put in place for NIE and for developers. It has to be agreed whether NIE will undertake the design or if this will be responsibility of the developer. The Utility Regulator will need to explore these options with developers and ensure that all parties are aware of what exactly is envisaged. The Utility Regulator informed the Committee that the introduction of contestability could be a two-year to three-year project.[162]

118. The Utility Regulator has looked at arrangements in Great Briatin because the legislation there is similar and arrangements in Northern Ireland must fit with Great Britain arrangements. They have also looked at the Republic of Ireland because of the all-island

157 Ibid

158 Ibid

159 Appendix 3: SSE Written Submission

160 Appendix 2: Utility Regulator Oral Evidence

161 Ibid

162 Ibid

electricity market and because some of the generators concerned are operating in the Republic of Ireland. The Utility Regulator informed the Committee that they are probably going to devise a solution that is bespoke and considers what both Great Britain and the Republic of Ireland have in place and fits with what is best for Northern Ireland.[163]

Grid Infrastructure Investment

The Current Electricity Grid

119. Electricity networks in Northern Ireland date from the 1950s and 1960s.[164] The grid requires regular repair, maintenance and updating. This work is not undertaken solely to allow the connection of renewable energy installations[165] however, renewable energy has a very significant impact on the need to reinforce the electricity grid.

120. The electricity sector has changed very significantly over the past number of years. The demands being placed on the electricity grid due to the proliferation of renewable energy are not the sort of demands the grid was designed to cope with when it was designed.[166] This is resulting in very high costs being asked of developers to reinforce the 11kV network, making some schemes unviable.[167] Further, NIE's 33kV network is unable to cater for the number of applications being sought. Offers of £500,000 and above are not uncommon.[168] Simple Power, in written evidence to the Committee, stated that the difficulty in obtaining a viable connection offer to the Northern Ireland grid is now severe and only a small proportion of connection applications are receiving an acceptable offer or any offer at all.[169]

121. Reinforcement of the 275kv transmission network is needed to cope with the high level of existing and planned renewables in the west. Distribution networks were not designed for renewables and these also require reinforcement.[170] Action Renewables informed the Committee that the issues currently faced by renewable energy developers is not of NIE's making but is due to the inadequacy of the grid infrastructure.[171] There is not sufficient capacity on the grid to allow renewable generators to export their full capacity which, according to SONI, constitutes a need for infrastructure investment.[172] The need for grid strengthening is mainly in the west. Lightsource, which develops large-scale solar PV installations was asked by NIE to focus east of the Bann because of problems with the grid in the west.[173]

Transmission Infrastructure

122. SONI believes that the delivery of transmission infrastructure is vital to meet the 2020 target of 40% of electricity consumed from renewable sources.[174] NIRIG believes that, in order to meet the target, there needs to be commitment and investment now. They state that the development of infrastructure requires a very long lead-time and needs to be developed as a long-term investment for consumers rather than focusing on short-term cost efficiency.[175] As

163 Ibid
164 Appendix 2: NIE Oral Evidence
165 Appendix 2: NIRIG Oral Evidence
166 Ibid
167 Ibid
168 Appendix 3: Simple Power Written Submission
169 Ibid
170 Appendix 2: NIE Oral Evidence
171 Appendix 3: Action Renewables Written Submission
172 Appendix 2: SONI Oral Evidence
173 Appendix 2: Lightsource Renewable Energy Oral Evidence
174 Appendix 3: SONI Written Submission
175 ppendix 3: NIRIG Written Submission

things currently stand, RP5 price control did not include all of the required investment in the transmission system. The Utility Regulator has taken the view that transmission infrastructure investment should be looked at on a project-by-project basis. SONI, therefore, has to have its plans for transmission investment approved by the Utility Regulator on a project-by-project basis. SONI considers this approach to be extremely complicated and to constitute micro-management. It believes that transmission infrastructure should be managed over 25, 40 or even 50 years. NIE informed the Committee that, from its perspective, there is no issue in relation to the requirement to bring forward proposals on a project-by-project basis but that investments required for reinforcement in the 275kv network will be very challenging to enable the 2020 target to be met.[176]

Distribution Infrastructure

123. According to NIE, the higher costs seen by small-scale developers for connections to the network in Northern Ireland compared to Great Britain are due to congestion on the distribution network.[177] In written evidence to the Committee, the Ulster Farmers' Union stated that connecting individual small-scale renewable energy generation units to the network is proving to be a major problem for its members on both the 11kv and 33kv lines.[178] NIE asked for investment in the 33kv network as part of the last price control in order to facilitate small-scale renewables. This was rejected by the Competition Commission who stated that it was not in the public interest as it would result in consumers having to pay for it.[179]

124. Action Renewables is concerned that the decision not to support NIE's request will restrict the amount of renewables in Northern Ireland.[180] Simple Power agrees that unless there is some expenditure on the 33kv network to resolve the current difficulties the number of small-scale renewables able to connect to the network will be severely limited.[181] NIE confirmed the need to reinforce the 33kv network.[182] In a statement on 15th August 2014, NIE stated that, where it can demonstrate that there is a lack of 33kv capacity, NIE is under no obligation to make a connection offer.[183]

125. In October 2013, the Utility Regulator approved investment of up to £2.3m to facilitate additional small-scale generation however there is still considerable congestion.[184] The Utility Regulator recognises the need to look at grid investment but informed the Committee that existing large-scale generation is being constrained and curtailed and to increase small-scale generation would increase this curtailment and constraint. The consumer would end up paying for this through electricity bills which is why the Competition Commission decided it was not in the public interest.[185] DETI informed the Committee that, any decision to allow further investment in the distribution network to accommodate small-scale generation is a matter for the generator. This is because the cost of upgrading the grid must be weighed against the impact on the 2020 target.[186]

126. Simple Power stated that the difficulty in gaining access to the 11kv network is further exacerbated by the ability of the 33kv network to cater for the output of the aggregation of generators on the 11kv network. They stated that connection offers are classed as "conditional" on around 70 (approximately 30%) 33kv substations. This means that

176 Appendix 2: NIE Oral Evidence

177 Ibid

178 Appendix 3: UFU Written Submission

179 Appendix 2: Utility Regulator Oral Evidence

180 Appendix 2: Action Renewables Oral Evidence

181 Appendix 3: Simple Power Written Submission

182 Appendix 2: NIE Oral Evidence

183 http://www.nie.co.uk/Connections/Generation-connections/Conditional-offers-statement

184 Appendix 3 UFU Written Submission

185 Appendix 2: Utility Regulator Oral Evidence

186 Appendix 2: DETI Oral Evidence

developers have no indication of when, if at all, they will receive a connection offer.[187] Action Renewables explained that this status is in place because significant investment is required on the 33kv network at, or upstream of, the substations to facilitate further generation export. NIRIG informed the committee that the £2.3m approved by the Utility Regulator was used to upgrade some substations and conditional offers were made firm. However, more applications have come on-stream and more substations are now affected. NIE is working with the Utility Regulator to try to get money to upgrade more substations, however the process is slow.[188]

127. The UFU, was previously inundated with calls from members regarding very expensive connection quotes, members subsequently reported that they had been left in a position of limbo as their applications were subject to conditional offers due to a lack of available grid capacity. Therefore, having applied for and been granted planning permission, paid significant money up front, and gone through the long application process, when they get to the connection stage they do not know whether they will be able to connect at all. The UFU has heard of instances where small scale developers had to wait for other applicants to withdraw and free up more capacity.[189]

128. The Utility Regulator informed the Committee that it is regrettable that NIE has raised the expectations of developers by issuing conditional offers by suggesting that connections may be made in areas where reinforcement of the 33kv network would be required to accommodate further connections. They believe it is unreasonable for NIE to expect connection applicants to accept the terms of conditional offers and have asked NIE to provide clarity and certainty to applicants seeking grid connections.[190] NIE subsequently issued a statement and has written to affected applicants withdrawing conditional offers.[191] In its statement NIE agreed to undertake a review of its Statement of Charges. The review will consider options to resolve the 33kv capacity issue which will include whether 33kv investment may be passed to developers and/or whether alternative connection arrangements may be offered.

Cluster Substations

129. NIE has developed the approach of using cluster substations to connect large-scale renewables in particular. NIE builds a new substation which connects the output from a number of wind farms in the same location.[192] Cluster substations relate to larger wind farm applications.[193] 110kV cluster substations are being constructed which allow less intrusive impacts with fewer long 33kV lines[194] which results in increased efficiency and reduced environmental impact.[195]

130. NIRIG sees clusters as an example of where significant delays in policy development have led to a three-year wait for connection offers due to four separate consultations being issued by NIE and the Utility Regulator to formulate cluster policy.[196] SSE has also found significant delays in delivering cluster connections due to the lack of timelines for decisions on each of the four funding approval stages.[197] SSE has experienced considerable delays in delivery of cluster connections arising from the Utility Regulator's policy to require funding approval

187 Appendix 3: Simple Power Written Submission

188 Appendix 2: NIRIG Oral Evidence

189 Appendix 3: UFU Written Submission

190 Appendix 6: Correspondence from the Utility Regulator

191 http://www.nie.co.uk/Connections/Generation-connections/Conditional-offers-statement

192 Appendix 2: NIE Oral Evidence

193 Appendix 2: Action Renewables Oral Evidence

194 Appendix 3: NIRIG Written Submission

195 Appendix 2: NIE Oral Evidence

196 Appendix 3: NIRIG Written Submission

197 Appendix 3: SSE Written Submission

at each stage of development. They believe a more defined decision-making timeline would enable developers to construct projects in a more predictable manner.[198] NIRIG outlined the timeline whereby a developer could potentially be required to make a Stage 1 payment (10%), a Stage 2 payment (20%) and a security payment to cover the remaining 70% of connection costs all within 90 days of receiving planning permission and making a grid application. These payments would have to remain in place for at least two years pending construction of the cluster substation.[199]

131. According to SSE, delays associated with the delivery of connections make it difficult to make investment decisions. They increase costs and undermine the investment case for projects which can deliver tangible economic and employment benefits. They believe greater investment certainty is required and that this can be achieved through the contestable construction of cluster connections. This would speed up connections and also move the investment risk associated with the cluster connection from NIE to the developer.[200]

132. NIE conceded that Large Scale developers are frustrated with the length of time being taken to develop the connection methodology (cluster method). This has created delivery issues[201] but informed the Committee that, now that has its medium-term plan under implementation they can see the cluster connection delivery times for 2016 and 2017. They believe the plan is now much better organised.[202]

Smart Grids

133. SSE commended NIE for adopting a number of smart technology advancements, for example the dynamic line-rating schemes and special protection schemes. Dynamic line rating, is a very important innovation in how clients can maximise the use of the grid. The technology allows clients more control and awareness of how they consume energy. Generation is despatched in the most efficient way possible and will therefore limit the investment that is actually needed in order to meet demand at a particular point in time.[203]

134. Simple Power believe that NIE could implement cost effective 'smart' initiatives which would allow much more generation to connect without excessive connection costs or significant investment to reinforce the 33kv network.[204] According to NIRIG there are currently major constraints on the 33kv network caused by the export from renewable generation connected to the 11kv network.[205] Simple Power state that NIE should agree an approach with the Utility Regulator to invest in smart initiatives for the 33kv network to support the connection of small-scale generation.[206] NIRIG agrees that smart network management represents a positive opportunity to solve much of the problem but cautions that it must be accompanied by investment in the network. They state that the application of smart technology has enabled Distribution Network Operators (DNOs) in Great Britain to avoid having to provide developers with very expensive offers to connect to the network.[207] NIRIG informed the Committee that, with the high levels of renewables throughout the system, unless smart solutions are developed, the only alternative would be to build a "Rolls Royce grid" which cannot be afforded.[208]

198 Appendix 2: SSE Oral Evidence
199 Appendix 3: NIRIG Written Submission
200 Appendix 2: SSE Oral Evidence
201 Appendix 3: NIE Written Submission
202 Appendix 2: NIE Oral Evidence
203 Appendix 2: SSE Oral Evidence
204 Appendix 3: Simple Power Written Submission
205 Appendix 3: NIRIG Written Submission
206 Appendix 3: Simple Power Written Submission
207 Appendix 3: NIRIG Written Submission
208 Appendix 2: NIRIG Oral Evidence

135. The Utility Regulator informed the Committee that the Competition Commission allowed NIE some money for smart grid solutions and that they expect to move forward with that. In oral evidence to the Committee NIE argued that it does innovate where possible. The Company had a conservative spend of £2m on releasing 300MW of capacity. This was achieved through innovative solutions. NIE is engaging with the industry and looking at practice in Great Britain to see what has been done there to connect more small-scale generation to existing networks with less investment. NIE informed the Committee that its funding for innovation, compared to other Distribution Network Operators is almost nothing. They believe this constitutes very poor value for the customer and hope it will be corrected in the next price control.[209]

136. The Renewables Grid Liaison Group brings all the parties together and some developers have come across technologies and systems elsewhere through their own contacts. NIE is exploring these and looking at bringing in linked technologies but, as electricity is dangerous the Utility Regulator believes it is not a bad thing for an electricity company to be somewhat risk averse to some of these technologies.[210]

137. SONI informed the Committee that, in Northern Ireland, we have been pushed into an arena where we have to innovate due to the high penetration of wind generation across the island. Boundaries have been pushed in order to allow the amount of wind that is on the system. Other utilities do not have that problem. The island of Ireland is integrating renewable electricity at a faster pace than most regions in the world. New technologies are therefore being used earlier. SONI has developed the Smart Grid Innovation Hub across the island to encourage local businesses to try new solutions and new technologies. This provides access to good ideas. The electricity industry, the IT industry and Queen's University are showing increasing interest in it and SONI believes it is an area with huge potential.[211]

138. NIE's assessment that its funding is small compared to other DNOs is supported by research commissioned by the Committee.[212] Research shows that, although the Utility Regulator allowed for capital expenditure on smart grid trials in its last final price control determination on a project-by-project basis, this was overturned by the Competition Commission (CC). The CC was concerned that a project-by-project approval process could bring detailed regulatory micro-management and administrative burden during the price control period. The CC determination allowed for an expenditure of £3m on smart grid initiatives.

139. In the current distribution price control in Great Britain, which operates until March 2015, OFGEM established a Low Carbon Networks Fund which offers £500m in support to DNOs to trial new technology, operating and commercial arrangements. In the Republic of Ireland under the last price determination the Distribution System Operator was allowed a €18.2m fund to carry out research and development and sustainability activities. This included provision to explore technological advances in areas including smart grids.[213]

Micro-grids

140. The Ulster Farmers' Union brought to members' attention proposals for the development of a micro-grid and storage solution in south Down. This micro-grid solution, which is being developed by B9 Energy, will distribute electricity locally through a local sub-station rather than being sold onto the grid. Where electricity is not distributed or used, it will be stored through a storage solution. In the long-term, it is envisaged that storage will be in the form of Isothermal Compressed Air Energy Storage (ICAES)[214] which, according to B9 Energy, provide

209 Appendix 2: NIE Oral Evidence

210 Appendix 2: Utility Regulator Oral Evidence

211 211 Appendix 2: SONI Oral Evidence

212 Appendix 5: Assembly Research, NIAR 613-14 Smart Grid Capital Expenditure Within Price Controls

213 Ibid

214 Appendix 3 UFU Written Submission

95% thermodynamic efficiency. In the short term it will be through investment in energy storage batteries.[215] UFU believes there is potential for similar solutions to be rolled out to other areas across Northern Ireland to ease grid connection problems. UFU informed the Committee that such a solution will avoid the need for curtailment, will allow existing grid to be used and avoid the significant cost to the industry and wider consumer associated with grid reinforcement.[216] The Utility Regulator agrees that micro-grids have the potential to provide a significant level of support to networks during times of peak demand, can make better use of the existing network and can enable more renewable electricity generation to be utilised. However, the Utility Regulator cautions that micro-grids cannot, on their own, replace the need for grid strengthening and interconnection on the scale required to meet the 40% renewables target.[217]

141. Micro-grids provide a duplicate source of energy to improve security of supply and also reduce the cost of energy to industrial consumers.[218] UFU state that it has faced difficulties in getting NIE to move from current arrangements as, in NIE's view, it is working to its licence conditions and will not alter from that.[219] NIE state that it is open to working with developers to explore the rationale for micro-grids in a Northern Ireland context to see how the various challenges can be addressed. NIE believes micro-grids may potentially form part of the energy landscape in the future but considers them currently to be in the early stage of development.[220] The Utility Regulator believes there is a consensus that the electricity network needs to have a co-ordinated and geographically dispersed deployment of micro-grids and informed the Committee that the new wholesale electricity market, the I-SEM, will encourage the use of demand-side management and storage[221] which are key aspects of micro-grids.

142. B9 Energy informed the Committee that its energy storage company is currently working to gain a better understanding of how micro-grids work and how best to deploy them in Northern Ireland. They state that the Utility Regulator is generally supportive of the view that micro-grids have potential to provide some benefits and solve some of the current problems. The Regulator is open to support proposals for micro-grids. They do however concede that there are still some difficulties to be overcome.[222] This view is supported by the Utility Regulator. The existing network provision is, according to the Utility Regulator,[223] capable of accommodating significant levels of new technologies including micro-grids but this will require both reinforcement and changes to planning policy as well as some technical changes. As well as B9 Energy having to improve its understanding of how micro-girds work, the company believes other key stakeholders need to improve their understanding and all relevant parties need to become involved. The company was not in a position to tell the Committee when its first micro-grid could be operational as it depends on a number of issues including way-leaves, planning, community support and support from the district council. Representatives believe the only way to achieve this is through running pilot projects to test the process.[224]

Managed Connections

143. According to B9 Energy, recent figures from DETI suggest that curtailment of wind power may be up to 9% of generated electricity due to lack of load at times when the wind is blowing. B9

215 Appendix 2: B9 Energy Oral Evidence
216 Appendix 3 UFU Written Submission
217 Appendix 6: Correspondence from the Utility Regulator
218 Appendix 2: B9 Energy Oral Evidence
219 Appendix 2: UFU Oral Evidence
220 Appendix 6: Correspondence from NIE
221 Appendix 6: Correspondence from the Utility Regulator
222 Appendix 2: B9 Energy Oral Evidence
223 Appendix 6: Correspondence from the Utility Regulator
224 Appendix 2: B9 Energy Oral Evidence

Energy considers this figure to be significantly more than the difference between profit and loss for a wind farm operator.[225]

144. UFU is attempting to encourage NIE to put in a managed grid system. They informed the Committee that the efficiency of a 250kV wind turbine may only reach its full capacity 6% of the time. A managed system, with a smart monitoring system, where loads can be monitored and dispersed among producers would enable more producers to be connected. Such a system would allow much more small-scale generation on the 11kV network.[226] According to NIE 'managed connections' forms a significant part of its Project 40 initiative. Project 40 was established,

> *"to assess industry best practice and consider a range of technical and commercial approaches for connection of large scale, small scale and micro renewable generation in order to optimise network access for renewable generation."*[227]

145. NIE considers it important to ensure there is no confusion between the concepts of micro-grids and managed connections as they operate on different principles. Work is being undertaken to develop an approach whereby generator output is controlled to avoid 33kV network reinforcement and work is ongoing to develop the principles of the 'managed connection'. It is expected that proposals for consultation will be taken forward shortly.[228]

Long-Term Vision for the Grid

146. SSE informed the Committee that the Utility Regulator is responsible for balancing public interest over the long-term and short-term but must also take account of policy developments. This includes balancing the need and timing for 40-year investments of very capital intensive works.[229] According to NIRIG, there is no complete grid policy, strategy or vision in Northern Ireland. This absence of a joined-up approach has, according to NIRIG, led to significant delays in network infrastructure development. NIRIG believes the transmission network should be developed through a series of related investments viewed as a whole rather than through individual isolated projects.[230] NIRIG informed the Committee that such projects have a 10 to 15 year lead-in time which is very hard for the Utility Regulator to approve outside the five-year regulatory process that is currently in place. A long-term plan, agreed by stakeholders, is required where all parties are working towards the same long-term objective.[231] DETI does not accept that there is no strategic approach to the grid[232] but did not provide the Committee with evidence to the contrary. As stated earlier, SONI believes the transmission infrastructure should be managed through a long-term strategic programme and considers the current approach to managing it on a project-by-project basis to constitute micro-management.[233]

147. The Utility Regulator informed the Committee of the development of a 10-year strategic transmission plan which SONI (up until recently NIE) is obliged to provide to the EU. The Utility Regulator is waiting for this plan to be submitted. The organisation would prefer a longer term plan up to 25 years.[234] In oral evidence to the Committee NIE outlined its short-term, medium-term and long-term plans.[235] The short-term plan cost £3.2m and enabled the achievement

225 Ibid
226 Appendix 2: UFU Oral Evidence
227 Appendix 6: Correspondence from NIE
228 Ibid
229 Appendix 2: SSE Oral Evidence
230 Appendix 3: NIRIG Written Submission
231 Appendix 2: NIRIG Oral Evidence
232 Appendix 2: DETI Oral Evidence
233 Appendix 2: SONI Oral Evidence
234 Appendix 2: Utility Regulator Oral Evidence
235 Appendix 2: NIE Oral Evidence

of 300MW of renewable electricity constituting 7% capacity. The medium-term plan (2011-2017), which is currently under implementation and will cost around £60m, most of which has already been approved by the Utility Regulator. This will enable the achievement of around 1,000MW of renewable electricity constituting around 27% capacity. The long-term plan (2017-2020) includes reinforcement of the 275kv transmission network and construction of the North-South Interconnector. NIE informed the Committee that achievement of the long-term plan will cost around £420m to reach the additional 600MW renewable electricity capacity required to meet the 40% target.

148. NIRIG informed the Committee that NIE has identified its preferred option for Stage 1 on its long-term plan, which is to build a 275kv overhead line from the bottom of Lough Neagh towards Omagh. NIRIG believes that, considering the problems involved in getting planning permission, getting public consent and constructing the line, the line will not be built without the full backing of Government.[236] NIE informed the Committee that the key challenges it faces with its long-term plan relate to planning permission and the need for the Utility Regulator to approve the economic case.[237] The Utility Regulator has not been provided with the outline or detail of the £420m requirement for NIE's long-term plan. At the Committee's request, the Utility Regulator conducted an initial analysis of the figure and indications are that the network element of a customer's bill would increase by over 9% over the next 40-year period if the **£420m were to be approved.**[238]

Sustainable Energy Interdepartmental Working Group

149. DETI is responsible for overarching energy policy however, because renewable energy covers the remit of many departments, the Executive agreed to the formation of a Sustainable Energy Interdepartmental Working Group (SEIDWG). The aims of SEIDWG are:

> *"to ensure a co-ordinated approach across Government to the promotion of sustainable energy and that all Government Departments work together to ensure that policies and practices are in concert with each other, with the aim of maximising use of public funding and delivering value for money in the support of sustainable energy initiatives in Northern Ireland."*[239]

150. According to NIRIG, SEIDWG had formed a sub-group to look at strategic grid issues but that group has not met for some time. NIRIG informed the Committee that the Utility Regulator, NIE, SONI and DETI have agreed that better coordination is required. Because the Strategic Energy Framework (SEF) outlined the need for strategic grid investment, NIRIG believes SEIDWG is essential now, especially with the review of the SEF coming in 2015.[240]

151. SONI considers it sensible to have an interdepartmental forum where energy matters can be discussed and is happy to participate. It was of the view that moves were underway to see if SEIDWG could be re-established.[241] NIE is also keen to have SEIDWG re-established and informed the Committee that it would be writing to the Minister to see if this can be done.[242] The Utility Regulator believes SEIDWG was a good mechanism and would be keen to see it re-established and to participate in it.[243]

152. DETI informed the Committee that SEIDWG had a number of sub-groups through which work was being channelled and that SEIDWG was not formally stood down. Work is currently being developed through the sub-groups. DETI confirmed that there was a grid sub-group and that

236 Appendix 2: NIRIG Oral Evidence

237 Appendix 2: NIE Oral Evidence

238 Appendix 6: Correspondence from the Utility Regulator

239 http://www.detini.gov.uk/ni_offshore_renewable_energy_strategic_action_plan_2012-2020__march_2012_.pdf

240 Appendix 2: NIRIG Oral Evidence

241 Appendix 2: SONI Oral Evidence

242 Appendix 2: NIE Oral Evidence

243 Appendix 2: Utility Regulator Oral Evidence

a renewables grid liaison group, which includes industry representatives has been formed. Officials informed the Committee that because there was potential for much duplication between the two groups work now goes through the grid liaison group. DETI sits on this in an observer capacity and conceded that it has an operational role rather than a strategic role.[244] NIRIG confirmed that the renewables grid liaison group meets every couple of months and, although it has made a positive difference, the group looks specifically at operational issues and does not have a strategic output.[245]

Requirement to Connect to the Electricity Grid

Information to Committee

153. Prior to the review it came to the Committee's attention that NIE would not allow dual connections on farms. This is where a farmer wants to use the generation from a wind turbine solely for on-farm purposes without connection to the grid and also maintain a separate connection to the grid. The Committee agreed to consider this as part of the review.

Rural Development Funding

154. The Ulster Farmers' Union outlined for members that the issue arises mainly due to requirements with Rural Development Funding and Farm Diversification measure 3.1. Grants were available to build a wind turbine on farms however there was a condition that all electricity generated was required to be exported. This would require a dual connection and NIE did not provide a dual connection for health and safety reasons. The result was that some farmers did not receive funding. This measure is no longer in place therefore the problem no longer occurs.[246]

NIE's Position

155. NIE states that the problem exists when a landowner wishes to deviate from the normal method of connection for a single point of connection to the NIE network. Where a landowner requests multiple points of connection for two or more generators at a single location NIE will offer only a single point of connection to its system. This is for health & safety reasons relating to emergency disconnection of supplies to a premises.[247]

244 Appendix 2: DETI Oral Evidence

245 Appendix 2: NIRIG Oral Evidence

246 Appendix 2: UFU Oral Evidence

247 Appendix 6: Correspondence from NIE

Conclusions and Recommendations

Calculation of Time Scales and Costs

Requirement for Planning Permission

156. Developers, especially those seeking planning permission for small-scale developments, are concerned that they are incurring delays and costs because they are required by NIE to secure planning permission for developments prior to submitting an application for connection to the grid. Some believe that developers should, at the very least, be able to have the two applications processed in parallel. Large-scale developers are more supportive of the current system because it prevents reservation of capacity by developers.

157. Having considered the current state of the electricity grid and the shortage of capacity on the grid, the Committee shares DETI's concerns that, if the two processes are run side by side, it may result in some developers not taking forward developments and NIE having to deny access to other developers. The full implementation of the Planning Act should go a considerable way to resolving delays in processing planning applications. In addition, the Committee notes the ongoing consultation to consider a hybrid solution whereby full and final planning permission may not be required prior to making an application for grid connection. Both these initiatives should greatly assist in addressing delays in the planning application process and should also have a positive impact on costs to developers. The Committee welcomes the efforts being made to address this issue and will keep the matter under review.

Provision of Network Information

158. There were calls for NIE to provide developers with access to its Geographical Information System. Although NIE informed the Committee that it is currently not minded to provide that information, the more persuasive evidence came from SONI who informed the Committee of the considerable costs associated with GIS information in Northern Ireland compared to Great Britain. This is because Land and Property Services Northern Ireland does not offer an Open Data Licence that can be exploited for commercial purposes. The Committee may wish to consider this further in the future however it is possible that developers' concerns can be resolved in the shorter term.

159. Many of the concerns which developers have should be resolved by NIE's provision of a more detailed heat map and additional mapping information. Developers welcome NIE's intention to publish a heat map with an added level of granularity. The Committee welcomes NIE's improved heat map as it will allow a developer to more accurately estimate both connection costs and the likelihood of a development being constrained by congestion, prior to seeking planning permission. This will help developers to avoid unnecessary costs in the planning process where the estimated connection or constraint costs for a development are considered too costly to proceed. **NIE must introduce its revised heat map at an early stage and support developers to gain an understanding of how to use it. The revised heat map should be kept up to date and should be reviewed in 12 months to determine if it is providing the adequate information for developers to make investment decisions (Recommendation 1).**

Contestability

Formal Contestability Arrangements

160. The Utility Regulator states that financial savings from the introduction of contestability may not be significant but that there would be benefits regarding the timing of delivery. The experience of SSE is different to the Utility Regulator's estimation in that SSE has found that

contestable delivery in the Republic of Ireland has delivered cost savings as well as reducing time delays. Considerable delays have resulted from the approach to cluster substations. The introduction of contestability would assist in alleviating delays and reducing costs to developers awaiting the construction of cluster substations. Whether or not there are significant cost savings to be achieved, time savings from contestability will have indirect cost savings and will provide assurances to developers, the public and this Committee that best value for both developers and consumers is being delivered.

161. All witnesses, including DETI, NIE and the Utility Regulator, believe contestability should be introduced. All respondents who addressed the issue in the Utility Regulator's 2010 consultation also supported contestability. Both DETI and NIE informed the Committee that there are no barriers to the introduction of contestability. The Utility Regulator is committed to introducing contestability but states that it will be a two to three year project.

162. Given the unanimous support for contestability, the Committee has considerable difficulty in understanding why the Utility Regulator needs two to three years to introduce contestability. The Committee recognises the concerns of both NIE and the Utility Regulator relating to the standard of build of contestable connections and the need to ensure a high standard safety and reliability. The Committee understands that a solution is required to meet the specific needs of the Northern Ireland market and that some consultation will be required. However, there are currently contestability arrangements in place and working well in both Great Britain and the Republic of Ireland. It should not take up to three years to develop a solution in Northern Ireland for something that all stakeholders want and many stakeholders urgently need. There are currently two valued solutions against which to benchmark, one of which operates in the same Single Electricity Market. Given the time delays and high costs currently incurred by many developers, the Utility Regulator must review current plans with a view to introducing contestability within a much earlier timeframe than currently proposed (Recommendation 2).

Informal Contestability Arrangements

163. Evidence to the Committee has demonstrated that considerable capacity and capability exists within the electricity industry in Northern Ireland for the contestable delivery of grid connections. This capacity and capability exists at both the transmission level and the distribution level. This view is supported by the Utility Regulator.

164. NIE has already set a precedent with SSE for the contestable delivery of a large-scale wind development at Slieve Kirk. This has brought time and cost benefits as well as economic benefits to the region. The Utility Regulator, NIE and SSE all agree that this has been a successful project. There are currently no barriers to NIE voluntarily agreeing future contestable delivery arrangements. There is no requirement for NIE to wait for formal contestability arrangements to be put in place. **DETI, SONI and the Utility Regulator should strongly encourage NIE to voluntarily work with appropriate providers to draw up a list of approved companies for contestable delivery of grid connections at transmission and distribution levels with a view to introducing informal contestability arrangements at the earliest opportunity (Recommendation 3).** The Committee will invite NIE to provide oral evidence on this matter at a future meeting.

Smart Grid Solutions

Benefits of Smart Grids

165. The island of Ireland is developing renewable electricity at a much faster pace than most other regions. This has increased the need to consider innovative solutions and new technologies to maximise the use of renewable electricity. The Committee recognises that smart technology solutions will not obviate the need to strengthen the electricity grid and must be accompanied by investment in the network. However, the Committee understands

that considerable benefits to both developers and consumers will accrue from the development of smart grid solutions. Smart solutions can provide renewable generators with more efficient means of dispatching electricity and will reduce investment requirements and connection costs.

Micro-grids

166. The Ulster Farmers' Union and B9 Energy covered the subject of micro-grids in considerable detail in oral evidence. The Committee sees the potential for considerable benefits from micro-grids in the future. Successful deployment of micro-grids could alleviate the need for future high levels of curtailment, would enable more small-scale generation on the 11kV network, would contribute to improved security of supply and reduce costs for industrial consumers.

167. There are a number of areas of uncertainty regarding micro-grids and it is important that these are explored in detail before consideration can be given to widespread deployment. B9 Energy concedes that it needs to improve its understanding of the concept and how micro-grids can be deployed in Northern Ireland. There are uncertainties relating to how micro-grids would interact with the existing network, the impact widespread deployment of micro-grids would have on network costs to the wider electricity consumer base and issues relating to planning, way-leaves, community support and government involvement.

168. Given the benefits that micro-grids may potentially bring, it is important that the current lack of knowledge is addressed as quickly as possible. The Committee welcomes B9 Energy's assertion that the Utility Regulator is supportive of the concept however, **all key stakeholders including DETI, NIE, SONI, the Utility Regulator and DoE Planning Service must work with the industry to gain a full understanding of micro-grids and their potential to assist in providing an effective addition to the electricity network. This must include involvement of the Sustainable Energy Interdepartmental Working Group (SEIDWG) and its Grid Sub-Group (Recommendation 4).**

Funding for Smart Grid Technologies

169. Compared to the high level of funding provided for development of smart grid technologies in Great Britain and the Republic of Ireland, the £3m allowed to NIE by the Competition Commission in the last price control is minimal. This is despite the proposals in the Utility Regulator's final determination which allowed for assessment of projects on an individual basis. The result is that NIE is unable to make the necessary advances in smart grid technology at a time when the existing infrastructure is failing to cope with the high demands being placed on it and with the future demand for capacity on the grid. The Committee recognises that smart grid technologies will not completely remove the need for grid strengthening however it will reduce the requirement. **The Utility Regulator should, in the next price control determination, consider allowing NIE sufficient resources to fund smart grid solutions to modernise the grid and promote innovation (Recommendation 5).**

Transparency and Communication

NIE Transparency

170. There were some issues raised by witnesses in relation to equipment costs, connections costs and time delays which suggest a lack of transparency in the way in which NIE interacts with developers. Developers have reported both inconsistencies and lack of transparency in the quotations provided by NIE for grid connections.

NIE Provision of Information

171. There were a considerable number of concerns raised in relation to NIE's communication with developers. NIE does not seem to have an adequate strategy in place for communicating

with developers throughout the application and connection process. There are examples from witnesses of failure of NIE to provide clients with the relevant information needed to make investment decisions. NIE has so far failed to provide sufficient network information to clients on which to make investment decisions prior to going through the planning process. There is considerable evidence that delays, uncertainty and lack of communication from NIE is leading to damage to Northern Ireland's reputation as an investment location for renewable electricity, an undermining of the business case for investment in projects and withdrawal of potential investments by developers. Whilst the Committee remains hopeful that many of these problems can be alleviated through the advent of revised heat maps and the introduction of contestability, it is essential that NIE resolves the problems relating to transparency and communications. **The Utility Regulator must ensure that NIE has an appropriate and effective communications strategy for developers. The communications strategy must include transparency in how NIE's processes operate (Recommendation 6).**

NIE Policies and Processes

Contribution to Delays and Costs

172. There is evidence that NIE's policies and processes are contributing to unnecessary delays and costs in grid connections. A major contribution to this is the absence of contestability which has already been considered above however there are further issues arising from policies and processes which need to be addressed. These include:

- Not permitting developers to connect through existing lines;
- Record-keeping for connection agreements;
- Requirements for high-percentage upfront security payments coupled with uncertainty regarding delivery timeframes;
- NIE routinely availing of the full 90-day limit for provision of a connection quote;
- Perceived misalignment in relation to rebates for existing users between SONI's Transmission Connection Charging Methodology and NIE's Connection Charging Statement; and
- Requirement for a developer to move to the back of the grid connection queue due to perceived technicalities which require re-quotes.

Comparison with Great Britain

173. There is considerable discrepancy between grid-connection timeframes in Northern Ireland compared to Great Britain. Here, timeframes are often unknown, but in Great Britain a project takes nine months from feasibility to connection.

Improving Policies and Processes

174. The issues raised in relation to NIE's policies and processes need to be addressed. **The Utility Regulator and SONI must work with NIE to review and improve NIE's policies and processes relating to grid connections. This should include those relating to:**

- Communications & Transparency
- Delivery of connections
- Connection Agreements
- Payments policy as it relates to an agreed connection date
- Rebate policy
- Connection quotes
- Re-quotes arising from technical issues (Recommendation 7).

175. The review of NIE policies and processes may benefit from benchmarking against those in other jurisdictions.

Long-Term Vision and Strategy for the Electricity Grid

Previous Committee Reports on Electricity

176. In both its report on Security of Electricity Supply[248] and its report on Electricity Pricing[249], the Committee for Enterprise, Trade & Investment highlighted the need for grid strengthening and for a final decision on the North-South Interconnector. The Committee agrees that the development of the grid is essential to support the expected increase in renewable generation.

Strategic Approach to the Grid

177. The Committee supports the assessment that the development of the grid infrastructure requires a long-term strategy rather than the current approach which focuses on short-term cost efficiency. Under current policy NIE states that the timeframe for investments required for reinforcement in the 275kv network will be challenging if the 40% target is to be achieved by 2020.

178. NIE contends that it will require £420m for its long-term plan in order to achieve the 40% target. The Utility Regulator is not yet in a position to contest this assessment as the Regulator has not been provided with the detail of the requirement. The Committee understands the difficulties faced by the Utility Regulator to plan strategically for capital-intensive long-term investments within the five-year price control process. However, it is of considerable concern to the Committee that there is a commitment to the 40% target without a clear understanding of the costs involved or the resulting long-term impact on consumers.

179. The Utility Regulator informed the Committee that a 25-year strategic transmission plan would be welcome. SONI agrees that transmission infrastructure should be managed over at least 25 years. NIRIG highlighted the absence of a strategic vision, policy, strategy or joined-up approach to the development of the network. Despite the considerable weight of evidence from key stakeholders in the electricity industry, DETI does not accept the absence of a strategic approach to grid infrastructure development. **As the lead body for electricity policy in Northern Ireland DETI must either clearly state and communicate a long-term vision and strategy for electricity (Recommendation 8).**

The Sustainable Energy Interdepartmental Working Group (SEIDWG)

180. SEIDWG was formed in recognition that renewable energy covers the remit of many departments. The Committee was concerned to learn that SEIDWG has not met for some time and neither has the sub-group formed to consider strategic grid issues. The renewables grid liaison group, on which DETI sits solely in an observer capacity, has regular meetings however this group is tasked with consideration of operational issues only.

181. **The Sustainable Energy Interdepartmental Working Group must be reconvened as a matter of urgency to establish and drive the long-term vision and strategy for electricity (Recommendation 9).**

248 http://www.niassembly.gov.uk/Assembly-Business/Committees/Enterprise-Trade-and-Investment/Reports/Report-on-the-Committees-Review-into-Electricity-Policy-Part-1-Security-of-Electricity-Supply/

249 http://www.niassembly.gov.uk/Assembly-Business/Committees/Enterprise-Trade-and-Investment/Reports/Report-on-the-Committees-Review-into-Electricity-Policy-Part-1-Security-of-Electricity-Supply/

Northern Ireland Assembly

Appendix 1

Minutes of Proceedings

Appendix 1 – Minutes of Proceedings (extracts)

1. 13 March 2014
2. 1 May 2014
3. 29 May 2014
4. 5 June 2014
5. 3 July 2014
6. 25 September 2014
7. 7 October 2014
8. 21 October 2014
9. 4 November 2014
10. 11 November 2014
11. 18 November 2014

Thursday, 13 March 2014
Room 30, Parliament Buildings

Present: Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Mr Paul Frew
Mr Fearghal McKinney
Mr Mitchel McLaughlin
Ms Sandra Overend

In Attendance: Mr Jim McManus (Assembly Clerk)
Mr Nathan McVeigh (Clerical Supervisor)
Ms Jacqueline Holt (Clerical Officer)

Apologies: Ms Megan Fearon

8. Electricity Policy Review: Part III Grid Connections Terms of Reference

Members considered the draft Terms of Reference for Part III of the Electricity Policy Review.

Agreed: that members are content with the draft Terms of Reference.

Members considered an invitation from Action Renewables to a Grid Connection seminar on Thursday 10 April 2014.

Agreed: that Assembly Research attends on behalf of the Committee.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment

27 March 2014

[EXTRACT]

Thursday, 1 May 2014
Room 30, Parliament Buildings

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

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Nathan McVeigh (Clerical Supervisor)
Ms Jacqueline Holt (Clerical Officer)

Apologies: Ms Sandra Overend

4. Electricity Policy Review Part III Grid Connections – Oral briefing from the Northern Ireland Renewables Industry Group (NIRIG)

10.31am The representatives joined the meeting.

10.39am Steven Agnew joined the meeting.

10.44am Sammy Douglas left the meeting.

10.45am Megan Fearon joined the meeting.

Members received an oral briefing from Patrick McClughan, Chairperson, Seamus Hegarty, Vice-Chairperson, Mervyn Adams, Grid Group Chairperson and Meabh Cormacain, Policy and Communications Co-ordinator.

Key issues discussed included: grid connection policy, the importance of the grid to renewables, the Strategic Energy Framework, SEDWIG, co-ordinated planning and development, costs, contestability, planning permission, NIE resources, the NIE graphical information system, regulatory policies, grid investment, smart grid development.

10.58am Paul Frew left the meeting.

11.00am Fearghal McKinney joined the meeting.

11.41am Megan Fearon left the meeting.

11.50am Fearghal McKinney left the meeting.

11.55am Mitchel McLaughlin left the meeting.

11.59am The representatives left the meeting.

Agreed: to forward additional questions to NIRIG for a written response.

12.00pm The meeting was suspended.

12.07pm The meeting recommenced in public session.

5. Electricity Policy Review Part III Grid Connections – Oral briefing from Action Renewables

12.07pm The representatives joined the meeting.

Members received an oral briefing from Michael Doran, Executive Director and Jonathan Buick, Head of Projects.

Key issues discussed included: issues within 50-500kW range, current length of time and process for a quote and grid connection, cost of grid connection, small scale renewables and generation and export of renewable electricity onto the grid, planning permission, comparisons to within GB.

12.59pm The representatives left the meeting.

Agreed: to forward additional questions to Action Renewables for a written response and members to inform the Clerk by next day of any additional questions they wish to be forwarded to NIRIG and Action Renewables.

Agreed: Action Renewables to forward, to the Committee, information from a comparative study carried out with Airtricity in Scotland and its findings as to which regulatory body is responsible for ensuring consistency of standards with GB and the EU.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment

8 May 2014

[EXTRACT]

Thursday, 29 May 2014
Room 30, Parliament Buildings

Present: Mr Patsy McGlone (Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Mr Paul Frew
Mr Fearghal McKinney

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Nathan McVeigh (Clerical Supervisor)

Apologies: Mr Phil Flanagan (Deputy Chairperson)
Ms Megan Fearon
Ms Sandra Overend

4. Electricity Policy Review Part III Grid Connections - Oral briefing from SSE

10.28am The representatives joined the meeting.

Members received an oral briefing from Mr David Manning, Director of Corporate Affairs, Mr Iain Wright, Head of Regulation and Ms Bernice Doyle, Grid Manager.

Key issues discussed included: Slieve Kirk Wind Farm, Slieve Divena Wind Farm, timelines of projects, contestability, 'cluster' policy, costs and timescales involved to connect to the grid, general network upgrades and the North South interconnector, the issues involved should planning applications and grid connection applications be made in parallel as opposed to in series, loss of investment in Northern Ireland caused by delays in grid connection.

10.31am Sammy Douglas joined the meeting.

10.36am Paul Frew joined the meeting.

11.21am Fearghal McKinney left the meeting.

Agreed: that SSE provide information to the Committee on the timescales and stages involved in previous wind farm projects.

11.35am The representatives left the meeting.

5. Electricity Policy Review Part III Grid Connections - Oral briefing from Northern Ireland Electricity

11.36am The representatives joined the meeting.

Members received an oral briefing from Mr Joe O'Mahony, Managing Director, Mr Robert Wasson, Asset Management Director, Mr Michael Atkinson, Head of Generation Connections and Mr Peter Ewing, Deputy Managing Director of Regulation.

Key issues discussed included: costs and timescales of grid connection, NIE resources, cost of grid reinforcement, cost of reinforcement of transmission system, transmission network reinforcement strategy, grid development planning and consent, large scale versus small scale generation on wind farms, micro generation activity, cluster substations, distribution network congestion, comparison with GB, access to geographical information system (GOS), heat maps on overlay of the network.

11.59am Fearghal McKinney returned to the meeting.

12.26pm Paul Frew left the meeting.

12.37pm Sydney Anderson left the meeting.

Agreed: to write to Northern Ireland Electricity with further questions for written response.

1.01pm The representatives left the meeting.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment

5 June 2014

[EXTRACT]

Thursday, 5 June 2014
Room 30, Parliament Buildings

Present: Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Ms Megan Fearon
Mr Paul Frew
Mr Fearghal McKinney
Ms Sandra Overend

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Nathan McVeigh (Clerical Supervisor)
Ms Jacqueline Holt (Clerical Officer)

Apologies: Mr Patsy McGlone (Chairperson)
Mr Mitchel McLaughlin

4. Electricity Policy Review Part III Grid Connections - Oral briefing from SONI

10.14am The representatives joined the meeting.

10.17am Fearghal McKinney joined the meeting.

Members received an oral briefing from Mr Michael Walsh, Director of Future Grids, EirGrid, Mr Dick Lewis, Manager, Transmission Access Planning, SONI and Mr Robin McCormick, General Manager, SONI Ltd/SEMO.

Key issues discussed included: costs and timescales of grid connection, delays in connection and access to the geographical information system (GOS), transmission grid, transmission network, Utility Regulator, role as market operator, transfer of investment planning, security of supply, infrastructure investment, investment decisions, planning permission requirement, innovation, contestability, Sustainable Energy Interdepartmental Working Group (SEIDWG), First Flight Wind offshore wind farm, North/South interconnector.

Agreed: to commission research regarding access to the geographical information system and also the permission and cost of providing information on third party ordinance survey maps. The Committee Office to inform the Utility Regulator that members will raise some issues discussed at this session with the Regulator at the briefing on 3 July 2014.

11.48am Fearghal McKinney left the meeting.

11.50am The representatives left the meeting.

5. Electricity Policy Review Part III Grid Connections - Oral briefing from DETI

11.52am The representatives joined the meeting.

Members received an oral briefing from Mr John Mills, Head of Energy Division and Mr Michael Harris, Head of Renewable Electricity Policy Branch.

Key issues discussed included: costs and timescales of grid connection, delays in connection and access to the geographical information system (GOS), contestability, Utility Regulator, clustering, Programme for Government target, ROCs, Sustainable Energy Interdepartmental Working Group (SEIDWG).

12.24pm Sandra Overend left the meeting.

Agreed: to forward additional questions to the Department on this matter.

Agreed: to write to the Department of Finance and Personnel for information on the Business Tenancy Bill in regards to perceived barriers to PV panels being installed on houses.

Agreed: the Department to provide the unpublished report which details the work done by the Department in order to reach a target of 40% in renewable energy for the Programme for Government.

12.44pm The representatives left the meeting.

Mr Phil Flanagan
Deputy Chairperson
Committee for Enterprise, Trade and Investment

12 June 2014

[EXTRACT]

Thursday, 3 July 2014
Room 30, Parliament Buildings

Present: Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Mr Paul Frew
Mr Fearghal McKinney
Ms Sandra Overend

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Nathan McVeigh (Clerical Supervisor)
Ms Jacqueline Holt (Clerical Officer)

Apologies: Ms Megan Fearon
Mr Mitchel McLaughlin

4. Oral briefing from the Utility Regulator: Electricity Policy Review Part II Electricity Pricing and Part III Grid Connections

10.38am The representatives joined the meeting.

Members received an oral briefing from Ms Jenny Pyper, Chief Executive, Ms Tanya Hedley, Director of Network Operations and Mr Jody O'Boyle, Electricity Networks Manager.

Key issues discussed included: connection policy, grid connection price control and investment, potential changes in legislation, grid connection quotation times from NIE, NIE internal review, contestability, Renewable Grid Liaison Group, growth of small scale renewable generation, Utility Regulator forward work programme.

11.25am Gordon Dunne left the meeting.

11.50am Sydney Anderson left the meeting.

Agreed: to write to the Utility Regulator asking for its ideas on improving NIE performance in relation to grid connection, for information on the impact the £420m which NIE states it would require to achieve the 40% renewable electricity target will have on consumer bills, for information regarding NIE Statement of Charges and as it has been reported that SONI made a loss of £3million in 2012 and a profit of £16million in 2013, to provide the Committee with the reason for the extreme differences in these figures.

12.39pm The representatives left the meeting.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment

18 September 2014

[EXTRACT]

25 September 2014
Room 30, Parliament Buildings,

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

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Nathan McVeigh (Clerical Supervisor)
Ms Jacqueline Holt (Clerical Officer)

Apologies: None

5. Oral briefing from the Ulster Farmers' Union – Electricity Policy Review

11.32am The representatives joined the meeting.

11.41am Danny Kinahan joined the meeting.

11.57am Megan Fearon left the meeting.

Members received an oral briefing from Mr Barclay Bell, Deputy President, Mr Gary Hawkes, Chairman and Mr Chris Osborne, Senior Policy Officer.

Key issues discussed included: microgrids, grid connection difficulties in the agriculture sector, improper advice farmers have received on grid connection, role of SONI, Project 40, B9 Energy, storage solutions, compressed air system, reduction of carbon emissions and renewable energy.

12.35am The representatives left the meeting.

12.36pm Gordon Dunne left the meeting.

12.36pm Sydney Anderson left the meeting.

15. Electricity Policy Review

Members considered the draft Electricity Policy Review Part III, an Assembly Research paper regarding measures to prevent capacity hoarding and a paper from the Department on Intelligent Energy Systems.

Agreed: to schedule a briefing from B9 Energy.

Agreed: to write to SONI, the Utility Regulator and NIE for their views on microgrids as discussed by the Ulster Farmers' Union.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment
7 October 2014

[EXTRACT]

7 October 2014
Room 29, Parliament Buildings,

Present:	Mr Phil Flanagan (Deputy Chairperson) Mr Steven Agnew Mr Sydney Anderson Mr Gordon Dunne Mr Paul Frew Mr William Humphrey Mr Fearghal McKinney
In Attendance:	Mr Jim McManus (Assembly Clerk) Ms Angela McParland (Assistant Assembly Clerk) Mr Nathan McVeigh (Clerical Supervisor) Ms Jacqueline Holt (Clerical Officer) Mr Peadar Ó Lamhna (Bursary Student)
Apologies:	Mr Patsy McGlone (Chairperson), Ms Megan Fearon Mr Danny Kinahan

5. Oral briefing from B9 Energy Group : Microgrids

10:16am The representative joined the meeting.

11:08am Gordon Dunne left the meeting.

Members received an oral briefing from Mr David Surplus, Chairman, B9 Energy Group.

Key issues discussed included: microgrid projects in Larne, Lecale and Coleraine, how microgrids work in practice, ownership of microgrids, how microgrids are financed and why microgrids would be considered beneficial to both load and generator customers.

Agreed: to ask Assembly Research to provide research on the different types of microgrids available, storage of electricity systems and the environmental impacts of salt cavern compressed air storage.

Agreed: to seek a written brief from the Utility Regulator & SONI regarding microgrids.

Agreed: to write to Coleraine Borough Council to seek information regarding the development of a Renewable Energy Microgrid and Energy Storage in the Coleraine region.

11.30am The representative left the meeting.

Mr Phil Flanagan
Deputy Chairperson
Committee for Enterprise, Trade and Investment

14 October 2014

[EXTRACT]

21 October 2014
Room 29, Parliament Buildings,

Present:	Mr Patsy McGlone (Chairperson) Mr Phil Flanagan (Deputy Chairperson) Mr Steven Agnew Mr Sydney Anderson Mr Paul Frew Mr William Humphrey Mr Fearghal McKinney
In Attendance:	Mr Jim McManus (Assembly Clerk) Ms Angela McParland (Assistant Assembly Clerk) Mr Nathan McVeigh (Clerical Supervisor) Mr Christopher Jeffrey (Clerical Officer) Mr Peadar Ó Lamhna (Bursary Student)
Apologies:	Mr Danny Kinahan

16. Electricity Policy Review

Members considered the draft Electricity Policy Review Part III Grid Connection, an Assembly Research Paper regarding Smart Grid Investment, correspondence from NIE regarding the use of micro-grids, correspondence from the Utility Regulator regarding the use of microgrids and an extract of the updated draft report.

Agreed: to include a section and recommendation relating to micro-grids.

11:43pm The Chairperson adjourned the meeting.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment

4 November 2014

[EXTRACT]

4 November 2014
Room 29, Parliament Buildings,

Present:	Mr Phil Flanagan (Deputy Chairperson) Mr Steven Agnew Mr Sydney Anderson Mr Gordon Dunne Ms Megan Fearon Mr Paul Frew Mr Chris Hazzard Mr William Humphrey Mr Danny Kinahan Mr Fearghal McKinney
In Attendance:	Mr Jim McManus (Assembly Clerk) Ms Angela McParland (Assistant Assembly Clerk) Mr Nathan McVeigh (Clerical Supervisor) Mr Christopher Jeffrey (Clerical Officer) Mr Peadar Ó Lamhna (Bursary Student)
Apologies:	Mr Patsy McGlone (Chairperson)

16. Electricity Policy Review

Members considered the draft Electricity Policy Review Part III Grid Connection.

Mr Phil Flanagan
Deputy Chairperson
Committee for Enterprise, Trade and Investment

11 November 2014

[EXTRACT]

11 November 2014
Room 29, Parliament Buildings,

Present: Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne
Ms Megan Fearon
Mr Paul Frew
Mr William Humphrey
Mr Danny Kinahan
Mr Fearghal McKinney
Mr Máirtín Ó Muilleoir

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Christopher Jeffrey (Clerical Officer)
Mr Peadar Ó Lamhna (Bursary Student)

15. Electricity Policy Review

Members considered the draft Electricity Policy Review Part III Grid Connection and agreed to formally agree the report at next week's meeting.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment

18 November 2014

[EXTRACT]

18 November 2014
Room 29, Parliament Buildings,

Present: Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne
Ms Megan Fearon
Mr Paul Frew
Mr William Humphrey
Mr Danny Kinahan
Mr Fearghal McKinney
Mr Máirtín Ó Muilleoir

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Christopher Jeffrey (Clerical Officer)
Mr Peadar Ó Lamhna (Bursary Student)

16. Electricity Policy Review – Closed Session

Members considered the draft report for the Committee's Electricity Policy Review Part III Grid Connections.

Agreed: members are content with the final report.

Mr Paul Frew
Temporary Elected Chairperson
Committee for Enterprise, Trade and Investment

25 November 2014

[EXTRACT]

4 November 2014
Room 29, Parliament Buildings

Present: Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne
Ms Megan Fearon
Mr Paul Frew
Mr Chris Hazzard
Mr William Humphrey
Mr Danny Kinahan
Mr Fearghal McKinney

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Nathan McVeigh (Clerical Supervisor)
Mr Christopher Jeffrey (Clerical Officer)
Mr Peadar Ó Lamhna (Bursary Student)

Apologies: Mr Patsy McGlone (Chairperson)

1:05pm The meeting went into closed session.

16. Electricity Policy Review

Members considered the draft Electricity Policy Review Part III Grid Connection.

1:22pm The meeting concluded.

Mr Phil Flanagan
Deputy Chairperson
Committee for Enterprise, Trade and Investment

11 November 2014

[EXTRACT]

11 November 2014
Room 29, Parliament Buildings

Present: Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne
Ms Megan Fearon
Mr Paul Frew
Mr William Humphrey
Mr Danny Kinahan
Mr Fearghal McKinney
Mr Máirtín Ó Muilleoir

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Christopher Jeffrey (Clerical Officer)
Mr Peadar Ó Lamhna (Bursary Student)

1:28pm The meeting went into closed session.

15. Electricity Policy Review

Members considered the draft Electricity Policy Review Part III Grid Connection and agreed to formally agree the report at next week's meeting.

1:36 pm The meeting concluded.

Mr Patsy McGlone
Chairperson
Committee for Enterprise, Trade and Investment

18 November 2014

[EXTRACT]

18 November 2014
Room 29, Parliament Buildings

Present: Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne
Mr Paul Frew
Mr William Humphrey
Mr Danny Kinahan
Mr Máirtín Ó Muilleoir

In Attendance: Mr Jim McManus (Assembly Clerk)
Ms Angela McParland (Assistant Assembly Clerk)
Mr Christopher Jeffrey (Clerical Officer)
Mr Peadar Ó Lamhna (Bursary Student)

Apologies: Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Fearghal McKinney

12.12pm The meeting went into closed session.

12. Electricity Policy Review

Members considered the draft report for the Committee's Electricity Policy Review.

Agreed: the Committee is content that the list of Membership and Powers stands part of the report.

Agreed: the Committee is content that the list of Abbreviations and Table of Contents stands part of the report.

Agreed: the Committee is content that the Executive Summary stands part of the report.

Agreed: the Committee is content that the Summary of Recommendations at paragraphs stands part of the report.

Agreed: the Committee is content that the Introduction stands part of the report.

Agreed: the Committee is content that the Key Issues and Findings stands part of the report.

Agreed: the Committee is content that the Conclusions and Recommendations stands part of the report.

Agreed: the Committee is content that the extract of the Minutes of Proceedings at Appendix 1 stands part of the report.

Agreed: the Committee is content that the Minutes of Evidence (Hansards) at Appendix 2 stands part of the report.

Agreed: the Committee is content that the Written Submissions at Appendix 3 stands part of the report.

Agreed: the Committee is content that the Case Studies at Appendix 4 stands part of the report.

Agreed: the Committee is content that the Assembly Research Papers at Appendix 5 stands part of the report.

Agreed: the Committee is content that the Correspondence at Appendix 6 stands part of the report.

Agreed: the Committee is content for the Chairperson to approve an extract from today's minutes which reflect the read-through of the Report.

Members considered a copy of the draft motion for the debate.

Agreed: the Committee is content with the draft motion.

12.17pm The meeting concluded.

Mr Gordon Dunne
Temporary Elected Chairperson
Committee for Enterprise, Trade and Investment

25 November 2014

[EXTRACT]

Appendix 2

Minutes of Evidence

Appendix 2 – Minutes of Evidence

1. 13 March 2014 – Lightsource
2. 1 May 2014 – Action Renewables
3. 1 May 2014 – NIRIG
4. 29 May 2014 – NIE
5. 29 May 2014 – SSE Airtricity
6. 5 June 2014 – DETI
7. 5 June 2014 – SONI and EirGrid
8. 3 July 2014 – Utility Regulator
9. 25 September 2014 – Ulster Farmers' Union
10. 7 October 2014 – B9 Energy

13 March 2014

Members present for all or part of the proceedings:

Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne
Mr Paul Frew
Mr Fearghal McKinney
Mrs Sandra Overend

Witnesses:

Mr Nick Boyle *Lightsource*
Mr Richard Green
Mr Conor McGuigan

1. **The Chairperson**: Before us today are Lightsource CEO, Mr Nick Boyle; Mr Conor McGuigan, its business development director; and Mr Richard Green, senior business development manager. You are very welcome and I appreciate your taking the time to be here. We are here because we had a session with the Department previously, and it would probably not be overemphasising it to say that it was short on detail. You have the opportunity to be with us today and explain your perspective on it, so that members are better informed in coming to a decision around this.

2. I do not know whether you were here for the start of the previous session, but the format is that you have up to 10 minutes in which to make your case, and we then have a members' question and answer (Q&A) session as they try to elicit more details. Thanks, again, for being with us and please continue.

3. **Mr Nick Boyle (Lightsource)**: Thank you Mr Chairman and Committee members, and thanks for inviting us to take the opportunity to explain in a little more detail what we believe is an exciting and potentially big contributor to the renewable mix in Northern Ireland. I hope to keep this briefer than the 10 minutes because I am interested in the Q&As.

4. I will start by giving a bit of background on what we see as being, and to remind everyone of, the obvious advantages to renewables, and, more specifically, of solar energy in Northern Ireland and everywhere else in the world. First, we are talking about local power generation. So, we are, if you like, severing the requirement to rely on fossil fuels from the Middle East or from Russia for gas etc. Therefore, it is true, home-grown electricity generation. It is free-source; clearly, the sun comes up and goes down every day. It may not be as sunny as we would like, but it still comes up sufficiently.

5. That obviously has to be taken in the context of the likes of Kilroot and Ballylumford and their reduction, in 2015, of 500 megawatts of their generation. Exactly the same applies to Northern Ireland as to the main markets in Great Britain, where its electricity generating capacity is being reduced by 24% over the next eight years. That backdrop is important.

6. We also need to be mindful that what we are creating here is a significant income for the rural economy through diversification for farmers into another area. This is just another "crop", if you like. We will obviously pay revenues to them and those are set for 25 years rather than being weather dependent. If you or your constituents have been involved in the floods lately, having a guaranteed revenue from us is obviously a big plus. We will also pay other taxes, rates etc; there is also the fact that grazing can continue on the land, and our arrangement will not affect single farm payments. So, there are two revenues into the rural economy, whereas currently there is on, which is under question in some cases.

7. At the minute, we have probably 3,000 or 4,000 individuals constructing our sites in Great Britain. We estimate that, with just our company's plans for Northern Ireland, over 500 jobs will be created year on year on the installation, and then there are ongoing jobs on maintenance for the full 25 years. Although that is not immediately identifiable, it is relevant given the current situation in Northern Ireland from a job perspective.

8. Obviously, something close to all our hearts is the requirement or wish to deliver 40% of electricity by renewable means by 2020. This obviously contributes to that. Although wind seems to be in all our psyches, it cannot be just wind; it needs to be part of an overall mixed renewable portfolio.

9. Our single company is over 35% of the entire UK market, so we are the largest by a country mile. We are 60% Northern Ireland-owned, which is quite useful as well. The one thing you have to appreciate is that the majority of our sites are in England. We have a significant number of sites in Wales, and we are now moving into Scotland for the first time. Our issue with the legislation has nothing to do with Northern Ireland from a sun perspective, because Scotland is every bit as good or bad — depending on which way you look at it — as Northern Ireland. The issue is simply the special circumstances — unfortunately, they are negative circumstances — that conspire against us in Northern Ireland. We believe that they are definitely manageable, but we basically need the support of this change in law to kick-start the industry. They fall into two distinct areas. It is planning, but not so much planning per se. About 12 or 18 months ago, we had a very productive meeting with Alex Attwood when he was the Minister of the Environment. He put his shoulder behind the whole process. In recent months, we have seen BNRG getting the first application through.

10. We do not believe that planning per se is an issue in itself. The main issue is the grid. Whether we care to admit it or not, the grid in Northern Ireland is extremely old. I will not say "antiquated", but it is certainly in serious and significant need of an upgrade. Therefore, that needs to be borne in mind. It is about the grid, and, more importantly, the processes and how planning and grid interact. In the few minutes I have left, I will give you a couple of examples.

11. The first one is that Northern Ireland insists that planning and grid need to happen in series rather than in parallel. That is not the case in GB. In GB, there is a 13-week process for planning and a 13-week process for grid, and they happen at the same time. Here, because of the fact that we have no understanding of solar, we are educated that renewables equals wind. With wind, when you put 10 applications into planning, if only one comes out, the grid people do not want to waste all that time doing a grid application when they know that 90% of it is going to be aborted anyway.

12. That is true of wind, but it is not the circumstance with solar. If you put 10 applications into planning on solar, nine will come out, not one. Therefore, all the issues with aborting costs or efforts are no longer relevant. Although we understand why you have to have planning before they will look at it in the grid, it is not relevant to solar. Obviously, we can give supporting evidence on that. It is not the way they work in GB; the two things happen at exactly the same time. Our normal, from, "Hello, how are you, Mr Farmer?" to operation and generating revenue in GB is nine months. It is rather more challenging here, especially when the planning alone takes six months and that is before they even start looking at the grid. We have given timings in our report.

13. Other issues include the concept of contestable works. In mainland GB, we can get third parties that have been signed off — Lagan Construction is one of the companies in GB that is signed off — to do work on behalf of the grid. NIE does not allow you to do that; it has to do the work. There are two issues with that. One is price: there is no

competitiveness. The second is speed: it has only a finite number of individuals doing the work. Also, in Northern Ireland, you have no independent connection providers (ICPs). Nobody else can do the connection; it is NIE or nobody. Unfortunately, this monopoly situation again conspires against us.

14. Probably the biggest issue from a pure infrastructure perspective is that NIE does not allow you currently to tee off an existing line. You could have a perfect field for solar. There could be literally a wire running over the top right-hand corner of it. In the UK, we just tee off that splice and say, "Hey, we're good; we're connected. Happy days."That does not happen in Northern Ireland; NIE will insist that you go all the way back to the substation. That, in itself, might not be an issue, but the substation tends to be three or four miles away, which means that you need planning permission for every single piece of land and from every landowner for wayleaves between the site and the substation three and a half miles away. It can be done and we have done it, but because of their rules saying that they do not want to do it, all those extra bits of work apply. It is effort that does not need to exist but does, and that is why we are saying that process, as well as infrastructure, is relevant.

15. From our perspective, we would love to do an awful lot of work in Northern Ireland and not just large-scale roofs; we want to do ground-mount as well. We are saying to the Committee that the challenges that are being put in front of us today mean simply not that the revenues that you are proposing to pay us are not correct but that the timescales are not correct and are not equal to what is going on in the rest of GB. Therefore, we need more time in order to deliver the same output. That is why we are asking you to defer the drop in the feed-in tariff or the renewable obligation certificate (ROC) to allow for that extra time for us to do those extra works. We are not asking you for more; we are just asking you to identify or be aware of the fact that the timescales mean that you are elongating our processes, which means that you are not being competitive with the rest of the UK. We need to slow down that degradation in the feed-in tariff or the renewable obligation certificate and to be cognisant of that fact.

16. From our perspective we would love to do stuff on the other elements in Northern Ireland. My wife would be very happy — maybe she would not be happy — because I would be able to fly home on a Thursday rather than a Friday. All that is standing in the way of our making this initial £100 million investment is process rather than, necessarily, our company's appetite.

17. **The Chairperson**: Thanks very much for that. Some of the issues you have raised are crucial because it is not just the solar that we are having the problems with, it is other grid connections and expansions and not just for renewables, I have to add, particularly west of the Bann. I think that a lot of your work is east of the Bann.

18. **Mr N Boyle**: NIE told us to focus east of the Bann because it had such problems west of the Bann. We can do either, but the advantage with solar is that as long as the equipment is pointing up, you do not need an exposed cliff like you do for wind; anywhere will do.

19. **The Chairperson**: Maybe you could expand on a few points. I read your presentation and met your colleague here as well. Could you give us a bit more detail on the total investment? There is an anticipated total investment of £120 million, generating £45 million in revenue for Northern Ireland contractors and creating 500 jobs. I am trying to square that in my head with the practical reality. There is £45 million that is anticipated to go to contractors; what is the scale of the schemes that you have projected that are going to deliver £45 million? That is quite a bit of work.

20. **Mr N Boyle**: It is quite a bit of work —

21. **The Chairperson**: Five hundred jobs is a large number of jobs. Are you

going to create those all at the one time? Usually, these projects are a bit here and a bit there, and 500 people employed is quite a number of people.

22. **Mr N Boyle**: There are about 4,000 on site at the moment who would have said the same thing. We are a three-year old company; we started with six people and we now have 250. Those are not the jobs; that is the core business. We have deployed £1·1 billion in the past three years and currently we have about 4,400 acres covered in photovoltaic (PV). At the moment we have somewhere between 3,000 and 4,000 individuals on site installing our sites.

23. **Mr Conor McGuigan (Lightsource)**: There are 500 on one site.

24. **Mr N Boyle**: There are 500 on one site alone. So, while it is a big number —

25. **The Chairperson**: What size is that site?

26. **Mr McGuigan**: It is 33 megawatts.

27. **Mr N Boyle**: It is 178 acres. That is the biggest site; it is a bad example. Our standard sites are 30 or 40 acres. I have some pictures if you would like to see them. If you have not seen these things before they —

28. **The Chairperson**: I have seen your photographs.

29. **Mr N Boyle**: I will pass those around. We are also on the roof of Bentley Cars.

30. **The Chairperson**: I am genuinely interested in how this works, as I told your colleague.

31. **Mr N Boyle**: Let me answer the question. We are assuming 100 megawatts in Northern Ireland over the next 18 months. One hundred megawatts will cost between £100 million and £120 million. To put that into perspective we have done over 300 megawatts this year alone, so in the scheme of things it is not enormous; it is a natural progression for our business. It will require between 500 and 600 acres of land. That might sound a lot, but for a business that has done the amount that we have done over the past number of years, that is —

32. **The Chairperson**: That is your anticipated 500 to 600 acres.

33. **Mr N Boyle**: For £100 million of investment, yes. Using the standard build-out time, we estimate that we need 500 individuals to install this, if we had that full period of time. Those individuals are not employed for 25 years; they are installed to build the site. A number of them are installed for 25 years, but not the full 500.

34. **The Chairperson**: That is what I was coming to. You said that there would be jobs in maintenance. I presume, because of the quality of the technology that you will be using, you will not be thinking of a huge number of people employed in maintenance, or else you would have a bit of a problem elsewhere.

35. **Mr N Boyle**: Exactly. Typically, for every 12 megawatts, our rough rule of thumb is that we would need one member of maintenance staff. We have an operation and maintenance office in Bath with 30-odd individuals there. There are two teams: an asset-management team that monitors all the performance and the reactive team where, if there is an issue, it will go and change a panel or change an inverter — I am not an engineer, so I say these things but I do not know what it involves. It is low-level effort; it is an electrical engineer or an electrician. We are not building a nuclear power station here. It is the same technology that goes on your roof; it is just that there are an awful lot of them.

36. **Mr Frew**: I have certain sympathies. I am very much a wind farm sceptic.

37. **The Chairperson**: You are obviously a fan.

38. **Mr Frew**: No chance. I would like to see a greater mix of renewable energy. I am all for a target of 40%, but I would like to see a mix, and I think that this could help. Along with offshore wind, it may be the biggest growth market. The issue

that you have already stated is the delay in time for Planning Service and grid connection. Therefore, do you think that it is wise to step down the ROCs over the next three years, given the fact that it will probably take three years, or two and a half years, to go from feasibility studies to identifying land and grid connection to getting permission to install?

39. **Mr N Boyle**: That is exactly the crux of our point. You said that, in Northern Ireland, it will take three years and, unfortunately, you are right. In Great Britain, the exact same process takes nine months. We want you to identify the fact that it takes a very short time in the UK. The tariff drops on a particular date. If it takes an extra three years, then we are three years behind in tariff where we would have been had we done it in the UK, and that is exactly the point that we are making.

40. From our perspective, we are not asking for more; we are asking you to slow down the drop in the renewable obligations certificates. If this were a level playing field, we would not be sitting here today. We are developing sites in Scotland, and we are not arguing with them about changing the ROC. The reason why we need to sit down and argue with you guys is because the backdrop and the grid are not the same. The processes are not the same. There are far more barriers that elongate the process. I absolutely agree with you; we are not looking for anything other than identification or, if you like, an appreciation of the fact that things are not the same here.

41. **Mr Frew**: What is the rationale for the GB ROC stepping down?

42. **Mr N Boyle**: It is interesting. I will illustrate the point by saying that, in 2007, you would have bought a megawatt of panels from Germany for about €3·8 million. We were buying them at the back end of last year for €430,000. The reason for that is absolutely clear. I better watch what I say, given that I am on camera. A Chinese individual got on a plane, flew to Germany, bought a solar panel, brought it back to China, took it apart and mass-produced to hell out of it. Therefore, not surprisingly, economies of scale meant that that absolutely drove down the price. The reason why you saw such a massive reduction in the cost is because the Chinese mass-produce this stuff. In identifying that fact, mainland GB looked at this and thought that it would set a ROC price at 2 after doing loads of studies, which we were involved in. It would then reduce to 1·6, 1·4, 1·3 etc. Those drops were borne out of the fact that, because of the increased production, they saw a reduction in the price of the main components, most particularly panels. Subsequent to that, however, which is why we should go back to GB and tell them to review it, there has been an EU anti-dumping provision against the Chinese, which now means that the panels that we were buying for €430,000 per megawatt, we are now having to pay €560,000 for, and it is fixed. So, we are not in a position where that degradation in price should be relevant any more. We should be sitting in front of DETI in the UK and saying that, and, in fact, we have sat in front of Department of Energy and Climate Change (DECC) and said exactly that. So, the reason why it drops is because the assumption was that increased production would drive down price, but, in reality, that is not the case.

43. **Mr Frew**: As you said, there is an EC minimum price for imported solar panels. That is now in place.

44. **Mr N Boyle**: It is in place until December 2015.

45. **Mr Frew**: It seems to be the case that we are sitting at five megawatts at the present time. The majority of that is on domestic roofs. England is sitting at 3,000 megawatts at the minute.

46. **Mr N Boyle**: I would say that it is probably nearer to 3,500.

47. **Mr Frew**: So, the market has moved on there. People have committed, whereas here I think that only one planning

application has been successful for large-scale development.

48. **Mr N Boyle**: That is correct. It is BNRG.

49. **Mr Frew**: In Downpatrick.

50. **Mr Richard Green (Lightsource)**: We have two in planning, which are a similar size. The largest installation of solar PV in Northern Ireland at the moment is a 50 kilowatt system. To give you an idea, that is about the size of two tennis courts. The size of projects that we are talking about are a minimum of 30 to 35 acres.

51. **Mr Frew**: So, is the trick here not to talk about this year or next year but to talk about three years down the line? You may well have, as a company, a couple sitting in the fire at the present time, but surely if you have your feasibility studies and your business plans done, and you now find that you are on a cliff edge and if you do not get it done within a year, you will lose a percentage of the ROC, which will affect your business plan.

52. **Mr N Boyle**: We have to run a financial model today, knowing what we know about the timescales, which is educated by the process, and decide whether this works. What we are sitting here saying is that we would like to spend £100 million, but the financial model simply does not work. If we were able to build it today, or even within the timescales in which we are allowed to build it in England, we would press the button right now and build it, the same as we are in Scotland, England and Wales.

53. However, the process says that we have to add on 24 months — add on 24 months and you have already reduced it to something that means that our financial model does not work. What we would not want to say is, "Do nothing" and, in three years' time, have a tariff that works. What we are saying is sort of back up the tariff a bit, which is what has been suggested, so that we allow the numbers to work today, tomorrow and next year.

54. **Mr Frew**: Did your company respond to the consultation?

55. **Mr N Boyle**: I believe that we were the biggest contributor to the consultation. We have had many meetings with Michael Harris and members of his team. We did a 26-page report contributing to it. From our perspective, that was extremely important, and we have been involved in that process. As the largest of these businesses in the UK by a significant margin — we are maybe 10 times the size of our next contributor — it was important to us.

56. **Mr Frew**: According to the proposals, of which there were four, all except one suggest a step down. Only one proposal, which was proposal three, wanted it at 1·65. It seems that the Department has gone for the lowest. Do you know which proposal was yours?

57. **Mr Green**: The Department has gone with the one that we suggested.

58. **Mr Frew**: Which was the lowest.

59. **Mr N Boyle**: It is the lowest, but let us be absolutely clear: the price as you get bigger and as it becomes more business as usual will go down. So, we need a 7% return gross for our investor and to run our company. We do not need a 10% return. You can take a short-term view and try to milk this, but our attitude is, particularly as the largest in the market, and therefore it suits us to be able to do that because we are the largest, what we can actually build these things for to make a fair return. If you do it any other way, you will be hung up in process for the next 24 months. Speed for us is much more important and getting certainty about what is going to happen at the point at which our planning and grid applications get approved.

60. **Mr Frew**: You suggested in your proposal 1·6 for 2014-15, 1·5 for 2015-16 and 1·4 for 2016-17.

61. **Mr N Boyle**: It would be ridiculous of me to say, by adding 24 months to the process, why we would want a tariff higher than what is currently in place in the UK. If we can build on 1·4 in the UK, in light of the fact that you are adding 24 months, all I want is the same tariff

to be in place 24 months from now — completely fairly, in our opinion.

62. **Mr Frew**: Would it not then be better to go 1·5 right across those three years because what you are losing —

63. **Mr N Boyle**: Better go to 2·5 but at the same time —

64. **Mr Frew**: No, that first year, 2014-15, is set at 1·6 but that will not incentivise new people to come in if it is going to take two years at least to get into the installation stage. If you were to reduce that to 1·5, and on the 1·4 in the 2016-17 year have that 0·1 added on, you would have uniformity over the three years. Why can that not be done?

65. **Mr N Boyle**: I do not think so because we are talking about large-scale and we are talking about ground. If you look in our book, we have 5·3 megawatts on the roof of Bentley. That is a rooftop but —

66. **Mr Frew**: Is that not a different ROC? Is that not two?

67. **Mr N Boyle**: The principle is that one basically falls at the same pace as the other. I am using a roof as an example, so there are circumstances, albeit unusual circumstances, where there could be a substation in the corner of a site. Very unusual and I would not put too much money on it, but there could be. What we would not want is to be in a position where we could not do a site simply because we had changed. In other words, it makes absolute sense for it to fall over time but with an eye on the fact that there is a lag between today and the point at which we would connect.

68. We will connect some things, we believe, next year. All we are saying is that if this was in GB, the majority of what we are working on today would be built within the next 12 months. Some of it will in Northern Ireland but the majority will be pushed out further. Not all, though.

69. **Mr Frew**: So, the ones that you have in the system, you are looking for this year and next year, so you are looking at 1·6 or 1·5.

70. **Mr Green**: One of them.

71. **Mr N Boyle**: One of them.

72. **Mr Frew**: Playing devil's advocate, may I suggest that for any new companies, albeit rival companies, coming in that have to start the process from scratch, they will have to avail of the 2016-17 year, which is 1·4. They are at a disadvantage straight away. Stepping down will not necessarily incentivise the market. It might well just give you a leading edge compared with your competitors.

73. **Mr N Boyle**: I am not convinced that they would see it that way. I also think that, in order to get people into the market, it is the 1·6 that will get them interested. They will come in, look at the market and see that the process is elongated. If it is 1·5 across the board, they will stay in the UK because irradiation is what they normally look at. We are not hiding behind irradiation. We know that we, as a technology, have to fight with other technologies. We cannot say, "We need more money". We have never said, "We need more money for this because it is not very sunny in Northern Ireland". That is a completely rubbish argument because we have to take what we have got.

74. **Mr Frew**: If you are saying that they will not come in here and it will not incentivise the market at 1·5, how is it ever going to do it at 1·4 in three years' time?

75. **Mr N Boyle**: If you are looking to incentivise the market, by all means do. I have no problem with that. We do not have an issue with competition. We do not want to be 100% of the market. You could, by the same argument, have 1·6 level across the board. I am fine with the 1·5 across the board except if for the next 12 months any of the sites, albeit it would be unusual, could have got under 1·6 but fell foul of that and got to only 1·5. In the very unusual circumstances where we got a site that worked, only for that reason would I say that I prefer the way it steps down.

76. If you are suggesting 1·5 across the board for three years, I am absolutely

fine with that because that is better for us, too. We have absolutely no fear of other people coming into the market — no fear whatsoever. In fact, it almost backs up that we are not making a mistake going into this market if other companies come into it too.

77. **The Chairperson**: Thanks very much for that. Following through at the 1·5, I just want to tease this one out. The embargo on the Chinese stuff is three years' time?

78. **Mr N Boyle**: December 2015.

79. **The Chairperson**: But if you keep it at a flat rate, people will hang back until that is lifted. I will put it to you this way: if other companies are not alive and awake to come in and see opportunities there, that is their problem. That is being frank.

80. **Mr N Boyle**: Correct but —

81. **The Chairperson**: That is the nature of it.

82. **Mr N Boyle**: My assumption is you are not talking to just Lightsource, you are trying to kick-start an entire industry.

83. **The Chairperson**: Totally, but if they are not awake or alive to business opportunities, that is, frankly, their problem and an issue that they have to address in terms of who is running their companies. Do you take the point?

84. **Mr N Boyle**: Absolutely. We will have a very busy first quarter in 2016.

85. **The Chairperson**: If the incentivisation is graded, it is an incentivisation. If it is flatlined, it might not be an incentivisation at all because people potentially could hang back at the maximum profit stage.

86. **Mr N Boyle**: Correct. Flat is an interesting concept that I have never had suggested to me before. It naturally goes down in price as the sites become bigger and it becomes more familiar. There would be a circumstance, which is the point you are making, that 1·5 — By the way, the EU might extend the 56 cents, but if it did not —

87. **The Chairperson**: It might not.

88. **Mr N Boyle**: It may not. If it did, you could have a bumper number of months because you are getting paid 1·5, which is significantly more than you get in the UK and, happy days, being in Northern Ireland was an advantage. That is why I think realistically that the step down is more normal.

89. **The Chairperson**: For my own clarity of mind, can you give us a comparative between the ROCs that are available in the UK, Scotland or wherever and those that are proposed here?

90. **Mr N Boyle**: They are exactly the same as today. It is 1·6 until the end of March and it then goes to 1·4, 1·3 and 1·2.

91. **Mr McGuigan**: It completely mirrors it.

92. **Mr N Boyle**: It mirrors it.

93. **The Chairperson**: The drop from €3·8 million per megawatt that you suggested down to €430,000 is bumped up again to €560,000 because of the Chinese thing. How is that being factored in? Quite clearly, that means that your source, which is the panels that you are bringing in, increases the profitability of the company significantly, probably back down to about one seventh, even with the EU intervention.

94. **Mr N Boyle**: Unfortunately, the two ROC 1·6, 1·5 and 1·4 was set when the panels did not have an EU fixed price. They were set when we were buying at 43 cents. That is my point. We should be sitting in front of DECC. We did do that and said, "Guys, the two ROC 1·6 is incorrect because you were using pricing that is no longer relevant because you have increased the price by bringing in the EU directive that fixes the price of Chinese panels".

95. **The Chairperson**: Prior to that, it was coming in at €3·8 million.

96. **Mr N Boyle**: That was 2006. There was nothing in the UK at that point. That was in Spain.

97. **The Chairperson**: When was the price drop to €430,000?

98. **Mr N Boyle**: That was the cheapest we ever bought. I will put it into perspective. When we started building in 2011, our tariff was 30·7 pence. We are now talking about six pence. Overnight, the tariff dropped from 30 pence to 8·5 pence. We have swallowed all that. We are now at 6·5 pence. We are not talking about massive amounts.

99. **The Chairperson**: I appreciate that.

100. **Mr N Boyle**: I do not know how many meetings we had with Westminster to push against the EU directive. If we were in a position where having to pay 56 cents was not in place, we would be in a much rosier place. But we are; we tried to push against it.

101. **Mr Agnew**: Thank you for the information so far. There are perceptions out there that we could fall into the same trap, to some extent, as we did with biofuels versus fuel. What is your response to that?

102. **Mr N Boyle**: One of the big advantages with solar, not so much in Northern Ireland but in the UK, is that you have — correct me if I am wrong — grades 1, 2, 3a, 3b, 4 and 5. That basically looks at different land and grades it from arable right the way through to land that is not really worth anything. Our major focus is on 3b, 4 and 5.

103. Remember that all we need is the land to point up. We do not need it to be prime land. It can be a dirty site, brownfield or anything else because, ultimately, we are interested in what is above the ground rather than what is below it. So, we do not tend to go for prime arable. However, in the pictures that are firing around, there are seven or eight metres between each of our rows and we go for planning on all. However, on a significantly higher percentage of our sites, we have sheep grazing, chicken grazing and llama grazing. It sounds funny, but we do.

104. We have a situation where we are basically allowing the farmer to have two different revenue streams. So, he continues to farm the land. We are doing a lot of stuff with the National Farmers' Union. We are bringing in flowers, bees etc. It is, if you like, a form of biodiversity, where you are setting aside some of that land.

105. The argument is whether we are taking prime agricultural land and using it for solar. From our perspective, we believe that that is inappropriate and certainly not something that we promote. If you talk to the National Farmers' Union in England, you will find that its opinion is that we would have to go an awful long way, over a lot of years, installing a lot of solar, before we would ever be in situation where we were impacting on the UK's ability to feed itself simply by installing PV.

106. **Mr Agnew**: Just to be clear, there is nothing, certainly in the financial sense, to prevent a farmer switching to using arable land for solar. The document states that it is £400 to £500 per year, per acre. Is that a set price or are there inflationary increases?

107. **Mr N Boyle**: No, it is index linked. Everything is retail price index (RPI) linked. To be clear, the £400 to £500 depends on the size, because there are economies of scale, and where the grid is. If the grid is in the corner of your field, you are looking at £500; if it is not, you are looking at £400. Ultimately, we run a financial model to get our 7% target. We work back to say, "This is how much we can pay you for your land, full stop".

108. **Mr Agnew**: I am just looking at the arable land from the farmer's point of view. It is fine to say that it is not your intention, but why would a farmer not switch, given that it is a fairly good price for land rental and, as you say, they can continue to have grazing land etc.

109. **Mr N Boyle**: Our limiting factor is not farmers who want us to rent their land. That is not what it is about. For us, the limiting factors are where the grid is and where we can get planning.

110. **Mr McGuigan**: It also has to be properly sited. Not every farm will work.

111. **Mr N Boyle**: We have never had the problem where a farmer said, "No, no, I do not want that amount; I want to continue to farm my land for a third of that". We have never had that problem.

112. **Mr Agnew**: The potential is still there, but your experience in GB is that it is maybe not likely. Would that be fair to say?

113. **Mr N Boyle**: That is never the driver. It is grid first, then planning and land.

114. **Mr Agnew**: On planning, obviously we have seen, certainly in Northern Ireland, resistance. There was a lag, I suppose, between wind developers coming in and community resistance to wind. We have not seen the same levels of opposition as GB has seen, although I think that that is increasing. I am looking at Paul, because he is a member of the resistance. It is increasing in Northern Ireland as people see more and more wind turbines go up. Is that a problem with solar? I know that they are different. As you said, the visual impact of solar is, arguably, less. However, you are talking about a pretty big scales when you look at the size of some of the farms.

115. **Mr N Boyle**: Install a big hedge and you will not see it. We are talking about 2 metres or 2·5 metres. Do not stick it on the side of a hill so that everyone can see it. By definition, wind needs to be somewhere windy. So, you cannot hide it away, because it has to be somewhere windy. By definition, it has got to be exposed, which means that it can be seen. Visual impact therefore becomes an issue.

116. With solar, it can be literally anywhere that points up, which tends to be everywhere. So, we can put it in a sensible position. Cornwall is where we have a lot of our sites, as you will see from the map. We build what are known as Cornwall hedges around the outside. That is a 3 metre hedge. There are some pictures on our website of views of our sites from the next field; it is a nice picture of a hedge. You cannot see it, because it is only so high. I have no problem with wind developers or renewable energy of any sort. However, we definitely benefit from the at-least-it-is-not-wind brigade.

117. **Mr Agnew**: What percentage of planning success do your company's wind farm proposals have?

118. **Mr N Boyle**: About 85%. We were hitting 90%, but 85% is our —

119. **Mr Agnew**: Of those 15%, what are the reasons for rejection?

120. **Mr N Boyle**: You are probably better covering that.

121. **Mr McGuigan**: Obviously, local opposition, if they are inappropriately sited or there are neighbours. There is a list of churches that we thought did not have an impact but environmental heritage has come back and said that it thinks there is a view. Of the 85% of those applications, I think six were refusals. Five went to appeal, we withdrew one, and we have won four of the appeals since then.

122. **Mr Agnew**: There is a planning-related issue coming up with wind. I suppose Northern Ireland was not ready for some of the big companies and communities were not appreciative of the benefit that they could get. Individual farmers etc got a benefit where land was rented, but the community did not. The community is empowering itself now and actually saying, "No; we want to see some of the benefits seen in Scotland". Are there community benefit funds attached to solar farms? Do you have a set level per megawatt or how do you assess what kind of community benefit there is?

123. **Mr McGuigan**: We are still working that out in Northern Ireland, but 80% of our applications will be assigned and there will be a community benefit. A school will get a system on its roof or we will speak to local neighbourhoods. With all of our applications we have a huge consultation process, which obviously does not happen in Northern Ireland. Of the two applications we have submitted to date, we have had large public consultations in local halls and local schools.

124. **Mr N Boyle**: You have chosen to.

125. **Mr McGuigan**: Yes. It is something that we already routinely do. We are already built for that, so that is what we are doing over here in Northern Ireland. I think that has been welcomed by Anne Garvey from Planning Service.

126. **Mr N Boyle**: We have built a lot of cricket pavilions, let us put it like that. It is maybe not so strong in Northern Ireland, but that is what we tend to do. The communities are asked what they want.

127. **Mr Frew**: I have one wee supplementary question about the food-versus-fuel-type argument. You talked about the single farm payments not being affected. Surely that cannot be the case, because trees affect single farm payments. Ecological land affects single farm payments.

128. **Mr McGuigan**: Farmers routinely ask us and our advice has always been, because it is a legal matter, "It is a bonus if you can get it. It is up to you to go and find out if you can do it or not. This is what I am going to offer you". More recently, I have been speaking to one of our panel lawyers who said that they know of five of their own clients who have actually got it with our solar parks on the site. They have got it but it has been reduced, because they have to take out the posts in the ground, so they work out a calculation. They do not get it where the posts are or where the transformer blocks are, but that is a very small proportion of a field. There are six or seven metres between the panels. There are maybe 2,000 posts, but they are that thick, so it does take out a small proportion of the area for that single farm payment, but not a lot.

129. **Mr Frew**: So you are telling me that the solar panel itself —

130. **Mr McGuigan**: No. Underneath that, because there is grass underneath that so the sheep can graze there. With the ones that we have grazing on, we just take out that area where the post is.

131. **The Chairperson**: Just on that, if beneath it is shielded from the sun, its capacity to grow is —

132. **Mr McGuigan**: It is not shielded from the sun. You can see from the photographs —

133. **Mr N Boyle**: The sun tends to move a bit.

134. **The Chairperson**: I am well aware of that.

135. **Mr N Boyle**: It is interesting, because we actually had a Member of Parliament in England saying, "I am not stupid. I understand the way photosynthesis works. There is no grass", so we brought her to a site. First of all, only 30% of the land is covered, and it tends to be two metres —

136. **Mr Dunne**: What about the lack of rainfall?

137. **Mr N Boyle**: The interesting thing is that the shelter is an interesting positive by-product in that the sheep that graze are not trying to keep themselves warm and can shelter under the panels. You could therefore argue that there is a plus in terms of the weight that they can put on.

138. **Mr McGuigan**: [Inaudible.] solar park is only a quarter of the fields. Even though, in the photographs we are showing you, it looks like the field is covered in blue, only a quarter of that site is actually blue. In between the rows is quite —

139. **Mr N Boyle**: In some photos you can see the spaces.

140. **The Chairperson**: I am genuinely interested in how this works.

141. **Mr N Boyle**: You should come over and see one.

142. **The Chairperson**: It might be helpful for us to go and view how it works.

143. **Mr N Boyle**: We have brought NIE over. NIE has been over to see one of our sites already.

144. **The Chairperson**: Sorry, Paul, were you finished there?

145. **Mr Frew**: I think it is something that the Committee should scrutinise more.

146. **Mr Dunne**: Sorry, Chair, there are other members here.

147. **The Chairperson**: It is just that he is picking up on a point there.

148. **Mr Frew**: It is a valid point. The single farm payment is crucial to farmers, so I think it is something that needs to be ironed out.

149. **The Chairperson**: There is one other thing that I want to ask you. Again, I am getting into an area that I know nothing about, and I would be the first to admit it, in terms of how much energy it generates. Where I represent, there is a big issue around a major wind farm development. It is very contentious. I want to ask about the efficiency of solar panels versus that of wind. That is probably an engineering or technology question, but that intrigues me with the investment that is made. You may want to expand on that at some other stage and provide me with some details about that.

150. **Mr N Boyle**: You are comparing apples with oranges. Basically, the way to think about it is in terms of households. Our crude rule of thumb is that a 5 megawatt plant, which is a 30-acre plant in Northern Ireland, delivers energy to approximately 1,000 homes. In the UK, it is about 1,200 homes per 5 megawatts, but it is not as sunny here.

151. **The Chairperson**: What would it be the same acreage of development for wind? I know that we are comparing apples with oranges, but it is the same level of investment, outcome and those sorts of things.

152. **Mr N Boyle**: How many wind turbines can you put on 30 acres? It depends on the site, and you could put three on some sites and one on others. However, you would not take the whole site. You would just take a little block around it.

153. **The Chairperson**: I appreciate that, but I am trying to compare it. Maybe at some stage we could have a further conversation with some of your technical people about that.

154. **Mr N Boyle**: I can do it in megawatts. The very large wind turbines that you see are maybe 2 megawatts or 2·5 megawatts. There are bigger ones, but the ones here are 2 megawatts or 2·5 megawatts. That is 15 acres worth of solar in installed capacity.

155. **Mr Dunne**: The Committee has carried out quite a bit of work on the cost of generating electricity. You are probably aware of that. We all recognise that Northern Ireland is one of the most expensive places for energy costs.

156. There is a perception that renewable generators are making considerable profits and that they are making much more profit than many of the conventional generators. Do you feel that that is sustainable in the long term?

157. **Mr N Boyle**: Do I? I wish it was.

158. There are clear differences between different sorts of technologies. The advantage with solar has always been its boring and predictable nature. Therefore, as a means of creating retail investment, it has been very attractive. If you look at the returns that can be generated from solar when compared to wind there is a significant difference and there are advantages with both. Solar would not generate the same internal rate of returns (IRRs) as the likes of wind, and that is widely accepted.

159. Our business model is predicated on us delivering a 7% return. That is obviously gross and we then pay ourselves and pay a return to our investors. Wind is in the double digits. Is solar sustainable at 7%? Maybe it could drop to 6% but, if it dropped much further, you would be better not investing the money.

160. **Mr Dunne**: What about against the other conventional generators. They obviously have large ongoing overheads. Is it fair that you get incentives at the same rate? Is that fair and sustainable in the long term?

161. **Mr N Boyle**: The difference between us and other generators is that they do not generate but just change coal, gas or oil into electricity. We are different in so much that we are truly generating. If you are comparing our profits to the likes of the Saudis or the Russians and

their gas then we are clearly not making anywhere near as much as that. You are making a jump —

162. **Mr Dunne**: What about the local generators?

163. **Mr N Boyle**: The local generators are not creating and there is no feed stock as such. We utilise the sun rather than —

164. **Mr Dunne**: Which is free.

165. **Mr N Boyle**: Yes, exactly and it is great that it is free. However —

166. **Mr Dunne**: You are making big profits. Are those profits sustainable?

167. **Mr N Boyle**: Let us be absolutely clear on the profits that we are making —"profits" is a weird word. We make a 7% return. However that 7% return not only has to run our company and make our profit but needs to repay the investors that put the money into our company in the first place. So, a 7% return gross is not amazingly high in anyone's book. We are about making a large volume of investment, so that is why we have invested £1·1 billion, but it is certainly not a high-margin investment. Absolutely not.

168. So, is it sustainable? It is probably more sustainable for longer because of the fact that it is realistic in its returns.

169. **Mr Dunne**: Do you do any small-scale schemes or are you just interested in the larger scale?

170. **Mr N Boyle**: We bought a company called Renewable Resources (Energy Solutions) Ltd last month and it is the largest installer of rooftop in the UK. It has done 770 roofs. We intend to move into that space. We have done 97 schools and 30-odd small-scale, but the majority of what we do is very large scale. Again, it is a completely different niche, domestic to large-scale. It is not something that we have done before.

171. **Mr Dunne**: What about the connection charges? Is it much more cost-effective to work on the large-scale than on the smaller? We hear a lot about the issue of connection charges — in Northern Ireland it is about three times higher than in the rest of the UK.

172. **Mr N Boyle**: That is allowed for, though. If you install a 50 kilowatt system today, you get four ROCs. What we are debating is, for the same electricity, getting 1·6 ROCs. So, yes, there are economies of scale, which is why you can afford to pay us 1·6 as opposed to 1·4, but they can grid-connect into the local three-phase supply, whereas we have to build in an entire substation.

173. So you are really comparing apples with oranges. It would be really simplistic to assume that you could look at a 50 kilowatt system, compare it to a 5 megawatt system and just set something 100 times the size. Considerations are different, which is why you pay us less for the big ones, because there are economies. However, if those economies come with the price of having to spend massive amounts on grid connection, then it no longer works financially.

174. **Mr Dunne**: Just generally, what sort of farmer do you think would be interested in taking up your systems?

175. **Mr N Boyle**: We have seen a number of older farmers, maybe whose kids are —

176. **Mr Dunne**: Have you done some research on that in Northern Ireland?

177. **Mr N Boyle**: In Northern Ireland, we had a very big stand at the Balmoral show, and 156 people filled in forms asking us to come and sit down with them. If you are an older farmer, if your kids do not want to go into farming etc this is a great way of not having to sell the land and getting a long-term income. Then you have other farmers who have say, for the sake of argument, a couple of hundred acres. We are saying that this is a way for them to diversify, by putting 30 acres, 40 acres or 50 acres into this, along with other top forms of crops.

178. **Mr Dunne**: On high ground, you mainly have sheep or dry-cattle grazing. Do you see that sort of farmer going for it?

179. **Mr N Boyle**: It is perfect for us, but there is a visual impact. If the planners would allow us to do that it would be perfect because the farmers continue to get the grazing. As I say, we do not care that the land is high or is not very good quality from an arable perspective.

180. **Mr Dunne**: What is the attitude of the planners?

181. **Mr N Boyle**: Visual impact.

182. **Mr Dunne**: Yes. So, obviously you are not going to put it on high ground?

183. **Mr McGuigan**: No, there will be instances where you can and surround it by trees, but poor land is what we are going for generally, and in the UK as well.

184. **Mr Dunne**: Obviously, poor land tends to be on higher ground, but the planners are not allowing it?

185. **Mr N Boyle**: No. It is not always. You could have dirty sites, old industrial sites, brownfield sites, old air force bases or World War II airfields. There are loads of examples of land that is not prime, such as poorly drained land etc, which is not necessarily up a hill.

186. **Mr Dunne**: Can you compete with dairy production, for example?

187. **Mr N Boyle**: There is a problem if a dairy cow walks into us — a sheep would not damage our installation.

188. **Mr Dunne**: I am not talking about that. I am talking about the cost.

189. **Mr N Boyle**: Yes, we would be able to —

190. **Mr Dunne**: Dairy farmers are always after more land. They buy land at excessive cost. Can you compete with that price per acre?

191. **Mr N Boyle**: We believe that, at £500 per acre, we can compete with that.

192. **Mr Dunne**: You would be surprised. Planning policy statement (PPS) 21 has come in fairly recently and has relaxed planning regulations on a number of issues. In many ways, it has been very positive. How do you think the planners will react to your schemes in Northern Ireland?

193. **Mr McGuigan**: We have met them. We met the directors before we even started submitting applications. I used to work in the Planning Service, so I know all the people involved. An application that we have in at the minute is going through the process as I would expect.

194. **Mr Dunne**: Where is it for?

195. **Mr McGuigan**: It is in Downpatrick —

196. **Mr Green**: Lough Road, upper Ballinderry.

197. **The Chairperson**: The Downpatrick one is already through.

198. **Mr McGuigan**: We have got one down there as well, and we are going for two in Ballymena.

199. **Mr Dunne**: Where is the Downpatrick one?

200. **Mr Green**: Bishopscourt airfield.

201. **Mr Dunne**: I know it well. I will be there on Saturday, all being well.

202. **Mr Anderson**: I will try to be brief. Thank you for your presence here, gentlemen. Much of what I intended to ask has been asked already. I note that your installations in England and Wales, your prime sites, are more in the south, the midlands, and in the east. Have you any idea for Northern Ireland or are you thinking of the whole of Northern Ireland?

203. **Mr N Boyle**: They are in the South because, when a grid was not an issue, you went for the sunnier areas, not surprisingly. We started in the South, and we are moving forward. The solar maps, which we might have a copy of, are interesting. The right-hand side of Northern Ireland is sunnier than the left-hand side. I hope that I am not offending anyone with that, but that is just the way that it is. In the same way, the right-hand side of Scotland, is better than the left-hand side. It is just the way that the curve of the earth happens.

204. **Mr Anderson**: You would choose any area?

205. **Mr N Boyle**: We would love to choose anywhere if there were grid and we could get it through planning.

206. **Mr Anderson**: As a rural dweller and a representative in local government —

207. **Mr Dunne**: How many acres have you got?

208. **Mr N Boyle**: I will leave you my card.

209. **Mr Anderson**: Have you had any dialogue or consultations or talks with farmers, or the Ulster Farmers' Union or rural organisations such as the Rural Development Council, the Rural Community Network or any of those people, who are very much representative of rural dwellers or speak on their behalf?

210. **Mr N Boyle**: In England, we deal with the National Farmers' Union (NFU), and it is in our offices regularly, and we deal with the Country Land and Building Association (CLA).

211. **Mr Green**: We have engaged with the Ulster Farmers' Union here and with young farmers.

212. **Mr Anderson**: What have been the indications from the feedback that you have got from them?

213. **Mr Green**: It is very positive, for the reasons that Nick has pointed out. You have the appeal of diversification and dual income, and you have also elder farmers who maybe do not have anyone coming through following behind them and who are almost looking for a pension. Younger farmers are embracing new technology and new ways of generating income from their land, so it has all been very positive. As Nick said —

214. **Mr Anderson**: When you say that it is very positive, do you mean that you are getting no objections to it?

215. **Mr McGuigan**: The objections are from people who live or are perceived to be living nearby.

216. **Mr N Boyle**: It is not the farmers.

217. **Mr McGuigan**: Of the three public consultations that we have had so far, about 60% —

218. **Mr Anderson**: But, they are part of the community. Wind turbines have come in —

219. **Mr McGuigan**: Sixty per cent of the people who are coming to the public consultations are coming to say, "What about my land?". It is an unusual situation that I have been in. They are not going there to argue.

220. **Mr Green**: When farmers hear the level of rental that we are able to pay, some will say that that is not good enough. That is fine and is their prerogative, and they will walk away. We cannot go above those levels for a project to be viable.

221. **Mr Anderson**: There are farmers who are custodians of the rural land. There is a big swathe of people who, if I am right, quite honestly in my experience, are in opposition to wind turbines and other projects in the rural countryside, even including anaerobic digesters, which we talked about earlier. In one case, I had 400 objectors to an anaerobic digester. There will be these things coming along. Can you see yourselves getting to the position where you get these people on board and encourage them about the benefits?

222. **Mr N Boyle**: The argument that this is ruining our green and pleasant land is not just a Northern Ireland mentality. We have over 4,500 acres in GB that have had exactly the same considerations. If you do it in an inclusive way and take time to explain the situation, not all of the planning will get through. We will not even choose to put all of the applications in. Steven's question was about how many of the planning applications we put in come out. The answer is 85%, but we do not put in everything that we could do.

223. **Mr McGuigan**: Last year, we put 29 in. We looked at 1,350 sites to get 29 applications.

224. **Mr N Boyle**: You are right. You have to kiss a lot of frogs, but the issue tends

not to be the farmer who has the land but the other individuals around there. There is enough land and then some, so it does not have to be difficult. If that one is not going to work, there is plenty more land to go for.

225. **Mr Anderson**: From looking at your brochure, a lot of the plans seem to be on quite good land. Taking up the point that my colleague Mr Dunne made, I get the opinion that it will be good, flat low land that you are going on if you cannot get the planners to say, "OK, we will let you go on the side of a mountain".

226. **Mr N Boyle**: Is it easier to build on flat, well-drained land? Yes. Having said that, there are many, many different circumstances. There is no one silver bullet that says that a site will work. You have to take into consideration grid, the local planners, the neighbours and whether or not the farmer wants to diversify into something different.

227. **Mr McGuigan**: All of those sites are grade 3B. I think that one site that we have, which is not in those photographs, is grade 2. All of those are grade 3B.

228. **Mr N Boyle**: It is grazing land.

229. **Mr Anderson**: Which is used a lot in Northern Ireland?

230. **Mr N Boyle**: Which is used a lot in Northern Ireland. Exactly.

231. **Mr McGuigan**: About 95% —

232. **Mr Anderson**: — the number of cows on the land.

233. **Mr McGuigan**: Well, sheep.

234. **Mr Anderson**: It has been an interesting debate and discussion. It has been very helpful to listen to you and your ideas. I look forward to our meeting again.

235. **Mr Flanagan**: Gentlemen, thanks for your presentation. I am sorry that I missed it, but I was under the impression that maybe Hansard was here as we were discussing legislation. Is there any chance of having this transcribed retrospectively?

236. **The Chairperson**: We are going to have to have it done retrospectively.

237. **Mr Flanagan**: Can we have that done?

238. **The Chairperson**: Yes.

239. **Mr Flanagan**: OK. So, I have no idea what you said —

240. **Mr N Boyle**: It was really good. [Laughter.]

241. **Mr Flanagan**: I presume you are looking for more money.

242. **The Chairperson**: You shine a light, Phil. [Laughter.]

243. **Mr Flanagan**: What is your opinion of the system marginal price in the single electricity market? Do you think it is fair that, as the price of fossil fuels continues to rise, the price renewable generators are paid per unit of electricity continues to rise also, or would you be satisfied with some form of a fixed price per unit rise, maybe in line with inflation?

244. **Mr N Boyle**: First, I have to say that the three people in front of you are not the right people to ask that question of, although we have people who would love to answer that question. From a macro perspective, we are looking at a price of installation and the amount that we can generate from that installation. We want to make sure that one is able to pay for the other allowing us a 7% margin. Other than that, what is going on externally with fossil fuel prices etc are in no way taken into account except that we make a prediction using Pöyry forecasts as to where the long-term electricity pricing is going to go. That is because we are selling this wholesale electricity if it is not plugged directly into a user. Therefore, the price of electricity in a market comes into play, but only in that sense and no other sense.

245. **Mr Flanagan**: So that is the price that it is going to be in the future.

246. **Mr N Boyle**: That is the price that it is going to be in the future.

247. Yes.

248. **Mr Flanagan**: Do you think it is fair that, as the price of fossil fuels goes up, the price that renewable generators get also goes up? That is the way that system marginal price works in Ireland.

249. **Mr N Boyle**: We are talking about the renewables obligation certificate, which is the tariff over and above, so the fact that the electricity that we create and are able to sell is then in a market is slightly an aside from what we are talking about here. This is for generating renewable electricity, it is that ROC bit. That ROC bit is not affected by all of those other things.

250. **Mr Flanagan**: I appreciate that, Nick. You have said that, and I appreciate that you probably do not understand the system marginal price, as well —

251. **Mr N Boyle**: It is far too detailed for me.

252. **Mr Flanagan**: We do not understand it as well as we should. That is not something about this particular piece of legislation and amending the ROC agreements, so I am more than happy for you to go and look at that and talk to somebody who has analysed the system marginal price and come back to us, in writing, if you want.

253. What I am trying to say is that you are telling us that you need a greater level of incentivisation per unit of electricity to make this profitable, but the price that you are going to be paid for electricity in the future is probably going to continue to rise because the price that you are paid is based on the price of —

254. **Mr N Boyle**: That is all in our financial model. We are not saying that. We are saying that we want to have exactly the same system as mainland GB. The only thing is that, because of Northern Ireland's special conditions and the processes, it takes 24 months longer than it should do, and all we want is for you to identify that fact and pay us 24 months — in other words, if we were building something today, and we have sort of covered that, it would take nine months, whereas if we were building something here —

255. **Mr Flanagan**: I have not got on to that point yet. That is another point that I want to cover. The point I want to talk about is how much you are paid per unit of electricity.

256. **Mr N Boyle**: That is all factored into our model and that is why we are able to say that the model either works or it does not.

257. **Mr Flanagan**: From 2017 on here, we will have a feed-in tariff (FIT) that contracts for difference (CFDs), which means that if the price or cost of electricity continues to rise, then the level of incentivisation that renewables get will reduce. Do you think that that is a better, fairer system?

258. **Mr N Boyle**: That system is coming in in 2017, whether we like it or not. I think that it is a more transparent system. It is also more reassuring, from our perspective, because it has moved to more like a FIT-type structure where we know exactly where we are, whereas, at the minute, we have got fluctuations beyond our control. The move to ROC, from ROC to CFDs is not something that we have a problem with, in fact, we as a business have already run off all our financial models. We know where we need to get to with megawatt pricing and we are working toward that now.

259. So, is the system better or worse? I don't know. Is FIT better than ROC is ROC better than CFD? They are all just different ways to subsidise, kick-start and maintain an industry. From that perspective, if the Government feel that that system is the most appropriate, we will have to put up with it.

260. **Mr Flanagan**: What we are discussing today is the level of ROC payment that you will get for the next 20 years. If the cost of electricity triples in the next 20 years, you will get three times the price for your electricity but the same higher level of ROC payment. What we are trying to figure out is whether that needs to happen or not. Do you understand the point that I am trying to get at?

261. **Mr N Boyle**: Yes, but remember that the financial model that has brought us to here says that this does not work on 1·6

ROCs. We pay an awful lot of money to a company called Pöyry to tell us where the electricity prices are going to go over the next —

262. **Mr Flanagan**: So you have hedged your investment over 20 years based on an increase —

263. **Mr N Boyle**: Absolutely. On its prediction.

264. **Mr Flanagan**: So if the price of electricity does not increase, you will lose money?

265. **Mr N Boyle**: Correct.

266. **Mr Flanagan**: That is fine. That is different. Did you want in on that point?

267. **Mr Frew**: On the 7% margin, surely that does not just include ROCs; it also includes the system marginal price.

268. **Mr N Boyle**: Everything, yes. Clearly. We get two forms of revenue, whether it is CFDs or ROCs, and we get to sell the electricity. Electricity is not predictable. ROC is predictable; this one is not. Therefore, if it were all ROC, it would be brilliant, because we would know exactly where we are. This bit is not predictable. Therefore, we pay Pöyry, which is the biggest such company, Redpoint or a number of other companies to tell us what the electricity price will be for the next 25 years.

269. If we ever want to borrow money from a bank or if you ever want someone to invest in you, they need to see that report in order to say, "Hang on a second, given that I am putting money into you, how much will you get for your electricity?" We do not presume to stick our finger in the air and say, "Hey boys, we are getting 5p today, but we think that we will get 10p in five years". We outsource that to somebody who is infinitely more intelligent and spends an awful lot more money on analysts etc to be able to say exactly what the pricing will be. They take into account fossil fuel prices, the Russian situation and how much reserves the Saudis have left. All that is taken into account to come up with the prediction.

270. **Mr Flanagan**: OK. Somebody may have asked this already, but I do not understand why the differential between the time that it takes to get a project up and running here and the time that that takes in Britain means that you need more money. Can you explain that to me?

271. **Mr N Boyle**: As you said, the feed-in tariff drops over time. If I start from a standing start in England today, I know that I will get 1·4 ROCs, and if I start from a standing start today in Northern Ireland, I know that I will get 1·2 ROCs. Yet, everything is exactly the same. So, I am in a situation where I am getting less here than I am getting in mainland GB because of the elongation of the process.

272. **Mr Flanagan**: I do not get it.

273. **The Chairperson**: To be fair, we spent quite a bit of time on this before you came in, Phil.

274. **Mr Flanagan**: So because it takes longer to get something up and running here, you need more money? The price of electricity may have gone up by x by the time you develop the project, say, two years' later.

275. **Mr N Boyle**: That is all taken into account when I tell you that it is not affordable. Have you also looked at the grid connection? Take the example that we used. It is not just about timing. It is about timing and the fact that the grid here is not sufficient. The grid rules say that we cannot tee off a line; we have to go all the way to a substation. In the UK, for example, it would cost us £250,000 to grid-connect a site. However, for exactly the same site in Northern Ireland, it would cost us £875,000. Why? Because your processes are different. They do not need to be different, but they are different. That £625,000 is not magically produced. It has to be produced from somewhere. Where is it produced from? It is produced from you paying us an extra tariff by the virtue of the fact that Northern Ireland is different.

276. **Mr Flanagan**: In terms of the —

277. **The Chairperson**: I think that we have sufficiently exhausted that one.

278. **Mr N Boyle**: Can I make one really important point? We are building an infrastructure that lasts 60 years.

279. **The Chairperson**: Very briefly, please, because we have a lot of stuff to get through here.

280. **Mr N Boyle**: It is a 60-year infrastructure. We are buying all that kit that lasts 60 years. We will use it for 25 years, and anyone else can use it during those 25 years. So, it is not as if we are keeping all the money. We are actually upgrading and expanding infrastructure in the UK that is owned by NIE, not by us. So, that money is not wasted. It is going into infrastructure that is owned by Northern Ireland.

281. **Mr Flanagan**: Are you building or sourcing any solar panels locally?

282. **Mr N Boyle**: No.

283. **Mr Flanagan**: Where are they being imported from? Germany?

284. **Mr N Boyle**: No. Let us say that we have 600 megawatts, — we have more than that, but let us say that we have 600 megawatts — five megawatts are not from China.

285. **Mr Flanagan**: So there are only five not from China. Is there not an issue with importing solar panels from China?

286. **Mr N Boyle**: There is not an issue with it. There is a pricing issue with it — £560,000.

287. **The Chairperson**: To be fair, we covered this in a considerable bit of detail before you came in, Phil.

288. **Mr N Boyle**: You are talking about the anti-dumping.

289. **Mr Flanagan**: OK. That is grand. Right, Patsy.

290. **The Chairperson**: If you want to continue the conversation afterwards —

291. **Mr Frew**: Read Hansard.

292. **Mr Flanagan**: They are not here. They have not written it yet.

293. **The Chairperson**: We are going to get it done retrospectively. Gentlemen, thanks very much indeed for your time. This has been very useful to us. You probably shed more light on it, if I can use that analogy, than the Department did.

294. **Mr N Boyle**: More heat than light.

295. **The Chairperson**: Hopefully, heat and light. Thanks very much indeed for your time and for being with us. Hopefully, on some occasion, we as Committee members will see some of that stuff in operation.

296. **Mr N Boyle**: Thank you very much.

297. **The Chairperson**: Thanks again, and good luck.

1 May 2014

Members present for all or part of the proceedings:

Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne

Witnesses:

Mr Jonathan Buick — *Action Renewables*
Mr Michael Doran

298. **The Chairperson**: I welcome Mr Michael Doran, executive director of Action Renewables, and Mr Jonathan Buick, head of projects. Thank you for being with us today to discuss what is proving to be a very interesting topic. You were here for most of the previous session, so you will know that you have up to 10 minutes to make your presentation after which we will have a question and answer session with members.

299. **Mr Michael Doran (Action Renewables)**: Thank you very much. We will probably take less than 10 minutes to do the presentation; I am sure you will be glad to hear that.

300. We are going to highlight three issues, two of which are directly related to your brief. One of them is slightly peripheral, and Jonathan will deal with that at the end. The first issue that we want to talk about is the length of time that it takes to make a grid connection, and the second one is to do with cost. Jonathan will talk about the specific issue to do with small-scale renewables. It is not specifically part of the brief that you had originally drafted but it is related, and we will explain that when we get to that point.

301. You have already received our submission, so I will summarise that very quickly. There are two issues to do with grid connection, one of which you discussed with the Northern Ireland Renewables Industry Group (NIRIG) earlier, which is the 90 days that it always takes Northern Ireland Electricity (NIE) to come out and give you a quote. The second one, which is more of an issue, is the amount of time it takes, once you have received the quotation, before NIE makes the connection. That, now, is typically of the order of two years in Northern Ireland. That is becoming a major issue.

302. There is also a separate issue that in GB when you get your grid offer, they also give you a date for grid connection. That does not happen in Northern Ireland. So, when they give you the grid offer, and you pay the deposit, you have no indication when the grid connection will be made.

303. The second issue is to do with cost. I should have started by saying that we are, typically, working in the 50 to 500 kilowatt range, so we do not tend to be in the larger-scale market that NIRIG works in. Also, we tend not to do a lot of work at small, domestic scale. What I am talking about are issues that are particularly within the 50 kilowatt to 500 kilowatt scale.

304. Typically, in Northern Ireland, the cost of grid connection is now somewhere between 20% and 50% of the total capital cost of the project. In England, it is 5%, so it costs considerably more in Northern Ireland to get a grid connection.

305. We did a survey of the last 15 projects in which we were involved in Northern Ireland and found that the average cost was £174,000, and that was typically for a 250 kilowatt wind turbine. Those were pushing, on average, around 40% of the total capital expenditure. In one of those 15 cases, the grid quote was £309,000. The turbine was costing £150,000, so it was costing twice as much as the turbine. I will ask Jonathan to highlight the third issue.

306. **Mr Jonathan Buick (Action Renewables)**: The third issue is with another sector that we work with, which is the small-scale photovoltaics (PV), micro-scale photovoltaic or solar panels that you will have seen popping up on roofs across Northern Ireland. We have become aware, in the past six months or

so, that the electricity that those panels generate and export to the grid is not assigned to electricity suppliers: in other words, it is just absorbed into the NIE system. That effectively reduces the losses attributed to the NIE grid in the transmission of electricity.

307. At the moment, although we are not entirely sure of the mechanisms, there is one electricity supplier that is willing to purchase that electricity even though the electricity is not assigned to it, and that is Power NI. We feel that competition is lacking in the area of export of domestic renewable electricity on to the grid. It is something that happens in GB, where the export is deemed and any electricity supplier can purchase that electricity, and the electricity is assigned to them. Another alternative would be to install half-hourly metering. At the moment, we understand that NIE is not allowing installers to install their own half-hourly meters, and the cost of NIE installing half-hourly meters is prohibitive for that scale of development. So, that is another issue that we have come across.

308. **The Chairperson**: OK. You raised a number of very interesting issues there. Mr Doran, you said that NIE always takes 90 days to come out and do the initial thing. That is in all cases. It leads me to believe, from what we were teasing out earlier, that it is taking 90 days, or up to 90 days, simply because it can. Would you suggest that that initial period should be reduced: in other words, do you think that, as part of the licence or criteria, that should be reduced to say 50 or 60 days or 40 days?

309. **Mr Doran**: Yes, I think that it should be reduced. Approximately a year ago, I chaired a meeting in Antrim. There were about 150 farmers present who had made grid applications. There was a straw poll, and, of the 150 in the room, every single one had been given a grid quote of between 88 days and 90 days. It is not abnormal; it is the norm.

310. **The Chairperson**: But it is abnormally the norm, if you know what I mean. I do not know whether you have any experience of other places, but is there comparable time frame in the UK within which the power company —

311. **Mr Doran**: In GB, it is normally weeks.

312. **The Chairperson**: It is normally weeks with the power companies in Britain?

313. **Mr Doran**: Yes. It is normally three to four weeks, in our experience.

314. **The Chairperson**: Normally three to four weeks. Right. There you are.

315. I am coming on to the connection bit here, because you said that, in your experience, the connection was typically taking up to two years. You mentioned something about the UK grid, the offer and the date of connection. Can you give me some sort of an indication as to what the comparable timescale of that is?

316. **Mr Doran**: It is normally three to six months.

317. **The Chairperson**: It takes three to six months, and it is taking two years here?

318. **Mr Doran**: It can take up to two years. There are issues here, particularly associated with easements, where you might imagine that it is fairly straightforward, but it gets into complex legal issues. All I will do is highlight that there is a considerable discrepancy in the amount of time that it takes to make a grid connection here in comparison with what it takes in GB. That being said, a large part of the issue is not with NIE being uncooperative. I am not sure that it has the resources to do it any faster.

319. I have to tell you a little story. I first became involved in this about 15 years ago. When I first started dealing with NIE, at my first meeting, they were talking about PLGs, and I did not know what a PLG was. I said, "Sorry, guys, what is a PLG?", and he said, "It is a piddly little generator." So, that is where you have a small electricity generator trying to get into the system. That attitude does not exist in NIE anymore. It is receptive, and it is trying to move forward, but I think that it is constrained by resources.

320. **The Chairperson**: That brings us back to the original question that we asked earlier about the input from other companies to do some of the work and whether the licence should be changed to allow for that to happen.

321. **Mr Doran**: We believe that it should. We think that there should be competition in the market.

322. **The Chairperson**: Yes. That makes sense.

323. You mentioned that the last 15 projects that you had were averaging out at £174,000 for a 250 kilowatt turbine. It is difficult to average out where there are longer distances to connect into the grid. Have you done a comparative study with parts of Britain, or can you give some sort of indication as to what those costs might be?

324. **Mr Buick**: We can give some examples. In some of those instances, we went to Airtricity in Scotland and asked what the cost would be for constructing a comparative amount of works to comply with NIE's conditions. The cost has typically been about one third of NIE's.

325. **The Chairperson**: Really? I am sure that that study is not commercially sensitive, so could you provide that to us, please? That would be very useful.

326. **Mr Buick**: Yes, we can.

327. **The Chairperson**: Thanks very much.

328. **Mr Dunne**: Thanks for coming along this morning, gentlemen. You have had a long sit. You will be aware of a number of the issues that we have covered. We will quickly cover planning permission. What is your attitude in relation to the planning permission issue? Should it run in parallel with applications?

329. **Mr Doran**: For the scale that we are talking about, we think that it should run in parallel. I heard NIRIG talking earlier, and I can understand why, at the larger scale, it might be slightly reluctant to go down that route. However, for the scale that we are working on, we think that it should run in parallel.

330. **Mr Dunne**: Is there any evidence that NIE will get involved in giving technical advice without planning permission? Can it do that?

331. **Mr Buick**: NIE will, for a cost, undertake what it calls a feasibility study. So, it will give you an indication of how much it may cost to connect to the grid without having planning permission. However, as many of our clients will often say, it is not worth the paper that it is written on, because it does not reserve that capacity in the grid. In fact, if your neighbour or someone else down the road were to come the next day with planning permission in place and submit an application and reserve that capacity by paying a deposit, your quote is meaningless.

332. **Mr Doran**: To refer back to the comment that I made earlier about it possibly not having adequate resources, I can understand why it does not want to have to give out any more quotations than are absolutely necessary. So, it is easier for it to only give a quotation where there is already planning approval, because that means that it is likely to have to process fewer quotations.

333. **Mr Dunne**: Is there a risk that people will fire in applications in an unmanaged way if you go down that route?

334. **Mr Doran**: It is possible, because you could put an application in to block the guy next door. So, if there is limited capability to get onto the grid, and if you think the guy next door is going to put up a wind turbine and you do not want it to go up, you could make an application to put one up so that he cannot get in, because they appear to treat them in the order in which you make the application. That is possible. I do not think it is likely to be a significant issue, but it is possible, yes.

335. **Mr Dunne**: What is the average time now for one of your customers to get planning permission?

336. **Mr Buick**: It all depends on the quality of the submission. A good submission may also involve planning consultants helping you to draft that submission,

and there is a significant cost to that. Coming back to Michael's point, if planning permission has a cost, which may be in the order of about £10,000 or £15,000 — for a wind turbine it is perhaps in the order of a few hundred thousand pounds for development — that is a significant cost. The £6,000 cost or thereabouts for grid connection is also a significant cost. Those are not things that are undertaken lightly. There is a bit of putting the cart before the horse, as one of the other guys said. We think that the two should run in parallel, particularly for this scale of development.

337. **Mr Doran**: What about the timescale?

338. **Mr Buick**: For a good application, planning approval can be as quick as six months. For an application where other surveys are required, surveys that the client has not done beforehand —

339. **Mr Doran**: That timescale has come down. If you had asked me the same question five years ago, I would have said that it was between 12 months and 18 months. The DOE has become much more efficient in processing applications and is doing a very good job.

340. **Mr Dunne**: Put that on the record. To be fair, the workload has dropped considerably as well, but it is starting to pick up again, which is good. We all want to see it.

341. I have been made aware of another issue by installers and businesses. There is a real problem, especially in the west of the Province, with being able to make a connection, basically because the grid is unsuitable to take it. It is very difficult to connect 50 kilowatt systems to the grid. Are you aware of any solutions to that issue?

342. **Mr Doran**: There is a specific issue typically to do with 50 kilowatt PV systems. Just to remind you, you get different levels of renewables obligation certificate (ROC) support at different scales of generation. If you have less than 50 kilowatts of photovoltaic panels, you get four ROCs, and if it is more than 50 kilowatts, you only get two ROCs. So, a lot of factory roofs typically tend to go up to 49 kilowatts. When they go to export the electricity back to the grid, they come under conditions called G83. That is the code that allows you to connect, and the way in which NIE interprets G83 in Northern Ireland is different from the way in which it is interpreted in England. In Northern Ireland it interprets the capacity of the system to produce electricity, and, if it is greater than 3·7 kilowatts, they make you go to a higher-level code.

343. What you can do is put a limiter on, which is called a reverse power relay. That means that, even though you have the capacity to produce 49 kilowatts, you cannot export more than 3·7 kilowatts. That protects the grid, but NIE will not allow that in Northern Ireland. It says, "You have the capacity. Even if you put the limiter in, we won't accept that.". It then asks you to go to a higher-level code. There is now a new code in GB called G83/2, but they seem to be cherry-picking the way in which that is being implemented in Northern Ireland.

344. So, there is an issue for PV installers, typically installing 49 kilowatt systems. They are being asked to do something that NIE could address. We talked earlier about smart metering. Basically, those reverse power relays are a form of smart metering that will not allow too much electricity to go back onto the grid at one time, but NIE is not accommodating that within its system.

345. **Mr Dunne**: Is that a major disadvantage to PV installers?

346. **Mr Doran**: Yes, typically at the 50 kilowatt range.

347. **Mr Dunne**: What do you think we as a Committee could do about that?

348. **Mr Doran**: I understand that NIE will be giving a presentation at some stage. I would ask its representatives about this, because it is something that NIE could address. All it has to do is fall in line with what is happening in the rest of GB. I do not see this as an insurmountable technical issue.

349. **Mr Dunne**: Are you satisfied that the equipment involved meets current regulations in relation to standards?

350. **Mr Doran**: Yes. We have done research into that, and we are quite satisfied that it is adequate. NIE takes a different point of view. It assesses or interprets regulations as depending upon the potential total capacity of your system, not what you are actually trying to put onto it.

351. **Mr Dunne**: And that is a major drawback?

352. **Mr Doran**: It is for PV installers in the 50 kilowatt range, yes.

353. **The Chairperson**: Just following through on that, what is the oversight body to ensure consistency of standards apply? In other words, if NIE is behaving differently to what is happening in GB or, indeed, to anywhere else — we will take it even further, to the EU — what is the oversight body? Is that the regulator? Does the regulator have an input to that?

354. **Mr Doran**: I am not completely sure. I think it is the regulator.

355. **The Chairperson**: We can find out anyway, but I know that it is a very technical issue and that you guys are the experts in it. If you could find out and let us know, it is an issue that we can put to NIE. We can also put it to the regulator. The Committee Clerk has just reminded me that the regulator will be in next week. It would be appropriate if you could get that over to us before next week. Thank you.

356. **Mr Dunne**: Could you get that information into us?

357. **Mr Doran**: Yes.

358. **The Chairperson**: It would be very helpful.

359. **Mr Flanagan**: Thank you for the presentation. You said that connection costs account for between one fifth and a half of total capital costs. You quoted an average cost in Britain of 5%. Have you a comparable cost for the rest of Ireland?

360. **Mr Buick**: The cost in the rest of Ireland is similar; it is about 5%. Those are the costs that we have seen in the research that we have carried out. In the particular example that we looked at, we saw that, in one instance, the cost quoted in GB from another contract to carry out the same amount of work is one third of the cost in Northern Ireland.

361. **Mr Flanagan**: Have you any idea why that is?

362. **Mr Buick**: The costs for the equipment that NIE has seem to be high. Other contractors —

363. **Mr Flanagan**: Is there a statement of charges?

364. **Mr Buick**: The statement of charges seems to be high for the equipment that NIE is quoting.

365. **Mr Flanagan**: Are the prices of any of the particular items within the statement of charges high, or is it just a general thing that they appear to be inflated?

366. **Mr Buick**: From the discussions that we have had with our clients, it just seems to be an inflation across the board. For example, a span of line has a certain cost, and a transformer of a certain size as a particular cost, and we are told that those items can be sourced more cheaply.

367. **Mr Flanagan**: OK. I will speculate a bit. You do not have to get into this game if you do not want to. Could any of that be attributed to claim that the Electricity Supply Board (ESB) overpaid when it bought NIE and this is how it is getting its money back?

368. **Mr Doran**: We do not know.

369. **Mr Flanagan**: Am I allowed speculation here?

370. **The Chairperson**: No. Just facts.

371. **Mr Flanagan**: What impact does disproportionately high grid connection cost have on renewable energy development?

372. **Mr Doran**: It discourages it. We believe that if there were more competition in

the market, more renewable electricity would be going in. You would still have the issue of grid capacity, which is not NIE's fault. It is just trying to deal with the system. The person who presented earlier, Meabh Cormacain, was talking about the need for a strategic approach to improve the grid and the fact that the grid is now coping with issues for which it was not designed. Whatever happens, money has to be spent on the grid. The issue is where that money should come from, and I do not think that that has been clearly identified.

373. In my opinion, the Competition Commission is also restricting NIE, which is trying to upgrade the grid. For instance, on the last determination, the commission cut back NIE's prices, but a large part of that price increase was associated with grid improvement, which is required. If there is not an improvement in the grid, we will restrict the amount of renewables that will go ahead in Northern Ireland.

374. **Mr Flanagan**: Yes. Is there a problem with NIE profiteering?

375. **Mr Doran**: I do not believe so.

376. **Mr Flanagan**: You do not think that it is making too much profit based on the —

377. **Mr Doran**: No. I think it is an issue of resources, and also that somebody should determine, at a strategic level, who is going to pay for the upgrade of the grid.

378. **Mr Flanagan**: Do you think that NIE is playing a game to overstate the extent of the problem to try to attract additional investment from the regulator?

379. **Mr Doran**: I do not believe so, no. I think that it is trying to address the issue, but the Competition Commission is actually holding it back. The Competition Commission is only acting on how it keeps the bills down for customers. I think that it is a bigger picture than that, and it is something that we are all aware of, which is security of supply. You need to balance that with the environmental considerations and the cost. In my opinion, it is not just a cost issue.

380. **Mr Flanagan**: So you disagree with the Competition Commission's findings.

381. **Mr Doran**: Yes.

382. **Mr Flanagan**: Do you completely support NIE's submission?

383. **Mr Doran**: Not completely. It is very complicated, and I did not read the entire 700 pages. However, it is acting, and the regulator has also acted in a similar vein in the past few years. My opinion is that it is an overemphasis on cost control, and not looking at the carbon implications, the environmental implications and the security of supply issues. If we do not have an upgraded grid and, on a slightly separate issue, if we do not have an improvement in the interconnector to the South of Ireland, that will limit the amount of renewables that will be delivered in Northern Ireland, and we will not hit the 40% target.

384. **Mr Flanagan**: But renewable connections were to be looked at on a case-by-case basis.

385. **Mr Doran**: Yes.

386. **Mr Flanagan**: So what you say there does not really make sense.

387. **Mr Doran**: It does, because if it is on a case-by-case basis, and you do not have a strategic overview to improve the grid to the west, then every time an individual application goes in — for the scale that we are taking about — it will go to £200,000, to £300,000, to £500,000, to £1 million just to connect one turbine, which is not cost-effective, so it will stop that turbine. It needs an overall view of how you address the overall grid issue and where the money comes from to address that. I do not see that being a major political debate at the moment. It does not seem to be in the domain about who is going to pay for it. I do not think that a decision has been made that we actually need a grid improvement, which I think that we do need.

388. **Mr Flanagan**: I do not think that there is any dispute that the grid needs improved, but some of us are of the

opinion that it is a contrived argument from NIE and others to attract additional investment in to improve the profit that it makes as an organisation. That is my concern.

389. **Mr Doran**: That is valid, but that is not my opinion.

390. **Mr Flanagan**: In the absence of a strategic plan — I forget the word used — or a strategic approach, do you support the proposal for clustering?

391. **Mr Doran**: Yes, I think that that makes sense.

392. **Mr Flanagan**: If there were to be a smaller number of clusters as opposed to wind turbines, would that have a significant impact on the need for upgrading the grid and grid strengthening?

393. **Mr Doran**: The clustering is of more benefit to the larger wind farm applications. Most of the sector that we deal with is what we would call medium. It is not the small scale; it is not the large scale. It would not really assist us, because the clusters are not likely to be where the individuals are trying to put up the wind turbines.

394. **Mr Flanagan**: Do you think that there is an adequate level of transparency within NIE's decision-making process on its actual decisions?

395. **Mr Doran**: No, I do not believe that there is.

396. **Mr Flanagan**: What improvements would you like to see to increase transparency there?

397. **Mr Doran**: The first one is a technical issue. Jonathan?

398. **Mr Buick**: A full breakdown of costs would help to understand how those quotes have been arrived at.

399. **The Chairperson**: For the record, when a person gets a quote, it does not give a specific breakdown — x, y, z. Right, OK.

400. **Mr Buick**: No. In many instances, we are finding that, after the 90 days, the client may be contacted by NIE and simply told that the cost is likely to exceed £200,000. At that point, the client is given the choice of whether he wishes to go ahead with the full quotation, which would involve more work and extra time, or whether he wants to go to the fallback position of having simply a feasibility study, which we spoke about earlier, which is simply giving them a price on paper but not holding the grid for them. Obviously, at that point, the client has already got his planning permission and he is already in the process, so to do that would be to effectively kill the project. Therefore, at that stage, the majority say that they will go ahead with the full study, and later it comes back with a £300,000 cost. Does that answer your question?

401. **Mr Flanagan**: It is your question. [Laughter.]

402. **The Chairperson**: It was on the back of this.

403. **Mr Flanagan**: Finally, what is the highest quotation you have seen for connecting a single wind turbine to the grid?

404. **Mr Buick**: It is in excess of £800,000.

405. **The Chairperson**: OK. Thank you. Just coming back to —

406. **Mr Flanagan**: Sorry, Patsy. When you say "in excess of £800,000", do you mean £820,000 or £2 million? [Laughter.]

407. **Mr Buick**: It is eight hundred and something. I do not remember the exact figure. It is eight hundred and something. I think that there may be even higher quotations than that.

408. **The Chairperson**: Coming back to the point that we were talking about, who do you think is, or should be, responsible for the strategic overview?

409. **Mr Doran**: I think that DETI should be. I think that the strategic energy framework was a great move in the right direction, because it set clear targets and objectives for Northern Ireland. However, there has not been much movement since on identifying what will happen with the grid and who is responsible for it.

410. **The Chairperson**: That is my next question. Who do you feel should be responsible for investment in the grid?

411. **Mr Doran**: That is a difficult question to answer, because we are not part of the decision-making process. I think that that is a decision that the politicians in Northern Ireland have to make. We are not political.

412. I am not being cagey here. I think that it is a decision that the politicians in Northern Ireland have to make. It is a decision that has to be made, and avoiding that will not solve the problem.

413. **The Chairperson**: OK. Thank you.

414. **Mr Anderson**: Thank you, gentlemen. I think that most of the questions that I wanted to ask have been touched on. There is a question on costing. If a developer comes in and connects to the grid, they could be charged a very high cost. If other ones then come in and connect, do they get a lesser cost? Is the first connector compensated for that? I know that if upgrades of electricity transformers take place in a housing development, if someone goes in at the cost within a time span, the first developer can be compensated for the outlay at the start. Would that happen here?

415. **Mr Buick**: No. Typically the first connection would be the least costly. The second connection would cost more, because it requires more work further along the line to upgrade the cables back to the substation.

416. **Mr Anderson**: Is that always the case?

417. **Mr Buick**: Yes. Take the example of a 200 kW wind turbine. When the first turbine connects to the line, there may be a capacity of about 400 kW available. So that first wind turbine could connect in, and all that is required to connect it is maybe three spans of overhead lines and a transformer. The next turbine might connect a little bit further down the line. However, because capacity has been taken up and there maybe is not spare capacity in the line, the developer has to pay for the upgrade of that line back to a position where it can take that electricity. So, he is paying for maybe 3 kilometres of upgrades.

418. **Mr Anderson**: So, whichever way it is done, it is done in fairness to each of them.

419. **Mr Buick**: At the point when they make their application.

420. **Mr Anderson**: It is fairly done. There is no discrepancy.

421. **Mr Doran**: No. We believe that that is fairly done.

422. **Mr Anderson**: That is my point. Getting back to investments — I asked NIRIG this earlier on — what planned investments do you think would need to be made to resolve the current issues with the grid? We have the North/South and Moyle interconnectors. How do you see that issue, going forward?

423. **Mr Doran**: Moyle is one issue. I think that it is running at about 45% capacity. That needs to be upgraded. I think that it is unfortunate that the interconnector to the South of Ireland is being pushed off to a planning inquiry. My opinion is that a political decision should have been made to go ahead with that. I have no control over that. Because of the nature of wind and its intermittency, the more wind that you have on the system, the more interconnectors you need to keep the system robust. So I think that it is critical that that interconnector goes ahead. Then, we need a strategic assessment of what needs to be done to the grid in the short term and who is going to pay for that.

424. There was a discussion during the previous submission about the opportunities for smart metering — I am sure that you do not want to go over it again. NIE is already involved in one project in Coleraine, and another project is coming online in Lecale near Downpatrick that will look at specific pilot projects. At the moment, smart metering will not solve the problem, and the grid needs to be upgraded as soon as possible. If that does not happen within the next year or two it will restrict

our ability to put further renewables on. It needs a strategic overview.

425. **Mr Anderson**: You are telling us that it will have a massive effect on our reaching the targets by 2020.

426. **Mr Doran**: Yes. If there is not significant investment it will become increasingly more difficult as time goes on.

427. **Mr Anderson**: OK. This is my last question. The cost and how it inhibits renewable energy development was touched on earlier. How greatly do you think the high cost is inhibiting development? At what level does it inhibit it? Is it great? Is it massive? "Huge" was a word that was used earlier on, so I will use it again.

428. **Mr Buick**: When the cost of grid connection exceeds 50% of the total capital costs, it is a show-stopper. Those projects do not go ahead. We know that from some of our clients who have just stopped and given up because of the quotations for grid connection. NIE also recognises that when it contacts clients to say that it is likely to be excessive and ask whether they want to go ahead. However, of course, at that point the clients have committed themselves.

429. **Mr Doran**: It is a difficult question to answer. Typically we are talking about 250 kW wind turbines. If you compare that against a 2·5 MW single turbine in a wind farm — and it could be 10 of those, so you could have a 25 MW wind farm — you would need 100 250kW turbines. At the scale we are talking about, the cost of connecting to the grid is probably stopping 30%, 40% or 50% —

430. **Mr Anderson**: That is very high.

431. **Mr Doran**: Yes, but that is a relatively small part of the overall electricity generation. The wind farms are generating more. At the scale that we are talking about, it is a significant deterrent.

432. One of the things that I would point out is that the smaller turbines that are typically 250 kW are owned by people in the locality or the community. They are not owned by companies that may or may not be resident in Northern Ireland, and all that money resides in Northern Ireland. So, while they may be relatively insignificant in the actual number of kilowatts, they make a more significant contribution to the local economy.

433. **Mr Buick**: Yes, we did a quick calculation to work out the value of the small-scale wind sector, as it is known. Some 700 turbines have planning permission but have not been constructed. If they were to be constructed and connected, the annual income to Northern Ireland would be in the order of £100 million.

434. **Mr Doran**: For 20 years. I would also imagine that most of that money will continue to circulate. If it is a farmer, he will put in more potatoes, buy another tractor or build another outhouse, and the money will stay in the economy.

435. **Mr Anderson**: It is good to get that information about those types of wind turbines in the community.

436. **The Chairperson**: There was one point that I think you referred to, Mr Buick. I did not pursue it at the time as it passed the agenda. You referred to the solar PV — that stuff that is coming from solar photovoltaic — not being recorded by NIE. If it is not recorded, how did NIE determine what percentage is coming from that renewable sector and those PV panels, and how can the percentages be accurate? Maybe I am missing something there.

437. **Mr Buick**: It is not being recorded, and, as such, it is simply an estimate. There is no precise figure for how much electricity has been exported from small-scale PV in Northern Ireland. We simply do not know, as we do not have the metering in place to be able to do that.

438. **The Chairperson**: OK. That is grand.

439. **Mr Flanagan**: If we do not know how much has been exported, how do we know how much incentivisation has been paid?

440. **Mr Buick**: The incentivisation is based on what is being generated, not on what

is being exported. We work with a lot of those small-scale customers — the domestic PV sector, who typically have maybe three, four or five kilowatts of PV panels on their roof. We have to phone the homeowner annually and ask how much they have generated in the past year. That is the only way to get that information.

441. **The Chairperson**: I have seen that some use their tablets and stuff like that to record it.

442. **Mr Buick**: You can use tablets. There are some online programs that come with some of the panels, but we phone the customer to ask. If we do not get that information, we estimate it.

443. **The Chairperson**: How does the customer record it, other than those who are computer savvy and stuff?

444. **Mr Buick**: He reads his meter. There are two meters involved in nearly all renewable generation installations. One meter is a generation meter, which records the generation. The other is at the point of connection to the grid; it is NIE's meter. It is only NIE that can install that meter. That is an import/export meter. It records the flow of electricity in both directions, one into the property, and one out.

445. **The Chairperson**: Are you saying that they do not read it?

446. **Mr Buick**: They do not read the export; they will read the import, but not the export. You will know from the meters in your homes that the meter reader comes out to read it. If you are not in, you are asked to fill it in yourself, or it is estimated.

447. **Mr Doran**: There are also different kinds of meters, because the meter that is required to record the electricity being exported has to be a half-hour meter for it to be identified. That is not the normal meter. The normal meter that is in your house is not a half-hour meter. The additional cost of getting a half-hour meter in Northern Ireland is typically about £450. Elsewhere, it is typically about £150. Only one company can install that meter.

448. **The Chairperson**: It is not NIE, by any chance?

449. **Mr Doran**: Funny enough, yes.

450. **The Chairperson**: So NIE is charging £450 for the meter and installation, and, elsewhere, meter installation and all is £150.

451. **Mr Doran**: Yes.

452. **Mr Agnew**: Thank you for the presentation; it is good to see you, as always. I am trying to get to grips with the issue of the small-scale PV and the export issue. The issue of competition in this case, and contestability earlier, seems to have come up across the whole energy sector. On the particular issue of exporting of PV and the purchasing of the ROCs, what is the barrier to entry from someone else purchasing the ROCs from small-scale PV?

453. **Mr Doran**: The issue is not the purchasing of the ROCs. If you have a PV system on your roof, for example, and you generate electricity, you work out at the end of the year how much of that was generated from your PV system. You can then claim for ROCs on it, and you will be paid for that. But, even though you may know the number of kilowatts that have been exported from your house back on to the grid over the year, you will not be paid for the electricity that you sell back on to the grid.

454. **Mr Agnew**: Sorry, it is the exported electricity rather than the ROCs.

455. **Mr Doran**: Power NI will pay you for that electricity, but no other supplier can do so, because there is not the mechanism for it. That is the issue.

456. **Mr Agnew**: The issue is the mechanism.

457. **Mr Buick**: The issue is part of the single electricity market. We are being told by NIE that in order for electricity to be dealt with in the single electricity market, it has to be recorded on half-hourly meters. Homeowners do not have half-hourly meters. When the installer

installs the system, the house does not have a half-hourly meter, and NIE —

458. **Mr Agnew**: When Power NI purchased it, though, obviously the half-hourly meter still does not exist for them, so how —

459. **Mr Doran**: That is correct.

460. **Mr Buick**: That is right.

461. **Mr Agnew**: So how is Power NI able to purchase?

462. **Mr Doran**: We do not know, and we have addressed that issue with the regulator. To date, we have been unable to get an answer.

463. **Mr Agnew**: As you know, I have been asking questions about this issue, and I met Power NI subsequently. It would say that it is very much a requirement that it purchases it. From what I picked up, there is not a licensing issue. You are telling me that it is almost a knowledge issue or a technological issue.

464. **Mr Doran**: No, it is not. If your house has a PV panel on the roof and you are not contracting with Power NI — you contract with one of the other suppliers — those suppliers cannot pay you for the electricity because there is no mechanism for them to do that. So, you are encouraged to go to Power NI.

465. **Mr Agnew**: Who needs to set up the mechanism? When you say mechanism, is that a licensing mechanism?

466. **Mr Doran**: Yes.

467. **Mr Agnew**: Ok, so it is a licensing issue for the Utility Regulator.

468. **Mr Doran**: We do not see that Power NI are licensed to do it either. We do not understand why Power NI is paying you for that electricity, because Power NI cannot claim it back either.

469. **Mr Agnew**: Yes, and Power NI would certainly say that it is required to do it. It sees it more as a burden than a benefit.

470. **Mr Buick**: I can understand that, yes. One possible solution might be to have a virtual half-hourly meter recording all the domestic export in Northern Ireland and assigning that into the grid so that it can be dealt with in that way —

471. **Mr Agnew**: Proportionately, by the number of exporters?

472. **Mr Buick**: Absolutely. In other words, it could be dealt with in a similar way to GB, where half of the generation of a small-scale PV system is simply deemed to have been exported and, therefore, can be assigned to electricity suppliers. Whether or not that happens is irrelevant, but that is what they use across the board.

473. **Mr Agnew**: The cost of grid connection came up in both presentations. I think you said that in Scotland the same work can be done for a third of the cost. You also said that you do not think that NIE is profiteering. Why then, in some cases, is it costing three times more in Northern Ireland?

474. **Mr Doran**: Because there is no competition.

475. **Mr Agnew**: This is where I am confused. There is a lack of competition. Basically, you are saying that there is a monopoly, which there is. It is a regulated monopoly, but it is a monopoly all the same. Why are monopolies bad? It is either because they allow you to profiteer or because you become inefficient. Is it the inefficiency, then?

476. **Mr Doran**: I think it is inefficiencies.

477. **Mr Agnew**: OK.

478. **Mr Doran**: I do not think NIE is profiteering, but that is just an opinion. I do not have insight into what its costs are. I do not know what its cost base is. All we are highlighting is that it is costing considerably more money here to get a grid connection than somewhere else in GB.

479. **Mr Agnew**: In this case, then, is the barrier to competition a legislative barrier?

480. **Mr Doran**: Yes. At the moment, nobody else is allowed to make a grid connection in Northern Ireland.

481. **Mr Agnew**: OK. I just wanted that confirmed; I thought it was the case.

482. There seems to be an issue with NIE — you may or may not share this view — around innovation. We have talked about smart grids and, from the evidence of the previous presentation — again, you can tell me whether this has been your experience — NIE seems to be needing to be dragged towards it rather than willingly embracing this new technology. You mentioned the issue — I always forget the terminology — about needing a constraint on PV to stop exporting it to the grid so that you do not incur the extra charges from NIE. NIE has resisted that technology, even though it is being used in GB. Is that how you see it — that there is a fear of innovation? I think "risk averse" was the term that was used.

483. **Mr Doran**: NIE is risk averse. It comes from a background of engineering, and its prime objective is to protect the grid. The last thing it wants is a blackout where the grid goes down. When you have lots of little generators creating voltage variations, it has the potential to create issues. But I do not think NIE is averse to innovation, because it is part of the smart metering project that is going on in Coleraine. We have nothing to do with that, but I understand that NIE is playing a very active part in that project and wants it to be successful. I think that it has been quite cooperative with the project that is going ahead down in Lecale as well. So NIE is not trying to block it, but it is concerned about protecting the robustness of the grid. I can understand that, but I do not understand what the issue is around the G83/1 and the G83/2, and I think that it could address that.

484. **Mr Agnew**: What is the term for the technology?

485. **Mr Doran**: A reverse power relay. It is basically a little box that stops too much electricity going back at the one time.

486. **Mr Agnew**: I get the principle. I can just never remember what you call it.

487. **Mr Buick**: We also have conflicting stories about the use of such technology at a somewhat larger scale. I think that the example was touched on before of a significant user of electricity wanting to install a wind turbine to offset his own load but being refused because, if the factory load were not there, there would not be sufficient capacity in the grid to be able to take electricity from that turbine if it was blowing a gale, for example. We have had conflicting stories about whether NIE may be changing its position on that and whether that is allowed or not allowed or what the story is. That may be something to clarify.

488. **The Chairperson**: I am glad that you raised that issue. What is to prevent an individual developer, whether that is a farmer or factory owner or whatever it might be, from generating their own electricity for their own use without connection to the grid and simultaneously having, in case they run out or of power or run low on power, a connection to the grid purely for usage rather than export?

489. **Mr Buick**: That is what we are referring to.

490. **The Chairperson**: So there is nothing at all to stop them doing that.

491. **Mr Doran**: No, and there are people doing that.

492. **The Chairperson**: Is that what they are doing at Thompson — the mill place? That is what they are doing, is it?

493. **Mr Buick**: Yes. We have been told that where there is an issue is if the farmer wants to install higher capacity than he has a sufficient connection for. If, at any one time, he can only bring 50 in kW of power, and that is all the capacity that is in that grid, but he wants to install a 250 kW turbine — understanding that the output from the turbine goes up and down with the wind and that it may average about 50 kW, matching his own use — we are told that that is being blocked by NIE. However, we are aware of instances where it has happened.

494. **The Chairperson**: So, it is piecemeal.

495. **Mr Buick**: There seems to be a bit of a piecemeal approach to that kind of scenario.

496. **The Chairperson**: I suppose that I would have to ask NIE, but why would it block some and allow others?

497. **Mr Buick**: We are not entirely sure.

498. **The Chairperson**: OK, that will be a question for us to put to NIE at some stage. Gentlemen, thank you very much indeed. That has proven very useful and informative to us today. Thank you for your input.

499. **Mr Flanagan**: Can I seek clarity on one thing?

500. **The Chairperson**: Yes.

501. **Mr Flanagan**: You stated to Steven that there is a legislative problem that means NIE are the only people allowed to do grid connections. Where is that stated in legislation, do you know?

502. **Mr Doran**: It is in its licence. It is the only company that is allowed in Northern Ireland by the regulator to make grid connections.

503. **Mr Flanagan**: And it clearly states that in its licence?

504. **Mr Doran**: Yes.

505. **The Chairperson**: We have a few other questions. If it is OK with you, we will submit those to you in written form. Thank you very much for your time.

1 May 2014

Members present for all or part of the proceedings:

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

Witnesses:

Mr Mervyn Adams	*Northern Ireland*
Ms Meabh Cormacain	*Renewables Industry*
Mr Seamus Hegarty	*Group*
Mr Patrick McClughan	

506. **The Chairperson**: Briefing the Committee today are Mr Patrick McClughan, the chair of NIRIG; Mr Seamus Hegarty, the vice-chair; Mr Mervyn Adams, the group chair; and Meabh Cormacain, the policy and communications coordinator. You are all very welcome indeed. Thank you for being with us here today. I will just explain the nature of the briefing, although you should be well enough versed in these matters anyway. We have received your papers, for which we thank you, and members have already perused them. You have up to 10 minutes to make your presentation, and then we will have the Q&A session. I know that there are four of you here today, but we do not require four answers to each question. I am sure that you have different specialisms in your fields, so could the person who specialises in the area that the question is about answer that question? That will make for a more efficient meeting and will allow us to explore, within the time constraints, the issue in more detail with you, which I am sure that you want, too.

507. Are you starting, Mr McClughan? If so, it is over to you. Please continue.

508. **Mr Patrick McClughan (Northern Ireland Renewables Industry Group)**: First of all, thank you very much, Chair and Committee members, for taking the time to take our presentation today. We certainly welcome the Committee's interest in grid connection policy.

509. I will start by explaining a little bit about the Northern Ireland Renewables Industry Group (NIRIG). We represent developers in the renewables sector in Northern Ireland. We promote the responsible development of renewable energy, which allows Northern Ireland to benefit from a reduction in our reliance on imported fossil fuels, which are required for conventional electricity generation.

510. Today, I will stress the importance of the grid to the development of renewables. Renewable electricity needs to be connected and distributed to where it is needed. To do that, we need the appropriate network, infrastructure and policy. The grid is now over 40 years old, and it obviously needs to be repeatedly repaired and updated. That work is not solely to allow the connection of more renewable energy, which is often a common misconception. NIRIG believes that it is in everyone's interest that Northern Ireland is seen to be very attractive to investment. That will require a stable regulatory regime and a timely and efficient delivery of key infrastructure, which includes interconnectors. That, in turn, requires a coordinated and supportive response from all the stakeholders involved.

511. So, again, we are very glad to be here to answer any questions that you might have. At this stage, I will hand over to Meabh, who is our policy coordinator in Northern Ireland.

512. **Ms Meabh Cormacain (Northern Ireland Renewables Industry Group)**: Thanks, Patrick, and thanks again to the Committee for allowing us to

present today. I will very briefly take a step backwards and give a bit of an overview of renewables and why they are important, given that that is the sector that we represent. It is widely recognised that, globally, action needs to be taken on climate change and carbon emissions. I do not think that there is any real disagreement about the need to reduce our reliance on single sources of energy and to increase our diversity and security of supply. Policy across Europe, in the UK and specifically in Northern Ireland is very much about building a more diverse and sustainable electricity supply, which will effectively mean more electricity coming from renewables.

513. Northern Ireland has some of the best wind resources in Europe, and that is certainly something that we are keen to continue to develop. About 18% of our electricity comes from renewables, of which 14% is large-scale, onshore wind. We are absolutely confident that, with the right policy framework and the right kind of commitment, we can hit our strategic energy framework (SEF) target of 40% renewables by 2020. We know that we do not yet have formal targets in place for 2030 and beyond, but we believe that progress can be made after the 40% target is reached. We are very much reliant on imported fossil fuels, and we believe that renewables can act as a hedge against our volatile fossil fuel prices.

514. As I said, we think that we can make our targets if we have the right kind of approach. There are a lot of uncertainties out there. Although this review is looking at grid connection, I will briefly talk about some other uncertainties, and then I will hand over to Seamus.

515. The Committee will be aware that there is a lot of uncertainty for renewables in the planning and local government side. Planning policy is being pulled together under a single strategic planning policy statement. We have local government reform. So, as of 2015, we as a sector are not entirely sure who will be making decisions on large-scale wind applications going forward. An inquiry is being carried out by the Environment Committee, which recently closed its call for evidence into wind energy. So, there is a lot of movement and change happening in the planning and local government side of things.

516. I will hand over to Seamus, who will give a very short indication of markets, before Mervyn takes us into grid connection. Thank you.

517. **Mr Seamus Hegarty (Northern Ireland Renewables Industry Group)**: Good morning. Once again, many thanks for this opportunity to make our presentation. As well as being vice-chair, I look after the markets committee in NIRIG. I am aware that the Committee has already considered some of the market aspects of electricity and the review of electricity prices. However, two key changes are coming. First, there is the change from the renewable obligations support mechanism to a feed-in tariff (FIT) with contract for difference (CFD), which is being introduced in 2016. The renewable obligation will disappear from 31 March 2017. That is a big concern, primarily for investors who are looking at projects. One of the aspects that they look at is the revenue returns on projects. They look at the difference between what is an existing renewable obligations certificate (ROC) regime and what would be an electricity market reform (EMR) FIT with CFD regime.

518. The key issue is that there is a certain amount of money allocated in the levy control framework, so there will be a budget allocation for Northern Ireland developers. The issue is how that whole contract allocation pans out. As well as that, because we are going into an auction-type scenario for contracts, there is also contract-price uncertainty.

519. The second key point is the introduction of the integrated single electricity market (I-SEM) in December 2016. We have an existing single electricity market (SEM). That is a mandatory pool market, which, in our opinion, has been very effective in reducing the cost of electricity and improving transparency in the cost of

electricity to all parties on the island of Ireland. The I-SEM will be introduced in December 2016, and it is changing the SEM to align with the EU target model. There is also the uncertainty about what option will be the outcome of that and how it will align itself with the introduction of the EMR FIT with CFD in 2017. Thank you.

520. **The Chairperson**: Thank you very much for that.

521. **Ms Cormacain**: We have a full section on grid connection now from Mervyn, if that is all right.

522. **The Chairperson**: Sorry, I thought that you were finished.

523. **Mr Mervyn Adams (Northern Ireland Renewables Industry Group)**: I will make this quite brief and hit bullet points, because I know that there is a lot of weighty stuff in grid connection. This is a wish list from the industry. First, we would like to see cross-party support for the decarbonisation of the industry in Northern Ireland and for the use of renewables in the long term to support that. I think that that was underscored by the recent Intergovernmental Panel on Climate Change (IPCC) findings.

524. In the past, a central coordination committee, the sustainable energy interdepartmental working group (SEIDWG), looked at the policy side and the strategy. That has not been active, and we feel strongly that you need that coordination group looking at the strategy going forward if we are going to be successful in achieving our targets. Again, in supporting the achievement of those targets and to create a unified vision, we need the DETI Energy Bill and the Grid 25 documents from the System Operator for Northern Ireland (SONI) and Northern Ireland Electricity (NIE) so that there is a coordinated plan that everyone can sign up to. There have been interim plans and medium-term plans in place that have been going forward, but the policymaking processes that are wrapped around those have been slow in the extreme. There was a recent hiatus of about two or three years while support mechanisms were put in place for what are called cluster connections, which are single-point connections that are meant to avoid the proliferation of overhead lines. It would be fair to say that we are sitting with 500-odd megawatts connected at the moment, but if that hiatus had not occurred, we would probably be sitting with closer to 800 megawatts connected at the moment.

525. So, there is a legacy of issues for large-scale developments. The proliferation of small-scale developments is a focal point at the moment in the form of single turbines on farms and rooftop photovoltaic (PV). Commercial rooftop PV is now being looked at. All this has come into being post-NIE's RP5 application to the regulator for funding. There are no mechanisms for funding or support for strengthening for those small-scale developments. I think that that is something that is missing at the moment and that needs to be brought forward.

526. There are some issues that would help that. Contestability is one, as is the developers' ability to carry out some of the construction works themselves. That is in place in the South of Ireland and in mainland UK, and it is on the regulator's forward work plan. However, it needs to be one of the focused items that it is looking at.

527. The use of innovation is another issue. There is smart grid stuff and stuff that gets so technical that, sometimes, my eyes just glaze over when I hear the guys talking about it. There are solutions there that can bring forward cost-effective connections, but again, it needs to have the support behind it to allow NIE, SONI and all the various players to go ahead and do it.

528. That is a quick run-through of the headline points. Patrick will maybe close the presentation, after which we will take questions.

529. **Mr McClughan**: Thanks, Mervyn. I am sure that you can gather our position on many things. Certainly, we are

very willing to engage the Committee across all aspects of this issue. We represent small, medium and large wind developers in Northern Ireland, and, whether it is an issue on the 11kV network or about transmission, as I said at the start, we would require everybody to take a very interested role in assisting us with the delivery of a suitable grid connection policy.

530. We really need to utilise the fantastic wind regime that we have in Northern Ireland and to make the most out of it. We need to make it as attractive as possible to investment, which is currently leaving a legacy of benefit. We look forward to answering your questions.

531. **The Chairperson**: Thank you very much for that. There were a couple or three wee things that I wanted to raise during your presentation, but you have raised them for me. So, thank you for that. What is missing now that SEIDWG is no longer there? Why should it be reintroduced?

532. **Ms Cormacain**: My understanding is that SEIDWG was formed a number of years ago and subsequently had a grid subgroup to look at strategic grid issues. However, that group has not met for possibly a couple of years. In the past year and a half, NIRIG has asked for better coordination on grid infrastructure and grid development. The regulator, NIE, SONI and, indeed, DETI, have agreed that better coordination is required. So, there is now a renewables grid liaison group, which was formed towards the end of 2012 and which meets every couple of months to discuss operational policy. We feel that that has made a difference, in that we can now sit at a meeting with all the key stakeholders on grid connection policy and talk about issues and policies as they are coming down the line rather than, say, going individually to SONI to talk about something that we may subsequently need to talk to the regulator about.

533. The grid liaison group looks specifically at operational issues. It does not have a strategic output. One specific issue, for example, is NIE's Network 25 strategy, which we know is under development and which we hope should be coming forward this year. We are not exactly sure when. We have a question about, for example, who is buying in to that policy and what level of support Departments will provide to the strategy when it is published. We think that SEIDWG would be an appropriate forum for that. We also think that SEIDWG as a grouping is vital now, because we have a strategic energy framework review coming up in 2015. We are aware that there are at least five Departments involved in energy, plus all the network operators, builders and regulators. The original strategic energy framework outlined the need for strategic grid investment. The regulator at the time said in its response to the draft SEF that it would welcome guidance from DETI on strategic grid infrastructure. We are not entirely sure how that comes about, and we think that, given that a review of the SEF is coming up in 2015, now is the time to reform a group to allow that coordination. "Coordination" is a key word, because there are policy decisions that NIE makes that have an impact on DOE policy. We think that those players need to be in the same room at a certain level to discuss that.

534. **The Chairperson**: Thank you for that. You mentioned contestability. Will you expand a wee bit on what the outworkings of that means?

535. **Mr Adams**: Contestability can cover a wide range of things. In the larger connections, which are the large wind farms, it could be the building of a 33,000 volt line from point A to NIE's connection point B. At the moment, that can be built solely by NIE, which is the system operator. In other jurisdictions, the developer can build it. He can use resources that he may already have on site to do electrical works around the site. He can do it in a timely manner to fit in with the site development, and then he can present it to NIE and say, "I am ready for connection". So, it can speed the whole process up. It can

be demonstrated that it is more cost-effective. It is not always more cost-effective, especially as you go up the voltage levels, because it gets more technically complex, and the likes of NIE and SONI have the concentration of those technical people who can deliver that.

536. At the other end of the scale, it could involve the small developers creating their own substation and then just saying to NIE, "Please connect my substation. I have a single turbine attached to the other end of it". So, again, it is more the packaged approach that the developer has control of.

537. **The Chairperson**: What is preventing that happening now?

538. **Mr Adams**: There need to be changes in the licence structure for NIE and SONI. There is a limited amount of contestability that can take place in SONI in the transmission arena, but there is practically none in the NIE arena, so they need their licence changes. Before that can be done, a detailed process has to be put in place. We have suggested that there is no point in reinventing the wheel. The South of Ireland has a process, the UK —

539. **The Chairperson**: Will you explain what you mean by the term "process"? A process with whom?

540. **Mr Adams**: The processes are mostly involved once the developer constructs the asset, whether it is a substation or a line or whatever. Once that is connected to the NIE system, it becomes so integral to that system that NIE adopts and maintains it along with the rest of its things. That means that it has to be constructed to a certain standard and quality, and tested and all that. So, the processes involve the specification that is given to the person to build it, as well as NIE testing and taking it over post-construction so that it can comfortably own the asset for the next 30 years or whatever its lifetime is. So, it is those specifications and processes that need to be put in place to enable this to start.

541. **The Chairperson**: Is that a legal matter, or is it just an agreement for an individual undertaking or site? What is it?

542. **Mr Adams**: It is a legal status, and the first step is to get the capability included in the licence agreement. So, you need the licence sorted out, and then, when an individual case comes forward, the legal agreement is made between the party who wants to build and NIE.

543. **Mr McClughan**: It is exactly the same situation when you have a house-building developer who builds the road and DOE then adopts it. It is already available.

544. **Mr Adams**: It is very similar.

545. **The Chairperson**: I can hear the efficiency issue, because we have heard that from other people before. I have a question about costings and projected costing. We will park the efficiency bit and getting things done quicker, because we hear that complaint regularly. What about the costings?

546. **Mr Adams**: I will be upfront about the costings. Some of them can be marginal, and my personal estimation is that, the higher up you get in the low voltage levels, the more marginal the costs get. When you are down in the voltage level, you find that there are a large number of operators out there who are capable of building that sort of thing. A lot of them are looking for work at the moment with the downturn in the construction industry and everything else. So, it is a highly competitive area. There are distinct cost advantages that could be had.

547. Where an overall cost for the development is concerned, if you can reach completion at an earlier date, your overall development costs are also beneficial. That is really the speed issue, but cost benefits are associated with speed.

548. **Mr Dunne**: Thank you very much for coming in this morning. Can you clarify who you represent? Is it mainly the large-scale providers, or is it everyone across the board?

549. **Ms Cormacain**: We represent the wind, wave and tidal sector —

550. **Mr Dunne**: Do they tend to be the larger providers?

551. **Ms Cormacain**: Historically, development in Northern Ireland would have been large-scale onshore wind development. When NIRIG was formed about four years ago, the bulk of our membership was large-scale onshore developers, but we now represent a number of the small-scale developers, as well as offshore wind and the tidal developers who have leases.

552. **Mr Dunne**: The lead-in time for projects can be quite extensive, and it is something that we hear a lot about. Planning permission comes up regularly, along with NIE's reluctance to get involved until planning permission is in place. What is your opinion on that? Certainly, we feel that the planners and NIE should be working in parallel.

553. **Mr Adams**: That was subject to some discussion with the industry before NIE brought it in. By and large, the industry agrees with it. It prevents what is called the reservation of capacity. The South of Ireland hit that problem with the Gate 1 and Gate 2 projects, whereby projects that did not have planning were assigned grid capacity and maybe subsequently did not get their planning permission. There is an active market down South in grid capacity. They are selling something that has been promised to them that they never actually had. The small size of our system makes it worse for Northern Ireland. If you reserve capacity for projects that are fictitious in some way, in that they do not have their planning, that has a greater impact, because the overall system is smaller. If we look at the history of pre- and post-planning applications, we see that there are substantial reductions post-planning. The number of turbines has been reduced, as has the size of turbines. There are various things like that. If you had a system where you just went in with the planning application — maximum export capacity (MEC) — you could very well be thinking that the grid capacity is full, but in reality it is not. So, we support the requirement for planning.

554. **Mr Dunne**: Fully?

555. **Mr Adams**: Yes. We would like to see the process working quicker. We think that there are too many delays in turnaround times and that it is too slow in getting quotations back out. However, we support the principle.

556. **Ms Cormacain**: I just want to add to that. Mervyn mentioned speed. This is definitely being felt more in the small-scale sector due to the sheer number of applications that are coming through. Developers would like to get a much earlier indication of what the budget might look like. I know that this has changed significantly in the past 18 months, and I am sure that Committee members have heard this before, but the sheer volume of applications coming forward and the impact that that is having on grid connection costs have meant that a number of sites that would have been chosen for their wind speeds are now seen as not viable because of the grid connection costs. Developers would like to know earlier whether it is worth their while getting planning permission. I think that there is also a move towards looking at where grid connection is better rather than necessarily where the best wind speeds are. Planning has worked for the industry in advance, but it would be better if it were that bit easier to get early information on costs.

557. **Mr Dunne**: Just out of interest, does NIE give technical advice prior to planning approval? Will it give that advice initially?

558. **Mr Adams**: It will give what it calls a desktop estimate, which is non-binding on NIE's behalf. So, whatever the outcome — say it says, "Those plans are fine" or whatever — if those plans change by the time that you get your planning approval, there is nothing binding about that. We have been party to discussions with NIE and the small developers' arena in a focus group. We

are trying to reach an agreement with it to provide two-week turnaround budget estimates at an early stage. That would give smaller developers an idea of whether to chase this development or that one.

559. **Mr Dunne**: Is that given free?

560. **Mr Adams**: There may be a charge. We do not know yet. However, what we are saying is that, if there is a charge, it has to be substantially less than what it is being charged at the moment for a feasibility study.

561. **Mr McClughan**: It has to be fair and equitable. It also gives the developer that parameter to input into their model to see whether the site is worth developing. It is a simple fix in some regards.

562. **Mr Dunne**: Is that what you meant when you said that more resources should be put into NIE to help the smaller developer?

563. **Mr Hegarty**: Very much so. All the information is there. It has 11 kV circuits, and it knows exactly what load is on those 11 kV circuits. It knows the construction of the 11 kV circuits and what megawatts can be put on to them. As Mervyn suggested, a two-week turnaround is, to me, very practical. However, I agree with you: I do not think that it would have the resources for the volume of applications that are being made to it. That is why it is not happening in two weeks; it happens in two months.

564. **Mr Adams**: We are chasing another issue. It is not a solution but something that will help probably only larger scale small-scale developers, so that means the people who are looking at groups of these, but it would benefit large-scale developers as well. We are asking for access to the NIE geographical information system. We all have our own geographical information systems. However, if we had the overlay of where the lines and the substations are, the more technically minded small-scale developers could do their own studies and reach their own conclusions. That would allow them not only to make their own decisions but to challenge NIE decisions if they decide to go ahead if they do not totally agree with what NIE has come forward with.

565. **Ms Cormacain**: I know that this may be quite a long answer to that question, but I will take it back to coordination again. NIE will make decisions that are based on the resources that it has available. That is a regulatory decision. The amount of resources that NIE requires will depend on the type and amount of renewables coming forward. That is one element of it. We have a significant number of small-scale generators coming forward for connection, which, in turn, have been supported by a policy that was put in place by DETI. So, you have different players. I know that in the past couple of years straightforward answers on investment have not been that easy to give because we have been waiting for a fifth price control, RP5, for NIE. That was concluded only recently — I think it was concluded two weeks ago.

566. **Mr McClughan**: Even for large-scale ones, the implementation of DS3 and such programmes as this will certainly enhance and allow more renewable generation to come onto the grid. We are waiting for the decision on that aspect in particular, but there are things that could be done to assist and move on the small, medium and large.

567. **Mr Dunne**: Yes. Thank you very much.

568. **The Chairperson**: I am not sure about this, but NIE requires developers to have planning permission in place before it will even go the route of giving a quotation. It depends on who you are talking to, but a lot of the developers are telling me that they cannot understand the rationale behind why there cannot be a parallel or a twin-track approach. You have taken us in a sort of direction. What is your take on that? I am hearing from people that that is a big issue and that it is contributing further to delays in going from point of application to point of conclusion. What is your take on that? It will need just one answer, please.

569. **Mr McClughan**: If it was fair and equitable to all our members, we would be happy to see that parallel approach.

570. **The Chairperson**: What does "if it was fair and equitable" mean?

571. **Mr McClughan**: If it does not hoard the export capacity; if you are not hoarding megawatts. If somebody did not have their planning permission, but had a grid application for x number of megawatts and they never intended to carry out their planning application, that would be taken out of availability for other generators to utilise.

572. **The Chairperson**: Sorry, I do not quite get that. If both applications are made simultaneously, and a simultaneous process is run in parallel, I do not understand how one can affect the other, if the main thing is to get both going concurrently. We have heard from others in the renewable sector that that is exactly what is done in Britain, and it does not seem to be presenting any sort of difficulty.

573. **Mr McClughan**: I totally agree. It goes back to the original point: as long as it is fair and equitable. When the developer receives his planning permission, the grid connection and the opportunity to connect must arrive at exactly the same time.

574. **Ms Cormacain**: I know that you asked for only one answer, but I think that part of the problem is that there is a three-month period in which NIE is obliged to provide a connection offer. For planning permission, historically, the worst-case scenario has been seven years for a large-scale project, so, while applications might be made at the same time, determinations may be years apart. It can only be a parallel process so far.

575. **The Chairperson**: How could they be years apart?

576. **Ms Cormacain**: You might get a grid connection offer, at which point you are locked into that particular number of megawatts, but you are still awaiting planning permission. That might end up going to planning appeals, which might be one year, two years or four years.

577. **The Chairperson**: Is that not a business call at that point rather than a reason for not doing it that way?

578. **Mr McClughan**: It is something that the terms of reference that you are suggesting could deal with in the eventuality that you did not get it. Your allocated capacity could go back to you or go back into the system for open bidding, so to speak. Meabh's point has resonance in that if something from a planning perspective is delayed for a period, it also affects the megawattage that has been allocated to that applicant.

579. The other thing to take into context is our planning system, although I do not want to delve into that area too deeply. From some point, we have the unique projects bidding aspect in Northern Ireland. Sometimes applicants are challenged and told that they decided to split a project or that they did not consider grid in their application, for instance. So, a few things need to be sorted out. As I said, as long as it is fair and equitable, we would have no issue with running parallel processes.

580. **The Chairperson**: You referred to a few things that needed to be sorted out. What are they?

581. **Mr McClughan**: Project splitting is one aspect of it from a planning perspective. You could be seen to have carried out a planning application without considering the grid application route. Then, if NIE gives you a different route to the one that you had imagined you were going to get, it is open for further scrutiny and challenge. So, everybody just needs to arrive at the same point. However, all the decisions that involve the statutory stakeholders and authorities need to be robust and not affected by challenge.

582. **The Chairperson**: You can never prevent something being affected by challenge. There are always courts and all sorts of things around the place to protect interests.

583. **Mr Flanagan**: Thanks for the presentation. I want to establish whether the current system is fit for purpose. Is it working?

584. **Mr Adams**: The grid?

585. **Mr Flanagan**: Not the actual grid but the process of grid connection.

586. **Mr Adams**: My answer is a reserved yes. The applications that NIE is getting at the moment are predominately in the small wind arena. NIE is trying to treat those in an equitable way that it has established against a background of large-scale applications. NIE is getting in the region of 60 applications a month. It is trying to deal with those in the same way and create a grid connection queue that means that people get on in the sequence that they make their approaches. That is just not working. NIE is taking at least the full 90 days to come back with an offer to people. Those people have committed a lot of money to it and are finding out at a very late date that they have this astronomical connection charge. In that arena, we want to see budget costs up front and provision of grid information to the developers so that they can do their own calculations and avoid the late shocks.

587. **Mr Flanagan**: What is the current situation with grid connection? Is it done on a purely first-come-first-served basis, or is it done as a process based on who is easiest to connect to the grid or who is bringing the most megawatts at any given time?

588. **Mr Adams**: It is done based on application date. The reason for that is that, as soon as the agreement is firmed up between NIE and the other party, be it large or small scale, that is a contract. It is a case of, "We are going to connect you, and here is your offer". NIE plugs the capacity into all subsequent calculations. On the small scale, if there is one circuit that can accept a maximum of four small turbines, number one will take up slot one and so on down to slot four. Now, those four might not have planning permission. A fifth one might come in with planning permission and be told, "Oh, we are full", but those four might never get planning permission. However, to do the calculations, NIE has to go on that date order.

589. **Mr Flanagan**: I understand what you are saying about the parallel process, and that makes some sense. Is NIE providing developers with a rough figure something that you endorse?

590. **Mr Adams**: Yes. It is something that we are actively chasing.

591. **Mr Flanagan**: What assurance can be given to developers that NIE will not triple or quadruple that figure just because it takes the notion to do it?

592. **Mr McClughan**: It would have to be done in layers, so to speak. You would capture certain areas within which you could hit. I imagine that the caveat would be that a disclaimer would be attached to it.

593. **Mr Flanagan**: One of the big problems that I see with NIE's policy of grid connection is the complete lack of transparency about its process, methodology and decision-making. NIE can make any decision that it wants to without having to provide a rationale to the developer or the person making the grid connection. Is that something that needs to be sorted out as part of this process?

594. **Mr McClughan**: There is the statement of charges that is publicly available and allows you to see how much NIE charges for various items. I do not know whether Mervyn or Meabh can elaborate.

595. **Mr Adams**: The statement of charges does help. We are led to believe that NIE is imminently going to issue for consultation its planning procedures documents. It is rewriting those, and that will help. We have found that NIE has been very open to discussion on issues associated with connections. So, if we felt a particular offer had something in it that we did not agree with, we have always been able to go back and talk to them. We fully

appreciate that the volume that I referred to and the small-scale development that is there at the moment maybe prohibits that at that level. There is an issue at that level.

596. **Mr Flanagan**: Is the statement of charges a good enough system or do you have any feeling that NIE is profiteering at the moment regarding grid connections?

597. **Mr Adams**: I do not think it is profiteering, but it is playing on the safe side. Its design criteria that it plans to is maximum generation and minimum load. That is not always going to be the truth; sometimes, the generation will be consumed at the point of generation and not even make it onto the circuit. To move away from that basic principle, however, NIE needs to employ the smart-grid solutions that I referred to earlier.

598. **Ms Cormacain**: There is quite a lot of frustration out there, and a number of factors account for that. There is the issue of the high number of small-scale connections, and the impact on the capacity of the grid is one of the major ones.

599. We are in a time of really significant change in the energy sector generally and in the electricity sector particularly. The system is trying to cope with demands that were never envisaged when it was built out 40, 50 or 60 years ago. The policies that are in place, whether written down or not, need work. They need to be upgraded and developed, and they need to take into account the diverse range of energy sources that are going to come onto the system as well as the fact that we are a very limited market in Northern Ireland and we need to make sure that we are interconnecting and exporting, when possible. We need to maximise the use of the grid.

600. There is this period of time — I think that we are in the middle of it — where massive change is taking place. Grid policy is changing and initiatives are happening on the island. There is the DS3 project and there are initiatives taking place in the North and in the South. Even at a European level, network codes are changing. Against that background, we have NIE, the regulator and SONI all trying to make the system work. We have certainly found all those stakeholders to be approachable whenever we have had issues, both as an industry group and individually as developers. My colleagues would say that, whenever there is an issue, we have found it possible to sit down and talk to the stakeholders.

601. It is a difficult time, and we would really like to see better coordination on things such as policy. Who is making the policy and writing it down? How do we all make sure that we are as happy as possible with a fair and equitable policy? Work needs to be done, but it is against that backdrop, as I said, of change happening on all fronts.

602. **Mr McClughan**: Again, SEIDWG would provide that strategic coordination to deal with it in future.

603. **Mr Flanagan**: The providers are supposed —

604. **Mr McClughan**: If it was reformed, they could provide that.

605. **Mr Flanagan**: Regarding NIE's role, is the monopoly situation that we have at the moment working effectively or would developers prefer to see the introduction of either competition into the connection market or stronger regulation to provide greater transparency and accountability for NIE's decisions?

606. **Mr Hegarty**: I suggest that the contestability aspect of it would be competition. As Mervyn said, sometimes it is not just the marginal cost of the grid connection; it is the time-frame delivery of that which is more important to a developer.

607. The statement of charges has been mentioned. If you look at that, you can see that there are fairly broad items of equipment costs per kilometre of overhead line and the cost of a substation. From that, a developer can take a view on how far the wind farm or

the renewable generation source is from the network and can take a particular route in kilometres so that they can have some sort of projection of the costs. If you are talking about a change going forward and about being fit for purpose, it is about contestability and about where developers are afforded the opportunity to build their own infrastructure. I think that that, in itself, should drive down the connection costs that are associated with the offer that you get in the first place.

608. **Mr Flanagan**: If that was the case, would developers be happy to sign up to an agreed level of standards that everybody would comply with?

609. **Mr Hegarty**: That is the bottom line. At the end of the day, we are aware that NIE has to adopt and manage whatever we build. That is a key thing in the process. It needs to get its act together and get the specs out for the type of gear as if it were going to a third-party tender itself or a third-party overhead line contractor or substation build. It needs to put out a spec, and that is a spec that we would take. We would not then need third-party contractors to build for us.

610. **Mr Flanagan**: Are NIE's modelling and planning standards up to date? The way that some people see it, it is financially rewarded for doing capital works, which leads to what many see as an ultra-conservative approach and a more costly way of doing things. Have you seen that in your experience?

611. **Mr Adams**: I think —

612. **Ms Cormacain**: Mervyn, maybe you can come in after me. Some of the issues you raised were also raised during the process that led to RP5, and the Competition Commission addressed some of those in its final determination on RP5.

613. You asked earlier whether there is a need for greater regulation, and I know that that is a question that the regulator had when the Competition Commission was making its determination. I have not read all 750 pages of the report — mea culpa — but certainly —

614. **Mr Mitchel McLaughlin**: Why not? [Laughter.]

615. **Ms Cormacain**: I have had other things to do.

616. **The Chairperson**: We will give you 15 minutes if you like. [Laughter.]

617. **Ms Cormacain**: OK. I will get to work.

618. Certainly from the executive summary, it seems that the Competition Commission is recommending a different type of arrangement for regulation. I have not really got into the details of that yet and, as I said, maybe a bit of time needs to be set aside to look at that, but there is that movement. There was certainly a line or two in the Competition Commission's determination that suggested that greater transparency would be welcomed or should be an outcome. It is not so much about more regulation but better regulation or better regulatory policies for how NIE and the regulator interact in the coming years. Some of those issues are perhaps slightly outside our remit as an industry group.

619. **Mr Adams**: You asked whether NIE is conservative in its approach. I think that the answer is yes and no. It is conservative in its approach when it gives you a quotation and makes assumptions about maximum generation and minimum demand, but it is not conservative in its overall approach.

620. Northern Ireland and the island of Ireland is facing levels of renewable penetration that are unprecedented anywhere in Europe. On Christmas morning, we had 51% instantaneous penetration of renewable energy into the system. At a system level, NIE is dealing with that very well. We believe that it is conservative at an individual quotation level because it does not have the smart systems in place nor the support mechanisms to enable it to install those smart systems. If it had those in place, it would give it more latitude at the quotation level.

621. **Mr Flanagan**: One of the conditions of RP5 was that NIE could apply to the regulator to invest or allow investment in renewable projects. Is that happening?

622. **Mr Adams**: It is. With the volume of applications that came in from small-scale producers, NIE discovered that it had a problem it was not aware of before. The local transformers were designed to bring power to houses, but when you switch that and try to push power back through them, they do not work. So, it had to change elements of those transformers such as tap changes, protection relays and everything like that. I am not exactly sure of the figures, but it identified 20 substations where it had to change protection so that it could do that reverse power flow, and it was awarded an investment of, I think, £2·1 million —

623. **Mr Mitchel McLaughlin**: It was £2·3 million.

624. **Mr Adams**: — to address those 20.

625. **Mr Mitchel McLaughlin**: According to our information, it was 40.

626. **Mr Adams**: What has happened is that more applications and more substations have come into this we-need-work arena. Initially, they went back to the regulator and asked whether they could swap one substation for another substation. The answer was no, and understandably no. The regulator was saying that, "People were promised that, as soon as the first substation was done, their conditionality would be removed, so you cannot replace it with one just because it has six turbines connected instead of the two that were on that one". They are going through the process of trying to get more money to address more substations. There is a process there, but it is slow.

627. **Mr Flanagan**: Why is it slow?

628. **The Chairperson**: OK. Can you just answer briefly please?

629. **Mr Adams**: It is slow because of the approval process that is in place between the regulator and NIE.

630. **Mr Anderson**: Thank you for coming along to the meeting today. I have a few questions about how the grid investment is proceeding or not. Is there a strategy in place for investment in the electricity grid?

631. **Mr Adams**: NIE has put forward a short-term, a medium-term and a long-term plan. The long-term plan is called RIDP — renewables integration development programme — and involves the development of a 275 high voltage line to support predominately the west of the Province. It has proceeded very well. The short-term plan is complete. It is probably 75% of the way through its interim plan, and the last projects are identified and programmed to be done. That takes you up to a ceiling of —

632. **Mr Anderson**: What is the timescale for those short-term, medium-term and long-term plans?

633. **Mr Adams**: The medium-term plans should be complete by about 2017, and that will take you to an absolute ceiling of roughly 800 megawatts connected renewable energy. To go above that 800, you need elements of the long-term plan — the RIDP — to be established to get the extra high voltage at 275 across to the west of the Province. It has identified its preferred option for stage 1 of that, which is along the southern boundary from the bottom of Lough Neagh out towards Omagh. However, it is a 275 overhead line, and we all know the problems involved for those in getting planning permission, getting public consent and getting constructed. So, we are sitting in 2014, and it will not happen within the window that we need it to happen unless it has the full backing of government and Departments. Everybody has to get behind it if it is to happen, or we are going to be setting up against this —

634. **Mr Anderson**: That was one of my questions. I was going to ask you for your view on the current strategic approach. However, you are telling us that things are not going to happen as quickly as possible.

635. **Mr Adams**: There is the lack of a road map that everybody is signed up to. There does not seem to be a joined-up view of the long-term future. Part and parcel of that is that even a regulatory process does not support that. It is a five-year regulatory process. We are looking at projects that have a 10- or 15-year lead-in. So, it is very hard for the regulator to approve those outside his five-year window. We need the background of a long-term plan that everybody is signed up to, and we are doing part A of it or part B of it, but everybody is still working towards the same long-term plan.

636. **Mr Anderson**: Do you see big issues there?

637. **Mr Adams**: There are huge issues around public acceptability. Where are we going with it? Are we going to hit the 40% target? Will 40% even be enough?

638. **Ms Cormacain**: That is why we are here today. The Committee has been looking at these issues. We are here specifically on a grid connection/renewables perspective. We know that there was a security of supply review as the first part around electricity pricing. One of the recommendations that came out of the last part of the review was for better coordination and a suggestion that the North/South Ministerial Council should also take energy under its remit.

639. With regard to security of supply, energy is of such fundamental importance to society that we really think that it needs to be coordinated and that all players should be taking part. So, there is a role for each of the stakeholders we mentioned today: us; NIE; SONI; the regulator; DETI; and other Departments. Security of supply is such a massive issue that I think that we have to coordinate it.

640. **Mr Anderson**: So, we are looking for that coordinated response that we talk about from the Department and other stakeholders.

641. **Ms Cormacain**: We could sit here with a wish list of what we would really like to see happening. We appreciate that Departments have significant responsibilities and are pulled in different directions. However, the fact that there was a coordination body previously maybe implies that there is a need for one again.

642. **Mr Anderson**: In your submission, you state:

"Smart network management represents a very positive opportunity … but must be accompanied by infrastructure build-out."

643. Is enough being done to put the appropriate infrastructure in place to make the most of smart-grid technology?

644. **Mr McClughan**: Back to Mervyn.

645. **Mr Anderson**: Mervyn seems to be the focus.

646. **Mr Adams**: Smart grid and grid development go together. To some extent, smart grid development offsets grid development. If you can get an appropriate smart grid, especially at the lower voltages of 11,000 and 33,000, you could maybe avoid capital investment. If you are dealing with a fixed fund of available moneys, as you always are, and if you can avoid spending in that area, it will maybe allow you to increase or accelerate development somewhere else. So, the two work hand in hand; they are complementary. Does that answer your question?

647. **Mr Anderson**: When you say that they go hand in hand, will the smart-grid option alleviate some of the problems that you see developing in the other one?

648. **Mr Adams**: If you get the proper smart grids, it will give you immediate alleviation. A smart grid can be a mixture of intelligent sampling of the current conditions on a line. So, instead of this maximum generation/ minimum load thing, you would have a dynamic model that looks at what is happening at the moment, and you would work with that. However, to back that up, you would possibly need to install automated equipment at substations and automated switches on the line to change line configurations

to maximise what you can do. So, one will always point towards an investment requirement for hard equipment to back up the capability of the smart grid.

649. **Mr Anderson**: It is a fine balance required.

650. **Mr Adams**: It is a balancing act.

651. **Mr Mitchel McLaughlin**: That is not an argument against doing it. That is the direction of travel anyway.

652. **Mr Adams**: Yes. To be honest, with the increased levels of penetration of renewables throughout the system, unless those smart solutions are enhanced —

653. **Mr Mitchel McLaughlin**: And built in from the start.

654. **Mr Adams**: And built in from the start, the only other way to do it would be to build a Rolls Royce grid that will take anything you throw at it. We cannot afford —

655. **Mr Mitchel McLaughlin**: It would take forever as well.

656. **Mr Adams**: Yes, and we cannot afford to do that. It has to be that concept.

657. **Mr Anderson**: I have another of couple of quick questions. Putting the targets aside, is it appropriate to build high levels of renewable electricity generation before the grid is in place to support it?

658. **Mr McClughan**: Do you mean permitted developments being erected and the grid not being available to take them?

659. **Mr Anderson**: Yes.

660. **Ms Cormacain**: It is a cart-and-horse situation. If you wait until you have the grid before you build your renewables, it would be very hard to justify the grid in case you have stranded assets or in case a wind farm does not get built out. If you wait until you have your wind farm before you have a plan for a grid, that wind farm or another renewable generation source could sit there —

661. **Mr Anderson**: It is another fine balance, is it not?

662. **Ms Cormacain**: — for 10 years while the grid gets built.

663. I do not think that we can afford for one to be built and then wait to start the other. That is what we mean by strategic. If you intend to hit a 40% target and to increase renewables, you also have to intend to have the grid to match that and work with them in parallel. That is maybe not the answer that you wanted to hear, but it must absolutely be in parallel.

664. **Mr Anderson**: Finally, I have to talk about the North/South interconnector and the Moyle interconnector. What other specific grid additions/ reinforcements are needed?

665. **Ms Cormacain**: Mervyn will answer that, and we can send through a lot more information after the session as well.

666. **The Chairperson**: I was just going to say that there is much that we will not be able to cover today because of time constraints. So, if it is OK with you, we will submit the remainder of the questions to you in writing, and you can respond to them.

667. **Ms Cormacain**: No problem.

668. **Mr Hegarty**: Before Mervyn answers, I want to respond to the previous question. If the grid is not there, the investment is unlikely to go ahead. The wind project will simply not be built.

669. **Mr Adams**: You asked what other grid investment was needed. The second North/South interconnector is critical, not just for renewables but for system stability and the decarbonisation targets associated with Ballylumford and so on. The Moyle interconnector is running at suboptimal levels and will be until repairs are done. Even then, the concentration of energy flow on the Scottish side will limit its capacity. We really need more interconnection, potentially through the South of Ireland on to mainland continental Europe and France, where there is a surfeit of nuclear energy, and that would create a balance between conventional and green. We have a wind resource on

the whole island that is the envy of countries across Europe. If we can get that to market, we will all benefit from it.

670. **Mr McClughan**: I will be very quick, Chair. The key is that you must not lose sight of the vision. If we can interconnect into the market, we will be able to get rid of our product, so to speak. That means more jobs on the ground, more opportunities for the local supply chain and a healthier economy coming from renewable energy.

671. **The Chairperson**: Thank you for that. We move now to Mitchel McLaughlin. I know that you have been dipping in and out. [Laughter.]

672. **Mr Mitchel McLaughlin**: This has probably been fairly well teased out. I am interested in the confusion. Everybody I ask is in favour of smart technology, so where is the blockage? What is the problem?

673. **Mr Adams**: The problem is the level of acceptance in NIE, which is used to running a safe system. You cannot tell NIE to run the system unsafely, because that is contrary to its licence. NIE has to be comfortable with whatever smart solution is in front of it. It has to achieve its normal output while keeping the system safe. The people selling smart grid solutions will promise you that their system does everything. They are like double-glazing salesmen: they say that their product is the best thing on God's earth, and then you discover that it does not do a and b. So there is extensive testing. I assume that, as it comes in, NIE will adopt a trial approach. It will put one in and become comfortable that it delivers everything that it said it would deliver. These smart gird solutions exist, but only in small arenas. The islands off Scotland, for instance, have some of them attached, but they deal with a very small grid, so they can control it much more easily. We are in the middle. We have flows coming across from the Moyle and loads coming up from and going down South. A small island off Scotland does not have that level of variability.

674. **Mr Mitchel McLaughlin**: It is hardly large in the global or international context, is it?

675. **Mr Adams**: It is not, but it has unprecedented penetration levels of wind. Nowhere else in Europe approaches 50%.

676. **Mr Mitchel McLaughlin**: That is the core of my line of questioning because I see that as a significant impediment to the development of renewables. We do not know how to fit them in; we do not know how to connect; we do not know how to measure the capacity; we do not know how to project their potential accurately; and we would not know what to do with that potential even if we were to achieve it.

677. **Ms Cormacain**: I agree with some, but not all, of that assessment. At a recent conference that I attended, someone from the European Commission said that Ireland was giving hope to parts of Europe by showing what can be done with high levels of wind. The countries in Europe that have higher levels of renewables as part of their electricity mix are also extremely well interconnected. There might be 1,000 megawatts of interconnection between, say, Belgium or the Netherlands and Germany, France etc.

678. Ireland as an island — I have to talk about Ireland as an island because of the single electricity market — is leading the way in being able to absorb high levels of renewables, particularly wind, which is one of our greatest resources as a variable source of energy. We have the ability to absorb into our system 50% of instantaneous penetration, which is wind. There is an all-island programme in place called DS3, which will aim to increase our variable wind penetration at any one time to 75%, a phenomenal figure by anyone's standards. As an island, having that kind of technology is fairly world-leading. We have an awful lot of the technological capability to use the wind and other renewable resources that we have.

679. It may not be that easy a process, but then it would not be. It is taking a

lot of time and the combined efforts of regulators, system operators and network builders, North and South, as well as a lot of input from industry, saying, "Look, this is what we are capable of. We can respond to your requirements as quickly as possible." As an island, we are fairly cutting edge. I recognise the challenges that you put forward. However, I also think that what we have achieved to date is not recognised.

680. **Mr McClughan**: DS3 is your solution. It is designed to develop solutions to those very challenges but has been delayed by a year. As Meabh said, if it is implemented, it will allow up to 75% of penetration.

681. **Mr Mitchel McLaughlin**: That was my first question. What is the cause of the delay? Is there inertia at a policy level? Is this being driven?

682. **Mr Adams**: It is being driven. One of the main factors in raising the 50% threshold is the system's capability to react to a change of frequencies. The DS3 programme has identified what needs to be done to achieve that: changing protection settings, relays and so on. However, it has to be done across the whole generation suite by both conventional and renewable generators. The conventional generators are huge, lumbersome machines. Given their reaction times and so on, their owners are uncertain about how they will react to such changes and so need to carry out studies. They say that they cannot jeopardise the conventional generation plant to achieve this; they have to be sure that they can achieve it without causing any damage. The time granted to them is to carry out test programmes on the conventional generation so that they can come back and say that all generation can achieve these new limits.

683. **Mr Mitchel McLaughlin**: This is a big question. It has almost taken us into a theological discussion. The whole idea of renewables is to respond to the pressure on fossil fuel-based generation. We are, in effect, at least hypothesising about replacing fossil fuel generation with renewables anyway, so I do not feel that we should be defending everything. We should, in fact, be encouraging a transition. Is that not the underlying logic of renewables?

684. **Ms Cormacain**: It is a transition. We, as an industry, would certainly not say today that we could run the entire electricity system on renewables. There might be a time in the future when that happens, but it is not now. We need a diverse fuel mix. We are at 18% electricity from renewables, which is a really significant jump from where we were five years ago. There needs to be a balance. The European Commission hopes to publish a report in June asking Europe what it can do to reduce its reliance on external energy sources. That is driven directly by the events in Crimea, Ukraine and Russia.

685. So people are very aware of our reliance on fossil fuels. The prices of fossil fuels are volatile. Historically, the trend is upwards. However, as you mentioned, there are also higher, global notions of climate change and the need to reduce carbon emissions. We have legal obligations to reduce carbon emissions and greenhouse gases. They all come together. As I said, we would not suggest that renewables are the only answer today, but they are definitely part of the answer.

686. **Mr Mitchel McLaughlin**: We might need to come back to this. Regardless of whether the Chair has the time to complete the discussion, I do not. It seems to me that the protraction might be a contributory factor to how long it takes to get decisions to effect and deliver change. We may need to drill down into that.

687. The recent developments at Bombardier, which has an in-house generation plant that it calls "the Energy", raise a question about the requirement to connect to the grid in circumstances in which generators are primarily interested in satisfying their own energy needs and are, allegedly or otherwise, doing it in an environmentally friendly way. Does the group have a formal view on the

requirement for individual generators, microgenerators and many of the people whom you are talking about to connect to the grid at all?

688. **Mr Adams**: We increasingly advocate to our members that the problems associated with grid connections do not rule out their using renewable generation. Off-grid systems can be used, especially in the farming community. We meet the Farmers' Union and talk to it about farmers using off-grid systems. Let us not forget that a large part of controlling our total energy needs is control of the demand side. If you can suppress the demand side by using off-grid generation, that is all part of moving towards the big target.

689. **Mr Mitchel McLaughlin**: I do not claim to be an expert on this at all. I will briefly return to the smart grid technology. There are peak-time loads and times when it would be more appropriate to revert the system to collecting surplus generation or supply and bringing that surplus into the system for redistribution. All of that seems to come back to whether there is a strategic plan that allows people to operate off-grid when that is the appropriate response or connect to the grid should they need additional support or want to dispose of surplus generation.

690. **Ms Cormacain**: As Mervyn said, there is demand side management. There is also storage, which Patrick, wearing his other hat, might want to talk about briefly. There is the ability to store electricity, which is notoriously difficult. There are certainly groups in Northern Ireland looking at how to store electricity more effectively.

691. We are definitely moving away from, "Here is your power plant and here is your demand — just match them up." We are getting into a much more circular system in which demand can be reduced when necessary and storage increased when necessary. Ultimately, looking at smart meters further down the line, every individual household will have to say, "This morning, it will cost x amount to run the washing machine. I will do it later tonight, when it will be cheaper." It is a much more circular system. We are not there yet, but initiatives are ongoing to make that a reality.

692. **Mr Mitchel McLaughlin**: Finally —

693. **The Chairperson**: Very briefly, Mitchel.

694. **Mr Mitchel McLaughlin**: We referred to the upgrading or retrofitting of the substations. Is there anything to indicate that that will have a beneficial impact on the time for connection and the cost involved? I suppose what I am asking is this: is it sufficient?

695. **Mr Adams**: The early indications from the completed substations are that there is such a backlog that they are back in the red within two weeks of completion. Six or 10 small single turbines are connected that were not connected two weeks before, but the backlog —

696. **Mr Mitchel McLaughlin**: The system is clogged.

697. **Mr Adams**: The system is up to its neck.

698. **The Chairperson**: On the back of the time it takes for connection, we received a submission from Simple Power today — it may be one of your members. I will read an extract:

"In our view the 90 days allowed for NIE to provide a quotation in the first place is overly long. For example, a normal customer connection is required to be provided with an offer in 30 days. We do not see the reason for a 90 day period for small generators. Indeed, our experience is that NIE does not come to the site to look at the job until some 70-80 days have elapsed."

699. Is that inefficiency on its part? It seems that, if you give NIE 90 days, it will take 90 days. That is what I read from that. Is that common in your experience? I am looking to you, Mr Adams, because you seem to be the guy. I would not be a bit surprised to learn that you worked for NIE at some stage.

700. **Mr Adams**: I did. [Laughter.] Many a long day ago.

701. **The Chairperson**: There you are: poacher turned gamekeeper. Will you tell me about some of your experiences, for the record?

702. **Mr Adams**: I do not totally disagree with your summarisation of the situation.

703. **The Chairperson**: Yes, but do you agree with it?

704. **Mr Adams**: Yes. [Laughter.]

705. **The Chairperson**: OK. We got there.

706. **Mr Adams**: However, I think that the concern about the volume of small generation is unique, and NIE has so many applications. Unlike straightforward domestic connections, some of these require detailed studies, but I believe that NIE, having been given 90 days, looks on that as an end date by which it must have provided a quotation rather than as a maximum date that it could go to if it had to.

707. **The Chairperson**: The point that you are making is that, for small generators, a complex study is not needed.

708. **Mr Adams**: You need more of a study than for a domestic connection.

709. **The Chairperson**: I know that.

710. **Mr McClughan**: Earlier, we talked about the two-week period, whereby there was a suggested offer and access to NIE's geographical information systems that allow us and other developers to see NIE's network and, perhaps collaboratively, do some joined-up thinking about a solution for a connection in that area. All of that would expedite the process and reduce the timelines.

711. **The Chairperson**: Thank you.

712. **Mr Mitchel McLaughlin**: Does that not mean that NIE is operating on a default arrangement? It has 90 days, but, in practice, it takes them two to three weeks to turn it round when it eventually arrive.?

713. **Ms Cormacain**: Mervyn may correct me, but I think that the licence conditions are that there is a 90-day period, and that applies across the board, whether it is a small or a large connection.

714. **Mr Mitchel McLaughlin**: Yes, but, in practice, when they turn up on site, they can turn it round in two to three weeks.

715. **Mr McClughan**: Again, that is internal to NIE. It is like studying for an exam.

716. **Mr Mitchel McLaughlin**: If it does not take 90 days, it is about time that somebody looked at the 90-day requirement. That is what I am getting at.

717. **Mr McClughan**: There is a length of time allotted to them to come back to us and —

718. **The Chairperson**: The problem with this exam is that it could be costing somebody else money.

719. **Mr McClughan**: Without doubt, through delayed investment. Developers with global interests will look at the delays that Northern Ireland developers face and decide to allocate capital funding to a development elsewhere in the world because they can do it much more quickly there and the process is much more streamlined. You will have examples of that. Elsewhere could even be the South of Ireland. That is one of the hurdles for us.

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

721. **Mr Agnew**: My apologies for missing your presentation. I read the brief, so I hope that I have not missed too much. If we follow your approach of asking for upfront costs, is there a danger that you, as a developer, might say that you have five possible sites and want a quote for each of them? That would increase the workload on NIE and clog the system. Is that a danger or would its charges deter you from doing something like that?

722. **Mr McClughan**: You could have a situation in which a developer has five planning applications arriving at the one time, although it is highly unlikely. Therefore, there is a staging-gate process by default: you apply to NIE on a month-by-month basis. At that stage, it would be quite a simple matter of NIE coming back and asking whether the applications could be spread a little

better or whether the submission date could be adjusted. It would be very easy for a developer to bombard an entity with applications purely to clog up its system, but that is really to nobody's benefit.

723. **Mr Agnew**: I do not even mean deliberately clogging it up. As you say, you are trying to budget and assess which site is best. You are looking at wind speeds, but you will also look at the cost of connection. If you are trying to make those decisions, you might say that you have identified five possible sites with a good wind speed.

724. **Mr McClughan**: Our market experience tells us that we have to apply on a graduated timeline rather than all at once.

725. **Ms Cormacain**: Any application, whether for planning or grid connection, takes time and money. I do not think that too many developers would submit a whole series of spurious applications on the off chance that one might get lucky.

726. **Mr Agnew**: OK. I asked the question to try to understand that side of the process.

727. **Mr Hegarty**: Steven, the cost associated with small-scale renewables means that it is certainly one of the key items that small-scale renewable generators take into account in their feasibility study. Ideally, they want the best site with the best wind, but when they pick that site, they look around and ask whether they can see any electricity infrastructure. That is a key factor. That is why it is very important that, as part of the feasibility study, and before they commit large amounts of money to getting studies and planning work done, they get an idea of what that cost will be. That is why the two-week turnaround would be excellent.

728. **Mr Agnew**: I was quite surprised when I read that your position is that you do not want there to be simultaneous planning and grid connection applications. From an industry point of view, I have heard the exact opposite from several renewables developers. You talk about clear direction from Government, but we need clear direction from the industry. You said that it was a big item of discussion among your members.

729. **Ms Cormacain**: It is fair to say that the policy in place was agreed in discussion with the industry. By and large, it has worked. There was a RenewableUK wave and tidal conference in Belfast two months ago. One of the presentations was from the grid owner in Scotland. His problem was that there was a significant number of renewable project applications that had a grid connection offer but were struggling to develop the project — they were more complex tidal projects — or they did not have planning permission. Scotland faced having a significant chunk of megawatts, particularly in the north, that could not be used or reallocated. There were projects that maybe had moved a bit faster with their planning permission but could not get grid connection. If you shifted entirely from grid connection first and then planning, there would also be problems. There is discussion within the group, but, up to now, we feel as though planning permission first has worked. We absolutely support the better provision of information earlier. NIE has made some moves in that direction, and it would be great to see more.

730. **Mr Adams**: It is significant that the South of Ireland, for its next gate, is moving to a position in which it will accept an application only when planning permission is in place. It suffered under the previous regime and is looking to what is in place up here as a potential solution.

731. **Mr Agnew**: What understanding of smart grids has NIE at present?

732. **Mr Adams**: Of the technology?

733. **Mr Agnew**: Yes. You said that some pilots were taking place in GB. What level of understanding is there? Is there a capacity issue in NIE? Is that part of the issue?

734. **Mr Adams**: No. Our feeling is that there is quite a good level of understanding and interaction. NIRIG has been directly responsible and has, perhaps, poked NIE with a stick a wee bit to move it

in the right direction. However, it is engaging with one of the firms that we consider a UK leader and that has a number of schemes up and running. It is interacting with the industry and telling us where it is with the schemes. We would still like it to be quicker, but it is moving, and we have no doubt that there is the technical expertise in NIE to understand and, when it makes the decision, to implement schemes such as those.

735. **Mr Agnew**: You mentioned that it is likely to do so through a pilot. Is there a timeline for that?

736. **Mr Adams**: No. As an industry, we are pushing NIE to give us a time frame so that we have a fuller understanding of when the results might be visible.

737. **Mr Agnew**: Does it even seem minded to go in that direction?

738. **Mr Adams**: I think that it is, but it is in a consultation phase with the provider. It has paperwork exercises and schemes worked out. The next step, I assume, is that it takes one of those schemes, implements it and proves that it can work. We are pushing it to say, "Your schemes show that you can put up two turbines close to the substation and every circuit without affecting it, whereas your worst design places the turbine at the end of the line. If the two turbines close to the substation will have no effect, why do not we go ahead and connect them now?" The industry is pushing the boundaries to see whether we can speed up the process.

739. **Mr Agnew**: Would it —

740. **The Chairperson**: Briefly, Steven, we are tight for time.

741. **Mr Agnew**: Would it be helpful if NIE had a dedicated person or team focusing on smart grids? Have you asked for that?

742. **Mr Adams**: Undoubtedly, it would. The drawback with that is that you need somebody with a high level of technical expertise and knowledge of the system. You will not meet someone like that walking down the street. He is probably already in NIE now. So, if you pick him out and put him in a dedicated team, he might create a hole in the quotation generation.

743. **Mr Agnew**: Chair, I have a few more questions. I will pick the most pertinent.

744. **The Chairperson**: We agreed earlier that we would submit further questions in writing. I am really pressed for time, Steven. You can ask one brief question and get a brief response.

745. **Mr Agnew**: I just want to get a sense of how much risk NIE is taking in investing in one of the pilots. When you say that this is an alternative to the investment in the grid, what kind of cost are we talking about? Presumably, you say that this is a better alternative because it is more cost-effective.

746. **Mr Adams**: With the likes of the substations that got the £2·3 million investment, you were able to enable them with an investment of, I guess, £5,000 or £6,000 for each. Without that, you would have to restring the line back to the turbine at a cost of maybe £20,000, so they are cost-effective.

747. **The Chairperson**: That concludes our session for today. Thanks very much for your invaluable insights. This has proven very helpful and useful to us. It has been recorded by Hansard for our perusal when we produce our report later.

748. **Mr McClughan**: If the Committee ever wants to visit a wind farm, contact me and we will arrange that. It is very useful to have that experience.

749. **The Chairperson**: You mean a non-contentious one. [Laughter.] Thank you very much.

29 May 2014

Members present for all or part of the proceedings:

Mr Patsy McGlone (Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Mr Paul Frew
Mr Fearghal McKinney

Witnesses:

Mr Michael Atkinson	*Northern Ireland*
Mr Peter Ewing	*Electricity*
Mr Joe O'Mahony	
Mr Robert Wasson	

750. **The Chairperson**: Briefing the Committee today are Mr Joe O'Mahony, managing director; Mr Robert Wasson, asset management director; Mr Michael Atkinson, head of generation connections; and Mr Peter Ewing, deputy managing director of regulation. You are very welcome. It is good to see you all again. Thanks for being with us. You are seasoned hands at this. As you know, the flow of the meeting is a 10-minute presentation followed by a question-and-answer session with members. Is it you, Joe, who will start? Please continue.

751. **Mr Joe O'Mahony (Northern Ireland Electricity)**: I think you have our presentation. At the outset, I will say that the network charge on end user bills is around 20% to 25% for domestic electricity. For large energy users, it is around 10%. Every five years, the Utility Regulator reviews the prices that NIE is allowed to charge for its network services. The RP5 price control applies from the period from 1 April 2012 to 30 September 2017. As you know, it was referred to the Competition Commission (CC) in April 2013. The CC's final determination was published on 15 April 2014. The CC agreed that it was a suitable case for reference. Very little of the Utility Regulator's determination was not revised by the Competition Commission. The final determination brought closer alignment of the regulatory framework and reporting arrangements with Ofgem, the GB regulator. We very much welcome that.

752. There was no retrospective adjustment to NIE's regulatory asset base. The Committee will recall that there was a view that NIE had double-charged its customers. After an exhaustive investigation, the CC found no evidence to support that. The return, the weighted average cost of capital, is set at 4·1%, which is in line with recent GB determinations. There will be a significant ramp-up in network investment and rolling programmes and in the asset replacement programme as a result.

753. Expenditure to support renewable generation and interconnection is subject to approval by the Utility Regulator on a project-specific basis. So, the decision of the Competition Commission will not impact on the connection of renewables or the 2020 targets with regard to funding. The regulator can approve that outside of that mechanism.

754. There was no allowance for network performance improvements, which are basically smart grids, and remote control on rural networks, or for increasing the resilience of the 11 kV system, which is a rural system around the Province, against major events such as ice accretion.

755. My colleague Robert Wasson will now cover renewables.

756. **Mr Robert Wasson (Northern Ireland Electricity)**: Thank you, Chairman and members. If you will just bear with me for five minutes or so, I will go through some of the more specific renewables-related matters. You also have a larger pack that we might refer to in the discussion. Of course, we are happy to

have further engagement with members after today's session. Just let us know what you might need in that regard.

757. We will start by looking at the basic question of whether the 2020 targets are achievable. Two things are required. First, the market has to bring forward enough developers and projects. That does not seem to be an issue to us. We will see some figures on that later. On the supply side, projects are coming forward. That is our view.

758. Secondly, those projects have to be connected to the grid. That raises two issues. The first is the cost of the grid reinforcement. You may recall from our last meeting that we mentioned a total overall cost figure of around £500 million, which was made up of deep reinforcements to our transmission system at both 110 kV and 275 kV and also for the North/South interconnector. With regard to the funding of that, as Joe has mentioned, there is a mechanism under our price control for us to bring forward projects on a project-by-project basis for approval. So, there is no issue around that, but ultimately the regulator has to make a decision on each of those.

759. The second issue around grid development is planning and consents. As we have seen in a number of projects, both North and South on this island, planning can be difficult. It has been very challenging for the North/South interconnector, as we all know, and it will be similarly challenging for some other elements of grid reinforcement that are necessary to enable the 2020 target, particularly investments that will be required on the 275 kV network. That is the higher voltage network that you typically see on pylons.

760. Before we go any further, I would like to give a quick definition of what we mean by large-scale generation versus small-scale generation. If you would like to have a look at slide number 3, I will talk to that for a second. By large-scale generation, we mainly mean wind farms. They tend to have an output of typically about 10 MW to 40 MW. To put that in context, 5W would supply a small town. That gives some idea of the order of that. Quite a bit has happened in that regard. We have commissioned 31 of those wind farms already. They have been connected to the network in Northern Ireland. That is a total of about 552 MW as things stand today. In addition to that, there are about another 42 schemes in the pipeline, so there is quite a bit of activity there. Those other schemes are at various stages. Some are still in the planning process and some have made their connection application to us. That is large scale.

761. Small scale is the explosion of activity that we have seen around the Province, particularly over the past couple of years. Typically they are single wind turbines, usually in a rural setting. Typically it is a situation where, for instance, a farming family might put up a single wind turbine. In a lot of cases, it is really a pension that somebody is putting up rather than a wind turbine. They tend to be less than 250 kW, which is a quarter of a megawatt. There are also some anaerobic digesters, which tend to be less than half a megawatt. We have connected about 250 of those around the Province. The total output is about 65 MW.

762. A point to make — and we heard SSE making the same point before us — is that, in a way, there is a bigger "bang for the effort buck" from large-scale wind farms. If you have, for instance, a 40 MW wind farm, that is the equivalent of dealing with almost four times that — 150 or 160 — small scale. So, if you can connect large wind farms, it gets you towards the 2020 target quickly.

763. We have quite a bit of activity happening at the moment, particularly in the last year or so, on what we call microgeneration. Typically, this is a situation where, for example, somebody installs solar panels on their home. They fit and inform, so they do not apply to us as such but tell us afterwards. This is really taking off exponentially. At the moment, the run rate is about 2 MW per month going on to the system with those, so there is a lot of activity around

that. That is just a quick overview of what we mean by large scale versus small scale, because we will probably use those terms throughout the morning.

764. Going back to our slides, it is important to understand the difference between the transmission and distribution networks and the challenges we have with those. Those networks enable the connection of large and small scale renewables. I will take transmission first. It is about our 110 kV and 275 kV systems. Typically the 110 kV systems are on double wood pole structures. We will all have seen those around the countryside. The 275 kV tends to be on lattice steel pylons. An organised plan is in place for the reinforcement of those parts of the transmission network. I refer you to a slide on page 8 in the pack. Moving from the left to the right, we are showing what we call our short-term plan, which is now complete, our medium-term plan and a long-term plan. What is happening with these is that we are starting with the low-hanging fruit in terms of the investment that is needed to release capacity in the system. Gradually, as you move from 2010 to 2020, that becomes ever more expensive to do.

765. Our short-term plan cost a very modest £3·2 million and released quite a bit of capacity. To do that, we used some of the smart technologies which, again, you heard SSE talking about: special protection schemes and schemes to get more out of existing overhead lines. That released quite a bit. We are now in the middle of our medium-term plan. The overall cost of that will be about £60 million, and we have approval for most of that from the regulator. That will get us to about 1,000 MW capacity connected versus the 1,600 MW or thereabouts that we will need for the 2020 target. So, we are well advanced down this road as well. By our calculations, we are enabling about 645 MW at the moment versus that 1,600 MW total.

766. In terms of where we are versus the 40% target or, indeed, next year's 20% target, we are at about 16%. The 20% target of energy from renewable sources will be delivered in 2015. That seems to be the case. Once you move beyond the medium-term plan, we get into more difficult types of investment. This is primarily where we reinforce that pylon 275 kV network, together with the North/South interconnector. Both of these elements are essential for delivering the 2020 targets. The cost of that is much more significant, so, in total, that is about £420 million. For that, we have two challenges. We have the planning challenges associated with that, and the regulator will also have to see the economic case for those investments. Those are the two challenges in getting us into that green territory from 2017 onwards and enabling the connection of renewables up to the 1,600 MW total, leading us to the 40%.

767. For the other piece of infrastructure that we are putting in place to connect renewables, particularly large-scale renewables, we use the approach of the cluster substations, and you will be familiar with that. Basically what happens there is we build a new substation, which collects the output from a number of wind farms that are in the same location. This makes a lot of sense, because it is efficient and reduces the impact on the environment. You are building fewer overhead lines, and it is scalable. It is supported by the renewables industry, the regulator supports it, it is clean and it has been consulted on by both us and the regulator. That approach is working well. There have been some difficulties in getting the roll-out of the first couple of cluster substations, but I think that that plan is running quite well. So we have built two of those, and we have four more that are at various stages of advancement. Michael can tell you a bit more about that if you would like. As I said, 31 wind farms are connected, and 40 more are in the pipeline. That is going fairly well.

768. In addition to that, you will be aware of the offshore developments. We have the

potential for 200 MW of tidal and 600 MW of offshore wind. That will come in two phases, probably, on the offshore wind. On that front, we are engaging with the developers along with SONI. Again, those discussions are advancing fairly well. That will be another element that will help to get us towards the 2020 targets.

769. I will turn to distribution for a second. There is a slightly different situation on distribution. This is where small-scale generation connects to, mainly, our 11 kV network. These are the networks that you see on single-pole wood lines all around the rural parts of the Province. We have connected a lot of small scale. In fact, we have connected around 65 MW in total, and we have around another 85 MW in the pipeline. That is a total of about 250 schemes. So there has been a lot done, but those distribution networks were never designed for renewables at all. They were designed for supplying load. The networks date from the 1950s and 1960s, so they now need reinforcement. We are seeing congestion happening in two ways, particularly in the west and north of the Province. We are seeing congestion at 11kV and, ultimately, the correction of that and the reinforcement of the 11 kV to get round that issue has to be paid for by developers. That is leading to some fairly expensive connection quotations, which, in some cases, is making schemes unviable.

770. **The Chairperson**: This map that we have on the transmission reinforcement — is this the transmission reinforcement that is projected and needed, or is some of this ongoing or has some of it happened?

771. **Mr Wasson**: Can I ask, Chair, which slide you are looking at?

772. **The Chairperson**: This is page 9.

773. **Mr Wasson**: If you look at the heavy blue lines on the key on the top right hand side, we have medium-term plan developments, so that is what is happening at the moment.

774. **The Chairperson**: Sorry, I am just in black and white and grey here.

775. **Mr Wasson**: Oh, sorry. Keeping costs down, obviously, by printing in black and white. So, we have there some heavy lines and in the key it says "medium-term plan", so you can see that running from Tamnamore to Omagh and from Coleraine in the direction of Kells. Those are 110 kV reinforcements, which are ongoing.

776. There is some lighter blue shading in some corridors. You see that running, for instance, from the offshore wind in the direction of Tandragee and Castlereagh. You can also see a sort of a C ring to the west of the Province. Those fall into the longer-term £420 million developments that we were talking about.

777. **The Chairperson**: That's grand. Thanks very much for that.

778. **Mr Wasson**: To go back to the congestion issues on the distribution network, apart from the 11 kV issue that I just mentioned, we are also seeing a need for 33 kV reinforcement. That is the next level up in our distribution system. We are seeing the extent in some areas of small-scale renewables causing problems on the 33 kV system because power is flowing in a direction that it was never supposed to flow in. We have voltage control issues, and some thermal issues where lines would be running too hot and could cause clearance issues, so there is a safety issue there, and that has to be dealt with.

779. The other reason that that has to be dealt with is you have to be very careful that issues on the 33 kV system do not, in effect, mean that you are now starting to constrain off wind farms that are already connected to that system. That just would not make any sense at all, so we have to be careful of that.

780. As you may know from the final determination from the Competition Commission, there is not a mechanism to pay for that 33 kV reinforcement. As things stand, the only thing we would

be able to do would be to change our statement of charges such that those costs would be levied on the developers, which, in most cases, would mean that their schemes might not be viable. That is something that the Utility Regulator is considering, and we have had initial discussions with them and that is to be worked through. That is the essence of the 33 kV issue.

781. I know we are probably running slightly over time, but I am nearly coming to the end of what I need to say.

782. Going back to the 2020 targets, it is important to realise that large-scale renewables are going to contribute the major part, probably 85% to 90%, of those targets. As I have mentioned, significant further investment of some £420 million will be needed to enable that final step. That needs regulatory approval, but also the projects have various planning challenges. The plan is clear to get to the 27%. Moving from the 27% to the 40% is more challenging.

783. Large-scale developers have voiced their frustrations at the length of time needed to develop the connection methodology — the cluster approach that I mentioned. We believe that that is the way forward. It has been accepted as making good sense by NIRIG, the developer body, the Utility Regulator and DOE planning. We believe that that is the right thing to do. We are focusing on making sure that we get those clusters approved and built out more rapidly than has been the case over the past few months. NIE's focus is on connecting those large-scale developers.

784. That is a quick tour through some of the issues around connection of renewables as we see them. We are happy to answer any questions you might have.

785. **The Chairperson**: OK, thanks very much for that. I was going to raise your final point because you touched on it earlier: the focus for you being the connection of the large farms. Does that mean that you are prioritising them to the exclusion of others? I say that because I have some figures in front of me; I think the source is Ofgem. From 2010 to the present, the number of applications consented — those that received planning applications for the small-scale wind energy projects — was 779. The number of those connected is 55.

786. It appears from these figures that, for example, in 2011, it was 135 consented and five connected. In 2012, of 313 consented, 30 were connected, and in 2013, of 281 consented, 13 were connected. I presume that you would not dispute those figures. Are you prioritising those big wind farms to the exclusion of these other, smaller connections?

787. **Mr Wasson**: The straight answer to that is no, we are not. We cannot discriminate between different types or classes of generation, so we do not do that. Effectively, the large wind farms and the small-scale generation are connecting at different parts of the network so, in fact, there are different parts of our team dealing with that. For instance, Michael has a part of his team that deals with large-scale connections, and he has a different team to deal with small-scale connections, so those two things are being done in parallel.

788. **Mr Michael Atkinson (Northern Ireland Electricity)**: I understand that some of the statistics you referred to suggest a lower-rate implementation of the smaller-scale schemes. It is fair to say that around 2012, while we were processing a large number of applications and agreeing quite a large number, there were some technical issues around the implementation of the small schemes. For example, earthing difficulties, which is a rather technical term, slowed down the process of getting the schemes through to final construction and to connection. Equally, the statistics show that from 2012 onwards, 2013 and into 2014, the pipeline of work of schemes that is now agreed and in the final stages of construction has increased quite markedly. That is why, for example, we are now seeing 65 MW of smaller schemes being connected and there is another 85 MW in that final stage of the delivery pipeline. That means that

for small-scale schemes, the stats that will come through to Ofgem and the claimants against the ROCs will go up very markedly over the next six or 12 months. I understand the point from that statistical line, but I can give you considerable assurance that the volume of work on small-scale schemes going into the final delivery stages is moving to a very high level.

789. **The Chairperson**: The figures that I have here show that in 2012 there were 313 consented and 30 connected, and then it seems to dip worse again in 2013 to 281 and 13 connected.

790. **Mr Atkinson**: Those figures for 2013 do not tally with our numbers, to be honest, and I would suggest that we check those figures with you. Clearly, the number of megawatts we were connecting through 2013 was an order above 2012. I take the point, but we will get those figures clarified.

791. **The Chairperson**: We can get them checked for verification.

792. **Mr Atkinson**: Sure.

793. **The Chairperson**: We will move on to an issue which has come up, and I am sure that your PR people have been reporting it back to you. One of the key issues is the slowness in connection. It would appear from what people are saying that NIE has a monopoly in the grid connection market. Do you feel, in the interests of efficiency and of the economy, that that should be perceived to be the case?

794. **Mr Wasson**: We would fully support the introduction of contestability in grid connections. It has been done in GB and in ROI. I think that has worked well, and developers have sought it. We would welcome the Utility Regulator bringing forward proposals, and we will work with them to try to ensure that that is introduced without delay.

795. **The Chairperson**: You heard about the difference that it is making, not just to investors but customers, and how that could move on. We heard about the experience in England and the rest of the island here. I will read this to you:

"Next to turbine costs, grid connection costs in Northern Ireland are likely to be the most expensive component of installation jointly with construction costs. While this cost is around 10% in Great Britain, the experience in Northern Ireland shows it to be closer to 20%, and in some cases 50% of the total cost of the installation."

796. Clearly there is something misaligned or way off kilter when that is happening. If you support contestability and more liberalisation of the capacity to do those connections — you feel it is a good thing — what is the obstacle to making it happen?

797. **Mr Atkinson**: Can I just pick up the point? You suggested there that the costs of connection in Northern Ireland are considerably higher as a percentage. I accept that and would like to qualify it, please. If we were looking at the figures back around 2012, before the network became very congested as it is now, typically the costs of connection for a 250 kW machine, which is the standard size, may have been in the order of £60,000 or £70,000. As a result of some of the technical issues that arise with congestion, where further reinforcement of the network is required, not just the immediate connection of the turbine, the costs that have been levied on developers have gone up markedly. So, whereas it may have been £60,000 or £70,000, now we frequently see average costs of maybe £180,000, and in some circumstances there will have been costs in excess of £300,000. I should clarify, though, that that is not because NIE is applying a high unit cost to the work. The actual work content for those connections in Northern Ireland on a relative basis is very high compared to what it is on the mainland, where they are dealing with less congested networks, basically.

798. **The Chairperson**: I will maybe flip that over to you. It appears, and we are hearing from other sectors involved, that in terms of actual efficiency in getting it done and costs of getting it done, the practice or the experience seems to

be that it can be done more efficiently, more quickly and cheaper. Although you are presenting the case here for the North being unique, I am sure it is not that unique by comparison to some of the highlands or islands of Scotland, some parts of Wales or, indeed, other parts of GB — or the South, for that matter — where the network may need the same sort of capacity building as is needed here in parts of the Sperrins and places like that. I hear that argument, but I cannot see it being one size fits all.

799. **Mr Atkinson**: May I just try that again? The network in Northern Ireland is of relatively light construction; certainly in the west of the Province, it is of lighter construction. As a consequence of that, as the amount of generation that connects increases, reinforcement requirements will typically arise at an earlier stage and will be more significant. The other side of the comparison with the other parts of the United Kingdom is that as their networks have become more congested they have experimented in other methods of connecting wind turbines, whereas in Northern Ireland at the minute we still operate on the basis that the turbine is effectively guaranteed its full output under the network when it connects. On the mainland, where they have run into congested areas — we are doing some comparisons with the mainland at the minute — they have experimented with alternative methods of connection, offering choice and introducing smarter solutions, which means that the immediate connection costs in some of those cases are a lot lower than they are in Northern Ireland, because they get rid of the need for the same level of reinforcement. We will touch on some of that later on, but it is to give you one line of response on that one.

800. **Mr Wasson**: I will just add to that, and Michael might want to come in again. One of the things that we are doing in response to the industry is having a closer look at what has been happening in GB. We have been talking to the regulator about that and have its support, and we have been talking to DETI and have its support. Just this week, we talked to NIRIG as well about some initiatives that we are planning to roll out over the next six months or so. In effect, we are going to have a look at both large scale and small scale. If you take large scale first, we are going ask ourselves whether there are things that we can do to make the rule book work better in terms of queuing protocols and so forth. With regard to small scale, we are having a look at some of the technical challenges and asking ourselves whether there are approaches that we could take in Northern Ireland that might have been taken in GB, for instance, which would allow more capacity to be released from the system. We are going to take a hard look at an alternative to the firm connection type of approach where a developer would have the opportunity to have something that is less than firm, which would mean that they would have a lower connection cost. It has been done with some success by several DNOs. We have enlisted the services of a recognised expert from Electricity North West. We started some work internally with him in NIE, and we will be heading into a process of workshops to work through this with the industry, the regulator and, indeed, DETI, over the coming months, ultimately leading to a consultation on changes that would happen probably in quarter three —

801. **Mr Atkinson**: We would be looking for implementation in October/November time.

802. **The Chairperson**: I am asking you as the experts in this field, what is required to open up the market to more competition around connections?

803. **Mr Wasson**: You mentioned obstacles. Actually, there are no obstacles. This is an open door. Really, all that is required is for the regulator to define how it would like this to happen and to engage with us and the industry. From our perspective, our main concern is that, ultimately, we would have to take over any contestable connection that is built. We would take responsibility for that, and we would have to operate and

maintain it. Clearly, our main concern is that that is built to the right standards and so forth, but that is all easily worked through.

804. **The Chairperson**: If they are doing it elsewhere, you would presume that the companies coming in would be sufficiently skilled to do it.

805. **Mr Wasson**: Yes, but that can be verified. There is a model in terms of how this has been done elsewhere. It has been in the Republic successfully for quite some time, and it is also in GB, so that model can be followed.

806. **The Chairperson**: So, from your point of view, you are happy to support that.

807. **Mr Wasson**: We welcome it. As soon as we need to do something on that for the regulator, we will support that.

808. **Mr Dunne**: Thank you very much, gentlemen, for coming in again. A number of issues have been covered, and you had the benefit of listening in. One big concern, obviously, is the planning process. We get the message from out there that NIE is reluctant to engage with potential developers until the planning approval comes through. I would like your opinion on that issue. As elected representatives, we get quite a bit of feedback on that issue. The point was made about the risk of hoarding capacity, which perhaps could be dealt with or managed in a different way. We heard evidence today about the Slieve Divena project, which, to me, seems totally unacceptable. Obviously, there are reasons for the delay, which we would like to hear about. They got approval in 2007, and your estimated date now for connection is March 2017. That is 10 years, which is a long, long time, and they had the prior lead-in before that. Altogether, the whole project will run for about 13 years, which seems unacceptable. I would like your opinion and comments on those issues first of all, please.

809. **Mr Atkinson**: I will try to answer both those points. I would split engagement with developers during the planning process into two broad areas. On the larger scale, where we are dealing with a much smaller number of developers and, typically, much bigger projects, there is frequent and regular engagement with all of the developers, whether they are at the planning stage, post-planning application stage, or whatever. We have very firm rules that we do not recognise an application as bona fide until planning approval has been agreed. We strongly remain of the view that that is the best way to run a regime. However, during planning processes with larger developers, we will frequently engage. We may be asked to carry out feasibility studies to determine the likely way the connection will take place etc, and the developers will pay a fee for that. That arrangement normally works quite well.

810. **Mr Dunne**: Who does that work? Is it put out to consultants?

811. **Mr Atkinson**: We do a considerable amount of it in-house. We have some strategic consultants on a procured panel of consultants that we use for some of the very technical design aspects, but we frequently engage in that process with the larger-scale developers. I feel that that arrangement works quite well. With small-scale developers, we equally believe that the requirement for planning permission before the application is recognised is the right way to go about it.

812. On the issue of engaging with small-scale developers in advance either before they go into the planning process or after they come out of it, there is a huge volume of developers and parties involved in the process. We do and have done feasibility studies in advance when requested to by developers but, because it is such a fast-moving part of the market, developers will have concerns that a feasibility study may almost be out of date by the time it has been handed to them. The feasibility study, or any budget assessment, does not really allow the developer to book his capacity with any certainty of what his connection will look like until planning has been agreed and he has his application in. So, it is a more challenging area to deal

with on engagement during the planning process.

813. The view that we have taken mirrors some of the comments that I was listening to earlier about providing information to developers at an earlier stage in the small scale to try to allow them to understand whether schemes may or may not be feasible. We have a strong view now that, having had some experience with developing what we call a heat map and making that available on the network, if we are able to take the heat map to another level of granularity and accompany that with some general mapping information on the website, developers may, fairly quickly, be able to get an early view on whether their schemes may or may not be viable. We feel that, as a first step, we will be undertaking to do that in the relatively short term.

814. **Mr Dunne**: That heat map is not available currently?

815. **Mr Atkinson**: The heat map itself is available. There is a version of the heat map in your pack. I am suggesting that, whereas that heat map has generally been quite helpful to people who are either in an area that is not under pressure or an area that is, that heat map can go to another level of detail. It could go to a method that people access on the website, and, if they know their location, for example through their postcode, they can focus in more clearly and see not only whether the general area is looking busy and congested but whether the line that they are trying to connect to is looking very busy or likely to be costly. We feel that that would be a very useful step forward and one that could work well in an environment where there are lots of developers looking at lots of options. There are literally thousands of potential sites out there on which developers are trying to get a view one way or the other. It is a very different scene than the larger-scale developer community.

816. **Mr Dunne**: Is dealing with all of this a heavy demand on your resources?

817. **Mr Atkinson**: The processing of applications generally is a very intensive process currently, not least because, as the network has become busier, the nature of the actual assessment of each application has changed. Most developers' starting point is to see whether they are close to a line and see whether they can get connected to a line, but, rather than seeing where the nearest line that you can connect to is, the electrical analysis that needs to be done needs to look much deeper into the system once the network gets congested. That design work is quite intensive. It is quite specialist, and it certainly puts pressure on resources. That said, we have injected considerable additional resources into that business area over the past year. We feel that we are coping reasonably well, but we need to deploy our resources proportionately to the areas where we feel we can get the most value from them.

818. **Mr Dunne**: What is a reasonable time for a small connection, even a photovoltaic (PV) one? First, how long will it take for a quotation and then how long will it take to make the connection?

819. **Mr Atkinson**: The technical term for PV connections at a small level is G83. The small solar panels, the PVs that you see much more of on individual dwellings, are basically connected on a fit-and-inform basis. They do not go through a complicated application process. The panels are fitted and a level of certification is signed to say that those panels have been installed as standard, and we accept that.

820. As you start to move beyond that, and not that much beyond, to be honest, we get to the situation where any application with a substantive number of kilowatts needs to be assessed in the context of the overall impact on the network. You may say that some of those small schemes sound small and are unlikely to have a significant impact. However, if you consider that we are processing 600 or sometimes 700 applications a month for small-scale solar installations, the impact on our network over the past 12 months has

been considerable. We need to assess those on a non-discriminatory basis with other applicants that are coming into the frame as well.

821. **Mr Wasson**: May I step in for a second? There are some complexities to this. People in a community will tend to have the idea of installing small-scale projects all at the same time. So, there is an interaction of these things technically that needs to be carefully managed. We have to give quotations within 90 days and, in a lot of cases, we come close to that 90-day limit.

822. **Mr Dunne**: That seems excessive to the ordinary man in the street.

823. **Mr O'Mahony**: Based on the statistics, we had 600 applications last year. To date, this year, we have had 3,000. You can see the growth; it is a big workload, and 90 days is a stretching target for us to reach.

824. **Mr Dunne**: A stretching target?

825. **Mr O'Mahony**: It is, if you consider 3,000 applications as opposed to 600 last year.

826. **Mr Dunne**: Yes.

827. **Mr O'Mahony**: It has gone up exponentially.

828. **Mr Wasson**: I know that people have raised this as a negative thing. I hesitate because I do not want to sound arrogant but, in a way, it is a bit of a red herring. Were I a small-scale developer, I do not think that I would be terribly concerned whether I was getting my quotation in 60 days versus 88 days; my concern would be how much the quotation was for and when it would be built out. Those are the real issues. However, I accept that people have, maybe because of wider frustrations, raised the quotation issue. If I were a developer, I do not think that that would be keeping me awake at night.

829. **Mr Dunne**: The other point that has been made to us, and the Chairman is aware of it, is the issue about the G59 connection. That seems to be one that you are holding tightly. Various people have approached us who believe that they can come up with a technical solution to the problem. I am not an electrical engineer, although I have a bit of mechanical knowledge, but it basically stops the risk of leakage out onto the grid. Are you prepared to look at that technical solution?

830. **Mr Wasson**: Before you answer that, Michael, I will make a general point on the care that NIE takes over generation connections. It would be helpful, I think, to keep this in perspective. We have a licence obligation to our existing customers, the majority of whom are load customers, of which we have 840,000. They include domestic customers, small businesses, large industries and so forth. We have an obligation to keep their electricity supply safe, economical and to a quality standard. That is our licence obligation and something that we take very seriously.

831. The developer community sometimes vent frustration that NIE takes time. We hear words like "over-conservative" being used from time to time. We do not apologise for that. We are conservative when it comes to connecting new generation to the network for which it was never designed. We take our time and make sure that that is done correctly. That is because we are balancing the needs of those 840,000 customers versus probably about 25 large-scale developers and several hundred small-scale developers. That has to be kept in balance. That is just to preface what you, Michael, were going to say in particular on the G83 question.

832. **Mr Atkinson**: We are in the territory of the cut-off point between the smaller PV arrangements and the typical sizes that you will have heard in the conversation: 3 kW to 4 kW, single phase and about 11 kW, three phase. Beyond that size of installation, we are insisting that the developers apply under what we call the G59 process, which is similar to that for single wind turbines. Our view is that that is the appropriate interpretation of the legislative requirements we are bound to. It is also consistent with trying

to manage the network on a fair and equitable basis with the other small developers trying to connect single wind turbines. Whether a single wind turbine or a PV applicant comes to us with a 50 kW application, we treat them on the same basis.

833. You asked whether we are prepared to look at it again. As part of the engagement we are having with the industry, we will test each other's understandings and explore why the interpretations are different. That does not mean that we feel we are doing anything the wrong way. It is an important issue with the industry, and we are more than happy to go through the engagement again to develop an understanding of why we are doing things the way we are.

834. **Mr Dunne**: In relation to G59, I understand that, especially the west of the Bann, it is difficult to make the connection.

835. **Mr Atkinson**: Sorry to interrupt you, but regardless of whether we deal with it under G83, which is basically where the PVs connect without having to be considered in the wider network, or G59, where they are, ultimately they all contribute to congestion. The small PV and the larger PV equally contribute to the congestion problems in our network. From our point of view, as I said, to operate and design things prudently, we need to take account of all that energy coming onto our network, particularly as it is getting very congested in the west.

836. **Mr Dunne**: So, you are prepared to have a look at it?

837. **Mr Atkinson**: We are looking at it. We are certainly not making any promises about change. We believe our position is solid, but we are absolutely happy to go through the discussions and arguments again.

838. **The Chairperson**: You said that the number of applications has increased to 3,000. Forgive me for saying so, but you are a business; they are not exactly getting it done for nothing. From a business point of view, a lot more people are coming to you as customers with a lot more opportunities to make money. How do you adapt to that to avail yourselves of those opportunities?

839. **Mr O'Mahony**: As Michael stated, we put more resources into the area. I am not complaining about 3,000 applications; it is great. I am just saying that the workload has been increasing steadily over the past two years.

840. **The Chairperson**: Could you give us some indication as to what resources have been put into that area?

841. **Mr Atkinson**: There are quite a few numbers moving around at the minute. We need to keep a wee bit of control on it. Joe is quite right: many of the very small-scale solar applications will be connected on what we call a fit-and-inform basis. There is not a huge amount of administrative work; there is certainly less than for some of the larger ones. Last year, applications for small solar was 600 for the full year. For the year to date so far, we have had 3,000 applications already. That is at the relatively small end of the market, and many of those connections require relatively small administration. The general connection levels for single wind turbines, which is the main source of business, has gone up from around 400 applications per annum in 2011-12 to about 600 per annum at the minute. That is the larger small-scale generation.

842. **The Chairperson**: I appreciate that.

843. **Mr Atkinson**: I am just trying to make sure that there is a wee bit of consistency before I answer your question on resources, just to try to get the flavour —

844. **The Chairperson**: The point is that these are not unanticipated. These are ones that, as we have heard, have all the merits that have been vaunted by others about getting planning permission first.

845. **Mr Atkinson**: Sure.

846. **The Chairperson**: It is not as though they are coming completely out of the blue. These are ones you can determine

by just ringing up Planning Service and asking, "How many single wind turbines have you got in the pipeline?"

847. **Mr Atkinson**: Absolutely. The thing is, though, as we have recognised that increase, and particularly seeing the 400 figure move up to 600 per annum, we have resourced up considerably within the section. If we look at the core of the office function that processes these applications, for small-scale generation alone we have 23 or 24 people permanently tied up in that area of the business processing these applications.

848. **The Chairperson**: These are admin office-based staff?

849. **Mr Atkinson**: Yes. I would describe it as office-based but it tends to be a combination of design engineers, planning people and some people who you would describe more as pure administrative-type resources. That 23 or 24 staffing figure is up from an order of 15 or so, 12 or 15 months ago. We have ramped up to try to match the demand.

850. **The Chairperson**: What about the ones who do the actual nuts-and-bolts stuff?

851. **Mr Atkinson**: The workforce on the ground is much less of an issue. We have a large workforce delivering connections generally, be it a normal load-related connection or a connection relating to a wind turbine. Those resources are more than capable of dealing with the wider remit of generation connections.

852. You are probably wondering why it takes so long to connect the wind turbines. It is not the physical building and construction that takes the time. Typically, that is done within eight weeks at the end of the process. The big portion of the time is occupied by the design of the earthing arrangements for the substations, and particularly the way-leaving and consenting arrangements that need to be agreed with local landowners. That tends to be the biggest single issue that we face. It is the time to get the full legalities progressed before we can move the job into what we describe as the final construction stage. I am sure that, if you ask people, they will tell you that, once the construction work starts, the job is normally done within six to eight weeks.

853. **Mr Wasson**: Some of the issues with way-leaving are no different from what we sometimes encounter with other construction work. You can have silly situations where two neighbours have not been speaking for 20 years and one of them wants to put up a wind turbine but it requires a line to go over the neighbour's land. Lo and behold, you have a problem with the way leave, and that becomes quite difficult.

854. **The Chairperson**: I appreciate that, Robert. I hear what you are saying because, not that often, but you sometimes encounter that issue with just a standard application for a house that requires sight lines. I would not expect that to be entirely the pattern. You get that in country areas and the like, but it is the exception rather than the rule. I can understand that holding things up because if somebody says, "You're not going across my ground", that is it.

855. **Mr Atkinson**: Could I maybe just challenge that point? We are finding that it is increasingly an issue as more and more wind turbine developers are trying to get connected to the network. Because there are limitations in the remaining capacity, they know that they are, to some extent, potentially in a battle with their neighbours as to whether they are going to get connections. We now find in many cases in some of the busier areas of the Province that there is much greater reluctance on the part of local landowners to give access. That has been an escalating situation.

856. **The Chairperson**: Thanks for that. There is just one other thing, and we will provide this to you in writing. We have evidence from Invest NI about difficulties and problems that slowness or lack of movement, in some instances, in connection to the grid is creating for

them. We cannot really bounce that on you today, but we will provide you with a written copy of the relevant paper. You can respond in writing to us, if that is OK.

857. **Mr Agnew**: I apologise for having to nip out midway through your presentation. If I say something that has already been covered, tell me; it is my own fault and we will move on. I will not waste your and the Committee's time by having you repeat yourself.

858. I am not suggesting this myself, but some of the evidence that we heard said that NIE as an organisation is conservative, averse to change and innovation, is a barrier to progress and behaves like a monopoly despite regulation. What is your response to that?

859. **Mr Wasson**: Well, we would disagree with that. Why would we disagree with it? First, we are a monopoly, but that is because we are a natural monopoly and that is why we are regulated in the way that we are.

860. I will address the question about whether we innovate. We would say that we do innovate; in fact, SSE mentioned that earlier. For example, when you look at the very conservative spend that we put in place for our short-term plan to get us going on the connection of renewables, less than £2 million was spent on releasing about 300 MW of capacity. We did that through innovation; we put in place special relays and protection schemes in quite an innovative way so that we could squeeze more capacity out of that existing system. It is not always about electronics; we have adopted new conductors for our transmission lines that can be run at much hotter temperatures and, therefore, you can get more current through them and a greater capacity from a circuit without having to rebuild it.

861. As I mentioned before you came in, we are continuing that. We are engaging with the industry and looking at practice in the UK to see what has been done there to connect more small-scale generation to existing networks with perhaps less investment. Therefore, I would say that we are innovative.

862. One of the disappointments that we had to deal with in price control was that the Competition Commission remained unconvinced by the argument that we made for innovation funding. If you look at our funding for innovation versus what would be typical in a DNO, it is almost nothing. We think that that is very poor value for the customer. I would say that that will be corrected in our next price control but, for the next two to three years, we need to find a way to do what we need to do, and that is our intention.

863. **Mr Agnew**: One of the examples that has come up — I hope I get the technology right here — is the reverse power relay that is needed for renewables, which cannot get the grid connection in time. They wish to power their own facility but there are concerns with the grid. My understanding is that, in GB, that technology has been accepted as safe, but you have not accepted it here in Northern Ireland. What is the reason for that?

864. **Mr Wasson**: We covered that while you were out, Steven. We said that we are open to looking at that, but that we are not apologetic about being conservative in how we develop the network. That is because of our responsibility to a wider customer base of 840,000. We have to keep the network safe and reliable and keep supply quality up, but we are open to looking at that particular matter and we intend to do so.

865. **Mr Agnew**: I want to ask about the strategy for grid investment. You have been here before and have said that you do not turn down applications as such — if they can be funded and have planning permission etc, they go ahead. That seems quite a responsive approach. Is there a strategic approach to developing the grid that runs alongside that or is it literally demand-led, or led by developer demand?

866. **Mr Wasson**: Are you talking about renewable generation in particular?

867. **Mr Agnew**: In particular, yes. I am asking about the upgrades needed to bring the greater proportion of renewable energy online.

868. **Mr Wasson**: I will talk to that for a second. We talk about large scale. The market will throw up various developers who are interested in development projects and it will throw up various projects. We have some sight of those as they start to roll out. To connect those we are doing a couple of things. The medium-term plan, which you will see referred to in the pack, is really a background investment in the 110,000 volt network.

869. Primarily what we are trying to do is get power transferred from the west of the Province, where the wind is and there is not much of the load, to the east of the Province where the load is. The medium-term plan is aimed at doing that and helping us to connect more of those networks.

870. Then, slightly longer term ,we have the further investment of £420 million, about £100 million of which is for the interconnector and the balance is for further investments, particularly on the 275 kV network. Again, a lot of that is in the west of the Province. Those are the backbone investments that we are planning.

871. In addition to those, the bit that is a little more reactive is the commissioning of cluster substations. As you get a group of wind farms developing in a particular locale, we will seek to put a cluster substation in to supply those. Those are also reasonably well known.

872. **Mr Agnew**: Is there a certain amount of predictability of the investment that is likely to come in? There is a relatively small number of companies that can afford those types of wind farm investments. Presumably you are engaging with them on current projects. Are you working with them to assess future projects that are likely to come and is that where you can at least move on together?

873. **Mr Wasson**: The answer is that yes, we are engaging. Michael will expand on that.

874. **Mr Atkinson**: We have sort of given a bit of a flavour in the pack. I will just see if I can find the slide, but it may be worth picking up on the point, not just in terms of the amount of wind that is currently connected. We have also given a wee bit of a breakdown on slide 6. We have given an indication of the amount of megawatts that are currently connected on a large scale, which is in the order of 550 MW. In addition to that, we have another 328 MW of delivery agreed. That is work for which the money has already been paid. Beyond that we have 122 MW of live offers and we have 196 MW coming down the road at us in applications. We are also aware of about a further 600 MW that is in the planning process.

875. The developers in that territory are generally ones that we are quite well acquainted with and meet on a regular basis. We know what their plans and aspirations are. Fundamentally, what we are doing on planning ahead and the work that we have all signed up to at the minute is the remaining part of what Robert has described as the medium-term plan work, which is essentially development of 110,000 volts up into the north and across into the west to make the network strong enough to accommodate the clusters that we already have earmarked with construction approval with the regulator, so that, by 2017, that medium-term plan, in conjunction with a number of strategic clusters, will be in place to take the additional work that is coming through the pipe and connect around that sort of timeline.

876. The question about strategy arises as to how well equipped we are to go beyond that, from that level of around 27% renewables to 40%, because that is where you step into requiring investment in 275,000 volts. We know the clusters that need to be implemented as well within that timeline. They are already in the initial stages of development.

877. The big challenge is how we are going to get that further, more substantive investment in the real backbone, the 275,000 backbone, agreed. That is the bit of the jigsaw that has not quite been worked through or agreed yet with the approval authorities. It means that we can get to about 27% in terms of the enabling capacity of the network and we can see the developers that will connect to give that sort of output in that sort of timeline.

878. **Mr Agnew**: This is to some extent related to what we heard from the previous presentation, when you were not here, around some of the connection issues and planning for developers. A big issue was certainty of timelines of grid connection in particular. I have heard the argument about whether you should run parallel with planning or take a step approach. It seems to me that the middle ground is that you can at least give an estimate, not an offer, of costs. On the matter of giving an estimated timeline, I think that you do need that level of certainty and that kind of estimate of budget. Is there any progress towards that? Is there a reason why we cannot move in that direction?

879. **Mr Atkinson**: The good example that SSE referred to was of a Slieve Divena connection, which has probably been in the system since the mid-2000s. It is a good example but is probably at one end of the spectrum. It had come in with an application and got its planning permission back in around 2007, and, as we were moving beyond that point, NIE, in conjunction with the regulator, was having to try to work out what the best way was to connect potentially quite a high volume of wind farms coming into the system. We got into considerable and very lengthy discussions and debates about the advantages of moving from more individual-based connections such as long runs back to primary substations, getting into a more structured and efficient method of connection, which was the cluster methodology. Admittedly, it did take some time to work that through. We got approval in principle from the regulator in 2011, and various determinations and challenges arose at a certain point, which almost caused the industry to go into hiatus for about two years after that.

880. Slieve Divena is one example of a project that got significantly held up or delayed as a result of that. Now that we have the cluster methodology agreed and have the medium-term plan lined up and can see these cluster delivery times coming in for 2016 and early 2017, we suggest that that plan is much better organised. However, there is still a fair bit of pressure on NIE and other parties to make sure that we deliver those clusters within that timeline because the incentives that sit around this for developers potentially change quite dramatically once they move from the early part of 2017. Beyond that, the actual method of reward moves from renewables obligation certificates (ROCs) to feed-in tariffs and things like that. That early 2017 date becomes a critical date that we are all working to now, and it requires us to work smartly and also requires us in our join up with the regulator to get some of the approvals to work smartly as well. So, there are big challenges there, but I suggest that it is in a much more organised state than it was three or four years ago.

881. **Mr Wasson**: That engagement with the developer community is very important. Michael, in particular, and I invest quite a bit of time in interacting with them. We do that at individual developer level and we do it with the Northern Ireland Renewables Industry Group (NIRIG) — we were with its committee as recently as yesterday, in fact, and we meet NIRIG every six weeks or so. We also do it through the Renewables Grid Liaison Group, which is chaired by the regulator. We, SONI and NIRIG are very keen that we get the Sustainable Energy Inter Departmental Working Group (SEIDWG) process established again. That is the cross-departmental process around grid planning, and, in fact, in the next few days, we will all be writing to the Minister to suggest that.

882. **The Chairperson**: Steven, very briefly. I have allowed a fair degree of latitude on this, and other members are looking to come in.

883. **Mr Agnew**: I have two very quick questions.

884. **The Chairperson**: Very quickly, and a quick response, please.

885. **Mr Agnew**: Do you foresee a stage where you can say that we will deliver within x days, weeks or months? In relation to that certainty, do you have plans to revise your heat map?

886. **Mr Atkinson**: The heat map will be revised shortly. I am not sure, Steven, whether you were here when we mentioned it. We will update and develop the heat map to another level down. Currently, it shows general areas, and we think that the sensible way to take information-sharing forward is to develop it to the next level down, where we show the individual lines and feeders colour coded. So, the answer to that one is definitely yes. We will probably not guarantee timelines to the nearest day or week, but we are confident that we can meet the big deadlines that we need to meet in late 2016 and early 2017. Those will be the crunch deadlines for us.

887. **The Chairperson**: We have a number of other questions, gentlemen. If it is OK with you, we will submit those in writing. We could probably spend all day on this very interesting topic, but the constraints of the clock are upon us.

888. **Mr McKinney**: Thanks very much indeed. I, too, apologise for not being here for your presentation. I am trying to practise the art of being in two places at once.

889. One of the most interesting things that you said — for me anyway — was about the extent to which you are now getting new applications. You are up to 3,000. I know that you are explaining some of the deeper-down knowledge around them. Is the reality not that that demand impacts both on the process and the actual connection?

890. **Mr Atkinson**: I certainly agree that the level of applications is very high. We need to understand how that is broken down. I know that you heard some of that. It is a very high level of applications, but I suggest to you that we have manned up considerably. The level of expertise that is required in this area to process applications is quite high. It is not immediately easy to lift people off the street who can do that sort of work. We have devoted or deployed some of our best people in that area.

891. I can give you some encouraging signs. Whereas, around a year ago, we were struggling somewhat in this territory, we have now got to the stage where, as we move through the application process — albeit we take the 90 days and I do not see us changing from that in the short term — we are able, at a much earlier stage in the process, if it turns out that an application is likely to result in a very high cost, to actively ring the developer, have a discussion with them and even iterate their application if they want to try for a smaller size to see whether that will fit in. All of that adds to the work that is being done in that period. I think that we are working better and smarter within the period, but I would not offer to take the period back at the minute.

892. **Mr McKinney**: You are a business: you will want to keep all of that demand and work with it. However, is it now reaching the point where competition is what is needed?

893. **Mr Atkinson**: As Robert said, we fully expect competition to come down the road at us. The question is —

894. **Mr McKinney**: The question that I am asking is this: are we not at that point now?

895. **Mr Atkinson**: My understanding is certainly that the regulator intends to consult quite shortly on competition. We will be an active participant in that. We cannot really speculate on whether it will bring major changes or improvements for developers. However, whereas we are criticised at present for issues

around cost and timeline, we believe that there are some genuinely solid reasons for some of those difficulties that will not entirely be resolved purely by competition.

896. **Mr Wasson**: We welcome contestability. As soon as the regulator is ready to start working through that, we will be there to work through that with it.

897. **The Chairperson**: We have already covered this.

898. **Mr McKinney**: I know. I understand that. I just wanted to raise the specific point about demand; not just competition, but the fact that that demand is there now and should be a driver to increase activity around that.

899. **Mr Frew**: I will try to be as brief as I can. I want to cover cost because it is a massive issue for people, businesses and renewable-energy companies that are connecting to the grid. There is also time, and time is costly.

900. I know that it is technical. I am an electrician by trade, so I know some of the pain that you bear. Can you give us the rule-of-thumb relationship between grid strength and connection costs and how that is worked out? While it is technical, there must be some way in which you can work out a rule-of-thumb formula that will be able to help businesses when they apply or even contact you to seek information about applying.

901. **Mr Wasson**: We are probably talking about small-scale generation here, Paul, are we?

902. **Mr Frew**: Yes.

903. **Mr Atkinson**: In terms of a rule-of-thumb number, the simple message is that moving from a less congested network in the west to a very congested network has probably introduced a multiplier of between two and three on the cost. So, whereas it was £60,000 or £70,000 18 months ago, it is up nearer £200,000 on average. That is what congestion means.

904. To try to help developers to understand the likely or potential cost, we have suggested, and we discussed earlier, providing information — probably website-based initially — which would show the heat map down to the level of the feeder to which that the individual developer is thinking about connecting. We can colour-code it to tell them whether it is a busy, medium or lightly loaded feeder. Using that, in conjunction with another rule of thumb — the distance between them and the nearest primary substation — we feel that we should be able to give some fairly broad indication, for example is it going to be less than £100,000 or more likely to be £200,000. However, once you try to go beyond that level of detail, you have to get into quite sophisticated design calculations. We can maybe find a compromise there that allows a wee bit of filtering at the early stages.

905. **Mr Wasson**: It is important that we do not mislead people as well, Paul. That is the balance.

906. **Mr Frew**: Whilst you would argue that you cannot look at every planning application and spend time and man-hours on it, surely that would help to target business to areas where there is accessibility, potential and the cost can be kept low. That would factor into their business plan more, which then would assist you in your workload.

907. **Mr Atkinson**: That is largely the reason for doing it. I do not want to appear conservative, or to be issuing health warnings all the time, but just bear in mind that the situation is that, when somebody looks at this at a relatively early stage, they could get an indication of something that looks maybe quite attractive, but by the time that they had gone through the detailed planning and were ready to get in their application, the game may have moved on and somebody else has moved in ahead of them. It is not £50,000 any more; it is twice that. So it has to be guarded in a best endeavours, best —

908. **Mr Frew**: If developers had access to your geographic information system

(GIS), surely that would help inform business, developers and everyone — indeed, yourselves too. If you could put some sort of tracking device on it as to applications and people looking at information. Surely there is something within that technology that can be refined to help you and businesses.

909. **Mr Atkinson**: What we are suggesting, Paul, is that the heat map, in conjunction with an overlay of our network which will show the geographical/physical layout of the network, provides a combination of information that could, we feel, potentially help in the way you are suggesting. We are not of a mind, at the minute, to make our full GIS records available. There are a number of reasons for that, not least the fact that, as we populate our records and take account of potential connecting parties, all sorts of issues around data protection etc for other parties —

910. **Mr Frew**: Why, then, can other companies that are actually in competition allow access to their systems, yet NIE, which works alone here and basically has a monopoly, does not? It guards that information when it should be accessible to the public.

911. **Mr Atkinson**: We feel that there is a level of information that is appropriate to share with the public and which would be helpful, but we do not think it appropriate to share full access to our records. We possibly take a different view to those other companies.

912. **Mr Frew**: Why, then, are those other companies doing that? What is your rationale for why they do it, but you will not?

913. **Mr Atkinson**: One reason may be that, in our situation, I suggest that some of the factors that we are dealing with here are relatively unique to Northern Ireland. On the mainland, we are aware of companies that simply use the records to determine what is the nearest point of connection, and the price of connection is based on that without any reinforcement required. We are quite sure that that is what happens.

914. In our case, because of the level of congestion on our network, and it is a relatively light network, we know that, by placing the full geographic records on the net, it presents information in a way that is potentially going to be quite misleading to any party that uses that information to do calculations about their connection costs — and we feel that there is a level of that information that it is appropriate to share but we do not feel that, in our case, the full records should be shared.

915. **Mr Frew**: It has been put to us, and I put it to you, that people believe that NIE guards this information because it can charge basically what it wants.

916. **Mr Atkinson**: Sure. We have seen some of that coming through in the notes. I suppose that all we can say is that, in any case that our costs have been challenged, we have been able to explain those costs to the regulator, and we are satisfied that we can do that in all cases. We give an outline and indication of the amount and content of work content required when we provide a quotation. There may not be the cost breakdown that all developers would like to see, but there is a pretty solid indication of the work that is required in a connection when we provide the offers, and that has proved acceptable in our statement of charges and regulatory engagement.

917. **Mr Frew**: If you break that down, one aspect is the half-hour meter. That needs to be the case with renewable electricity connection. Action Renewables believes that NIE's statement of charges is very high. It said that NIE charges £450 for the purchase and installation of the required half-hour meter, and that, elsewhere, it costs £150. How do you counter that?

918. **Mr Atkinson**: All we can say is that we have not looked at that particular challenge in detail, but we have to go through a rigorous process annually with the regulator to get our statement of charges signed off. We will be doing another one in the next few months. All the charges finally placed on our

statement have been agreed as reasonable with the Utility Regulator. If challenges are being made in those areas, they can be taken account of through that process.

919. **Mr Frew**: What about the specific issue of the half-hour meter? If some other company from somewhere else is charging £150 and NIE is charging £450, how can that be justified?

920. **Mr Atkinson**: All I can say is that we have been able to justify why we are charging £450 to our regulator. I cannot account for somebody else in another jurisdiction.

921. **Mr Frew**: Can you justify the £450 to the Committee?

922. **Mr Wasson**: In fairness to Michael, we do not have the detailed information on that particular case. We are happy to revert on that.

923. **The Chairperson**: Will you come back to us on that?

924. **Mr Wasson**: Yes.

925. **The Chairperson**: I do not know whether the regulator goes into that level of detail, but we certainly want to get it. It is an issue that has been raised.

926. Gentlemen, I am aware that two of you have to leave to attend a funeral. It is coming up to two minutes to 1.00 pm. Whichever two of you are attending, please feel free to go. We had only one more question.

927. **Mr Frew**: That is me finished, Chair.

928. **Mr Douglas**: I had four questions, but three of them have been answered. As for the last one, Paul asked half of it. It is about the GIS system. Michael talked about some of the reasons why you would not give access to developers. Is it also to do with commercial confidence? If you came to the point where you said, "OK, we will actually let you have access to that", would there be a cost to it? Maybe that is a hypothetical question.

929. **Mr Atkinson**: When you talk about commercial confidence, do you mean whether we are confident in our records?

930. **Mr Douglas**: Commercial confidence in that, somewhere down the line, some of the people you give the information to might be competing with you.

931. **Mr Wasson**: That is not really a concern. We need to be a little bit careful about data protection. We need to make sure that whatever information we are releasing does not give a small-scale developer information about other small-scale developers. However, the core issue you raised was about commercial confidentiality and us versus somebody who might want to get into the connection business. That is not really a concern.

932. **Mr Atkinson**: Unless the information shared is well understood, it has the potential to be very misleading. If the GIS records are used in isolation to do calculations, they will not show reinforcement work attributed to connecting parties that have not yet connected. However, we have had to take account of those parties when we were doing our own design calculations. That has the potential to completely confuse the situation. It is just one reason why we need to be very careful about anything we share.

933. **The Chairperson**: I have one very brief question: when Action Renewables was with us, it said that the solar PVs below 49 kV were not recorded in your system for some reason or other. Why is that the case? If that is not being recorded in your system, the cumulative effect of those feeding into the system will not show up as coming from renewable sources.

934. **Mr Atkinson**: A legitimate question has been raised about the way in which the export from those sources is being recorded, how it is being traded in the market and the rights of suppliers to buy it or whatever. I think that NIE has recognised that, with the amount of small-scale solar coming on board, we had been, if you like, using a cruder

approximation to what that energy coming on to the network was than is maybe appropriate now. We have taken that on board as an action through what is referred to a CDA — a design authority that comprises the NIE, industry members or whatever. Going forward, a more precise calculation will be done and available to suppliers and everybody else for the amount of energy that is being contributed. NIE hosted a workshop last week specifically on that issue, and a proposal has been brought forward that will shortly be available for sign-off with the regulator.

935. **The Chairperson**: With a view to implementation from what date?

936. **Mr Atkinson**: These things tend to implement within a two- or three-month timescale. It would probably be that sort of thing. The ultimate answer to that issue is a smart-metering solution, and that is some way further down the road.

937. **The Chairperson**: That is grand. I will not delay you any longer. Thank you very much. That was very helpful. We have a number of questions that we will send to you in written form, and we would like a written response, please. Thank you very much.

29 May 2014

Members present for all or part of the proceedings:

Mr Patsy McGlone (Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Mr Paul Frew
Mr Fearghal McKinney

Witnesses:

Ms Bernice Doyle — *SSE Airtricity*
Mr David Manning
Mr Iain Wright

938. **The Chairperson**: With us today are Mr David Manning, the director of corporate affairs in SSE; Mr Iain Wright, the head of regulation; and Bernice Doyle, the grid manager. You are very welcome, and thank you for attending and presenting to the Committee today. You have gone through this before, so you are probably aware of the procedure. The nature of it is that you have up to 10 minutes to make a presentation to members, and then we will have a Q&A session. If you are fronting, Mr Manning, please begin.

939. **Mr David Manning (SSE Airtricity)**: Two very short slides have been handed to you, and I will refer to them as I go along. I will try to speak for as brief a period as possible. We will certainly keep it under 10 minutes.

940. SSE Airtricity operates as an electricity generator, an electricity and gas supplier and a provider of energy services in Northern Ireland. Entering the market in 2008, SSE has invested around half a billion pounds into the future of Northern Irish energy. Today, we have over 1,500 megawatts of generation capacity participating in the single electricity market, which includes renewables, gas and oil. Of that, we operate around 125 megawatts of the renewable generation capacity installed in NI. Meanwhile, we have over 300,000 gas and electricity customers here. Thanks to our product offerings, customers who have switched to SSE Airtricity have saved a total of £17 million in recent years.

941. As a generator and supplier of electricity, the network is essential to us for the transport of power from generation sources to customers' homes and businesses. The adequacy, cost-effectiveness, timely delivery and maintenance of the network are therefore crucial to our business and are important to the communities that we serve. For example, we have recently completed our investment in the 73 megawatt Slieve Kirk wind park, and we have included a slide about that in your pack. Of that £125 million investment, £36 million was spent on goods and services in 75 local businesses. That project will also contribute a further £18·5 million to the local community in commercial rates, landowner leases and community funding. That is a total investment of £55 million in a rural area in Derry/Londonderry. The timely delivery of the grid connection was a key enabler of that project. Without it, that local investment and its resulting local economic benefit would not have materialised.

942. In the remaining few minutes, I want to address four priorities, as we see them, regarding the electricity network in NI. Where planning permission and a connection offer are concerned, SSE notes that a connection application will not be processed until planning permission has been granted. We agree with that policy, as it prevents the hoarding of grid by projects that may ultimately not be developed. The gate process in the Republic of Ireland (ROI) has had problems in that respect. Meanwhile, we anxiously await the full implementation of the Planning Act, particularly the provision of timelines for submissions by statutory consultees, which will make for a more efficient decision-making process.

943. We are satisfied that connection offers are issued relatively promptly once planning permission has been granted. However, we have found that delays in the actual delivery of the connection infrastructure are unacceptably long. SSE has experienced delays of over five years in the delivery of connections. To illustrate that point, we included in your slide pack the timeline experience for our Slieve Divena II wind farm. As you will note, the planned connection date has been a continual moveable feast and remains uncertain. We would like to highlight that that level of delay and uncertainty is a real barrier to investment and damages Northern Ireland's attractiveness as an investment location. That is particularly the case for SSE, as projects must compete internally for funding. It is most disheartening to lose funding for better projects in NI to other jurisdictions due to something as obvious as a reliable timeline.

944. Our second point relates to the contestability of grid connections. Northern Ireland operates a shallow connection charging regime. That means that developers must pay for the local wires that are required to connect the generation project to the wider grid system. Currently, generators in Northern Ireland must engage and pay NIE to construct those shallow connection assets in accordance with the rates and procedures that the Utility Regulator set out. In other jurisdictions, including ROI and GB, generators have the option to take responsibility for the connection of those shallow connection assets themselves. SSE has found that the contestable delivery of connection offers cost savings of 20% to 40% and reduces delays in connecting projects, often by years. However, it ultimately gives the developer control over the delivery time frame. We have responsibility for connections of many projects, including our Athea and Dromada wind farms in ROI. We also reached agreement with NIE for the contestable delivery of the Slieve Kirk wind park connection, which I referred to. If we had not done so, the project would not have been built, forgoing the £36 million of local economic benefit that was illustrated earlier. We strongly advocate that contestability be introduced in Northern Ireland for both transmission and distribution connected generators, and we note that the Utility Regulator's work plan has indicated that it will deliver contestability. However, that has been an objective of the regulator for several years now. We urge the regulator to complete that project as soon as possible so that developers may progress their projects in a timely and cost-effective manner.

945. Our third point centres on progress to develop connection clusters. SSE welcomes the cluster policy that the Utility Regulator introduced, whereby adjacent projects can share transmission and distribution infrastructure. That is an effective way to reduce the costs and environmental impact of that infrastructure. However, SSE has experienced substantial delays in cluster connections being delivered as a consequence of the regulator's policy to require funding approval at a number of different stages of development. Our issue is not the approvals themselves; rather, it is the absence of a defined timeline for decision-making at each of these stages. A more defined decision-making timeline will, therefore, enable developers to move ahead and to construct projects in a more predictable manner.

946. Furthermore, we submit that allowing the contestable construction of cluster connections delivers on the objective of protecting customers from unnecessary cost, as the first developer will carry the entire investment risk of overcapacity, should others decide not to develop their projects.

947. Our fourth and final point relates to general network upgrades on the North/South interconnector. SSE highlights that upgrades to the grid are necessary and that there is a general need to maintain and expand capacity to allow the single electricity market to operate as intended and, therefore, to deliver the most cost-efficient dispatch of

generation plant on the wider system for the customer's benefit. Of particular importance is the continued delay in the construction of the North/South interconnector, which, as the regulator stated, has cost customers on the island over £16 million per annum and almost £100 million since the single electricity market commenced operation in 2007. We note the Committee's comments on that in earlier reports.

948. In these opening remarks, I have sought to highlight to the Committee a number of priorities as perceived by SSE Airtricity, including the economic benefit of energy infrastructure to rural communities, the consequence of delays in grid connections, the necessity of contestability and clustering and, lastly, the importance of key infrastructure delivery such as the North/South interconnector.

949. Delays that are associated with the delivery of connections make it difficult to make investment decisions. Delays increase costs and undermine the investment case for projects that deliver tangible economic and employment benefits, as we illustrated with our Slieve Kirk example. Therefore, greater investment certainty is required. That can be best achieved through the delivery of a contestable connection framework. Ultimately, the focus must centre on delivering for customers. Thank you.

950. **The Chairperson**: Thanks very much indeed for that. Going back to the question of contestability, you used the example of Slieve Kirk and said that, had you not arrived at an accommodation with NIE, that simply would not have been delivered. Will you expand on that a wee bit further? The issue of delays in connections has cropped up time after time with us, as has the whole issue of projected costs and the like and even the fact that NIE's evaluation of a site or a proposal is very, very slow.

951. I know that you are working in both parts of the island, but what are your views on completely opening up the market to other firms, instead of just NIE providing connections? Clearly, if it cannot do that within a time frame that is efficient for a company or an individual turbine developer, other options have to be looked at. So, what are your views on that?

952. Will you expand a wee bit further on the Slieve Kirk proposal and how that worked for you? In other words, did you hit a problem that meant that you had to go to NIE and say, "Look, guys we have a problem here. This proposal will not go ahead unless we move to another method"? Will you talk me through the whole process, how it worked and even the length of time that it took? I am sure that, even if the first bit was slow, the second bit might not have been as slow.

953. **Ms Bernice Doyle (SSE Airtricity)**: I will talk you through the background to Slieve Kirk. Basically, we sought to connect a large project to the transmission system. Previously, all projects would have been connected to a distribution system. In talks with NIE, it said that it was seeking to build a cluster substation or a substation that would accommodate more than simply our project. We then foresaw there being a problem if we went through the standard process at that stage. The regulator's determination on the charging statement and the cluster approvals had not yet come out. So, there was little certainty around the extended timeline for the delivery of other projects such as Slieve Divena II, and we needed to bring certainty into it. We were in a position to build the assets ourselves, and we proposed that to NIE so that we could take control over the delivery timeline.

954. We got agreement from NIE to build the line from the cluster substation, which is called Killymallaght, back out to the local wind farm substation and some equipment at the wind farm substation. NIE still built the cluster substation, but we funded it 100%. So, that was our way around a whole delay that was caused by the requirement to get funding approval.

955. **The Chairperson**: So, did you 100% fund a cluster substation that NIE was projecting to build anyway? Was it saying, "It will be a while before we do that, but, if you want to do it for us, that is grand"? Was that its plan?

956. **Ms Doyle**: We knew that there would be delays that would be similar to those for all the other proposals for a cluster substation. We could see that, so our remit was to try to bring control over the delivery timeline. So, we offered to take on the funding risk for the substation build on the understanding that, as further projects were connected into it, we would get a rebate.

957. **The Chairperson**: That is what I was going to ask you. You put up the money up front to get a substation built efficiently, which, ultimately, benefited others. So, was part of the agreement that you would get a rebate as and when others came on line?

958. **Ms Doyle**: Yes.

959. **The Chairperson**: Right; there you go. It sounds like an unusual way of doing things. To my mind, it also sounds a bit of a convoluted way of doing things.

960. Obviously, you are sharp businesspeople who can see when some things are not being done. How long did it take you, from application point to determination point, to realise that it would not work if you depended on NIE to deliver the substation and that you would have to put a counterproposal to it? I am asking two questions here. After you put your initial proposal to NIE, how long was it before it came back and said, "Look, a new substation is required here, and it will take us x months or years before we deliver that". At that point, how long was it before you went back to it and said, "Look, we have a counterproposal that will solve matters for us". How long did it take NIE to then come back and agree to that? I am trying to get a rough time frame in my mind — it will not be exact to within a day or two. Maybe you or the people who dealt with it up front will know exactly what it was.

961. **Mr Iain Wright (SSE Airtricity)**: I deal with that in two parts: one is the background; and the other is the best information that we can provide on the timeline.

962. The background to this is that our experience in the contestable delivery of connections in ROI was such that we thought that this was the correct approach to use in Northern Ireland. At the time, there was no obvious statutory prohibition on anyone coming along and building the network. There was also no statutory requirement for a licensing arrangement for distribution. So, we were trying to push the boundary a bit to make sure that we made use of whatever facilities were available in the regulatory framework in Northern Ireland to deliver the project efficiently. Given that we were first on the route, we made a mistake, however, in that the connection voltage turned out to be transmission rather than distribution. When we started off down the line, we believed that it was distribution and that there was no statutory —

963. **The Chairperson**: Sorry, for those of us who are non-technical, can you explain the ramifications of that, please?

964. **Mr Wright**: The law says that any wire that is operated at or above 110 kilovolts is transmission. Under the European Third Package, there are restrictions on owning generation and transmission. So, there was that complication that we had not originally appreciated. To build the connection, we wanted to build an overhead line. For that, we required an article 40 consent, which DETI issues. An element of time was spent with DETI working out whether it was within its power to grant us that. In the end, it did so. So, the background to the connection is that we were trying to do it entirely ourselves for reasons of efficiency, which my colleagues set out.

965. **The Chairperson**: How long did the DETI bit take? I am trying to get a bit of a handle —

966. **Mr Wright**: My recollection is that it took nine or 10 months, but part of that was

investigating whether it had the power to do it. Nobody had ever done this before, apart from NIE.

967. **The Chairperson**: Was that running parallel to your proposal being put to NIE, or was it in tandem with it?

968. **Mr Wright**: Given that we had intended to do this ourselves, bringing NIE into the picture happened slightly later. All the time, we had expected to do the connection application ourselves. So, the whole process of contestable delivery evolved, rather than being deliberately planned at the outset.

969. **The Chairperson**: I am sort of still trying to get the time frame from project to going to NIE and saying, "Look, this is what we need". NIE at that point obviously came back said, "Look, we need a substation". At that point, you said, "OK, let's look at this". You then went back to NIE with a proposal to deliver the substation, and you then arrived at that point. I am trying to get a handle on the time frame to all this, because, as a company, you have raised it as an efficiency issue.

970. **Mr Manning**: I understand the question. We were breaking new ground; it had never been done before, so at this point the timeline will look as though we took a good few months to get there. However, that is a function of breaking new ground and of everybody getting comfortable with something that could be done.

971. Your question is this: if you get an offer and decide that you are going to do it contestably, how much faster does that make it?

972. **The Chairperson**: If you do not have the details with you today, you can submit them to us in writing. I just want to get clear for the Committee the efficiency of delivery of what you referred to as connections and what you had to do, which was probably unique in that instance. It would be good if we could get a handle on that and then move on to the other part of my question, which was on the whole issue of contestability and delivery. Should that all be opened up? If NIE does not have the capacity — it announced job layoffs yesterday — do we move to the point of involving other private companies? I ask that because we heard in previous evidence that that happens in parts of Britain, whereby private companies just come in and do the work, and that is it, done and dusted. Will you venture an opinion on that? How might you see that operating? It may be that some of you have experience of how it works over in parts of Britain.

973. **Mr Manning**: Referring back to the first part of the question, because Slieve Kirk broke new ground, it might be useful to look at other wind farms that we have delivered contestably from the offer point to the point that we move forward. That will give you a clear sense of how an efficiently operating, contestable environment changes the delivery time frame. So, we will come back to you on that, if it is OK.

974. **The Chairperson**: That is grand. Thank you.

975. **Ms Doyle**: I can talk through one of the ROI examples, if that helps. In ROI, you would make an application for a connection, and you would be given a connection offer —

976. **The Chairperson**: Sorry, is this to ESB?

977. **Ms Doyle**: It is to ESB Networks. It would give you an offer in which it identified the portions that are contestable and non-contestable.

978. **The Chairperson**: Right.

979. **Ms Doyle**: You, then, have a window to elect to contest some portion of the contestable works.

980. **The Chairperson**: Right.

981. **Ms Doyle**: That window is open from the time that you sign the offer for your connection agreement until the point where the system operator goes into a detailed design. So, your window closes once it starts engaging in delivering your grid infrastructure.

982. **The Chairperson**: Is the contestability bit determined in statute, by the regulator

or whatever, or is it just left to the company to say, "Well, we'll allow you this bit of contestability, and we will not worry about the other bits and pieces"?

983. **Mr Wright**: The background to that comes the renewable energy sources (RES) directive and the internal market in electricity (IME) directive 96/92 before that. The 2001 and 2009 directives state that member states may allow producers of electricity from renewable energy sources wishing to be connected to the grid to issue a call for tender for the connection work. So, the background is in European directives. In Ireland, the statutory route has been followed. The first approach to that was in SI 445/2000 , where the Electricity Regulation Act was amended to allow transmission-connected generators to undertake contestable works. SI 226/2009 gave generators the right to construct part of the connection to the distribution system. In GB, they have gone down a different route. There is not the same statutory backing for it, but Ofgem has taken the view that facilitating competition is the basis on which it wants to promote contestability. Its website has a couple of comments, one of which is:

"We are committed to promoting competition within the energy markets as a mechanism to benefit consumers through increased quality, or decreased prices, or both. Natural monopolies inevitably make it more difficult to promote competition.

The installation of new connections assets helps to minimise natural monopolies through the creation of an element of competition."

984. It then goes on to talk about independent connection providers and independent network operators. So, that is the underlying philosophy that Ofgem brings to contestability. It has incorporated conditions in the network operators' licences that require them to separate contestable and non-contestable aspects. So, you can have it through statute or general competition.

985. **The Chairperson**: Bear with me; I am sort of on a bit of a roll with this. Is the applicability of that EU directive subject to interpretation by each member state or, as in our case, each region?

986. **Mr Wright**: Yes, it is. The contestability bit is the phrase "member states may".

987. **The Chairperson**: So, it is not "shall"?

988. **Mr Wright**: No.

989. **The Chairperson**: OK. Leading on from that, the Ofgem bit seems perfectly sensible to me. Why would that not be as applicable here in Northern Ireland?

990. **Mr Wright**: I do not see any reason why it would not be equally applicable.

991. **The Chairperson**: Right. That brings me on to the next question. In the South or GB, can a single developer employ the resources of a private firm just to do the connection bit?

992. **Ms Doyle**: Yes. That is what we do.

993. **The Chairperson**: So, that is not you? Do you just bring in a contractor to do it for you?

994. **Ms Doyle**: Once we elect to contest the connection works, we get detailed technical specifications ultimately from ESB Networks. Those tell us exactly what it requires us to build. We then go out to tender to a private contractor, and we manage the delivery of those works. The delivery is overseen; there will be site visits and regular meetings with ESB Networks and EirGrid to ensure that what we are delivering is up to their standards. At the end of that, there is a handover process where the asset is transferred back to ESB Networks.

995. **The Chairperson**: Of course, the big question for us is this: why is that not being done here? I am not asking for an answer to this, but the complaint that we regularly have is about slowness in connections. We are seeing it being done down South and over the water. The simple question is this: why is it not being done here?

996. **Mr Manning**: Slieve Kirk proved to be an excellent case study of how it can be done well. All the relevant information associated with it has been provided to

the Utility Regulator. The Utility Regulator has committed in the work plan to delivering contestability. I made one or two points in my earlier remarks about timelines. It has been said that it will be delivered; it is now just a case of moving on and delivering it.

997. **The Chairperson**: I have one final question. You are aware of the RP5 and the commissioner's decision. You are obviously watching this; you are astutely involved in the industry. As for what RP5 determined, from what you read from what the Utility Regulator is proposing, can that contestability or changes to it be introduced within the current term of the licence?

998. **Mr Wright**: I do not see any reason why not. The Utility Regulator started off the process at the end of 2010 when it pointed out in a consultation on the whole connection regime that there are currently no formal mechanisms in place to allow generators to tender openly for the construction of the works. In their next steps paper, which looked at comments coming back from interested market people, they said:

"It is proposed that the Utility Regulator will investigate further the introduction of contestability for connections. This program of work will run in parallel with the RP5 Program."

999. We have provided to the Utility Regulator the background documentation for our connection at Slieve Kirk and how the process worked, but there is not a formal process in place yet. That would obviously have to be agreed to allow it to be done in a methodical manner.

1000. **The Chairperson**: Thanks very much. That has been very helpful.

1001. **Mr Dunne**: Thanks very much, folks, for coming in this morning. The delays in connection by NIE are an issue that we have looked at considerably. What can NIE do to improve its processes and systems to try to reduce that? It is an ongoing problem. The Chair touched on some of it, but what more can be done? You have given an example — if I read it correctly — of the Slieve Divena connection. Is that five years? They pushed that out five years on you.

1002. **Ms Doyle**: The current date is based on assumptions of approvals for funding. There are no defined timelines, so that could certainly move again.

1003. **Mr Dunne**: The point has been made here that the level of delay is a real barrier to investment and damages Northern Ireland's attractiveness as an investment location. Do you think that is the case? Those sorts of delays have a knock-on effect. Does NIE need to get smarter about how it manages those processes? I suppose that is the bottom line of my first question.

1004. **Mr Manning**: I am happy to take that one. From the conversation we have had so far, I can say that the role that contestability can play can be very important in allowing timelines to be achieved. Having contestability there provides an incentive to everybody to perform to those timelines.

1005. With regard to the second question, which was around the loss of investment, if I have a development that I want to deliver here in Northern Ireland and I have my competing colleague over in Scotland who similarly wants to attract SSE funds, and if I say that the timeline is x, but they look at me and say, "But, we don't really have certainty on that, because we saw what happened with Slieve Divena", I will lose that capital investment to the other competing bidder within my own company. For the three of us here at the table, a large part of our job is attracting SSE capital investment here to Northern Ireland, so we would like those timelines to be a lot more stable so that our company can have confidence in what we say to it and it will want to spend its money here in Northern Ireland.

1006. **Mr Dunne**: OK. There is a real issue that needs addressed. Do you feel that it is a matter of resources with NIE? Is there a lack of resources and a lack of commitment to running that section and dealing with it?

1007. **Mr Manning**: I do not think it would be appropriate for me to comment on that.

1008. **Mr Dunne**: Those issues that you aware of: there is a complaint, "We can't manage; we haven't got the resources to do what you want on time". Is that part of the problem?

1009. **Ms Doyle**: It is not something that we have had directly highlighted to us in our dealings with NIE, but again, as David was saying, above all, we value certainty. If you have certainty, you can plan. Even if it is certainty of a longer period for decision-making than we would like, at least you can plan for that. The real issue for us at the moment is that we just have no certainty. Having to get multiple stages of approval with each of those stages having a high level of certainty is, for us, the nub of the problem, because we cannot plan for when we will have a decision.

1010. **Mr Manning**: It is analogous to the planning system. In the planning system, you put in your planning application, then it goes to statutory consultees, but there is no defined timeline for statutory consultees to reply. That is coming in in the first quarter of next year through the Planning Act, which is very welcome. If there is no defined cut-off date by which time you have to respond, things just get lost in the ether.

1011. **Mr Dunne**: You got planning permission for this project, Divena, in 2007, and your timeline is that it will run out in 2017, so you have it for 10 years. Prior to those 10 years, you processed the application.

1012. **Mr Manning**: Yes.

1013. **Mr Dunne**: So, you are out to 13 years, maybe.

1014. **Mr Manning**: That is a particularly good example of why it becomes difficult to talk to our financial people and say that we would like to make this investment. A lot happens. A lot happens in a week. A lot happens in 10 years.

1015. **Mr Dunne**: Yes, I think we made the point. The whole thing needs to get a lot smarter and more realistic. I have been involved in other engineering projects in my previous job, and the lead-in times are incredible on some things. For various reasons, they have to be. You are talking 13 or 14 years for this. The requirement changes. Things change so much. Look at the way that the economy has changed here and is changing back, we hope. You make the point that we certainly will need to put pressure on.

1016. On the planning permission issue, we have evidence from various groups, and there is a strong argument that the planning and the NIE bit of it should be run in parallel. You are not sure about that. Is there not an argument that, maybe for smaller systems, they should be?

1017. **Mr Manning**: The best way is to give the example of what has happened in ROI. In the gate process, grid connection offers were given in the absence of planning. As a consequence of that, would-be developers were in possession of a grid connection offer but then may never have got planning and the project would never go anywhere.

1018. **Mr Dunne**: Was there no timeline on those grid connection offers?

1019. **Mr Manning**: You might want to correct me on this as we go along. Once a developer pays a deposit, they have rights to that grid connection offer.

1020. **Mr Dunne**: The deposit secures it for them.

1021. **Mr Manning**: Exactly. Our experience has been that some developers have taken that as an asset and will approach a company like SSE or another larger developer and say that they have a grid connection at this point and ask whether the larger developer is interested in buying it from them. I hold the view that all that does is add unnecessary cost into the delivery of infrastructure. You are adding value. It is almost like producing a property bubble around grid connections. So, in our view, we can learn lessons from what happened in the South on that, and, in the North, we would be disinclined to see a situation whereby they would run in parallel. It is

important to retain the current system, whereby you have planning and then you secure your grid connection.

1022. **Mr Dunne**: Finally, a point on NIE came to mind. What sort of consultation does NIE give to a potential developer without planning permission? Is it willing to engage and get involved in genuine pre-discussions and give some indication about whether planning permission will be achievable or what is required to achieve planning permission etc? Or, does it wait until —

1023. **Ms Doyle**: You have your planning permission and you make your application.

1024. **Mr Dunne**: Yes.

1025. **Ms Doyle**: You cannot enter the formal connection application process until then. NIE is always open to sitting down with us and talking about its cluster substation plans, including what capacity will be built into those plans and how much it is seeing currently in the pipeline. So, its cluster substations will look at what is in planning or with planning in a specific area and try to build out the grid connection for those in an efficient way. We are in this situation where we are stuck in planning for quite a long time and we cannot go into the connection application process, so the other approach that we have taken for some of our projects is that we have sought to engage NIE to carry out studies for us to try to look at potential connection points and costs. We have to pay for that because it has to undertake quite technical studies on load flows and short-circuit analysis to understand exactly what the implications are of us connecting a certain point. So, we have done that for projects that are still in planning and for which we are not in the connection application process. Obviously, that costs money, and the developer has to be willing to pay for that.

1026. **Mr Dunne**: It is all costed risk, really.

1027. **Ms Doyle**: Yes.

1028. **The Chairperson**: I will pick up on a couple of themes that Gordon was developing. One was the, if you like, power developer bubble and how planning before application and those types of things could contribute to that. A distinction has been made to us about the huge wind farms and that you can do that and how that potential could arise. The other case that has been put to us is that, while that can apply to the huge developments and wind farms, it should not be the case for individual single turbines. Do you have an opinion on that?

1029. **Ms Doyle**: I think that the principle needs to be that all generators are treated equitably. I would be concerned about an approach that starts to differentiate between different types of generators.

1030. **Mr Manning**: There is an additional point to that. I heard an interesting statistic. If I remember correctly, there are 650-odd —

1031. **Ms Doyle**: There are 670-odd —

1032. **Mr Manning**: There are 670-odd single connections, and if you do that at about 250 kilowatt per unit —

1033. **Ms Doyle**: It ends up at about 138 —

1034. **Mr Manning**: You end with about 140 or 150 megawatts of a connection when you aggregate all those single generators. That is quite a substantial amount.

1035. **The Chairperson**: That is presuming that they have all been shored up by one developer or two developers. If your argument is about the competition and that somebody can scoop it all in for themselves —

1036. **Mr Manning**: Yes, but the point that I am making is that when you think of it in that context and you think of the work that NIE needs to do in order to look at load flows, how the network needs to be developed and the type of reinforcement that needs to take place in the network, whether you are a single guy or a large

guy, there is still quite a lot of work to be done there.

1037. **The Chairperson**: That brings me nicely to the next part of the question. When representatives from NIRIG were in with us, they said that they believed that developers should have access to NIE's geographical information system so that their own studies and their own conclusions could be done about capacity and those types of things. Obviously, I do not know enough about that to even comment on it. That is why I am asking you this question: would you find it of benefit commercially if you had access to that data? If you had access to that data, you could very quickly commercially rule out certain locations if they were not going to be workable.

1038. **Ms Doyle**: I struggle to see how that would be of significant benefit, in that the analysis that NIE will undertake to determine where you can connect is quite technical and the expertise involved is not widespread. We would have only one or two consultants who we use to do that kind of work. To say that a small developer with a small site would be able to take a GIS and extrapolate from that the impact of their connection and others in their area on the wider system —

1039. **The Chairperson**: I do not think that that was the argument. They were talking generally. Would that be advantageous to you?

1040. **Ms Doyle**: I struggle to see how it would be. We have gone to NIE and engaged it to do a study. Without its GIS, we have looked at the network and said that, for this site, here are three potential options that might work for us to connect, and then we go to NIE and ask it to scope out a study to look at those and look at the deeper impacts and the technical analysis on those options. We engage NIE to do that for us. There is not so much that we can do ourselves with that. We can look at it, but it does not have any type of technical analysis. It is not advantageous to us.

1041. **Mr Manning**: I think that I would ask why that is the case. You have got a position, but you would like access to this information. Our question would be about why that is the case. We see a large volume of information and we are not just quite sure what you do with it. If there is a rational argument to say it is hugely advantageous, OK, but I do not know. So, my question is about why that is the case.

1042. **The Chairperson**: You already know what it is anyway.

1043. **Mr Manning**: From our perspective, we would not see —

1044. **The Chairperson**: OK. I just had to ask the question.

1045. **Mr Anderson**: Thank you everyone for presenting to us this morning. I have a couple of questions. Can I refer to the time taken for the connection to the grid? Action Renewables commented on the discrepancy between Northern Ireland and GB with the time it takes to connect. It said that it believes that NIE does not have the resources to speed this up and give that faster connection. Do you have a comment on that?

1046. **Mr Manning**: At the risk of repeating, the only comment that I would make is that we have seen the advantage that contestability brought in that example of Slieve Kirk and in other jurisdictions. That would be a natural next step to improve efficiency and delivery of grid connections.

1047. **Mr Anderson**: If there was more competition, maybe there would be better and quicker connection. Is competition an issue?

1048. **Ms Doyle**: As Iain said, the Ofgem basis for delivering contestability is to promote competition. That will help to drive down costs. It enables developers to take the risk on themselves when delivering the infrastructure at the best market price they can find. In our experience, we have seen it deliver in ROI and GB. It delivers those significant savings for us.

1049. **Mr Wright**: In the Utility Regulator's 2010 consultation, when they asked the question, I think 16 out of 24 respondents addressed the issue of contestability. They all said that it was a good idea. NIE in its response said that it would support a move towards competition in connections. Within the community of people who have an interest in this, there is a general acceptance that contestability is appropriate. For completeness, I should point out that, in talking to the Utility Regulator, I understand that they are preparing a consultation on connection policy.

1050. **Mr Anderson**: The time taken for grid connection is a big issue. Whatever way we can move it forward, whether by competition or otherwise, it certainly is a great need, but that is an interesting point.

1051. Is there any reason why developers should not be permitted to generate their own electricity for their own use without being required to connect to the grid yet retain that right for connection to the grid for, say, additional electricity?

1052. **Mr Manning**: I just want to understand the question. Are you saying that they are generating for their own consumption and not for export to the grid?

1053. **Mr Anderson**: Yes, but they would still have that leeway if and when required.

1054. **Mr Wright**: Much of industry will quite often have CHP or other on-site standby generation. However, there are technical issues where you are connecting an on-site generator to a wider system because they interact, so technical standards are in place that manage that process.

1055. **Mr Anderson**: Is that the problem and difficulty, and no other reason? Is that more or less what you are saying?

1056. **Mr Wright**: It is not an organisational problem. It is just physics.

1057. **Mr Manning**: If you are going to put in a unit to produce for your own consumption, fine. If you are going to put in a unit to produce for your own consumption and potentially export, that has a requirement for upgrade works, so a cost is associated with that. You need to be clear in your own mind —

1058. **Mr Anderson**: Is the initial cost the great leveller here? Are you saying that it would not be feasible unless you were exporting to the grid?

1059. **Mr Manning**: You would have to do your own cash-flow assessment. If I am going to put in a unit and I want to export from it, in order to do that, I will be required to do certain upgrades. You have to factor that into the cash flow of your investment. That will increase the capital investment needed at the get-go. If you are going to produce for only your own consumption to meet, say, 90% of your own need, do not connect to the grid and you do not have to worry about that capital cost.

1060. **Mr Anderson**: But there is the possibility of it being there due to expansion or whatever later down the line.

1061. **Mr Manning**: Then you need to factor in what that cost is going to be in your initial investment.

1062. **Mr McKinney**: Thank you for your contribution so far. You talked about the delays opening up to five years being a barrier to investment and a general jeopardy, if you like. Can you quantify that jeopardy in projects or millions?

1063. **Mr Manning**: I will put it the simplest way that I can. Let us go back to the Slieve Kirk example. Slieve Kirk was a £125 million capital investment, of which £36 million was invested in 75 local businesses. Had that connection continued to be delayed, we would not have built that wind farm. That £36 million worth of investment would not have occurred, and that economic value and job creation would not have occurred in that area. That community also can look forward to another £18·5 million over the lifetime of that wind farm, which will be contributed to the local community. So, what is the economic cost? It is the value foregone;

and, in that case, the total value foregone is £55 million to the local community.

1064. **Mr McKinney**: Yes, in the case of Slieve Kirk.

1065. **Mr Manning**: That is just one example.

1066. **Mr McKinney**: You are saying that, had that not happened, that would have been the case.

1067. **Mr Manning**: Yes.

1068. **Mr McKinney**: Are there other projects that are now delayed? I know that we are now talking about — is it Slieve Divena? I am sorry; I must get the pronunciation right. I should know because I was born in the neighbouring county, but there we are.

1069. **Mr Dunne**: You have been away too long.

1070. **Mr McKinney**: Are there projects other than those that are not likely to be carried forward as a result of these delays? That is the simplest way to put it.

1071. **Ms Doyle**: At the moment, other projects that we have are still in the planning phase, so we do not have connection agreements. There is another project for which we have a connection agreement, but we are not concerned about the delivery of that because it is beside an existing substation, so it is a different situation. Other projects that we have in the portfolio are in the planning and are due to come out at various stages in the near future, we hope. The issue is that we already see that they are tied to NIE cluster substations that do not have approval, so we can already see that they are going to get into the same problem.

1072. **Mr McKinney**: The other jeopardy attaches to the overall renewable energy target development. Is that hindering the attainment of government targets?

1073. **Mr Manning**: It is part of a number of issues that are delaying the delivery of the renewables targets, yes. I can go back to my example of planning again. The delays in the timeline associated with planning is another issue. As we said, our preference is to see planning, so that, when you have decided that you want to build a wind farm in a particular location, you can go to NIE and talk about your grid connection. So, I am not inclined to focus on grid as the party solely responsible for putting Northern Ireland under pressure to meet its 2020 targets. But, is Northern Ireland under pressure to meet those targets? I would say yes.

1074. **Mr McKinney**: I want to refer to one very specific thing. It probably applies more to minor projects. It is about quotation levels and timescales for NIE. What are your views on the 90-day period?

1075. **Ms Doyle**: We have a similar situation in ROI, for example. There is a 90-day period. We find that, in general, we get the offers within that allotted time frame, so that particular timeline has a degree of certainty to it and, once there is certainty, we plan for it. So, yes, if we could get it in two weeks, that would be great, but, as we get it in 90 days, we plan for that and, generally, it comes out the other end. So, that does not present us with a particular issue. The main issue is thereafter, that is, getting the timelines for the connection dates.

1076. **Mr Manning**: If you have your project timeline, whether it is 90 days or two weeks, once you know what it is, and it is delivered within the timeline, you can plan around it. It is the certainty argument.

1077. **Mr Agnew**: Thank you for your comments so far. You have obviously seen the latest outcome from the Competition Commission on grid investment. Publicly, there is a lot of focus on short-term costs to consumers, but, obviously, a lot of this investment is for the long term. Ultimately, we hope that it would have benefit for consumers. In general, with price controls, do you believe that enough emphasis is being put on the long-term investment that is required? Do you believe, for example, that the Competition Commission's determination is in any way going to be detrimental to your business?

1078. **Mr Wright**: Rather than look specifically at what the Competition Commission does, because that is one instant in time, one of the responsibilities of regulators is to balance public interest over the long and short term, as you said, but they also have to take account of policy developments. The regulator has to balance the need for 40-year investments of very capital-intensive works and when those will be required. There is the timing issue, the question of how much is the right amount to pay and how much do they need to take account of technology changes or distributed generation rather than centralised generating units. There are an awful lot of competing issues to balance and there are policy developments over time.

1079. I also think that Ofgem has shown that there has recently been a move towards more incentive-based regulation. Taking this in the round, it has to be a matter of judgement. The regulator and the Competition Commission have had access to all the information that can be produced and they have pored over this and analysed it. Anybody from outside could say only that they have made a judgement that is based on their own area of expertise and we must accept that.

1080. **Mr Agnew**: We are going to hear from NIE after you, but some might say that the determination puts the renewables industry — perhaps not the industry but the ability of Northern Ireland to meet its targets — at risk. What is your response to that?

1081. **Mr Wright**: One of the statements that the regulator made in 2011 was that it would look at contestability for connections in parallel with the regulatory period 5 (RP5) programme. It is fair to say that RP5 took longer than initially expected but, nevertheless, our experience in Slieve Kirk enabled us and NIE to provide the Utility Regulator with information on how the process worked, albeit it evolved as it went along. Perhaps, the amount of parallel work that was hoped for has not arisen, but I believe that now RP5 has been put to bed, so to speak, the regulator will be able to advance with the contestability and wider connection policy with a more certain policy framework. I expect that, within the next few months perhaps, up to a year, developers will have greater certainty on the extent to which they will be able to deliver on connections and, as Bernice pointed out, able to take control of their own projects.

1082. **Mr Agnew**: One of the issues that came up while we have been investigating this matter is that, ultimately, every investment ends up with a knock-on cost to the consumer. Questions have been raised about whether developers should take on more of the burden. Contestability sounds like that may be the case, although I would be interested to hear how much you pass on to the consumer. It has been questioned whether NIE should take some of the hit. How do you see the cost of investment being metered out, particularly with reference to contestability? You mentioned taking on more of the risk; does that ultimately mean taking on more of the cost as well?

1083. **Mr Manning**: I will answer that in two ways. For many of us operating in this sector, be it in conventional generation or as a renewable generator, NIE as the network asset owner, or suppliers, our focus is on acting in the interest of the customer. Doing that, as we know in energy policy, has three dimensions to it: security of supply; competitiveness — and affordability is a very significant issue within competitiveness — and protection of the environment. There are three interesting and challenging targets that have to be hit in the process of doing that. You and Iain made the point; these are long-term investments for periods of over 40 years. If I were NIE, or I were in whatever jurisdiction, I have a risk profile and a responsibility to assume all the risk. Therefore, I need to price in that risk. Through contestability, you are moving that risk on to the developer. Think of it as an insurance premium being moved from NIE to the developer. As a consequence of moving that risk, we will have a different perspective on that risk profile. We will

have closer intimate knowledge of the project we are delivering on. Therefore, in a sense, we have more knowledge.

1084. In my opening remarks, I stated that our experience of delivering contestability has seen savings in the region of 20% up to 40% in the connection. In the interests of the customer, that 40% gap is the saving accrued to the customer as a consequence of that activity.

1085. **Mr Agnew**: Are there any examples of you taking on risk and, for whatever reason, it not paying off? Is the consumer at a detriment if they are seeing the advantages where contestability works?

1086. **Ms Doyle**: We have not seen any situation in which that has occurred to date. The fact that we are already making such significant savings by going down that road gives us a lot more headroom with what we are designing into the costs of the project. The principle is very well understood from a developer's perspective in the regions in which there is contestability: you take on that risk. If you build a shared asset that allows further projects to develop, you take that on. If those projects do not materialise, you have to bear that cost. There is a rebate process back to you from the projects that materialise and connect.

1087. **Mr Manning**: If the rebate process does not materialise, in answer to Mr Agnew's question, you are the one who made that decision to make that investment, and the risk is yours to bear.

1088. **Ms Doyle**: The parallel scenario in a non-contestable world is that you pay 20% to 40% more. The customer pays for a shared asset at a premium rate of 20% to 40% more through NIE, or whoever builds it, but you still have the risk that the other parties or projects will not materialise. The customer then bears the loss of that cost, which is 20% to 40% more.

1089. **Mr Wright**: The regulators and others have done studies of the impact of renewable energy on the price of energy in the single electricity market. They found that, because of the zero marginal cost, renewable energy has priority of dispatch, so the marginal price on the system is lower. The marginal price is the market price of electricity. There is a benefit to the customer in having more renewables constructed because it feeds back through the electricity price.

1090. **Mr Agnew**: We still do not have the payback period for the customer or the investment to savings. That is something I have been pushing for. If you have any information that can feed into that, it would be very helpful.

1091. If you came to us today with the one objective of saying that contestability is the answer, you have succeeded; that is coming through loud and clear. Another solution proposed to us by a number of witnesses was smart technology. Could that be a big part of the solution for you, or is it a side issue? Obviously, as I said, I have got the message about contestability. We will run with that. How much of a role can smart technology play?

1092. **Mr Manning**: Perhaps Bernice will talk more about this. NIE has adopted a number of technology advancements in that space, such as dynamic line rating, which is a very important innovation in how we maximise the use of the grid. Maybe Bernice will say a little bit more about that in a minute. The smart space is fascinating. The reason I say this is because, until now, energy has not really changed much in 100 years. Generation moves across a power line and the customer consumes it. We are now moving into a world in which customers will have more control. They will have more awareness of how they consume energy. That information will flow back through the grid to the generation stations so that generation is despatched in the most efficient way possible. What you will find in the middle of that dynamic is a smart grid that is capable of utilising telecommunications technology to move information through the system and therefore limit the investment that is actually needed in order to meet demand at a particular point in time.

1093. We are involved in a really interesting project that includes Glen Dimplex and

its quantum heating project. I was before the Committee previously speaking about it. You have a load at the customer's home. When the wind is blowing, but there is not full demand for it, what you do is take cheaper energy at that point in time and store it in a heating device. That is a very clever and efficient way to maximise the full use of the physical assets that you have installed, thereby lowering the cost of those assets and lessening the amount of assets you have. That is the tip of the iceberg when it comes to smart technology.

1094. The analogy that I always use is that of the telephone. We remember what the telephone looked like 20 years ago. Then, we remember when Nokia came out with its first handset. Now, look at the smartphones that we have today. That massive evolution in telecommunications technology is now starting to permeate into the energy sector and how those two sectors cross over each other in how information flows.

1095. **Ms Doyle**: I just want to add that NIE and SONI, as proven system operators, must always be cognisant of their priority to keep the lights on. So, they have to move. There will always be a time lag between those technologies, like in telecommunications, filtering through to the electricity system. Rightly so: they must be inherently conservative and keep their priorities straight.

1096. Having said that, I commend NIE and the steps it has taken down that road — for example, the dynamic line-rating schemes and special protection schemes — because that makes most use of the existing network. So, instead of having static ratings on lines based on the worst-case scenario, a really hot summer day, it can actually change the rating depending on the weather conditions and temperatures. That is a really good way to maximise the utilisation of the infrastructure that we have. We have actually seen the EirGrid and ESB networks to be much slower in the Republic of Ireland in seeking to adopt those kinds of technologies and test them in a measured and controlled way. NIE has gone down that road. We commend it for that.

1097. **The Chairperson**: Thanks very much indeed for that. I have just one question. It is a bit of a no-brainer, but I just want to put it on the record. You mentioned the contestability issue, the movement of risk and indeed the reduction of costs at that time. Just for the record; do financiers from the company and externally look at that as positive in that it makes the connection more efficient, speeds things up and basically gets them an efficient return for their money? Is it a good thing or a bad thing with regard to the confidence of the market?

1098. **Mr Manning**: Well, if you are look at making an investment and at what the net present value (NPV) of that project is, what its cash flows will be over its 20-year life expectancy and the upfront capital cost, and you reduce the upfront capital cost, your cash flows are positive and you end up with a positive NPV, your financier will look at you and say that you have a positive project. So, if you can reduce your upfront capital cost, that is a positive thing.

1099. **The Chairperson**: That is all that I wanted in the Hansard record.

1100. **Mr Manning**: Ultimately, it is positive for the customer, which is where a lot of our focus is.

1101. **The Chairperson**: That is OK. Thanks very much indeed. That proved very interesting indeed. Thank you for your time with us today. You are in better form today, Mr Manning, than you were the last day that you were here. I know that you will provide us with some information about —

1102. **Ms Doyle**: The timelines —

1103. **The Chairperson**: — the flow of the projects themselves and how you move from one stage to another in your ventures. That will be very helpful. If you are amenable, we will supply any additional questions that we have to you in writing if you are happy to answer them.

1104. **Mr Manning**: Certainly.

5 June 2014

Members present for all or part of the proceedings:

Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Ms Megan Fearon
Mr Paul Frew
Mr Fearghal McKinney
Mrs Sandra Overend

Witnesses:

Mr Michael Harris	*Department of Enterprise, Trade and Investment*
Mr John Mills	

1105. **The Deputy Chairperson**: Briefing the Committee today is John Mills, who is the head of the energy division. I think that this is your first time briefing the Committee as head of division. You are very welcome.

1106. **Mr John Mills (Department of Enterprise, Trade and Investment)**: Thanks, Chairman.

1107. **The Deputy Chairperson**: We wish you well in your role. We also have Michael Harris, who is the head of the renewable electricity policy branch. He has been here before, I think. You are both very welcome. Do you want to make your introductory comments and then we can get into questions?

1108. **Mr Mills**: Thanks for the invitation to the Committee's review of grid connections. We have sent up some bullet slides. Hopefully, Committee members have them, as I propose to go through them. DETI's main role is the incentivisation of renewables, and that is pretty much what I will cover.

1109. I will turn to the first slide. The framework for renewables is set by the renewable energy directive at EU level. That places a mandatory target on member states of 15% by 2020, and the Executive's contribution to that is a 40% renewables target by 2020 with an interim 20% target by 2015. That is supported by the Department's primary goal of protecting consumer interests, and its general duties contain a requirement to promote energy mix. That supports the renewables objective and the detail set out in the Renewables Obligation Order (Northern Ireland) 2009. The main way that we incentivise is through the Northern Ireland renewables obligation. Actual connection is largely down to NIE, and the slide shows the legislative provisions for that.

1110. I will turn to the next slide and give some background. The 2008 all-island grid study commissioned by DETI and Southern colleagues in the Department of Communications, Energy and Natural Resources concluded that 42% of power demand on the island could be met by renewables but that there would need to be some grid strengthening to achieve it. Current levels of investment are estimated to be able to deliver 27%.

1111. I will move to the next slide. We have approximately 600 MW of renewable energy installed. Most of that is large-scale wind, but about 10% is from small-scale technologies such as wind, hydro, anaerobic digestion (AD) and solar PV. It is estimated that we would need about 1,600 MW to meet the target of 40% consumption from renewable sources by 2020.

1112. The next slide is entitled "Since 2010...".

1113. **The Deputy Chairperson**: On your previous slide headed "Renewable Electricity", the figures do not add up. It says that we have 600 MW of installed renewables, which is 19%, but that we need 600 MW to reach 40%. Those two figures do not correlate. Is that because of a predicted change in demand or consumption?

1114. **Mr Michael Harris (Department of Enterprise, Trade and Investment)**: Part of it will be because of the technology mix itself, because, with installed capacity, wind would have a lower load factor than biomass or AD. So, the figure of 40% and figure for the installed capacity do not correlate exactly. The 1,600 MW was a scenario that looked at what could get to 40%, but, ultimately, it will depend on what is installed, whether it is wind or another technology. You cannot match them up in the same way.

1115. **The Deputy Chairperson**: OK. Sorry for interrupting you, John.

1116. **Mr Mills**: We are not far off the 20% target, as you said, Chair, at 19%.

1117. There have been considerable developments since the 40% target was introduced in 2010. Total capacity installed has almost doubled from 336 MW at April 2010 to 611 MW by May 2014 — an increase of 82%. There were 590 generating stations accredited under the Northern Ireland renewables obligation (NIRO) at April 2010 and 4,977 by last month — an increase of 740%.

1118. The vast majority of generating stations are below 5 MW, and most are even smaller at under 250 kW. Small-scale capacity at April 2010 was 26 MW, compared with 87 MW in May 2014, a 234% increase.

1119. That is quite an increase, and these successes bring challenges, hence the Committee's review, no doubt. At the large scale, NIE has adopted a cluster approach. Some of that can lead to developers complaining about timescales. At the small scale, connection costs have risen, timescales can be longer or, depending on upgrades, not possible because of the capacity of the grid.

1120. At the smallest level, the thresholds for microgeneration have reduced to comply with new regulations. That is a concern for that group of developers. The Minister is not blind to that, but there is no instant solution. Any decision to allow further investment in the distribution network to accommodate greater levels of small-scale renewable generation is ultimately a matter for the generator. The cost to consumers of upgrading the grid has to be weighed against the advantage in achieving the renewables target.

1121. Last year, the Department completed a review of large-scale technologies for ROCs. Under the statutory requirements of the 2009 order, we are now reviewing small-scale generation. We will bring that to the Committee in the coming weeks as a draft consultation document.

1122. We are looking at the costs and benefits associated with reaching the 40% target. We expect that work to be completed by the end of the year, and that will feed into the mid-term review of the strategic energy framework, which is due to commence next year.

1123. The Minister is aware of the grid connection issues and the issues that developers are facing. There is no quick and easy answer. Any wider investment solution that takes costs away from developers could put them on to consumers. Upgrading will take time anyway. It is important that developers be aware of the grid constraints, although there are still many opportunities for them to connect. Our goal remains to achieve the Executive's renewables target at the least cost to consumers.

1124. **The Deputy Chairperson**: Thanks for your presentation. You said that DETI's main responsibility was for incentivisation of renewables. I presume that that is not DETI's main responsibility for energy policy.

1125. **Mr Mills**: No, that is in the context of connections. We are incentivising the demand for connections. Our main duty is to carry out our energy duties in the interests of consumers, but one of the duties below that is to provide for a renewable energy mix.

1126. **The Deputy Chairperson**: That is fine.

1127. **Mr Dunne**: Thank you very much, gentlemen. How aware are you of the

frustration felt by providers, especially those of large-scale renewables projects, at the length of time it takes to go about setting up their projects? One issue that they have great concerns about is planning permission, which is needed before NIE takes them seriously and engages with them. Is there not an argument that we should be running the two processes in parallel? What is your attitude to all of that? How aware is your organisation of those concerns?

1128. **Mr Mills**: We are very aware of them. The Minister regularly meets developers, so she is well aware of their concerns. Even in the short space of time that I have been in post, I have met developers more than I have any other group of people. We are therefore very aware of the issues for developers. I do not want to say the wrong thing here, because I have a lot of respect for the risks that developers are taking. However, ultimately, our incentivisation is for the provision of renewables obligation levels. We do not guarantee a connection to the grid. That does not come along with that incentivisation.

1129. On the planning issues, we are aware of calls for running the planning and grid connection processes side by side and that that may speed up the process. My crude answer to that is that, if the grid is the block, it really will not matter how quickly you get through planning. Certainly, if you ran the two processes side by side, you might find people making planning applications but then not taking forward their development, and NIE closing down possible access to others as a result. I do not know whether you agree with that, Michael.

1130. **Mr Harris**: I do agree. I know that, in its evidence, NIE explained why it had adopted that policy: to try to avoid the instances in which developers are trying to push ahead and hold up grid applications. The queue process is one that developers get very exercised about, but large-scale developers certainly understand why the queue is needed. The Utility Regulator agrees with the process as well.

1131. **Mr Dunne**: Last week, we took evidence from a large-scale wind farm provider and were told that, for the planning stage with NIE right through to connection, it will take 10 years and that, prior to that, about three years' work will have been spent planning the project. That is 13 years. Surely such a timescale is unacceptable for such projects. I think that the Department needs to get real here, and NIE needs to get very real. I think that NIE is living in the past. What pressure are you putting on NIE to move forward? NIE reminds me of certain banks that used to be in Northern Ireland. Some of them have changed their name totally and are unrecognisable. A lot of their places have closed because they did not move on. We feel that NIE needs to step forward, get smart and get things moving in order to meet modern demands. Requirements change so quickly. Thirteen years for a project is totally unacceptable, as far as we are concerned. We are sitting up here in Stormont trying to make things happen. Surely you will agree. What is the Department doing about that?

1132. **Mr Mills**: I sympathise, but I have to come back with what may sound like an unsympathetic answer to that. I admire the risks that developers are taking, but there are those project risks. I am wary of saying that the Department should assume all those risks. The Department offers generous incentives. Other industries may look at the renewables industry and its incentivisation levels and think that it is well served. Renewables get first preference in the market. They get the market price. We are not giving renewables a guarantee of connection. If we wanted to do that, inevitably, we would be looking at possibly increasing the cost to consumers, and the Committee, from the last element of its review, is well aware of pricing issues. The only thing that I would add to that is that, at the very top level of grids that are regarded as having European significance, there are new European regulations that delegate authority to the Department to try to corral all those process that

you are talking about and make sure that they happen quicker and in a more opened-up fashion. However, that affects only around five particular identified projects and would not extend to normal wind farms.

1133. I really sympathise with developers. I was speaking to somebody yesterday who showed me map after map. He showed me areas of special scientific interest (ASSIs) and of important landscape that he could not build on and spoke about the grid constraints. I appreciate the difficulties. However, having said that, if I were being crude, I would say that we are likely to hit the Programme for Government target of 20%.

1134. **Mr Dunne**: You are?

1135. **Mr Mills**: Yes, for 2015.

1136. **Mr Dunne**: Are you confident of that?

1137. **Mr Mills**: Yes.

1138. **Mr Dunne**: OK. Thanks very much.

1139. **The Deputy Chairperson**: John, you kind of said it again that the Department's only responsibility in the area is the incentivisation of renewable electricity. However, the Energy Order 2003, which established the regulator, states:

"The principal objective of the Department and the Authority in carrying out their respective electricity functions is to protect the interests of consumers of electricity supplied by authorised suppliers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the generation, transmission or supply of electricity."

1140. Therefore, the Department's responsibility is much bigger than just the incentivisation of renewable electricity. It has the same primary role as the regulator and the same level of responsibility. For you to sit here and say that your only responsibility is to deal with the incentivisation of renewable electricity is quite concerning.

1141. **Mr Mills**: I am sorry that it is concerning, but I disagree with you that the Department has the same responsibilities as the regulator. The legislation would make no sense in that case. If we were meant to do what the regulator does, why would we have a regulator?

1142. The principal objective that is set out in legislation is that the guiding principle for the Department must be in carrying out its specific duties. The Department, the regulator, NIE and the Systems Operator for Northern Ireland (SONI) have numerous specific duties littered throughout the legislation. I am sure that we could provide a list of those, but it would take a while.

1143. **Mrs Overend**: Thanks for coming to the Committee. It seems that, for renewables, there is a monopoly for connection to the grid. We spoke earlier about how, in GB and the Republic of Ireland, generators have the opportunity to connect their assets, which results in cost savings and a reduction in delays. I understand that the Utility Regulator is working on introducing that here. What is the Department doing to ensure that it is introduced as soon as possible and as smoothly as possible?

1144. **Mr Mills**: That is the contestability. We are aware of that. It is the regulator's responsibility along with NIE to introduce that. As far as we are concerned, there are no barriers to that in the current legislative framework, and if issues arise with us, we are happy to look at them. I think that we would be happy to see that happen. If it were to help developers, it would be a good thing.

1145. **Mrs Overend**: You mentioned clustering earlier. How do you see that helping or hindering contestability when it is introduced? Clustering could bring about further delays. How will that be controlled?

1146. **Mr Mills**: That appears to be an issue at the moment, but I think that there is general agreement that clustering is a good thing. Certainly, for costs, it is preferable to multiple individual connections. I do not think there is any disagreement on that. There seems to be an impact on individual developers,

whereby if clustering is not happening in their area, it is an issue.

1147. **Mr Harris**: Contestability is something that we absolutely support. It would help any of the developers move projects along quicker.

1148. **Mr Frew**: I had to nip out to see a school group from my constituency, so I missed your presentation. Apologies for that. Some of this may have been covered already.

1149. I do not know whether you were present when we had the previous presentation, but a lot of developers have said that, if they had access to the geographic information system (GIS) that NIE uses, they could make an informed choice of where they base themselves for generation and where they make a business case for where they tap into the grid. What are the Department's views on that? What more can the Department do? I am like a lot of MLAs, in that I get very frustrated with the processes of government. The cogs turn very slowly. It is not good enough for Departments simply to say, "Well, that's a market-led thing" or "That's somebody else's pigeon". What more can the Department do? What is your view on that information not being released, when it is accessible in other jurisdictions?

1150. **Mr Mills**: On the specific point, I did not know that the information had not been released. I did not think that there was an issue. We do not have an issue with the information being released, although it is a matter for NIE. Anything that can help developers, given the complexity of stuff that they have to go through to get a connection, is welcome.

1151. I will come back to what may seem to be an unsympathetic line. From an energy point of view, we are trying to achieve the 40% target. Even given the problems that developers face at present, I am confident that we will hit the 20% Programme for Government target. The Department provides incentivisation through the renewables obligation certificate (ROC) scheme. There is a preference in the market for renewable energy.

1152. **Mr Frew**: Surely your target cannot simply be to focus on a 40% renewables target. If that is the only thing that you are focused on, and we hit the 40% target, it may not have been managed right and therefore may not be manageable. We may lose some businesses because of the cost of that change. Surely the Department should be concerning itself with the cost of energy, the system of energy, the way in which it is delivered and the lack of progress. The fact is that the cost of energy and the cost of connecting to the grid are absolutely unsustainable.

1153. **Mr Mills**: There is a caveat to the 40% target, which is to achieve it at least cost to the consumer. That is the whole issue.

1154. You talked about losing business. From a DETI point of view, the Minister would like to encourage business, including renewables, some of which is very cutting edge and worthwhile in itself. I am speaking strictly from an energy point of view. The Executive decided that 40% is the target at least cost to the consumer, and that is what we are focusing on.

1155. **Mr Frew**: Yes, but why should the focus be simply on that? The fact is that, in cost terms, we as a country are sitting second highest in Europe. Our large employers find it increasingly difficult to keep profit margins. They are competing with their sister plants all over the world. Surely that should be alarming the Department into taking action.

1156. **Mr Mills**: Many people would argue that we should be going much more slowly on renewables support, because of the cost implications. I am going slightly off the subject of grid connections, but that argument seems to emanate from a report by the regulator in March 2013 that stated that large industry did face higher costs. The Minister asked the regulator to carry out work to look at the reasons for those costs, to consider their allocation between customer

groups and to look at scenarios if the allocations were to change. That work is ongoing and, hopefully, will be delivered in the next month.

1157. **Mr Frew**: I want to return to the cost of grid connections. Developers will tell you that grid connection is between 20% and 50% of their total capital cost, whereas in GB and other jurisdictions it could be as little as 5%. Surely the Department and government have to have a bigger say in that. That is a truth that is going to hurt business, and it is not in the interests of any Government for that happen. How much more can the Department delve into the problem to solve it? To me, it is not good enough to stand back and say that it is market-led so has to look after itself and that we can just keep it running smoothly. What more can government do to bring down the cost of grid connection and the cost of electricity?

1158. **Mr Mills**: That is a matter for NIE and the regulator primarily. It is a matter of statutory record that they have the power and the responsibility for connections.

1159. **Mr Frew**: Is government helpless?

1160. **Mr Mills**: Government can change policy, and the Assembly can change the law within the limits of the constitutional arrangement and EU limits. We are not helpless, but, again, you keep making me sound unsympathetic to developers, which I am not at all. We are hitting the current target, and the total ROC support for the renewables industry was £50 million in the past couple of years. We are not guaranteeing grid connections, so, yes, there are certain project risks that lie with developers.

1161. **Mr Frew**: How do you feel about the current situation, in which NIE has a monopoly on grid connection and infrastructure? Should it be opened up to other suppliers? Can it be that a developer can bring in people who will do part of the grid connection and put a heavy voltage line up under contract, after which NIE will take it over? Through legislation, of course, NIE owns and controls the grid, so it would have a fee that everyone would pay. Is government looking at that model?

1162. **Mr Mills**: Mrs Overend asked a similar question, and, as Michael said, we would be happy to see that happen. As far as I am aware, there is no legislative constraint. If there were, we would deal with it and, hopefully, support development in that direction, if necessary. However, we are not aware of anything at the moment.

1163. **Mr Frew**: What is keeping the energy team in DETI awake at night? What is the big issue for you, and how are you dealing with it?

1164. **Mr Dunne**: It is the lights going out.

1165. **Mr Anderson**: It is your questions.

1166. **Mr Mills**: Yes, having the lights stay on is always a concern. Although it is regulator-led, the movement to the new integrated European target model is a very complex change. In the area of renewables incentivisation, we are moving to replace the ROC system with feed-in tariffs with contracts for difference, which is also very complex. Connections, of course, are a big issue. Those are the four big issues identified, and, as a new person, I find the complexity of some of them daunting.

1167. **Mr Frew**: What can you do better?

1168. **Mr Mills**: We could try to be more high level and explain and understand things in less technical or less detailed terms. That is very difficult. We could join up better. Jenny, the regulator, and I work very closely together. I met people from forestry yesterday. My two aims are probably to be more joined up and to make things more understandable.

1169. **Mr Frew**: Do you hope that electricity will be cheaper, or perhaps more comparable, in the future?

1170. **Mr Mills**: We need to see the results of the ongoing review, particularly in light of the impact on large commercial and manufacturing electricity users. That is just network costs. With networks, the indications are that prices are

comparable across the UK and the Republic of Ireland, so it might be optimistic to look forward to lower costs.

1171. **The Deputy Chairperson**: You are doing a costs and benefits study into the 40% target in the strategic energy framework. Is there any logic for it being done now, halfway through the framework, as opposed to before the target was set?

1172. **Mr Mills**: Do you mean in 2010?

1173. **The Deputy Chairperson**: Yes. Why was the study not done before the target was set? Why are we doing it halfway through the framework?

1174. **Mr Harris**: Work was done at that time, and it came up with the 40% target. Since the 40% target came in in 2010, lots has happened, and there have been many changes, some of which John outlined. Before we move into a mid-term review of the SEF, the work coming out of the study will help to feed into that. It would be wrong not to do that work now when so much has changed since 2010.

1175. **The Deputy Chairperson**: Was it done prior to 2010?

1176. **Mr Harris**: Work was done, and it came up with the 40% target. I suspect that it did not go into the detail that this study will go into.

1177. **The Deputy Chairperson**: Do you think that it should have been done before the target was set?

1178. **Mr Harris**: Work was done to come up with the 40%. I do not think that that figure was just plucked out of the air.

1179. **The Deputy Chairperson**: You are maybe less cynical than me.

1180. **Mr Harris**: A study was done for that.

1181. **The Deputy Chairperson**: At some stage, if you do not mind, can we get whatever work was done to come up with the 40% so that we can see where it came from?

1182. **Mr Harris**: A study was done, which has never been published. That is my understanding.

1183. **The Deputy Chairperson**: Those are the kind of studies that we like to see.

1184. I know that this is about grid connection, so I will not take long. As part of the review, has the Department any intention of reviewing levels of incentivisation based on the Executive's wider economic policies, such as the economic strategy?

1185. **Mr Harris**: The incentivisation is very much focused on the ROCs issue, and that is the support given to small-scale generators. The purpose of the ROCs was to take account of the different costs in generating electricity between renewables compared with conventional generation. A review was done last year on large-scale generators, and we are now doing the small-scale review. It is looking at how those technology costs have changed since 2010 and how they are likely to change. It is to make sure that we are not overcompensating or under-compensating any of those technologies.

1186. **The Deputy Chairperson**: It does not, however, take into consideration the Executive's wider economic strategies. The regulator released information that £17 of electricity costs can cost £180 to generate, which, in wider economic terms, does not make any sense, whereas large-scale renewables would be much more cost-effective. Is the Department giving any consideration to looking at levels of incentivisation to take wider economic strategies into account?

1187. **Mr Mills**: We will look at those. As Michael said, the review is under renewables legislation and focuses us on increasing costs and so on. You make a good point, Chair. We will look at wider issues and the cost of incentivising small-scale against large-scale generators.

1188. **Mr Agnew**: Thank you, gentlemen, and welcome, John, to the Committee and your new role.

1189. **Mr Mills**: Thank you.

1190. **Mr Agnew**: Can I ask, if it is not inappropriate, about your background

and experience before coming into the role?

1191. **Mr Mills**: I was in water for a number of years.

1192. **Mr Agnew**: Was that in DRD?

1193. **Mr Mills**: Yes, so I am familiar with utilities and regulation and less familiar with markets and so on.

1194. **Mr Agnew**: I am sure that it is a bit of a learning curve. It is interesting to know your background.

1195. Our understanding is that the sustainable energy interdepartmental working group — SEIDWG, as we affectionately know it — has not met for some two years. Why is that? Was it a strategic decision?

1196. **Mr Mills**: My understanding is that it has not met in two years.

1197. **Mr Harris**: SEIDWG had a number of subgroups, and work was being channelled through those subgroups rather than the working group. That is where the focus was at that time. SEIDWG, in its wider sense, was never stood down. It is still there, but work is being developed through the subgroups.

1198. **Mr Agnew**: NIRIG raised a concern with us. Has it been excluded in any way from discussions because of this?

1199. **Mr Harris**: No. SEIDWG was an interdepartmental working group, so industry was never represented on it.

1200. **Mr Agnew**: NIRIG raised the concern that the strategic side of grid planning and investment had maybe fallen through the cracks of those subgroups. Do you accept that, or could you even identify the subgroup at which those issues are being addressed?

1201. **Mr Harris**: There was a grid subgroup, and the regulator set up the renewables grid liaison group, which included industry. There was a feeling that there was much potential duplication between those two groups, so the work seems to go through there now. It is probably more operational, and we sit on it in an observer capacity but are still part of that group.

1202. **Mr Mills**: That is a fair point. If it would help, we could see whether there is something strategic there —

1203. **Mr Agnew**: That confirms what NIRIG said that it was operational rather than strategic. Given the review of the strategic energy framework, that is where the concern lies.

1204. **Mr Mills**: In our work on the review, NIRIG has been involved in meetings.

1205. **Mr Agnew**: We have just had an evidence session with SONI, and NIE has appeared before the Committee. It came up that grid investment is demand-led rather than strategic, so it is responsive rather than proactive. My understanding is that it is a policy direction from the Utility Regulator, and I find it hard to comprehend. Somebody has to put in a bid, and then upgrade approval is granted or otherwise. Has the Department any view on that approach? In the evidence session with SONI, it would be fair to say that its representatives expressed frustration over that process. They know what needs to be done to the grid and would probably rather get on with it than wait until each individual developer comes forward.

1206. **Mr Mills**: I am not sure that I care to comment on that in particular. Obviously, at a very low level, it will respond to a particular connection. I do not know the context in which that was said, but —

1207. **Mr Agnew**: SONI said it of transmission and the 110 kV.

1208. **Mr Mills**: I do not accept that there is no strategic approach to the grid. NIE's clusters are intended to take a more practical approach as to where the majority of connections might be. At an even bigger level, the Minister has given a lot of support for and promoted the North/South interconnector, for example, and the Committee has also supported that. The Moyle interconnector will also help. Promotion of storage is done through a couple of recognised

projects at European level that are being supported, and the Minister supports other shorter-term storage to help with demand. So I am not sure that you can say that there is no strategic vision.

1209. **Mr Agnew**: Obviously, there will be a Hansard report of our previous evidence session, so you can read the SONI response to a question of mine. You could see whether, given what they said, you could understand their position better.

1210. The current estimate is that £420 million worth of investment is needed to meet the 40% target. You mentioned your concerns: first, that we should hit the target and, secondly, that it be achieved at the lowest cost to the consumer. Are you content that £420 million is the lowest cost to the consumer? If I remember correctly, that is NIE's figure.

1211. **Mr Mills**: We are getting back to our work on potential costs and benefits. That is NIE's figure. I am not in a position to dispute it, but I want to see the results of our work to see what we get before saying whether it is the best figure.

1212. **Mr Agnew**: You say that 19% of electricity consumption now comes from renewable sources. If memory serves me correctly, the last I heard from the regulator — I could be wrong about this — was that we are at 17%. What is the basis for 19%?

1213. **Mr Harris**: We receive monthly data from NIE, which we break down by technology to give us a monthly figure that we then convert into a 12-month rolling figure. We have seen months in which the figure is well over 20%, but the following month it could be down, so we present a rolling figure. That is the latest figure that we have. It depends on the point in time at which the figure is taken.

1214. **Mr Agnew**: Is the figure of 19% averaged over the most up-to-date 12-month figures?

1215. **Mr Harris**: Yes.

1216. **Mr Agnew**: So it is not just the figure for one month?

1217. **Mr Harris**: No.

1218. **Mr Agnew**: I take it that, presumably, it is taken over a 12-month period?

1219. **Mr Harris**: Absolutely. We have had months in which the percentage has been up to 28%, but in other months it will have dropped, so you cannot base it purely on a short time of a month.

1220. **Mr Agnew**: John, you mentioned that you are confident of reaching 20%, and 19% is certainly very encouraging. Obviously, a lot of decisions must be made about investment between now and 2020. However, are you confident that we are on the right road to 40%, or do you see any major obstacles that we must overcome to make sure that we get there?

1221. **Mr Mills**: My civil servant answer is that we should wait and see what the review comes up with on the road to the 40% target. It is acknowledged that there will have to be more investment. One concern has to be the progress of things such as the North/South interconnector, which will assist the grid's ability to absorb more.

1222. **Mr Agnew**: Is part of the remit of the review to consider the 40% target?

1223. **Mr Mills**: The Executive would have to take a decision on that. We are reviewing the costs and benefits of the 40% target. Correct me if I am wrong, Michael, but what I envisage coming out of it is that 40% will cost you a certain amount. Let us hope that, if you got to 38% for £100 million, and it costs an extra £300 million to get to 40%, it would be common sense to go for 38%. I think that the review is more along those lines.

1224. **Mr Harris**: Yes. It is looking at interim steps and how to get to 25%, 30%, 35% and 40%. It will provide that data to us. However, it is about not only the costs but the benefits of reaching each of those interim steps.

1225. **Mr Agnew**: A lot of this is investment for the long term. What time projections will be taken into consideration in the costs and benefits study? We know, for example, that gas is the price setter at present, when more is required than wind can meet. Will we be looking at 30 years until that gas comes onto the system? Is that the type of answer that we will get, or is that too hard to answer at this stage?

1226. **Mr Mills**: It is concentrating on the 40% target by 2020. A number of people have suggested that we need to go beyond that.

1227. **Mr Agnew**: It is about getting the full benefits of investing now. You do not make a £100 million investment for six years, you make it —

1228. **Mr Mills**: I see your point, Mr Agnew. Obviously, if we take only one year, £100 million will never pay us back, so we will take that into account.

1229. **Mr Agnew**: That is the long-term approach.

1230. I have one question that is off the subject of grid investment, and perhaps you could come back to me on it. I want to ask about the installation of the free PV panels. We have a window of opportunity, with ROCs decreasing, when these become a less attractive investment. It seems to me that we have a legislative barrier in Northern Ireland. The banks say that the legislation is different; for example, Nationwide will give the go-ahead for free PV schemes in GB, but it will not do so in Northern Ireland because it has greater risks because of different legislation. Is the Department looking at that?

1231. **Mr Harris**: Yes, we are aware of that. The Minister wrote initially to the Council of Mortgage Lenders on that point to try to understand its approach to Northern Ireland. Its view was that, although it had adopted guidance for England and Wales, it was leaving it to individual mortgage providers in Scotland and Northern Ireland to make those decisions themselves. The legislation to which you refer is for business tenancies, and it sits with the Department of Finance and Personnel. The Minister of Enterprise, Trade and Investment has written to the Minister of Finance and Personnel about what needs to be done. It affects not only domestic customers but businesses that may want to install PV panels on the roofs of their buildings and lease them in the same way as domestic customers. We raised the issue with them.

1232. **Mr Douglas**: Action Renewables told the Committee that the monopoly held by NIE on the grid connections is part of its licence agreement. What is your view on opening up the whole thing to competition?

1233. **Mr Mills**: As we said, we support that. My understanding is that NIE also supports it. We do not see any barriers and welcome that development.

1234. **Mr Harris**: I do not think that anyone would disagree with that.

1235. **The Deputy Chairperson**: An Action Renewables representative told us that generation from 3, 4 and 5 kW microscale photovoltaic solar panels — the ones you see on rooftops — is not being recorded. Is that true, and if so, why is it the case?

1236. **Mr Harris**: My understanding is that it is because they do not have half-hourly meters installed. Those microgeneration technologies obviously get accredited and receive ROCs. Power NI will offer them an export tariff for the electricity that is exported. The generators themselves are not disadvantaged in any way by that approach. Under its licence conditions, Power NI is required to buy that power from microgenerators. I do not think that Power NI would say that that has given them any advantages. It is a market issue. My understanding is that, because it is not metered half-hourly, Power NI does not get the financial benefits back. I understand that that is being discussed, and Power NI has been talking to the regulator as to how that can be resolved. It is not linked to the ROCs,

and nor is it inhibiting generators in that way. There is a view that other suppliers may not be able to offer a similar tariff and see it as an advantage for Power NI, but I do not think that Power NI feels that it is gaining an advantage from it.

1237. **The Deputy Chairperson**: Can you be sure that the levels of payment for incentivisation are accurate for the levels of electricity being generated from these panels?

1238. **Mr Harris**: Power NI will give them a tariff for that electricity, which has to be approved by the regulator so that the generator is given an appropriate price. I do not know any more than that.

1239. **The Deputy Chairperson**: Is that being resolved?

1240. **Mr Harris**: Yes.

1241. **The Deputy Chairperson**: Invest has informed the Committee of a range of issues facing businesses as a result of grid connection issues. I presume that the energy division is aware of the discussions between Invest and a range of companies.

1242. **Mr Mills**: We meet Invest and have done so recently.

1243. **The Deputy Chairperson**: Do you discuss grid connections and grid issues?

1244. **Mr Mills**: Yes. We have raised those matters, and they will often be raised with the Minister.

1245. **The Deputy Chairperson**: Is there anything that the Department can do to help Invest or the companies that face problems?

1246. **Mr Mills**: From an energy point of view — I must sound like a broken record — we provide the incentivisation. We do not necessarily get involved in the specifics of particular developments.

1247. **The Deputy Chairperson**: That is fine. That is all we have for you today, so thank you for your time.

5 June 2014

Members present for all or part of the proceedings:

Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Ms Megan Fearon
Mr Paul Frew
Mr Fearghal McKinney
Mrs Sandra Overend

Witnesses:

Mr Michael Walsh	*EirGrid*
Mr Dick Lewis	*SONI*
Mr Robin McCormick	

1248. **The Deputy Chairperson**: Briefing the Committee today are Michael Walsh, the director of future grids at EirGrid; Dick Lewis, the manager of transmission access planning with SONI; and Robin McCormick, the general manager from SONI. You are very welcome to the meeting. Robin, I presume that you want to make an opening statement, and then we will follow that up with questions and answers.

1249. **Mr Robin McCormick (SONI)**: Thank you very much for the opportunity to be here again to update you on what we are doing and what we are responsible for. We have provided you with some slides, and I will maybe just run over the first few and then hand over to Dick, who will talk a little more specifically about connections.

1250. We are the independent transmission system operator (TSO) and market operator. I emphasise the word "independent", because we are required to ensure that a lot of commercial businesses, such as generators, have access to the network. We do that in a non-discriminatory way. So, we do not have any commercial interest in generation or supply, because we have to make economic decisions about how generators are scheduled, which determines their income stream. We were part of NIE until 2009, when we were purchased by EirGrid. EirGrid is based in Dublin and is one of the commercial semi-state organisations. It did basically the same job as we did. It made sense, because the electricity system on the island operates as a single system anyway, and we had previously worked very closely with EirGrid in setting up the electricity market and managing the flows on the transmission system.

1251. I will talk about the changes that there have been since then. A certification process has been initiated by Europe, where each of the TSOs in Europe was certified. As part of that process, the regulators on the island, acting as the single electricity market (SEM) committee, determined that SONI should increase its responsibilities and include the transmission planning function. That was a responsibility that NIE had up until a few months ago. At the beginning of May, we took on that responsibility and brought over from NIE a group of staff that previously were responsible for that. We believe that that is a positive step forward, because it means that the planning function is now integrated with the operation of the system and that some of the operational issues that we have can be brought into the decision-making on what is needed on the transmission system.

1252. We are responsible for the safe, secure, economic and reliable operation of the Northern Ireland transmission grid and the all-island transmission network. We now make all the investment decisions on the transmission network and liaise and interact with the regulator for approval for that. We continue to operate the wholesale electricity market, which sets the price of electricity for every half-hour trading period. We are also involved in dealing with connections

to the transmission system. If a large-demand customer wanted to connect to the system, they would come along to us and we would provide them with an offer of a connection, in the same way as we would with a generator. Most of the generators that are connected to the transmission system are conventional generators. We have generator owners at AES who look after the Kilroot and Ballylumford power stations. ERB looks after the Coolkeeragh power station, and there is another single-transmission connected wind farm at Slieve Kirk. The vast majority of the wind that is connected to the system is connected to the distribution system, which NIE looks after. However, we have to manage the impact and effects of all the wind that is connected to the system, that is, the individual wind farms and the larger wind farms.

1253. The second slide gives you a diagram of the transmission network. It does not have any of the distribution lines on it, and you can clearly see that the demand in Northern Ireland tends to be over on the east side and that the power stations that feed into it are largely over on the east, at Kilroot and Ballylumford. As we look forward, we see that the majority of the wind that is connected to the network is on the west side of the Province. Therefore, there is a need to build up the infrastructure to accommodate all that wind.

1254. The network diagram also shows the folk who we interface with. As I said, we work with the regulator, which runs a price control process. So, every one, three and five years, we have to present to the regulator a business case for how we anticipate we need to run the business for that period. Ultimately, it prepares a proposal back to us. We are currently on a price control period that runs out at the end of September 2015. When we go back and propose our business case for the next five years, we will include the new responsibility for transmission planning and the capital investments that are associated with that. That previously would have been a task that NIE would have undertaken.

1255. We work closely with NIE, because the transmission system is connected to the distribution system and because of the range of connections that happen on the distribution system that impact on the operation of the wider system. So, we have visibility of the output of the distribution-connected wind farms, and we have to take that into account as we look at demand each day and at the forecast wind generation output. We then have to schedule the larger conventional plant around that.

1256. The next slide shows the connections relationships, which I will quickly cover. The users of the system are either generation or demand customers. We have a grid code that all users of the transmission network have to comply with. The generators need to have a licence to generate or a demand customer has to pay a connection charge for the infrastructure that is required to link their site to the transmission system. Generators and suppliers pay tariff charges for using the transmission system; they are called transmission usage of system (TUOS) charges. The regulator has to secure income for NIE and Solicit approves all the connection charges and the tariffs that result in money flowing from supply companies through to generators.

1257. On the transmission side, the regulator has chosen to operate in a manner that means that each transmission project is approved, and capital approval is granted for individual projects. That has been the subject of a lot of debate through the previous NIE price control process, and it has yet to be tested in the context of our taking on the transmission planning role.

1258. We make connection offers to anyone who wants to connect to the transmission system. We have to liaise with the distribution-connected generators and NIE to ensure that there is adequate capacity in the transmission system. Also, I will say that, in our role as market operator, the wind farms that are connected to the distribution system have to register on the market

so that they can gain their income from operating in it.

1259. So, we will look at connection offers and decide how best to connect the generator or the demand customer, and we will use the connection charges that NIE has provided. That is because, at the end of the day, it delivers the infrastructure and the cases for those connection offers. As I said, we then collect the use-of-system tariff. We have to pass some of that money on to NIE, which actually builds and constructs the network.

1260. That gives you a bit of a sense of who all the parties are and what responsibilities they have.

1261. You can see the existing position on the slide showing connections activity. We have indicated the existing generator site connections in Northern Ireland. That includes what I mentioned and the Moyle interconnector, which effectively acts as an input to our system. We currently do not have any demand customers connected to the transmission network, and, as I said, the vast majority of renewable generation is connected at the distribution system level. We have around 580 megawatts of wind power connected to the distribution system at the moment, which we have to take account of as we operate the system day by day.

1262. Some policies and processes need to be finalised before further work on up-and-coming or proposed connections can be done. That has been brought about largely because of the difficulties that some of the developers had connecting to the system and because of the offshore opportunities that exist. We have First Flight Wind looking to build a substantial offshore wind farm off the County Down coast, and we have further offshore opportunities on the north coast.

1263. As we manage all those things, there are standards that we have to apply to ensure that everybody is treated the same, that the transmission system retains its integrity and that we do nothing that would compromise security of supply to customers, which is significantly important.

1264. So, that is an overview of the connection process in Northern Ireland. I will now hand over to Dick, who will give you a little more detail on what we do.

1265. **Mr Dick Lewis (SONI)**: Good morning, everyone. My name is Dick Lewis, and I am responsible for all-island access planning in SONI. I want to take you through some of the specific arrangements that apply and, hopefully, stimulate conversation. As Robin indicated, SONI is the party that any generator that wishes to connect in Northern Ireland must apply to. To connect, they must provide certain specific information about the nature of their equipment and plant, and that is as much to do with working out the impact that that may or may not have on the system and on other users and what is required physically to connect the party. So, there is a structured process, whereby the party provides information and SONI acts on it to provide the suitable connection arrangements.

1266. Robin mentioned standards, and it is important that the standards that existing customers meet must continue to be met by other parties connecting. A party connecting cannot be to the detriment of existing customers, and we have a role in ensuring that. Fundamentally, SONI will provide certain information to the connecting party. It will provide an offer outlining the proposed connection arrangement and the associated charges. It will provide information about the contractual arrangements that the party will have entered into to operate in the market in Northern Ireland and Ireland on the Northern Ireland system. It will let the party know about the access that that generator has to the system. I will talk a bit more about the term “access” in a minute. If the access is limited, that impacts on their operating and payment regime. So, that has to be known, and we try to give an indication or forecast of what restrictions or output reductions

there may be for that particular generator.

1267. The charging arrangements in Northern Ireland are consistent with the SEM market, so it is an all-island charging arrangement and is described as "shallow". In other words, the connecting party contributes only to those assets that are required to connect it to the system. If other reinforcements are required on the system, those costs are not paid by the connecting generator; they are generally paid by the TUOS customers in Northern Ireland.

1268. At the minute, a large number of generators have connected. Some that have already connected do not have what we describe as firm access to the network; in other words, there is not sufficient capacity in the backbone network to allow them to export their full capacity. So, there is already an identified need for infrastructure investment in Northern Ireland, and I think that the Committee has been made aware of that in different scenarios and settings. There is a security of supply issue post-2015, which, I believe, you are also aware of, and there is a requirement for the North/South interconnector development and the restoration of Moyle capacity. I will go through that in the next while.

1269. The structure of conventional generation in Northern Ireland is the three large plants that Robin referred to: AES Kilroot; AES Ballylumford; and ESB Coolkeeragh. That is the major generation plant and the fossil fuel plant. So, when renewables are not available, that is the plant that keeps supply on in Northern Ireland, and the grid is there to support those plants and, indeed, the renewable plant. We are looking at a change in the portfolio of generation. As Robin indicated, we have the dual role of planning the network to meet the needs of that portfolio and to be able to operate that system network and generation effectively and efficiently so that security of supply standards are maintained. We have a Delivering a Secure, Sustainable Electricity System (DS3) programme that aims to look at that, and that looks at the percentage of renewable wind that we can have on the network and at the amount of conventional generation that we can switch off at any point in time, etc. That programme has been running now for a couple of years.

1270. The next slide is maybe a little bit busy, but, as I said, the major generation plant is in the Larne area and up in the north-west. The majority of renewable wind is in the west, so, at any point in time on the network, the amount of generation must exactly match consumption. So, drawing your attention to the circle on the map, which happens to be around Omagh, if any generation that starts there is not initially consumed by demand in Omagh, it starts to move from west to east along the existing transmission lines. So, we have to test. When I talk about access, there has to be sufficient capacity in the network to allow the generation to flow. So, once it meets the local demand, it starts to move along the transmission lines to meet other demand as it goes along. We test it in the locality to meet it, and we then test it as it moves in the system. If there is still generation that is in excess of local demand, we have to test to see whether we can export it on the Moyle or on the North/South connection. The reason for the arrows is because the system is used west to east. Once all demand in Northern Ireland is met, the generation can be exported to Scotland on the Moyle connection or to Ireland on the North/South connection. At every juncture, we are looking at an individual connection and judging the amount of other generation that already has access to the system and whether there is any headroom or scope for the new generation to use the system. The rationale of that is to identify what further investment is needed on the backbone network to take it forward. Only the investment that is absolutely necessary to allow that generation to flow in certain situations is considered.

1271. The next slide is all about chargeability, and I will go into that in some

more detail. In the single electricity market, there is a concept of shallow connection. The aim of that is to be non-discriminatory to all parties. In other words, they choose where they wish to establish their generation or demand, and, based on that choice, they are charged from that point to the nearest point on the existing network. The customer pays 100% of that connection arrangement. Another term that you have probably heard is that the charge is the "least cost technically acceptable" solution. In other words, the technical solution that is the least cost is the charge that is levied on the connecting customer. The costs that SONI uses to pass on to the customer are NIE costs, because that is the structure of the industry. NIE is the asset owner; it is the party that determines the cost of those assets. We identify what is required, NIE tells us, "That will cost x", and we pass that cost on to the connecting party.

1272. At this point in time, NIE is the only licensed party in Northern Ireland that can construct transmission assets. So, all assets that are over 110 kV must be constructed by NIE. The process is contained and advertised in the SONI charging statement, which has been consulted on and approved by the regulator. The network and connection arrangements must comply with certain standards. We already covered that. That standards document has been in existence for quite a while, and it is actually under review at the minute. Furthermore, if deep reinforcements are required to sustain or meet the level of generation, they are identified by SONI, approved by the regulator and constructed and delivered by NIE. The costs of those deeper assets are recovered through the use of system tariff, with money being collected by SONI and passed through to NIE. Again, that process is regulated by UReg.

1273. Hopefully, that has covered the arrangements for connection and what we try to achieve in dealing with them.

1274. **Mr McCormick**: I will finish off. When I started, I mentioned that we had taken responsibility for the transmission planning function. We believe that that is a positive step, and it is something that we have advocated for some time. We were pleased that the regulator identified that as a piece of work that needed to be transferred at the time of certification. From 1 May, we have been responsible for that. We are now taking stock of the plans that NIE had in place. We are reviewing those, and we will be taking the major transmission projects forward. For example, the North/South project would have been the responsibility of NIE until the end of April, but it is now a responsibility that we have. So, it will go into the Planning Appeals Commission (PAC) as a SONI project rather than a NIE one.

1275. As I said, the delivery of the transmission infrastructure is key and critical in meeting the 2020 renewable targets. We have quite a lot of wind connected to the system, and we also have quite a number of offers to connect to the system to allow us to meet those targets. However, we cannot deliver that to the benefit of customers without the appropriate infrastructure investment.

1276. All generation that is greater than 5 megawatts has control links to our control centre to give us the facility to alter the output, if that is required. Those generators operate within the single electricity market. There are some issues to do with the amount of smaller-scale generation that appears to be there. There is quite a high incentive through the ROCs that are available to single turbines, and I know that there is quite a lot of activity with NIE. There are a number of connections, and there is a perception that the connection costs are high. For us, when there is a large amount of wind generation that is outside our radar, it creates another concern for us in managing the demand on the island.

1277. There is a changing mix of generation, so we are moving from a system where we had conventional generation. We instructed when it should start, how long it would take to warm up, when it would come on to the system and how much generation we would output at any

point. We have moved to a much more complex web of inputs, with distributed generation — we talked about the single turbines — and wind farms, which are must-take generation. As an island, we are well ahead of the curve in managing some of the technical difficulties that arise when you have intermittent generation on the system. Our DS3 programme is there to ensure that we balance all the needs of the system and find solutions that other people have not had to address yet. I am sure that, as more wind is connected to the system, we can run a safe and secure transmission system and continue to keep the lights on. That is important for customers, whether they are residential, commercial or industrial.

1278. Thanks for your attention.

1279. **Mr Dunne**: Thanks very much, gentlemen. I think that we all agree that we need to keep the lights on at the most economic cost. We have had several discussions here over the past few weeks, as you are probably aware, with various interests in the energy market. One of the big issues that came to light was the time that it takes to get these projects on the ground, and frustrations about that have been expressed. One of the big things concerns planning permission. Certainly on the larger schemes, it is our understanding that NIE — I know that you are not NIE, but you obviously work very closely with it — will not get involved with the potential developer in any real sense until planning permission is in place. What is your attitude towards that? Could you give us some information on that and your angle on it? There is an argument that more should be done in parallel. I understand that smaller schemes run in parallel but the larger ones do not. Time delays are built in that, to us, are unacceptable.

1280. **Mr Lewis**: The planning permission requirement was straightforwardly arrived because it was a neutral position not imposed by the utilities — by either NIE or SONI. As I hope I indicated to you, there is a limited capacity on the network, so there is a requirement to queue. Not everybody can get access to the network all the time, so, as parties were applying for connection, there was a need to identify when a party was in place and when it was moving ahead to take up its access. Planning permission was seen as a proxy for a date-order queue of parties presenting themselves. In other words, if you have been developing your project for a period, someone else should not be able to come in and get capacity that you have committed to. The acquisition of planning permission was seen as a proxy of intent by the developer that they were moving ahead. Therefore, by accepting the terms of their connection offer, and having planning permission in place, they were able to book that capacity on the network. That is theirs; it is nobody else's. So, in a situation of scarcity, it was a means of allocating that scarcity ahead of development. Similarly, as those parties connect with that planning permission, that date order is maintained so that you can then prioritise the transmission infrastructure reinforcements required to meet those parties' requirements. You are, effectively, using the planning permission as a proxy for the allocation of scarce resources.

1281. **Mr Dunne**: It is almost an assurance or commitment from the developer.

1282. **Mr Lewis**: Yes.

1283. **Mr Dunne**: I understand that, in other parts of the United Kingdom, that is not the case. It is not strictly a requirement.

1284. **Mr Lewis**: Not strictly. It was a requirement that evolved in Northern Ireland as the industry evolved. It was seen as a way of allocating resources. Different regimes have evolved in Ireland and in GB.

1285. **Mr Dunne**: I understand that your role has changed, and you now have a greater interest in the whole planning process of the structure. Will you review the planning permission policy? Will you at least give a commitment that you will look at it?

1286. **Mr McCormick**: We have always had responsibility for the connection process.

1287. **Mr Dunne**: Yes, but just clarify how your role has changed since April.

1288. **Mr McCormick**: From April, we make the investment decisions on what needs to be built on the transmission system to support any demand growth or a combination of the distribution-connected wind farms and any applications for demand or generation customers to connect to the transmission network. Basically, it is the reinforcement and development of the transmission system. We will be responsible for that and make the investment decisions on projects that will lead to that. The North/South project is a good example of a project that is required to benefit customers, because customers currently bear costs associated with that.

1289. **Mr Michael Walsh (EirGrid)**: You mentioned the delays associated with waiting for the connections, and Dick gave a very good overview. It is a scarce resource. When a lot of projects are trying to move out and one gets to the point of planning permission, it is a very good sign that the project has a strong chance of proceeding. Dick mentioned the arrangements in Ireland, where we have a queue of 25,000 megawatts of wind projects that want to connect. Some have offers; others are waiting. That is over five times the peak demand on the island. Trying to work out which are credible projects and which are not is very difficult. I do not think that we have done as good a job in Ireland as has been done in Northern Ireland with the planning permission requirement.

1290. You asked what commitment we can give to try to deal with the delays. One thing that we will very clearly do in our new role is have a good look at where there are areas with a huge amount of interest in developing renewable energy projects, such as the area around Omagh. We will look at the network capacity between Omagh and the east of the Province to see whether we can identify new investments that might help to unblock that capacity so that when projects come along and have secured planning permission, we would be able to make access available to them more quickly. The other is probably a broader policy matter, which we can look at ourselves.

1291. **Mr Dunne**: The frustrations were highlighted last week, when wind farm operators told the Committee of 10-year delays in getting a connection. To us, that is totally unacceptable. Obviously, there are various reasons for that, and major modifications to the grid were made over those 10 years, and other work had to be done. However, they said that, overall, it took about 13 years from lead-in time to connection. That is a very long time. I understand that developing equipment and so on requires lead-in and process time. However, to us, sitting here in Stormont, it sounds totally unacceptable. Now that you have this new role, do you see where you can try to make a real impact on planning times and the delivery of connection?

1292. **Mr McCormick**: The onus is on us to look at how we can deliver transmission infrastructure projects more quickly. That is a huge challenge to us because, traditionally, it has taken a long time for transmission projects to come through the process, and they support the individual programmes of work that NIE will do to physically connect those generators to the system. That is our job and role. We recognise the challenge, and we will look at the priority given to certain projects to try to move forward as quickly as we can.

1293. **The Deputy Chairperson**: Dick, Gordon raised the issue of the two-track process: the need to get planning permission first and then apply for grid connection. Has an alternative to that process been considered?

1294. **Mr Lewis**: There has been a series of consultations on the process. The term that we use is “firm access quantity”. As I explained to Mr Dunne, a connecting party is in a queue. As parties connect, they are allocated a firm access

quantity, which is based, first, on having planning permission and, secondly, on application date. That process evolved over a period. I accept Mr Dunne's comment that the time taken is unnecessary. The consultation process that I refer to took three years, but that established a process in Northern Ireland. That process also impacts on the connecting parties' remuneration through the single electricity market. In other words, if they have a firm access quantity, they are rewarded in a certain way if their output is reduced for whatever reason. So there is a linkage between what the network can do, the arrangement whereby the generator is connected and the payments that they get through the single electricity market. To unwind all that takes a considerable period.

1295. A difficulty then arose because, within the queue process for planning permission, different parties came along that did not quite match the onshore wind farm connection arrangements. A different sort of plant wants to connect in Larne, and offshore equipment will have a planning regime that is different from the onshore planning regime. In an onshore situation, it is straightforward: you apply for planning permission, the parties are there and they have been going through the process for a long time. The offshore parties will have to go through a different regime, with different planning and arrangements offshore and onshore.

1296. At the minute, we have one regime for onshore, which has been chugging along slowly.

1297. **Mr Dunne**: Very slowly.

1298. **Mr Lewis**: If we throw that up in the air and seek to revise it, it will create another hiatus for the whole industry, and there will be no progress because so much of the structure depends on the firm access quantity: remuneration, position on the network and backing up investment requirements. However, it has got us to a point at which we can move forward. If we change or break it at this point, I do not know how long it will take to fix it.

1299. **The Deputy Chairperson**: Have you considered any alternatives?

1300. **Mr Lewis**: A consultation process is ongoing. In that, we look at a hybrid solution, whereby different parties may not require full and final planning permission before they can apply.

1301. **The Deputy Chairperson**: Will there then be a maximum period within which they will have to be connected to the grid or lose that reserve capacity?

1302. **Mr Lewis**: Any connection offer is for a fixed period. If whoever is being connected does not act within a certain period after the acceptance of terms, the offer becomes null and void. That concept is already built into offers.

1303. **The Deputy Chairperson**: What is that period?

1304. **Mr Lewis**: It can be five years. In other words, if you accept an offer now and do not develop within five years, your offer expires.

1305. **The Deputy Chairperson**: Is that five years after receiving the offer?

1306. **Mr Lewis**: Yes.

1307. **Mrs Overend**: Thanks for coming to the Committee today. We were told by Action Renewables that the monopoly for grid connection was held by NIE, but that is now your responsibility. Is that right?

1308. **Mr McCormick**: NIE is the only body that can do the construction. It has a monopoly on that element of it.

1309. **Mrs Overend**: We were told that, in GB and the Republic of Ireland, people can build the connections themselves. Is there a possibility of that happening here? It might mean that they can be built more competitively.

1310. **Mr McCormick**: The word used to describe that is "contestability" — there is a new word for you. We see opportunities for others to be involved in the construction of assets, but the rules of the game have to change to facilitate

that. There are some complications. You must have some party that, ultimately, will take on the job if no one else does it. You have to balance the competitive element with an assurance that it will be delivered ultimately.

1311. **Mrs Overend**: How could we progress that? Who can progress or push that?

1312. **Mr Lewis**: I understand that it is in the regulator's forward work plan for consultation during this year. That would be an arrangement whereby the regulator puts forward proposals for how third parties would be suitably licensed and have the legal ability to erect assets across third-party ground etc. The concept would have to be that, on completion of construction, to meet suitable standards, it would be handed back to the asset owner: NIE. That is the model in Ireland, as you referred to. It is referred to as "contestability". There are models out there that can be looked at. As I understand it, it is incumbent on the regulator to put forward those proposals.

1313. **Mrs Overend**: Does SONI have any role in that at all?

1314. **Mr McCormick**: We would have to work within those new guidelines. If there were a connection offer, it would have to go out to more than just NIE for a quote.

1315. **Mrs Overend**: Do you have any indication of a timeline for that work by the regulator?

1316. **Mr Lewis**: I believe that it was to be this financial year.

1317. **The Deputy Chairperson**: The one that has just started, or the one that is over?

1318. **Mr Lewis**: The present financial year.

1319. **Mrs Overend**: So we have a fair bit to go yet.

1320. **Mr Frew**: A lot of the developers — Simple Power being one — come here and say that, if NIE allowed developers to access its geographical information system (GIS), it would greatly assist them in targeting areas where they could connect to the grid at the most productive cost. Why is it such a closed shop? What is your opinion on access to that information? Why is NIE so guarded with that information when we have seen throughout the world, particularly in GB, that that information is accessible?

1321. **Mr Lewis**: I can answer from recent experience. As part of the process of the transition of the role from NIE to SONI, one of the areas of interest to us, as the group responsible for planning, was to get access to the maps and information that you refer to. NIE is happy to share the information with us as a licensed entity, but Ordnance Survey is not. We have to submit to Ordnance Survey and get a licence or copyright permission for all Ordnance Survey-based maps in Northern Ireland, which, I understand, involves a significant sum. NIE's topographical network information is overlaid on Ordnance Survey maps. So there is and has been a copyright issue about NIE giving out Ordnance Survey information to third parties. It is almost as simple as that. We will have to incur an upfront cost in the region of a quarter of a million pounds and ongoing copyright fees.

1322. **Mr Frew**: Is NIE willing to give you the information, and then Ordnance Survey is the stopgap?

1323. **Mr Lewis**: I would not describe it as a stopgap. It is a cost.

1324. **Mr Frew**: Is the NIE information readily accessible to a developer? It might give it to you because you are licensed and you have a role to play as SONI, but will it give that information to developers?

1325. **Mr Lewis**: I am not aware of NIE's position on that.

1326. **Mr Frew**: What is the difference in Ordnance Survey on mainland GB? Surely it is the same system there.

1327. **Mr Lewis**: I do not know. I am not aware of what the arrangements are in GB for the sharing of information. If it is just network topography, that is one thing. If it is the network on fixed geographical locations on an Ordnance Survey

background, there are other parties to consider.

1328. **Mr Frew**: Surely the Committee could look into that, Chair, if Ordnance Survey is such an issue. My next question is begging to be asked: why does Ordnance Survey have to be used? Surely a blank piece of paper with the grid and the information on it would suffice.

1329. **Mr Lewis**: It depends on what you use it for. If you want to identify equipment and routes, the spatial information is critical. If you are looking at a tower position, you want its position relative to a road. The Ordnance Survey background gives that detail.

1330. **Mr Walsh**: Every year, we publish a forecast statement that includes information on how much transmission capacity there is at different points in the network. That is publicly available and published on our website, but that is only one part. As Dick mentioned, Ordnance Survey covers a lot more, but the capacity in the transmission system is published annually.

1331. **Mr Frew**: On the cost of grid connections, some witnesses stated to the Committee that the grid connection is between 20% and 50% of the total capital costs, compared with around 5% in GB and the Republic of Ireland. How can you explain that? Why are the costs so high? Is it down to one company having a monopoly?

1332. **Mr McCormick**: The charging statement is an approved document, so these are charges that NIE has determined are appropriate, and the regulator, who has oversight of them, has agreed that they are reasonable. It is probably down to the specifics of individual connections and the route required for them to be connected to the system. I know that the regulator is keen for everybody to pay the cost of their connection as opposed to an average cost. Therefore, that may mean, in some circumstances, that an individual connection appears to cost a lot.

1333. **Mr Walsh**: I accept that the connection cost is, on average, probably more expensive in Northern Ireland than in GB or Ireland, but I would be surprised if the differential was in the order that you mentioned. One of the other factors is, as Robin said, the amount that is chargeable. In Northern Ireland, the policy is, as Robin mentioned, that, if you are a generator requiring an amount of work to be done to connect, you are charged for all of that work. In Ireland and GB, certain elements are not fully charged for. In Ireland, for example, if you need some remote work on a station 10 or 15 miles away, you may not be charged for that. That will be recovered through the general customer base. In Northern Ireland, the policy decision was that, if the generator drives that cost, it should be charged to the generator and not passed on to the general consumer. That could drive some elements of the differential, but I suspect that a number of different issues are also at play.

1334. **Mr McCormick**: Some describe it as "deep/shallow".

1335. **Mr Frew**: It is very clear that there is a system in play and that 100% of the cost of the shallow connection arrangements goes to the developer. Is SONI content with the costs quoted by NIE, in that they reflect less value? If there were to be a competitive field, with other companies coming in to construct grid, how would the cost change?

1336. **Mr Lewis**: Certainly, I believe that SONI, in its new role, will have to be able to justify costs identified by NIE and challenge them as and when necessary. I see that clearly as our role. Contestability, as I understand it, is more a matter of a presentation of a cost for which NIE would deliver a project, and, if the developer feels that they can do it at a better cost, that is the developer's choice. So it is not like a competitive arrangement. NIE would still have to charge on the basis of a regulatory, approved cost base. I do not think that it would be appropriate for NIE to vary its costs to compete with a developer who wished to do it. It gives

developers the choice: have the utility do it at a cost or do it themselves, if they believe that they can do so more cheaply and to the standard required for the utility to take it over. I am not sure that it is a directly correlating, competitive situation.

1337. **Mr Frew**: I understand what you are saying. There are two systems: it could be developer-led competition on the basis of how much of the grid they could install; and there will always be the Big Brother situation, whereby NIE builds the grid.

1338. **Mr Lewis**: The other very important factor is that when there is a developer-led construct, the developer is much more in control of the overall project timelines. Going back to the delays discussed earlier, that is a very important factor.

1339. **Mr Frew**: You talked about how the state of flux could introduce delays. The RP5 has been agreed. How much more change can RP5 take without that causing delay, or do we have to wait until RP5 is finished?

1340. **Mr McCormick**: The process for RP5 is complete through the Competition Commission referral etc. That did not include all of the transmission investment. So we have to take our plans for transmission investment directly to the regulator, and they will approve it on a project-by-project basis. It appears that it has a significant impact on NIE, and we will have to wait to see what our interactions with NIE are like, given the constraints that they now have.

1341. **Mr Frew**: How do you see RP5 being sold? Are you fearful? Do you fret, or are you confident that we can move on and adapt a system that is fit for purpose?

1342. **Mr McCormick**: We have had a very good relationship with NIE. We needed to work with it to deliver projects and to operate the system until now, so I do not expect the commitment to waver. A lot of the issues that NIE had were with its proposals for things that it wanted to do in the distribution network. So I am hopeful that our ability to engage with them and deliver will not be impacted on by what has happened on the regulatory side.

1343. **Mr Frew**: You talk about the gird demand being in the east and the demand in the west being for wind and other renewable energy. There is a tidal project on the north coast, off Rathlin. If successful, it will have to connect into the grid at Kells — a distance almost the length and breadth of north Antrim. To me, that looks like failure. How would you describe it?

1344. **Mr Lewis**: I would not go so far as to say that they absolutely have to connect into Kells. If they connected into Kells, they would have readier access to the higher voltage network. The network from Kells to Coleraine, via Limavady to Derry/Coolkeeragh is 110 kV, which is a lower voltage. On the conversation that we had earlier, looking at this pragmatically, you would either build to the nearest point, which is Coleraine, and significantly reinforce the lower voltage network or bring the higher voltage network further up the country, or you go straight to the higher voltage source, which is Kells. That could be a developer-led choice, because they would be the party paying the cost. They could be prepared to pay the shallowest connection charge, which would be to Coleraine, and then you would need to reinforce.

1345. There is no way that 100 megawatts or 200 megawatts of renewable generation off the north coast can be consumed in Coleraine. I think that the demand in Coleraine is of the order of 10 megawatts overnight and up to 50 megawatts or 60 megawatts during the day. So, it is just a magnitude thing. You have to get the generation to the demand, and that is not in Coleraine.

1346. Again, the corridor from Coleraine to Limavady is constrained. A number of other wind farm parties are connecting in that area, so they already have access to that network; they have paid their money and booked their access. So, if tidal comes along, where does it go? Robin made a point earlier about renewable generation being must-take. To the extent that it is possible, that

generation gets absolute priority on the network, and we must allow that generation to run. So, how do you separate or differentiate between two must-takes? Does must-take tidal get priority over must-take wind? As I say, you get into a whole complex situation there.

1347. I think that it would be incorrect to articulate that they can only connect to Kells. Kells is certainly one of the options that we are looking at, and we are in the midst of doing feasibility studies for north coast offshore renewables.

1348. **Mr Frew**: OK. Thank you very much.

1349. **Mr McKinney**: May I just come in on one point, Paul? One of the companies that gave evidence referred to a much bigger disparity between the Republic of Ireland and UK grid connection and the grid connection here. Would that suggest the need for further interrogation of NIE's costs, notwithstanding the Utility Regulator's oversight of them? Action Renewables said that the connection cost is between 20% and 50% of the total capital cost, compared with around 5% in GB and ROI. That suggests that somebody out there has knowledge of a very significant disparity.

1350. **Mr McCormick**: I think that we have identified the issues. There is a difference between the way in which the policy has been applied in Northern Ireland and in Ireland. The charging statement is an issue for the regulator. He has to be convinced on behalf of customers that those are reasonable costs. So, those are the two avenues to address.

1351. **Mr McKinney**: Yes, but do you think that there should be further interrogation?

1352. **Mr Walsh**: Dick and I have very good visibility of the costs in Ireland. Based on the numbers that we are seeing, the cost is probably closer to 10% or 12% of the total project capital costs. Those are the sorts of numbers that we are looking at for new connections. Does that sound about right, Dick?

1353. **Mr Lewis**: Yes.

1354. **Mr Walsh**: That is why I said earlier that I can understand why there probably is a difference, because there are more items chargeable. You are scrutinising all the costs in the system, and that is a good thing. We in the industry are committed to trying to be more efficient, and I think that that is worthy.

1355. **Mr McKinney**: It is also about transparency, is it not? You can refer to the fact that the scalability of the work is slightly different or whatever, but does that transfer to costs directly? Is there a need for greater transparency?

1356. **Mr Walsh**: I think that contestability has probably been the answer in Ireland and GB, because, ultimately, if you do not like the cost that has been quoted to you, you have the option of going and procuring someone else to do it. Ultimately, once you have a monopoly provider, even if there is transparency, there is always an element of, "Is this the best value? Could you have procured something better? How are you doing your business? Could you have scheduled differently? Could you have organised the work differently?". What contestability does is to open all that up, so you have an option, if you believe that there is a better cost out there and that you can do it in a more efficient way. It seems to have been the best resolution of the issue in Ireland and GB.

1357. **Mr McKinney**: And would you welcome that here?

1358. **Mr Walsh**: I would, I think. Subject to the fact that it has to be put into a system that works and a set of arrangements that is workable and practical. It has been a positive development in the industry elsewhere.

1359. **Mr McKinney**: OK. Thank you.

1360. **The Deputy Chairperson**: Paul raised the issue of the geographical information system. Do you think that NIE should share that information with the developers if the developers can sort out whatever problem exists with Ordnance Survey?

1361. **Mr Lewis**: Sorry, I was speaking in a historical way. NIE provides information to developers day in and day out. It provides information for mark up drawings about where its assets are for people who are working in the streets of Belfast. It is required to do that. The issue has always been how it shares that and the basis on which it shares that. NIE uses a geographical Ordnance Survey-backed system. For developers anywhere in Northern Ireland, it provides information about working in the local vicinity and the electrical equipment there. That is a health and safety issue and that information is provided. I am not aware of what information developers claim that they are not getting.

1362. **The Deputy Chairperson**: OK. We will send you the Hansard report of the meeting at which they raised that and maybe you will respond to us in writing.

1363. **Mr Lewis**: I can only reply from a SONI perspective.

1364. **The Deputy Chairperson**: That is fine.

1365. You said that the connection charging arrangements are aligned across the single electricity market. Is there much of a difference in the charging costs in the North when compared with the South?

1366. **Mr Walsh**: I do not think that we have had the opportunity to go through that in any level of detail yet, but we will look at that.

1367. **The Deputy Chairperson**: As regards RP5 and the final price determination, do you think that enough funding has been allocated to NIE to carry out grid investment in the near future?

1368. **Mr McCormick**: I mentioned before that the process meant that the focus was on the distribution system charges that NIE has full responsibility for. If there are investments to be made in transmission, they have not been included in the outcome from the Competition Commission, and it will be for us to go directly to the regulator and to seek approval on a project-by-project basis for transmission infrastructure.

1369. **The Deputy Chairperson**: Have you gone to the regulator with any projects yet?

1370. **Mr McCormick**: No.

1371. **The Deputy Chairperson**: Why is that? Is it because you have only just taken it over?

1372. **Mr McCormick**: We have only just taken it over.

1373. **The Deputy Chairperson**: Did NIE bring many proposals to the regulator for upgrading the grid on a project-by-project basis?

1374. **Mr McCormick**: There was a recent approval for £40 million-plus for some —

1375. **The Deputy Chairperson**: That was to bring it up to 27% of the —

1376. **Mr McCormick**: Yes.

1377. **The Deputy Chairperson**: But, since then, there have been no applications. So, the regulator has not turned any down.

1378. **Mr Agnew**: I want to move on to the grid investment and follow on from the Chair's comments. There is a feeling among some that the Competition Commission and, perhaps, the regulator put too much emphasis on the short-term costs to consumers. We know that the Utility Regulator has, as did the former Competition Commission, a responsibility for sustainability, cost and security of supply, but there is a feeling that the balance that has been struck is wrong. What is your view on that?

1379. **Mr McCormick**: It is hard to give a view on the distribution system. We are focused on trying to deliver on the transmission system, and I suppose that we have to test the regulator on the investment that is required on the transmission system. We have the plans that NIE produced. We will review those and will go to the regulator on a project-by-project basis for approval for

the development of the transmission system. That has to be our focus.

1380. **Mr Agnew**: I put the question to NIE last week that the approach seems very responsive. It is responsive to say what is coming forward project by project. Presumably, you engage with developers and have some sense of what is coming down the line. We have a 40% target. Maybe it is just my ignorance, but can there be a proactive approach to the upgrading of the grid to get to the stage where developers can come on and access the grid with foresight about what is likely to come forward?

1381. **Mr McCormick**: That is a sort of catch-22. The regulator has taken a view that transmission infrastructure, because it tends to be lumpy investment, should be looked at on a project-by-project basis. We have not tested the process, but it seems incredibly complicated to us to have to go on an individual project basis. We are of the view that the transmission infrastructure should be managed through a strategic programme of investment over 25, 40 or 50 years and that to do it on a project-by-project basis is micromanagement.

1382. **Mr Agnew**: OK. So, it is not my ignorance then. That is exactly what I think would be the best approach.

1383. On the challenges we face with everything that we have talked about, with renewables etc coming on the grid, what is the potential for smart technology?

1384. **Mr McCormick**: From a transmission perspective, we recognise that there is a need for us to continually look for different ways of doing things. One of the benefits that has accrued from EirGrid taking over SONI is that we can now do that on an all-island basis. We can look at solutions. EirGrid has some experience of looking for new technology to be used on infrastructure to better utilise existing circuits; in other words, to upgrade a circuit route rather than to build a new line. Some new technologies have been adopted, and there is potential for further delivery, but we are not quite there with it.

1385. There are things that we think that we can do on the transmission system. We are working with the industry to help small businesses to have innovative ideas. We facilitate them through pilot schemes, work with them and allow them to draw some of our expertise on power system operation into their business development stream. Michael has been involved in that. Do you have any comments on that, Michael?

1386. **Mr Walsh**: Yes, I think that you captured it very well. As you mentioned, we have had huge success in Ireland. Obviously, developing new transmission is very challenging for financial, social and all sorts of other reasons. Our strategy is to try to reuse and upgrade the existing network, and some of the new technology that we have used has allowed us to double the capacity of some existing transmission lines without changing the physical appearance or structure. Essentially, we have done that by just changing the wire to something with a larger capacity.

1387. The smart grid innovation hub is a programme that we have on the island of Ireland to encourage local businesses to come along and try out new solutions and new technologies. That gives us access to great ideas that help us to do our businesses more effectively, but it also helps us to play our part in trying to boost the enterprise benefits that we are getting from this. As we are integrating renewable energy at a faster pace than many other parts of the world, we are using new technologies earlier. They are the same technologies that will be required in GB in maybe five years and in mainland Europe and the US in 10 years. People and companies that have the opportunity to trial those, interact with them, improve them and hone their skills on them on this island will have a huge advantage in the future.

1388. We have been quite proactive in going to industry events and open days and trying to promote it. We have worked with Invest NI, representatives of which

are on the steering committee of the smart grid innovation hub. We are very positive about it, and I think that the industry is starting to show a bit more interest, as is Queen's and the IT industry. We are really excited by it, and I think that you are right to identify that as an area with huge potential. A lot of the solutions that are coming through are maybe at a slighter earlier stage than we might have thought, so there is a couple of years' work with a lot of them to try to get them to the stage where they are ready for deployment.

1389. **Mr Agnew**: I was quite nasty to NIE last week. I cannot remember my exact wording, but I suggested that it was conservative, afraid of innovation and a barrier to progress. I picked that up from different stakeholders.

1390. **Mr McCormick**: I think that there is a balance to be struck, because to facilitate that sometimes requires access to money. We need to have an open environment to promote some of that innovation, and that requires all the parties involved — the Department, the regulator and the utilities — to work together to try to find those solutions.

1391. We have been pushed into an arena where we have to be innovative. The increase in wind on the island has meant that we have to be innovative. We have pushed boundaries that other utilities have not got to in order to allow the amount of wind that is on the system at the moment. So, we are up for trying to be innovative. That is one of our core values. To deliver it is a challenge. People have to think outside the box. Remember that we have to keep the lights on, so we cannot do ridiculous things. We have to try to think smart and do things smart in the context of —

1392. **Mr Agnew**: Would you see NIE as a barrier in any way to doing that?

1393. **Mr McCormick**: No.

1394. **Mr Agnew**: OK. You mentioned the tidal projects, some of their challenges and the progress needed in those on the north coast. What about the First Flight project? What challenges does that present and are you confident that we can see timely progress in grid development to facilitate it?

1395. **Mr Lewis**: I would like to see timely progress on it. There has been open discussion about the offshore arrangements in Northern Ireland. The Utility Regulator determined that existing arrangements onshore should apply to offshore out to 12 nautical miles. That brings to the fore the present utilities grappling with how, can or should they do offshore works, because, in my mind, the result of the Utility Regulator's decision is that the connection point for the offshore wind is offshore.

1396. That potentially brings NIE into offshore assets, offshore asset ownership and offshore asset installation, and that has yet to be resolved. We are working closely with First Flight Wind to come up with solutions that are potentially outside the pale of normal arrangements. We are trying to push that envelope forward, but we keep bumping into policy, precedent and history. Some of the allegations you may have thrown at NIE would probably be applicable to the industry because we do things in a certain way and this is different.

1397. I would like to think that we are approaching it in as open a way as possible. We have been active in trying to bring the debate forward and get solutions. I hope that First Flight Wind would say that as well if it had the opportunity. Yes, I very much hope that we are able to meet timelines, but you should not underestimate physically where the First Flight Wind site is and physically where the network is that it has to connect to. If you think that north coast to Kells is a big trick, east coast to wherever is equally difficult.

1398. When you are talking about these major projects, if you are thinking in terms of consenting and planning for the project, historically in Northern Ireland it has been a sequential exercise. The project has planning permission and then along comes the infrastructure. That is not

going to work for the like of a First Flight Wind or a north coast. So, we have to look at better ways of presenting the totality of the project and the benefit of the totality of the project, including the infrastructure. That needs to happen.

1399. Looking at the difficulty we had with establishing transmission infrastructure in Northern Ireland, and the public opposition to it, we cannot ignore that public opposition when we talk about overhead line routes or underground cable routes across major tracts of Northern Ireland. There is opposition out there to whatever we may wish to do, and we should not underestimate that opposition.

1400. **Mr Agnew**: You mentioned the decision of the Competition Commission affecting the network decision that is going to have to be made that it will have to be an offshore connection. What was it in the determination? Was it simply that that is a cheaper option? Is that what you are saying or was it a direction from the Competition Commission?

1401. **Mr Lewis**: It was a policy direction from the regulator. There is nothing in the Competition Commission's finding for us.

1402. **Mr Agnew**: OK, so it was the regulator.

1403. **Mr Lewis**: Yes.

1404. **Mr Agnew**: What was the rationale for that? Does that throw up extra challenges in bringing it onshore?

1405. **Mr Lewis**: I believe that it does, yes.

1406. **Mr Agnew**: And what was the rationale of the Utility Regulator? We can obviously put that question to the regulator, but, from your understanding, what was the rationale?

1407. **Mr Lewis**: The options were to mimic the arrangements in GB, where the assets are provided by the developer and then handed over to an offshore transmission operator and then connected to the onshore transmission operator. They looked at that option and decided against it. They decided that they already had a transmission system operator and an asset owner in Northern Ireland, onshore, and that they could extend the present legislation to cover offshore. So, that was the solution that was offered. The outworking of that has not come to fruition.

1408. **Mr Agnew**: OK. You mentioned public opposition. We are well aware of it, with the North/South interconnector and some of the issues to do with wind farms, particularly in the west. Is that anticipated to be substantial for these offshore projects? From what you say, it sounds like —

1409. **Mr Lewis**: It is anticipated. It is not a reality yet, but it is anticipated. Wherever we set our foot, there appears to be opposition at this point. So, we are mindful of that and looking at ways to mitigate that, get round it and come up with a much more open and transparent solution to getting those routes.

1410. **Mr Agnew**: I have one final question. NIRIG mentioned the fact that the sustainable energy interdepartmental working group (SEIDWG) has not met for around two years. A review of the SEF is currently taking place. Do you see that as a problem?

1411. **Mr McCormick**: They made us aware that they were going to write to see if it could be re-instigated. We are open to discussing the issues in whatever forum there is. It makes sense to have an interdepartmental forum where people can discuss energy matters, so we are happy to participate.

1412. **Mr Anderson**: Thank you for your presentation, gentlemen. We have talked about contestability, but I will touch on the competition side. We are told that NIE holds a monopoly for grid connections as part of the licence agreement. Do you wish to comment on what could be done to open up the grid and the market for better competition?

1413. **Mr McCormick**: We have probably covered that under the discussion around contestability and where the facility could be made available to —

1414. **Mr Anderson**: Could you expand a bit more on that and just tell us what you

really see as a way forward here to open the market?

1415. **Mr McCormick**: You have to go through a process to give people the opportunity, through a consultation process, which is what I think the regulator intends to do, so that there can be a discussion between interested parties that will put forward their views on it. We would certainly be open to the prospect of contestability. If that drives down prices, it will be all to the good. We have to make sure that there is a delivery mechanism to support that. Ultimately, there must be a body that will deliver the infrastructure.

1416. **Mr Anderson**: Would you like to see this coming out into more open competition?

1417. **Mr McCormick**: Yes, I have said that we would support the introduction of contestability.

1418. **Mr Anderson**: OK. Another issue that you touched on in one of your slides is that of the delivery of interconnection capacity and the North/South interconnector. How important is the North/South interconnector to the security of supply post-2015?

1419. **Mr McCormick**: It is hugely important. We have all recognised the importance of grid infrastructure, particularly the North/South project. Having the single interconnector at the moment means that costs are being accrued by customers because we cannot run the market and generation as efficiently as we should be able to, were we to have further interconnection. So, it is a must. You will be aware of some of the problems that there have been in trying to progress it, both North and South. Progress is being made with trying to get it into the Planning Appeals Commission schedule, and we anticipate that it will be in the schedule in early 2015. Circumstances in the South have delayed the application going in for the Southern portion of it. From our perspective, it is an absolute must. I have talked about some of the issues that we have at the moment. Post-2015, those issues will get more focused because some of the generators in Northern Ireland are proposing to retire generating units because they would have to spend extra money on them to comply with European legislation. We are working with the Department and the regulator to try to close that gap and to look for additional generation capacity to cover the period from the end of 2015 until the North/South interconnector is built. That has just gone out to interested parties to tender. We hope to be able to secure a contract by early autumn for the generation to cover that shortfall.

1420. **Mr Anderson**: You touched on problems with progress, one of which is planning. Is there a bigger issue in the South with progressing the planning and even getting to a fast-track situation with the Government in the Republic? Do we see a difficulty there?

1421. **Mr Walsh**: It was, hopefully, a hiccough in the very recent past. We, as a company, are completely and utterly committed to the project. It is an incredibly important project for the short-term security of supply in Northern Ireland from 2015 onwards and also for customers on the island of Ireland in the long term for energy security on the island. It is probably the single most important project that you can conceive of on the island for transition development and to improve matters for consumers, the industry and competitiveness. That was a theme in much of the discussion this morning. It is a project that will enable much better competition not just on but within the island of Ireland. It will allow the east-west interconnector and the Moyle interconnector to have better ties and better operation from GB to this island, and it will allow the whole market to operate more efficiently.

1422. The issue that we have run into recently is to do with the classification as a project of common interest by the European Commission. We were working on the assumption that the work that we had done would be classified as transitionary and that we would be allowed to proceed and then lodge it

with planning. At the moment, that is not being allowed by the European Commission. We have been pushing quite hard in EirGrid, and the Irish Government have been very committed in trying to help to move that; they have been very supportive of the importance of the project. However, it has been classified as such, so we need to see whether the application, as it stands, meets those requirements. We are hopeful that that will be the case and that the delay will not be unduly long, but we are at the early stages of working through and seeing exactly what we are required to do. We, as a company, are very disappointed that we have run into that delay, but it is our utmost priority to try to move it as quickly as possible so that we can lodge a very strong planning application as early as possible. It is unfortunate that we have run into the delay at this time. I assure you that it is not due to any absence of commitment, urgency or importance on our side.

1423. **Mr Anderson**: We could be in a situation of more hope than anything if we do not get it pushed forward with Europe and in the Republic. If you manage to get it turned around, can the Government in the Irish Republic get it fast-tracked so that it moves quickly? Are these major issues, or is it just a blip?

1424. **Mr Walsh**: It is a procedural matter, not a fundamental matter that will undermine the project. It is just a series of new procedures that needs to be gone through before we can submit the planning application. The risk of not doing it is that the planning application would get challenged and would fall, and then you would run into a much more substantial delay, so we are just being very careful to make sure that we do not leave a weakness in the application that an objector could take advantage of.

1425. As for the fast track, it is a strategic project, so it will be heard by An Bord Pleanála. It is a single one-stop shop. It needs time to go through, but it will be a strategic project. Once we submit it, it goes into a rigid timeline. There is openness for people to consult and make observations. There will be a public hearing on it, so it just goes through a fast-track process in planning appeals as soon as it is submitted. What we are doing at the moment is making sure that, once we submit it, it is legally robust and covers all the requirements of the project of common interest (PCI) that apply to it.

1426. **Mr Anderson**: There is a certain amount of time. Have you a view on the timescale that it would take even to get it to the stage that you are talking about, when others can say that they are supportive or otherwise? You must have an idea of some timeline that you need to aim for.

1427. **Mr Walsh**: It has just been designated, so we are at the very early stage or working out exactly what we need to do. The big risk to us would be to do it too quickly and leave a weakness that causes a problem in the planning hearing.

1428. **Mr Anderson**: What do you mean by "too quickly", Michael?

1429. **Mr Walsh**: I think that we are talking in the order of months. In the best case, a short number of months, but it could take us a bit longer than that if we have to do more substantial work.

1430. **Mr Anderson**: Would it be a year or more?

1431. **Mr Walsh**: We definitely hope not.

1432. **Mr McCormick**: It is difficult to be prescriptive about timelines when external bodies are dictating the pace. We are concerned about it.

1433. **Mr Anderson**: It is certainly a big concern.

1434. **Mr McCormick**: We are meeting An Bord Pleanála to understand what process needs to be gone through and the steps that need to be taken to get it back on track. It is the nature of such projects. There are hurdles that you have to get over. At the moment, the Northern portion is in a holding position. There are clear issues in the South that could equally flip across to the Northern side once we get into the Planning Appeals Commission process.

1435. **Mr Anderson**: But you hope not.

1436. **Mr McCormick**: We hope not.

1437. **Mr Anderson**: OK. That is a big issue. Thank you for your comments on that.

1438. **The Deputy Chairperson**: With regard to the interconnector, surely there is somebody in EirGrid who has a bit of understanding of how An Bord Pleanála works and could give you some advice on that.

1439. **Mr Walsh**: I think that there are. One of the people who does it is an ex-inspector from An Bord Pleanála; he has been chairing, and our chairman was a previous chairman of An Bord Pleanála. The project of common interest is a new requirement from Europe, so it is about working with it to understand what the requirements are. North/South had been through a certain process to date before the PCI regulations came into place. What we need to understand from An Bord Pleanála is how it will interpret the PCI regulations and say, "Yes, this, this and this piece of work that you did on North/South are consistent with the PCI regulations", and, if there is anything outside that, to understand that. It is a new process that we are going through with it, but we are having good engagement with An Bord Pleanála and there is good cooperation there.

1440. **The Deputy Chairperson**: Specifically about the North/South interconnector, do you accept that there is widely held political and community opposition to the erection of an overhead connector in the proposed area.

1441. **Mr McCormick**: We are aware of that.

1442. **The Deputy Chairperson**: How do you propose to manage those concerns and that local opposition?

1443. **Mr Walsh**: For the part of the network in Ireland we did a substantial consultation on a number of projects towards the end of last year. We got an awful lot of feedback from communities, and we have put in place a number of initiatives to deal with that, including the provision of community funds along the length of the interconnector. There is no framework in place for that in Northern Ireland at the moment, but, in Ireland, we believe that it will be an essential part of trying to mitigate, to some extent, community concerns. Nevertheless, we do not underestimate the difficulty of bringing a project like that through the planning process and the degree of public opposition that we may run into as we develop the project.

1444. **The Deputy Chairperson**: Reviews were announced by the Department of Communications, Energy and Natural Resources in the South on Grid West and the other proposals. Will such a review take place on the North/South interconnector?

1445. **Mr Walsh**: There was a previous review of the North/South interconnector. An Oireachtas Committee in the Dáil set up an independent panel to look at the underground option for North/South. So, that process has already been done for the North/South interconnector, and there are no plans to redo it.

1446. **The Deputy Chairperson**: Refresh my memory: what did the international expert panel say?

1447. **Mr Walsh**: It concluded that the cost of an underground solution — I forget the exact number — would be in the order of, I think, three times the cost; it gave a range.

1448. We have identified — this is one of our big concerns — that the underground solution would have to use different technology that would not give the same quality of service or capacity. You would be paying three times the price for a service that would not be as good. The ability of the North/South interconnector to connect the two parts of the island and make them work as a single system is what will deliver the substantial cost savings to consumers. Those savings would not be available to the same degree from an underground solution.

1449. **The Deputy Chairperson**: Did that differential in price between, I think, €170 million and €590 million, include impacts on land and property values?

1450. **Mr Walsh**: I do not believe that it did, but I would need to double-check.

1451. **The Deputy Chairperson**: Do you think that the erection of the proposed North/South interconnector would have a detrimental impact on land and property values in the region?

1452. **Mr Walsh**: No. We have done reviews, and estate agents have looked at it, and the evidence seems to indicate that it would not. The community funds that I mentioned earlier are largely to deal with disruption through construction activities rather than any devaluation of land, in and of itself.

1453. **The Deputy Chairperson**: In a hearing in the Oireachtas, your chairman acknowledged that pylons could affect the value of properties and that the issue needed to be addressed. So, your chairman is saying that it will or could impact land and property prices, but the international expert panel, when it looked at the issue, did not factor those figures into the price determination, because it is a fact that landowners and homeowners will have to be compensated. I think that EirGrid has said that it will have to buy property to make a go of this. Therefore is it not in your best interest to look at the proper business case for this, instead of half-doing the job and not looking at all the information available?

1454. **Mr Walsh**: Just to take it back to the Grid Link and Grid West proposals where we have looked at how we might do it, the costs for compensating landowners and buying land if you go within a very short distance of a house are probably low single figures as a percentage of the overall project cost. So, you will not bridge the gap between overhead and underground through those costs. Yes, they are an important consideration in the overall analysis, and we do not want to dismiss them, but they are not likely to be a material factor in that discussion. Compensating landowners would account for less than 5% of total project costs.

1455. Most of the costs for an overhead transmission line come from the physical structures and conductors; it is very expensive electrical equipment and high technology. It has to be robust. You are trying to build an asset that will have a 40- or 50-year life, be very reliable and robust and deliver high-capacity electricity. Therefore the main costs of the project are captured and included.

1456. **The Deputy Chairperson**: Is there any reason why, of all the work that has been done to date, no work has been carried out to assess the potential of putting it underground as part of the A5/N2 road development?

1457. **Mr Walsh**: The work of the expert panel — I have not read the detail recently, so forgive me if I am not completely clear on it — looked at the cost of the HP DC solution. As I understand it, it made the assumption that a favourable route would be found for that. It looked at the cost of converter stations and the cable. So, again, it worked on the assumption that a favourable route would be available for that delivery. I think that it was predicated on the basis that there would be an easy route available, which could be a new motorway or road development. However, there can be sensitivities. Sometimes, road authorities do not like you going through roads, so cross-country can be easier. As I understand from recollection, the independent panel assumed that a suitable venue would be available for the site selection. That is my understanding of that analysis.

1458. **The Deputy Chairperson**: Is it technologically viable to put it down ducts that will be along the side of a main arterial route?

1459. **Mr Walsh**: For a solution of that magnitude, it would be a new installation; it is a substantial cable installation — even the trucks that carry it are huge. It would be a new trench, and you would have to look at having it properly insulated and separated. Therefore, it would not be something that you would put down existing ducts

that are available for a line of that capacity.

1460. With regard to technical feasibility, it comes back to the issue that the underground solution would have to be the DC technology, which does not give you the service that you need to bring the two parts of the island together to work as a single system. At the moment, what is happening in very simple terms is that, if you have a loss of the existing North/South interconnector, the two systems will essentially start acting separately. To make sure that both of them stay secure, you need to keep enough reserve capacity in both parts of the island so that customers are not impacted by that. If you build a second North/South line overhead, you have the assurance that if there is an issue on either the existing line, the new line or a generation facility on any part of the island, there is enough there and you can reduce the total amount of reserve that you need to keep, and that has huge savings in running costs for operating the power system. A DC line does not respond in the same way; it needs an automatic control system to do it. These things happen very fast on a modern power system, and there is a risk that you will not get enough response and it will not be able to have the two parts of the system operating as one. Therefore, the technology that is coming in will not give you the service that you are looking for that delivers the value and the savings to customers that an overhead solution would, and that is probably the biggest technical issue that we would be concerned about for an underground solution.

1461. **The Deputy Chairperson**: Was that reflected in the international expert panel, or did it look at cost only?

1462. **Mr Walsh**: You mentioned cost earlier. The panel looked at the installation costs and compared and found on that basis, and it referred to the different technologies that would be applied and the different characteristics of the technologies. I do not think that the panel quantified that in detail.

1463. **Mr McCormick**: I do not think that it recognised the operational issues that would arise from a high-voltage DC solution.

1464. **Mr Douglas**: Most of my questions have been asked and, I hope, answered, but I have one quick question. Some witnesses talked about investment in the grid, and the question arose about who should be responsible for that investment. What are your views? What is your experience of investment in the grid in other countries? Who generally tends to pay for it?

1465. **Mr McCormick**: If I have picked up your question correctly, the investment that we are talking about is reinforcement of the network and facilitating all connections for renewables, etc. It is the higher-capacity transmission network grid. Traditionally, it is paid for through a transmission system operator (TSO) function, so the model that we now have is common across Europe. Ultimately, customers pay a tariff to cover its cost over the lifetime of the investment. What we are doing here is no different generally from what happens across Europe.

1466. **Mr Douglas**: You are saying that that is what happens in Europe.

1467. **Mr McCormick**: With regard to the issues that we described about the delivery of large infrastructure projects, they have difficulties similar to those that we described with actual delivery on the ground.

1468. **The Deputy Chairperson**: Unless there are any other questions, I think that that is it. Thank you very much for your time.

3 July 2014

Members present for all or part of the proceedings:

Mr Patsy McGlone (Chairperson)
Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Sammy Douglas
Mr Gordon Dunne
Mr Paul Frew
Mr Fearghal McKinney
Mrs Sandra Overend

Witnesses:

Ms Tanya Hedley	*Northern Ireland*
Mr Jody O'Boyle	*Authority for Utility*
Ms Jenny Pyper	*Regulation*

1469. **The Chairperson**: With us today we have Ms Jenny Pyper, the chief executive of the Utility Regulator; Ms Tanya Hedley, the director of networks, water and gas; and Mr Jody O'Boyle, the electricity networks manager. You are all very welcome indeed. Thank you for being with us here today. It is the usual format: you have up to 10 minutes to make a presentation to the Committee, and then we will have a question-and-answer session with members. Thanks for being with us.

1470. **Ms Jenny Pyper (Northern Ireland Authority for Utility Regulation)**: Not a problem. Thank you, Chairman, for the opportunity to speak to the Committee this morning as part of your evidence-gathering. One wee point of clarification: Tanya, who will lead on the evidence session today, is the director of network operations rather than just water and gas. Tanya's responsibilities are for networks, whether they are electricity, gas or water. It is cross-utility.

1471. **The Chairperson**: Right. That is good to know. We just had you on gas and water. You have a lot more than that.

1472. **Ms Tanya Hedley (Northern Ireland Authority for Utility Regulation)**: I have.

1473. **The Chairperson**: Good, or maybe not so good.

1474. **Ms Pyper**: Tanya, as the Committee probably knows, has a considerable engineering background and experience. Hopefully, that will be of value. The Committee knows Jody O'Boyle as well for his experience on the electricity side.

1475. I will start with a few opening remarks before I hand over to Tanya. Since the last time we were in front of you, the Committee has received a significant number of submissions and a significant amount of evidence from a whole range of stakeholders, many of which, as the Committee recognises, have vested interests. You will not be in any doubt about how complex the issue of grid connections is. From our perspective in the Utility Regulator, we see that the challenges of grid connections have a policy element, an operational element and a regulatory element. We are trying to strike a balance between approving investment and facilitating renewables targets while trying to keep costs for consumers as low as possible. As the Committee knows, it is a fact that there has been an unprecedented level of applications from small-scale renewables. That has resulted in the saturation of the distribution network, particularly in some key parts of Northern Ireland. One indication of that is the fact that small-scale renewable capacity has increased by some 234% since April 2010. That has been driven by the attractive support regime: the renewables obligation certificates (ROCs). That is a phenomenal rate of growth. The Committee is fully aware of just what a challenge that presents for the grid.

1476. The three elements that I mentioned were the policy, the operational issues and the regulation. In terms of policy, the Committee is aware that DETI is reviewing the costs and benefits of

meeting the 40% target. There is also the wider UK electricity market reform, which is going to bring changes to the subsidies for renewable generators. I see from your agenda that you have some updates from DETI on a number of its consultation papers. Clearly, policy issues are being considered in all this. In terms of operational issues, the Committee is well aware that NIE is the operational interface between developers and consumers and the grid. Clearly, NIE has a duty to manage its network and allocate investment in a way that is economic. It has a duty to develop the network in a strategic way that is clear to consumers as well in its connection policy. The Committee will be aware from evidence from NIE that it is looking again at its connection policy, not least because of the unprecedented growth in renewables.

1477. Finally, in terms of the regulatory piece, we, as a regulator, have a track record of approving economic and efficient investment proposals from NIE. However, grid connections need to be paid for. It is not just an individual farmer wanting to develop a wind turbine who pays; it is his neighbours as well. It is a fact that all customer bills will increase if every small-scale renewable request is accommodated. That is where the issue of balance comes in: what is an appropriate balance in who pays and who gets connected? The issue of grid contestability has come up through evidence from stakeholders. The Committee will be aware that that is a forward work programme project for the Utility Regulator this year.

1478. In conclusion, there is no single or simple solution to some of the problems around the grid, but I am clear that we need to ensure that we have a fit-for-purpose incentive regime, that we have a connection policy that is clear and transparent and much simpler than the current policy, and that we strike the right balance between paying for the grid and the cost that that entails for business and domestic consumers.

1479. I will now hand over to Tanya, who will take you through the presentation.

1480. **Ms Hedley**: Thank you very much for this opportunity to give evidence. I will start by reiterating the role of the Utility Regulator. Jenny has already covered some of the work we do, but, for clarity, our role includes the price control of regulated companies and looking at the investments they intend to carry. We also look at other areas. In our forward work plan, two areas are relevant to this investigation. One is the work around contestability that we are carrying out, and the other relates to the implementation of the energy efficiency directive. We also act as an appeals, complaints and disputes body. Anyone who is unhappy with the treatment they have received or with a connection offer can raise that with us as a formal dispute. That is a quasi-legal role, and, at the end of that process, we will be in a position to make a determination, which will be binding on NIE.

1481. We also approve NIE's statement of charges each year, in which it puts forward the principles of what it is going to charge for anyone who wishes to connect. NIE is currently reviewing that. We expect it to issue a new statement in the coming months. We do not approve the costs for individual connections, but — this is back to our dispute role — if anyone is unhappy, they can raise that with us. Obviously, NIE is a licensed organisation. We are responsible for ensuring that it is compliant with that licence. We monitor the activities it carries out to ensure compliance. Finally, another role that we have in the policy context is ensuring that the legislative pieces that are put in place by the Assembly are carried out appropriately by the regulated companies. However, it is worth reiterating what Jenny said: it is NIE's responsibility to manage its network and connections to it.

1482. The second slide shows the renewables journey. From 2007 to 2014, there has been a significant increase of renewables generating in Northern Ireland. The information before you indicates that 15% of electricity in Northern Ireland is now made up from renewables, but the latest annual

figures show a value of 18%, and that is continually increasing due to the increased connections that are currently taking place. The slide indicates that there are 31 wind farms with a capacity of 531 MW, but that does not include small or microgenerators, of which there are substantial numbers currently connected to the grid. Rough figures from NIE indicate that something like 150 microgenerators connect every month in Northern Ireland; that is about 1·5 MW connecting every month. That may not have a significant impact on the overall target, but it is a significant impact on the individuals who are able to connect and have renewable energy — solar panels — and, therefore, reduce their electricity bill. So, that is going ahead.

1483. It is also worth noting our ability to continue on this journey. At this stage, it is worth reminding the Committee of the plan for the North/South interconnector and the need for that, not only for continuing the renewables journey but also because of the implications for security of supply. I know that the Committee is fully aware of that.

1484. I have included information about the Competition Commission (CC) final determination. I want to flag up that the Competition Commission looked at the cost for investment on the grid for renewables, as well as the investigations that we have done ourselves, and it deemed that additional substantial investment for small-scale was not in the public interest. We also have information about the investment that the Utility Regulator has currently approved. Some £30 million of investment was for the larger-scale renewables, and the projects there relate to capital expenditure at substations and transmission network to allow large-scale renewables and to facilitate their operation in the wholesale market.

1485. Finally, there are a number of challenges to the grid. I do not propose to go into those in any detail, but it is worth noting that there are other challenges, and we would be happy to answer questions about those as well. However, I thought that the time would be better taken up with questions, so I hope that that helps to provide some context.

1486. **The Chairperson**: Thanks very much for that. We had Simple Power with us, and one thing that has come up fairly frequently is this: the length of time it takes not even for connection but to get a simple quotation from NIE. I just do not understand that at all. NIE is allowed 90 days to provide that, and the experience that was related to us was that it was inevitably in the seventieth or eightieth day that you eventually got NIE out to look at the quotation. A lot of us wonder whether they deliberately leave it to the last minute and then run out and do that, because they knew that they had to do it within 90 days. The inevitable rider from that is that we should give them a dedicated period of 30 days to do it within, and let us see if they get it done within the third of the time. This all adds to the frustration and the impact upon the efficiency of business and the connections that they can provide for people, even to make projections around what the costings might be for their business proposal. So have you any thoughts on how to make even that bit of the operation more efficient?

1487. **Ms Hedley**: Ninety days is the licence obligation and, obviously, NIE has to make a connection within that time. That licence obligation is consistent with those of other electricity networks within the UK. In GB, they have streamed into two types of connections with the very small micro-scale generation having a different time frame. We have spoken to NIE about this, and it is considering how it can maybe look at the different types of connections.

1488. Simple Power's type of connection, I believe, is on the small-scale side and 90 days is probably appropriate because of the technical analysis that needs to take place to make sure that any connection is safe.

1489. **The Chairperson**: Sorry, can I just clarify that this is not the actual connection?

1490. **Ms Hedley**: This is the connection offer.

1491. **The Chairperson**: This is just looking at the quotation.

1492. **Ms Hedley**: Sorry, I am aware of that.

1493. **The Chairperson**: The connection takes you into a different terrain from what you are talking about.

1494. **Ms Hedley**: It does.

1495. **The Chairperson**: I am looking at that and the experience appears to be that, if you give them 90 days, they will take up to 90 days to do it. It is a wee bit like the experiences that there are in a multiplicity of other organisations where, if you give somebody a fortnight to do a thing, they will do it within a fortnight, but it could well be the case that they could do it within a week or even a few days. I am really asking whether, as that is part of the licence, the licence needs to be changed to make this operation more efficient.

1496. **Ms Hedley**: That would be a standard 90 days throughout the UK, but we have asked NIE to look at its processes, and we are talking to it about how it can make that more efficient. The licence is the backstop; what we really want is a delivery of service that does not go to the wire, as it were. That is something that we have asked NIE to look at, and we are engaging with it about that.

1497. **The Chairperson**: There may be "looking at" and "engaging with", but, with the greatest of respect, it does not seem to be percolating out to the practice on the ground. My question was not whether you were engaging with them; my question was about changing the licence.

1498. **Ms Hedley**: We have no intention of doing that at this time. These types of connections need to be done in order as you investigate them, because the connection before yours impacts on your connection; therefore, it is not a case of being able to do them in parallel. We are talking to NIE about the process that it has and the time frame it is taking. I could not make a commitment that we could reduce that until we understand in more detail what time NIE needs to do the studies.

1499. **The Chairperson**: This is not a new issue. I have met NIE, and I am sure that you have been well aware of this as an issue. How long have you been talking to it and at what point do you quit talking and move on to alternative actions?

1500. **Ms Hedley**: We are not talking to NIE in isolation. We have a group called the renewables grid liaison group, which includes all the stakeholders who are interested in this. It has representation from all the different renewable generators, and the group talks about the experiences they have had and what they think is appropriate. We also compare NIE's actions to how other companies in the UK deal with this and what an appropriate time frame would be within which to deliver this.

1501. At this time, we do not have any information to say that the licence obligation should be 30 days, as you have suggested, because obviously, we do not want NIE to be connecting people in such a way that would then create problems for their neighbours. It has to make sure that the connections are safe and can operate in a way that does not impact on the quality of supply to other people. I agree that it is something that we have been aware of, and it is something that we have been engaging with NIE on. We have not been engaging in isolation; we have been engaging with all of the renewable developers.

1502. **The Chairperson**: Again, to my mind, and this is just based on the information that has been provided to us, you can engage with the stakeholders all you like, but it will probably boil down to two or three issues: problems getting NIE out to assess the site; and problems and slowness in connecting to the grid and the implications of that. If the connections are not being made, and if you are not getting the assessments done, to my mind, you can consult with stakeholders all you like, forever and

ever, amen. If something is not being done about it, you have to move it on.

1503. This is not a new issue. This has been about the system since I have been on this Committee. At what point do you say, "Look, we need more bang for the buck, here"? If things are not being done, there may well be alternative measures that the Utility Regulator has to take to get efficiency in the system. Now, at this time, you are talking to them. I presume that talks in a similar vein were going on about 12 months ago. What I am trying to elicit from you is what is happening to change the situation that exists and has existed for quite a while.

1504. **Ms Pyper**: Chairman, through our regulation, we want to improve the performance of any of the utilities that we regulate and make sure that they perform to the best standard and are benchmarked with the best performance across the rest of the UK. The industry standard is 90 days. Clearly, we have picked up, as you have, considerable concerns about the service that people are getting. Part of the issue is lack of certainly and clarity from NIE about the timescales, the processes and what is happening. As Tanya said, we have been using the renewables grid liaison group to get better dialogue. We want to raise NIE's performance on this, but there are reasons for the 90 days, as Tanya explained. However, I hear what the Committee says about trying to improve the performance around that 90 days, and I would like to see what best practice looks like in other network companies and what service they are able to provide. As NIE is reviewing its connection policy, and as we are looking at this again, part of the issue, I suspect, is that developers are not getting information. Perhaps there is radio silence, so they do not know what is happening, and maybe they assume that nothing is happening. I would like to see whether we can improve NIE's performance on the dialogue that it is having as part of its connection policy.

1505. **The Chairperson**: That is my point. This issue has been about for quite a considerable while, and it does not seem to be changing. Even from the evidence that the Committee has heard, it seems that parts of GB have a much more efficient system.

1506. **Ms Pyper**: Yes.

1507. **The Chairperson**: You do not need to sit down with a liaison group of consultees. If you did a simple Google search or made a couple or three phone calls, you would soon find that out. At this stage, both the industry and the Committee are saying to you, first, that the problem has been identified and you know what it is; secondly, that there are other areas where we are being told that, apparently, they do things much more efficiently; and, thirdly, why are we in the North not able to do those things as efficiently as elsewhere?

1508. **Ms Pyper**: I totally agree with that. We want to drive up NIE's efficiency. I am not sure that moving from 90 days to 30 days is the way that we would achieve that, but I really hear what the Committee is saying as part of the review. I am not disagreeing with you that we want to improve its performance, but we want to see the best way of achieving that.

1509. **The Chairperson**: We are looking to you and asking you what your ideas are for improving that performance. That is why you are here today.

1510. **Ms Pyper**: OK. As I said, we have been having dialogue with NIE about its connection policy. The issue has come to a head. I think that you would agree that NIE has been dealing with an unprecedented level of growth in the demand for connections. It is connecting something like 150 microgenerators every month, so it is not as if it is not doing anything. It is connecting. However, as we work through the new connection policy with NIE and its review, we will want to emphasise that we expect its performance to improve, and we will look to see how we can use the licence to do that.

1511. **The Chairperson**: When do you anticipate having a range of solutions to the problem?

1512. **Ms Pyper**: To which particular problem? To the 90 days?

1513. **The Chairperson**: To the one that I have just outlined.

1514. **Ms Pyper**: The 90-day connection?

1515. **The Chairperson**: No, it is not the 90-day connection; it is the 90-day evaluation —

1516. **Ms Pyper**: The offer, sorry.

1517. **The Chairperson**: — and then difficulty with the connection subsequently.

1518. **Ms Hedley**: We know that NIE has an internal review and has brought in expertise from GB to see if it can apply new practices that will improve its processes. We want to do this in the whole. It is not enough just to get a connection offer. What is needed is the renewable generator connected and adding value. In GB, there were strong incentives about connection offers, but that did not improve the overall time frame for connections. So, we do not want to look at this one area in isolation to the whole process of getting the generator connected.

1519. **The Chairperson**: I want to clarify this and distil it down. There appears to have been a considerable body of reflection on this. When will you be in a position to have distilled all that period of reflection into actual action bullet points, agreed with or inspired to NIE?

1520. **Ms Pyper**: I think that the point that Tanya is making is that there is no silver bullet; there is no easy solution to this. A number of issues need to be looked at in the round. We are certainly working with NIE. We have encouraged it to do this internal review. It has brought in an expert who has been responsible for best practice in the north-west, working with a grid company that is recognised as meeting best practice in the efficiency of its processes. We want to see what comes out of that internal review and whether that has implications for the licence or whether NIE is going to deliver the changes through its own internal processes. It has to be a bit of carrot and stick. We would not want to make licence changes if we could see that a company was going in the right way and making the improvements. We have seen some evidence that NIE is taking this issue very seriously and is going to improve its performance, once it completes its internal review in the autumn. So, we are working on that very closely with it, to try to understand how it is going to get this process —

1521. **The Chairperson**: This is what I am trying to elicit from you: at what point do you anticipate saying, "Look, we are making progress, and this is the progress". With the greatest of respect, I am not hearing that from you. You are giving a lot of faith to NIE, but I am not hearing from you the direction, the points or the areas in which you wish to go. You have agreed with me, but I really want to hear something a wee bit more tangible. It may well be that your period of reflection has gone on, but at what point will you have clear views as to how things are moving much more efficiently than they currently are?

1522. **Ms Hedley**: I would say that NIE has improved over the last number of years. If you look at microgeneration in 2013, you see that only 4 MW was connected. In 2014, 30 MW is connected. So it has improved its processes, but still the level of interest is increasing. In recognising that, it has brought in the external expert to assist it to see what else it can do. I re-emphasise that the connection offer piece should not be looked at in isolation. It is about the final connection and getting the generator connected and adding value. It is not just that piece that we are looking at; it is the full process.

1523. **The Chairperson**: I would hope that you were not looking at just that piece in isolation. I thought that I had made that clear earlier. It is from application to connection to grid. That is the issue that has been relayed to us. Anyway, thanks for that.

1524. **Mr Anderson**: Thank you for your presentation; you are very welcome. I want to touch on the area of contestability again. You briefly mentioned it. I think that you mentioned that you had a dispute role. What is the Utility Regulator's role in relation to grid connections and the NIE monopoly in disputes and things like that? What is the overall position on that?

1525. **Ms Hedley**: NIE has a statement of charges that identifies how it allocates charges for people connecting to the network. It submits that to us, and we approve it. That is the principles of what you pay as you connect. If an individual is unhappy with the connection offer that they receive, they can raise a dispute with the Utility Regulator. It is then like a semi-legal role, where we take evidence from both parties and make a determination. Based on that individual case, we then instruct NIE. If there was a further activity that it could do, we would instruct it to do that. That is binding on it.

1526. **Mr Anderson**: Do you have many disputes like this? Are the numbers increasing or decreasing? You talk about your role in disputes as "semi-legal", but, when you make that decision, is it binding? Would NIE say that it is binding, and will it accept it?

1527. **Ms Hedley**: Yes.

1528. **Mr Anderson**: Has it accepted it?

1529. **Ms Hedley**: Yes.

1530. **Mr Anderson**: At no time did it say no to your decision?

1531. **Ms Hedley**: This is why regulators have to be careful when they make decisions. A regulatory decision of this nature on a regulated company is binding and has to be carried out by the company. So the regulator's role is restricted in legislation because it is quite a powerful role, from that point of view.

1532. **Mr Anderson**: Do we have many disputes on this issue?

1533. **Ms Hedley**: There have been disputes in relation to this. We act as the dispute body in a number of areas. Recently, we got powers in relation to billing disputes. I have been in the office for five years, and, during that time, we have always had a role in connection-type disputes. There have been a number in the last few months, but over the years there has always been an element of disputes that comes to us for determination.

1534. **Mr Anderson**: Is it a consistent type of issue coming through most of the time?

1535. **Ms Hedley**: They tend to vary, but they all relate to NIE when it comes to electricity.

1536. **Mr Jody O'Boyle (Northern Ireland Authority for Utility Regulation)**: One thing to note is that, even though we are the resolution body, throughout the process the parties involved may come to a resolution, in which case a determination may not have to be made.

1537. **Mr Anderson**: Does it take much time to resolve issues? Can it be long-winded or can it be resolved quite quickly? I am talking about timescales.

1538. **Ms Hedley**: Most issues that come to us are resolved informally and quite quickly because we try to have informal meetings between the parties before we go into our legal role. Once we are into a formal dispute we have to set up a dispute team — a decision-making body — and the time frames for that are set in legislation.

1539. **Mr Anderson**: Tanya, you are giving the impression that disputes are resolved very amicably, in a sense. Do we never really get into a them-and-us situation that can be a bit more protracted, or is it just that you have a dispute, go and sort it out and it is resolved?

1540. **Ms Pyper**: The very fact of having a disputes-resolution process is often the catalyst to get resolution. When something is referred to us, sometimes the dispute is resolved quite quickly because a company will know that the regulators now have their beady eye on it and are looking at it. It depends on the nature of the case. There can be very different views about who said what

and who was given what expectation. That is where it becomes quasi-judicial. We have to take evidence from both sides, prepare a statement of case and allow both parties the opportunity to look at it. Some disputes go as far as that, and that does become quite a time- and labour-intensive process. Quite a lot of the disputes that we get never make it through the full quasi-legal process.

1541. **Mr Anderson**: I will leave that. I have a few more questions. You touched on the work planned in delivery of contestability. What is the period for delivering that? Have you a work plan for it?

1542. **Ms Hedley**: What we have identified in our forward work plan is that we will look at contestability this year. There are a number of areas where contestability can be applied. What we hope to do initially is consult on the different areas and then focus on delivering it in different stages, rather than trying to do it all in one go — trying to bite off an awful lot on one issue. There is a desire for contestability for off-shore renewables, onshore large scale and onshore smaller scale, so we do not necessarily want to try to fix everything in one go. Our initial consultation will focus on how we divide the work streams and on putting a plan in place for the delivery of the timetable for all the different areas. It would not be everything at once.

1543. **Mr Anderson**: So it is broken down into different areas. It has already started and you can see an end timescale for it.

1544. **Ms Hedley**: The end timescale for the total project depends on how we split it. The initial consultation will be on the splits of the work streams and what we do first.

1545. **Mr Anderson**: So you cannot say when you can see that being finished because of the different work that has to be done in each area, is that what you are saying?

1546. **Ms Pyper**: We are just at the stage of scoping the work. It is a commitment to start in this year in terms of our forward work programme. This is the scoping phase. It could be a two- to three-year project. It is one of the priority projects in our corporate strategy. There is the contestability piece as well as we take it forward. One of the things that we have stated as one of our desired outcomes is to offer greater choice in connecting to networks, promote a decrease in price and reduce connection times. We see the contestability piece as working in parallel with other work that we are doing with NIE. So, there is a strong commitment in our work programme to address that and to take it forward, but there are a number of parties that need to be involved, from NIE and SONI to the Planning Service.

1547. **Mr Anderson**: There is a lot of work involved, Jenny.

1548. **Ms Pyper**: There is, but it is a priority programme for us, and that has been identified in our corporate strategy.

1549. **Mr Anderson**: You talk about grid connections. Why does NIE have a monopoly on grid connections?

1550. **Ms Hedley**: There is only one grid. Regulation is in place because there is an acceptance that you do not want two grids developed: it makes economic sense to have only one network. NIE owns the network in Northern Ireland, and it is not unreasonable that it is responsible for people connecting to the grid. There is a legal obligation on NIE to offer grid connections, although there are some exceptions. There is a need for people to be able to access the grid, both for demand, where they want to supply electricity, and generation, where they want to export electricity. NIE has an obligation to facilitate that.

1551. **Mr Anderson**: Would legislation need to be changed to enable competition?

1552. **Ms Hedley**: No, contestability is about building the network; however, there will always be a point where the network that you build connects to NIE's grid. You can build your own network and own it, but if you want access to NIE's grid, NIE has to be involved in the process of connection.

1553. Contestability is about people being able to build a piece of network themselves and transfer the ownership to NIE so that they do not have to manage it long term. NIE can then use that piece of network to connect other people in future.

1554. **Mr Anderson**: What is your role, Tanya, as the Utility Regulator in relation to the grid connections?

1555. **Ms Hedley**: Our role in contestability will be to structure what NIE needs to take responsibility for. Does NIE design it? How do you hand over the asset to make sure that it is of the right standard? If you are building your own network that NIE will take ownership of, it will want to assure itself that it meets the legal standards. Our role will be about identifying what NIE needs to do to assure itself that any part of the network that it takes ownership of is of the right standard. It is also to look at the costs that it may charge for such assurance.

1556. **Mr Anderson**: If competition existed in the grid connection market, what impact would there be on the cost in relation to times and connexion?

1557. **Ms Hedley**: People can build an electricity network if they so desire. It is a licensable activity to distribute and move electricity around on a distribution network. You could build it, but the problem would be connecting it to the NIE network. The piece of network that is built has to be to the same standard that NIE builds to: DETI has standards that everybody has to meet. How individuals do that and how, when they are in private industry and are not regulated, they allocate costs is up to themselves. NIE's costs have been benchmarked against other distribution network operators. The Competition Commission has looked at its costs and deemed them to be efficient. So, those are the costs that are applied for the network that NIE builds.

1558. People have told us that they can build network more cheaply, and we have received some submissions. We are keen to bring in contestability, because we want people to have that choice. However, realistically, they will be building the same lines and will be using similarly skilled staff who will expect, I suspect, similar wages. So, there may be more of a timing concern for developers rather than a financial concern.

1559. **Mr Anderson**: People have told you that they could build network more cheaply. What work have you done on that? What is your view on that?

1560. **Ms Hedley**: We have looked at the costs that other distribution companies —

1561. **Mr Anderson**: How much more cheaply could they do it?

1562. **Ms Hedley**: The only cost that we have had submitted relates to one individual connection, which was a unique connection. We have a cost saying that it was cheaper. We have not done a lot of analysis into it, because we are committed to bringing contestability forward and allowing people choice. I would rather put resource into getting that option there for people than spend a lot of time working out whether it is a good thing or not.

1563. Legally, there is a push to introduce this so that there is competition, and we definitely want to see contestability in Northern Ireland. My focus is on bringing it forward. If people can realise savings or reduce their time, that is a good thing.

1564. **Ms Pyper**: One of the overall objectives for our contestability work plan is that competition in that area would drive down prices, as you would expect competition to do, but that it would also —

1565. **Mr Anderson**: You are moving into the last area of questioning.

1566. **Ms Pyper**: — reduce connection time. We have started scoping work to look at other distribution network owners to see how they do it, what best practice is like and how we make sure that we keep the safeguards. Electricity is dangerous stuff; we cannot lose sight of the safety aspect. It would be good to put some competitive pressure on NIE. It has

the expertise; it should be able to do it more quickly and cheaply. That is one option to test that and challenge it.

1567. **The Chairperson**: I want to reverse a wee bit. Some members are indicating on this area, but I want to bring Mr Dunne in on the costing issue.

1568. **Mr Dunne**: Did you say, Jenny, that you reckon that NIE could do it more effectively and cost-efficiently?

1569. **Ms Pyper**: Contestability might put some pressure on it to demonstrate that. That is part of the benefits of the process.

1570. **Mr Dunne**: Going back to what the Chair was on about earlier — the time issues — I have a couple of examples of farming issues. One is in relation to an anaerobic digester (AD) plant connection. A farmer has been waiting nine months for the connection to be made. Is that acceptable?

1571. **Ms Hedley**: We cannot comment on individual cases. The reason —

1572. **Mr Dunne**: That is a familiar statement these days.

1573. **Ms Hedley**: We are a dispute body. Individual cases come to us, and we go into that role. That is where the issue is for us. It is not that we do not get involved in individual cases; we certainly do. There are lots of reasons for delays. There are planning permission issues, there are permissions on other people's land —

1574. **Mr Dunne**: Is that being constructive? They have been waiting on a connection for nine months. Is that acceptable?

1575. **Ms Hedley**: I would need to see the detail to understand —

1576. **Mr Dunne**: Generally, is that acceptable?

1577. **Ms Hedley**: Without the detail, I do not know.

1578. **Mr Dunne**: So, it could be acceptable?

1579. **Ms Hedley**: Without the detail —

1580. **Mr Dunne**: You need to answer it.

1581. **Ms Hedley**: Well —

1582. **Mr Dunne**: To be honest, you are being far too soft with NIE on these issues. That message came across even from the points made earlier by the Chairman. NIE seems to be calling the tune, and you are dancing to it rather than putting real pressure on and making real change. We have had NIE here a number of times. It is a rather civil servant-type structure. It seems to be living in the past; it needs to move forward. It needs to be energised to really come up to meet the standards, because it really is not delivering. It is your job to challenge it and make it deliver.

1583. **Ms Hedley**: I agree, it is our job.

1584. **Ms Pyper**: I was going to say that, with respect, the recent Competition Commission determination is evidence that we challenge NIE and that we have not accepted everything that it has asked for in terms of its operating costs or its capital investment costs. That is where we challenge very hard. When it did not accept our determination, the referral went to a higher power: the Competition Commission. The Competition Commission's determination was robust, to say the least. The Committee has been briefed on the outcome. I hear the Committee's frustration about connection time. It is definitely on our agenda to drive up NIE's performance, but I am not sure that I accept that we are, in any way, captured or not robust with NIE. Our recent price determination and the efforts and challenges that we exerted show that we are acting in consumers' interests and are really trying to push NIE.

1585. NIE is on a journey as well to improve its performance. We want to see it benchmarked with the best DNOs across the UK.

1586. **Mr Dunne**: Is there clear evidence that it is putting the resources in to meet the requirements?

1587. **Ms Pyper**: That is what we will monitor through our price control and application of the licence as we go through the current price control.

1588. **Mr Dunne**: Just on the issue of applications, what is your opinion on the problem of planning permission being required before NIE gets involved in any real detail? Do you have any sympathy for both systems running in parallel?

1589. **Ms Hedley**: It is up to NIE to put in processes to meet its legal and licence obligations. It has put in that prerequisite so that there is a bona fide investment plan. In other areas where people have not had this requirement, we have found that they have put in connection applications for projects that are possibly pie in the sky, and they have blocked valid projects from going forward. It is up to NIE to put in a process that it feels is robust. We have talked to the industry about that. The majority of people who have responded to any consultation that we have put in place have agreed that that is an appropriate way forward, and we have no reason to consider otherwise at this point in time. It is not something that we have determined on in relation to a dispute. It is up to NIE to manage its network as it sees best, and that is the process that it has put in place.

1590. **Mr Dunne**: What about access to NIE's geographical information and heat maps being made available to potential developers?

1591. **Ms Hedley**: NIE has done initial heat maps. It has recently updated that, and it is now looking to go to a lower level of granularity. We welcome the work that it has done so far. We think that it needs to do more, and it has told us that it is doing more.

1592. **Mr Dunne**: So, there will be more information available.

1593. **Ms Hedley**: That is the plan.

1594. **Mr Dunne**: You will be regulating or monitoring it.

1595. **Ms Hedley**: We will continue to push it to —

1596. **Mr Dunne**: Harass it, maybe. Will you?

1597. **Ms Hedley**: Regulate it, challenge it —

1598. **Mr Dunne**: Put the pressure on where it is needed.

1599. **Ms Hedley**: Yes.

1600. **The Chairperson**: On the contestability issue, we have one main speaker, but we have another couple or three wanting to come back in.

1601. **Mr Douglas**: There might be an overlap in your answer to my colleague Sydney. I want to clarify one thing. SSE reached an agreement with NIE about the contestable delivery of the Slieve Kirk wind farm. NIE informed us that it would welcome contestability generally. Given that a precedent has been set — maybe this question is for you, Tanya — is there anything to prevent other developers from reaching agreement with NIE for those contestable delivery connections, or would they have to go through a formal process?

1602. **Ms Hedley**: There is absolutely no reason why NIE and a developer cannot come to an agreement. We will put in place obligations with contestability, where NIE cannot discriminate, where it has to treat everybody the same and there is transparency. While we are working through that process, we are not going to block, in any shape or form, any developer coming to an agreement with NIE.

1603. **Ms Pyper**: I think that Slieve Kirk is a good example of what worked between the two organisations, how the process got worked through and the lessons that other developers could learn. We are pushing NIE to understand how it was able to get an agreement and what make it work.

1604. **Mr Douglas**: I had another very important question, but you have just answered it, Jenny. It was about the case study, and you are saying that that was a good case study.

1605. **Ms Hedley**: Yes.

1606. **The Chairperson**: I think that the Slieve Kirk developer went ahead and did the work, which goes back to the issue that we are facing now — contestability.

1607. **Ms Pyper**: There was sufficient liaison and dialogue with NIE and there was a level of assurance and satisfaction that the work was being done to the proper standards and in the right way — procured correctly, built to the right safety standards and so on. There was obviously some process involving the two organisations that allowed them to work together.

1608. **The Chairperson**: With the greatest respect, they are both involved in electricity; NIE has suitable experience, and the other has considerable experience. Therefore, they would be doing it to those standards. I think that they found themselves, as a business, saying that unless they did it, those other guys would never get round to doing within the time frame needed for the business proposal.

1609. **Ms Pyper**: I think that Tanya is saying that there was no barrier to stop them coming to that agreement.

1610. **Ms Hedley**: Absolutely not.

1611. **Ms Pyper**: There is no barrier, and there is nothing to stop an appropriate developer with that track record and with that credibility coming forward and coming to an agreement.

1612. **The Chairperson**: They had to put that proposal forward; otherwise their business proposal just would not have happened within the time frame.

1613. I want to go back a wee bit, because I want to get it on record. You mentioned a number of disputes around contestability coming to you. What quantity of disputes come to you and, for want of a better phrase, around what thematic area do they come from? What are the issues?

1614. **Ms Hedley**: There have been no disputes on contestability. We have had disputes on connections, billing and payments for people being off supply for a time. Those are the three key areas —

1615. **Mr O'Boyle**: Standard performance.

1616. **Ms Hedley**: Jody has corrected me: also payments under standard performance.

1617. **The Chairperson**: What quantity would you have per annum?

1618. **Mr O'Boyle**: Last year, it was about 20. There were a couple of weather exemption ones, which is to do with the standard performance. There was a billing one, which we published as well. All the determinations are published in the electricity register, which is a public document.

1619. **The Chairperson**: I want to get a bit of a handle on those. Mention was made earlier, Jody, of some being resolved informally. In other words, it was a simple case of saying, "Look, guys and gals, there are one or two simple issues; go away off and do it", which could maybe be a five-minute phone call.

1620. **Mr O'Boyle**: We would initially try to facilitate a meeting between the parties — a couple of meetings could be involved in that — before it goes down the official route.

1621. **The Chairperson**: Does that figure of approximately 20 mean 20 that actually went down the official route?

1622. **Mr O'Boyle**: Yes.

1623. **The Chairperson**: So, it does not include the other bit.

1624. **Mr O'Boyle**: It does not include the ones that did get resolved.

1625. **The Chairperson**: That is OK. Thanks very much for that.

1626. **Mr McKinney**: I want to come in around the definition of contestability, because it is important to understand it. When we on this side of the table talk about contestability, we are talking about it in relation to grid connection, not the overall network development.

1627. **Ms Hedley**: Yes.

1628. **Mr McKinney**: You concentrated substantially on network development. We need to be clear —

1629. **Ms Hedley**: No.

1630. **Mr McKinney**: — that we are talking about grid connections and the fact that

NIE has a monopoly. From what you are saying, it seems that no legislation is needed to change any of that.

1631. **Ms Hedley**: No legislation is needed. I am talking about connections to NIE's network. It is about building network to connect. Say a wind developer is five miles away from the NIE network. Contestability is their being able to build those five miles themselves and connect to the network where it exits, compared to NIE building the five miles to them. That is what I mean when I talk about contestability.

1632. **Mr McKinney**: You talked about a work programme and it taking two to three years. The issues, as we see them, need to be resolved much more urgently. What work is going on to make sure that others can enter the connection market?

1633. **Ms Hedley**: People can build and come to an agreement with NIE. We will put in place the structures that NIE must conform to as part of any handover if somebody else builds those five kilometres of line. For different types of connections, different structures will be needed. The needs of a large offshore wind farm are different from those of a small-scale renewable generator.

1634. **Mr McKinney**: I know that, but we are not dealing with offshore wind farms; we are dealing with people who are applying on a regular basis, and in significant and growing numbers, to try to get into the market. What assessment have you done on the impact that competition in the grid connection market would have on costs and time?

1635. **Ms Hedley**: We have not done assessment on that. We are committed to introducing this, irrespective of the impact. We have already decided that contestability is something that we want to introduce. We have looked at how it has been introduced elsewhere, because there are different models. When we talk about splitting the different work streams, I am saying that, because we see contestability being introduced slightly differently for different types of people connecting, we do not want to try to do it all in one go.

1636. **Mr McKinney**: What I am suggesting is that you are making the problem bigger than it is if you are talking about how to develop a market around connecting big or offshore wind farms. We are talking about another business entering the market — a growing market — and being qualified to connect at speed, for people who need it done quickly. Is that difficult to achieve?

1637. **Ms Hedley**: That is what we hope to achieve. However, what we are talking about are the rules for NIE and for that other company. The example given is Slieve Kirk. NIE did the designing and got the planning permission. At that stage, the other company came in and did the build. NIE then did assessment, took ownership and said that it was built to the right standard. Contestability could be where you design and build to NIE standards, rather than their going through that process. The question is what part of that list of work is to be done elsewhere. NIE has to go through that process with you. We need to explore with developers to ascertain where their desire is.

1638. **Mr McKinney**: People will want answers on timescale quickly. You mentioned a two- to three-year timescale for contestability, but, for a grid connection bid, what is the quickest that you could have a process set up that would allow another person to enter the market? To put it another way: have you set a timetable for delivering that in short order?

1639. **Ms Hedley**: We could do this now with NIE's agreement. There is nothing to stop someone doing it now with NIE's agreement but without regulatory approval or structures. What we will do with regulatory approval and structures is make sure that NIE has to do it and you will know in advance how it is done. There is nothing to stop somebody doing it now; it just does not have the regulatory structure and transparency about it.

1640. **The Chairperson**: What if NIE says no?

1641. **Ms Hedley**: We cannot force NIE to do it, but regulation structure will —

1642. **The Chairperson**: Right, I think that Fearghal wants back in on what you are saying.

1643. **Mr McKinney**: I am sorry; I am taking up too much time.

1644. **The Chairperson**: No, you are grand. You are exploring it out. When will we reach the point where, rather than it being done with the agreement of NIE, the customer will have the option of being able to do it themselves? If you will forgive me, I hear what you have said about it being complex, and electricity connections are complex. However, most of the cases that will come in our direction will be the simple connection for the appliance, whether a small turbine or whatever, to the grid. It is that bit there, that bit of a wire connection, poles, whatever has to go up, that seems to be causing serious concern.

1645. **Ms Hedley**: Different parties are interested in this and the answers that they need about what NIE does and what they do are very different. We are scoping it out, but we are doing so step by step. We will do it for one type of customer first, then the next, then the next, rather than wait and do it all in one big bang, because that would turn it into a monster of a job, and it could take years for anyone to get this —

1646. **Mr McKinney**: So, are you going to start with the small ones?

1647. **The Chairperson**: That is what I was going to ask. Which customers will you start with?

1648. **Ms Hedley**: We will start with the consultation to show how we intend to split it and ask people whether they have a view on where the biggest appetite is. That will be based on consultation responses. I cannot say that I am going to start with a particular one: I am going to scope out how it splits up, check that the scoping is correct and ask people to tell me where they would rather I put the effort first.

1649. **The Chairperson**: The inevitable question is: when does the consultation start; when is it likely to end; and when are we likely to have bang for our buck?

1650. **Ms Hedley**: It depends on how we split it. For one type of generator or for one type of customer, the answer will be sooner than another because I am going to split it.

1651. **The Chairperson**: I asked a number of questions; maybe I should have asked them a wee bit more clearly. When does that consultation exercise start? When is it likely to end? When are you likely to have conclusions from that consultation? You have raised the fact that you are going to consult on it, so when? Maybe it has already started; I do not know.

1652. **Ms Hedley**: We do not have any actual consultations out at this point in time. We are trying to see how other people have applied it in other jurisdictions, because we do not want to reinvent the wheel.

1653. **The Chairperson**: Sorry, but you said that you were starting a consultation exercise.

1654. **Ms Hedley**: We are about to; we are scoping it.

1655. **The Chairperson**: When? Surely it is not too hard to answer that?

1656. **Ms Hedley**: This year.

1657. **Ms Pyper**: It is in our work programme to commence it this year.

1658. **Mr McKinney**: Why do you need a consultation? If you look at the market and you see 400 applications for small wind turbine connections, one for an offshore wind farm and 10 for big wind farms, you might be able to work out fairly quickly on the back of an envelope just where you should be focusing your efforts.

1659. **Ms Pyper**: The Utility Regulator has to balance a number of things. We

have to balance what will contribute to the Executive's targets. There is no question that the big wind farm, the offshore wind farm, offering large-scale generation will do more to contribute to the Executive's targets. There is the cost of connecting all microgeneration. That, the requirement on customers to pay for those connections and the additional grid will add to the overall cost of electricity. I think that you have a broad metric on what the likely cost implication would be. The regulator is charged with trying to make sure that we balance the interests of developers. Developers, at the moment, if they export to the grid will get a considerable subsidy through the green taxes that consumers pay for. They will be able to earn money whenever they export and then have consumers pay for the cost of connection as well. That is something that the regulator has to weigh up and that is why we have to go to consultation: to scope out what the implications might be in terms of targets, policy, operational matters and cost.

1660. **The Chairperson**: If it is a priority for the Executive, which it is, I presume it would be a priority for you. You say it is in your work programme —

1661. **Ms Pyper**: As a priority project.

1662. **The Chairperson**: It is clear that you know what the issues are. You could probably put them on a couple of pages for consultation. When, with some degree of clarity, will that consultation start? Will it be in the next month, the next two months or the next six months and how long is it likely to be out for?

1663. **Ms Pyper**: We will go out for the normal consultation period of 12 weeks. I would hope that we get a consultation out in this calendar year.

1664. **The Chairperson**: Is that —

1665. **Ms Pyper**: In the autumn.

1666. **The Chairperson**: Is that an aspiration or a benchmark?

1667. **Ms Pyper**: We are dealing with a very considerable work programme. It is a priority project, and I would hope —

1668. **The Chairperson**: I am sorry, but you just said it was a priority project; you agreed with us.

1669. **Ms Pyper**: We have a number of priority projects. I said that it is in the work programme to commence this year — this financial year — but I would hope that we do better than commencing it in 2015 and that we would get it out before Christmas. The scoping work is under way at the moment, and it is our intention to get it out before Christmas. We are conscious that issues will come out of the Committee's review, and we will want to reflect that in our consultation as well in terms of the priority you are placing on it.

1670. **The Chairperson**: It does not hold up the work that you have going on.

1671. **Ms Pyper**: It does not hold up the work, but it has not. As Tanya said, we are scoping this out at the moment —

1672. **The Chairperson**: I am sorry. I was picking that up as a reason why not to.

1673. **Ms Pyper**: No, no. I think that the timing is good, but, as I said at the outset, it also fits in with DETI's ongoing policy reviews, the review of the 40% target and the subsidies to renewables. We can see these things coming together at an appropriate time.

1674. **The Chairperson**: OK, thank you.

1675. **Mr Frew**: Just on that wee issue, you can see the strength of feeling in the Committee, which it is reflective of the number of people who contact us about it. You talked about your scoping exercise and your consultation, and I understand all that, but there are two issues that I would like to explore. First, as you rightly said, other jurisdictions do this better. Have you identified even those best practice models and will that form part of your thinking on this issue?

1676. **Ms Hedley**: We have looked at GB because the legislation is similar. Obviously, this has to fit in with the

legislation that is there. We are not looking to rewrite legislation, because that would add time. We have also looked at ROI because we work in an all-island market. Some of these generators are in ROI and are building in ROI and they would like something similar that fits. We are probably going to do something bespoke that looks at what both countries do and tries to fit what is best for Northern Ireland, the legislation we have and what is needed here. We are not starting from scratch.

1677. **Mr Frew**: This should be very simple because, at the moment, the installation goes so far and that can mean heavy voltage where NIE connects to the transformer. It has to have checks and balances in place for the installation. That mindset is already there, so this is only a further extension of the installer's work where they meet NIE. This could be very simple if the guidelines and parameters are set down clearly.

1678. **Mr O'Boyle**: It is also about the impact beyond what they connect to. If you are putting a large number of megawatts onto a substation, that has to go somewhere else. Whether or not further reinforcement work is required to handle that has to be factored in as well.

1679. **Mr Frew**: But for the actual installation, and whether it is up to safety standards and correct procedure, that should be a pretty simple procedure.

1680. **Ms Hedley**: It is just about building lines to a certain extent, because some of the larger-scale wind projects are building electrical sites inside their sites, so the skill sets are there. The issue then is that they are now operating on somebody else's land and it is about whether they have permission to be on that land. NIE, obviously, in law, has permissions that a wind developer would not have. It meets a lot of safety standards, is checked rigorously and audited each year by the Health and Safety Executive. Electricity is dangerous stuff, and when you are on somebody else's land, you want to make sure it is right.

1681. **Mr Frew**: OK. That is me finished on that bit.

1682. **Mr Flanagan**: I am genuinely frustrated by what you are talking about here. I cannot understand why this is such a drawn-out procedure. Everybody we have heard evidence from thinks that contestability is a good idea. Nobody has told us that it should not happen. We thought that NIE was going to come here and say, "No, it shouldn't happen". Our mouths nearly dropped when it said, "Yeah, we would welcome it". There is this whole talk about needing to do a public consultation on one small part of this because we have different priorities and the Executive have a priority. Why can you not just make a decision to do something? Why can you not just say that everybody has the right to do their own work to connect to the grid? Why is that such a problem?

1683. **Ms Hedley**: It is back to the fact that NIE has to go onto other people's land — farmers' land — and who gets those permissions. Also, not all the individuals who talked to you about contestability have the same view of what the word means. As part of the consultation, we need to clarify that we are all talking about the same thing. Are we talking about building just the poles? Are we talking about designing the network? Are we talking about going through planning permission? Contestability can be a small or large piece of the jigsaw, and we want to make sure that everybody is talking about the same picture as we go forward. The people who have come to talk to us about it do not all have the same view of what that word means.

1684. **Mr Flanagan**: Could you not just put out a memo stating what it is, and anybody who wants to connect infrastructure to the grid hast to apply to NIE for a licence and agree to comply with standards set by NIE. I genuinely cannot understand why you are allowing NIE to retain a monopoly over grid connections. It is no longer a publicly owned company; it does not deserve and is not entitled to that position. There is no legislative or regulative reason why you should not do it.

1685. **Ms Hedley**: It is not NIE standards but DETI standards. Overhead line design has to be submitted to DETI, and it approves the standards. So, it is not quite even as straightforward as complying with NIE standards.

1686. **Mr Flanagan**: That is even more straightforward because NIE does not then have anything to do with it.

1687. **Ms Pyper**: But it is NIE's network that they would need to connect into. As Jody was saying, it is not just —

1688. **Mr Flanagan**: But NIE has said it would welcome it.

1689. **Ms Pyper**: — the A to B piece; it is what the knock-on effect will be elsewhere.

1690. **Mr Flanagan**: The knock-on effect at the minute is that nothing is happening. Gordon said that it has taken nine months and nothing has happened to connect an AD plant that is already built. All that we are hearing in rural areas and in urban areas is that people cannot get connected to the grid. So, with what you are doing at the minute, nothing is happening.

1691. **Ms Hedley**: Except, there have been thousands of microgeneration connections this year: 150 a month, at the minute. Hundreds of small-scale generators have been connected. Since 2012, we have seen increases of 160% on small-scale, 300% on micro-scale and 22% on large-scale. It is happening. It is not happening in the same timely manner as other locations for some individuals and connections. There are individuals who are very frustrated, and we are aware of that because they talk to us. However, NIE is connecting renewable generation. Renewable generation in Northern Ireland is increasing. On average, we achieved 18% renewable generation in the last year, and we are continuing to move forth to set those targets.

1692. **Mr Flanagan**: Yes, but that is in spite of this, not because of it. We are not trying to stop renewables coming on stream; we are trying to help them —

1693. **Ms Hedley**: Yes.

1694. **Mr Flanagan**: — and all I see is the excuse of a public consultation of one small aspect of this being used to delay further work. I do not see a public consultation as helping.

1695. **Ms Hedley**: It comes back to connecting not being enough; it needs to add value. The generation has to be able to be used. When you go to the larger-scale operator in the market, we turn off wind farms, OK? We cannot operate the market because the demand is not there at certain times, normally on a summer night. Not enough electricity is used at that time of night to allow them to operate and for systems to be secure. There is an element of this: why would we allow people to move forward with these investments to connect if all we are going to do is turn them off at the end of the day in some shape or form? So, one small-scale renewable is on and you turn off a big one. That is not what we want to achieve.

1696. **Mr Flanagan**: The solution to that is not to delay connection. The solution to that is the smart grid, which Government have been delaying for years. That is the solution; it is not to stop connecting people to the grid.

1697. **Mr McKinney**: Are you saying that, as a policy decision — sorry; I hope you do not mind if I interrupt.

1698. **Mr Flanagan**: I was not getting very far, Fearghal. You can give it a go.

1699. **Mr McKinney**: Are you saying that you do not mind some of that happening?

1700. **Ms Hedley**: No. What I am saying is that there is a supply-and-demand issue here.

1701. **Mr McKinney**: I understand what you are saying.

1702. **Ms Hedley**: Contestability is just one of the many pieces that we are juggling here to move forward and promote renewables. Getting people a cheaper connection is not the only piece that matters here. If people get a cheaper connection, connect and then cannot

actually generate, everybody has wasted time, money and effort. That is not the answer that we want. I understand what you are saying. Contestability is something that we want to do and will move forward on, but a lot of other areas also need to be done. To some extent, some of them are more important. There is no point in somebody having a cheap connection if they cannot run afterwards.

1703. **Mr McKinney**: You have introduced a completely different argument to this now, over and above the contestability element. We have been dealing with contestability in frustration.

1704. **Ms Hedley**: Sorry.

1705. **Mr McKinney**: You are saying that, back here somewhere, people are saying that it is not an issue because, in fact, we will be switching them off.

1706. **Ms Hedley**: No —

1707. **Ms Pyper**: That is the reality in terms of supply and demand. Even if everybody got connected, what Tanya is saying is that they might not be able to do anything with their connection. They might not be able to export electricity because there is no demand for it. That is just the reality of supply and demand. So, a lot of people could be very frustrated that even though they have gotten connected — we could do something about the faster connection — they could not actually export their electricity, which is what is driving them to get the connection. If they cannot do anything with it because there is no demand for that electricity, they will end up doubly frustrated. As a regulator, we have got to look at that piece as well. It is not just about connecting everybody who wants to be connected. There are issues about who pays for all of that and whether people, when they are connected, can have the legitimate expectation that they will be able to sell their electricity, which is what, as developers, they want to do.

1708. **Mr Frew**: Yes, but we import electricity into this country all the time. I think that the only time that we export it is around 5.00 am or 6.00 am. Surely, there is the need.

1709. **Ms Pyper**: But then we get back to the bigger issues of intermittent renewable generation, which I know that the Committee fully understands, and the need to have the standard thermal generation from the likes of Kilroot or Coolkeeragh that balances the system. There are limitations on the system's ability to take intermittent generation. That is why — and I was glad that Tanya made the point — that the second North/South interconnector is so important. That is why the work that we are doing with our fellow regulators in Ireland, the CER, on our project on trying to maximise the amount of wind that comes onto and can be managed on the system matters. So, we are not looking at this in isolation. I understand your frustration, but we are trying to look at all the pieces that fit together to try to make that an effective way of getting as many people connected and able to access and use the grid as possible. Contestability is only one piece of the very big jigsaw that we are looking at in terms of policy, operation and our own regulatory role.

1710. **The Chairperson**: OK. I have one brief question, then we will come back to you, Phil, to continue with your line of questioning. With regard to contestability and the whole issue of grid connection, we have heard already that, south of the border, that can be and is done. Have you ever thought of asking your colleague, your counterpart, in Dublin for the definition of contestability that seems, from what we are hearing today, to be so utterly complex?

1711. **Ms Hedley**: We have a lot of detail on what they do and how they do it. The have a gate process. There is a lot of frustration in Southern Ireland. I have heard that the frustration is actually, in some cases, worse because what they do is hold all developers in a gate and everyone has to wait until the entire system moves forward.

1712. **The Chairperson**: I am not talking about the practice; I am talking about the definition of contestability.

1713. **Ms Hedley**: We have that. We also have the one for GB.

1714. **The Chairperson**: OK. So, it is not that complex that [Inaudible.]

1715. **Ms Hedley**: We have it, but there are differences. Just to go back to the Deputy Chair's point: if you build the connection yourself, and you are now at NIE's grid, but NIE still has to spend x million pounds so that you can move beyond that point, the hold-up becomes the additional work that NIE still has to do on its network, which is one of the areas that needs to be sorted out as part of this process. Creating a process that creates an expectation, which then leads to people having invested an amount of money and sitting waiting for further work —

1716. **Mr Flanagan**: They are separate issues. The initial grid connection, which is paid for by the developer, is up to the developer. The rest of the national grid, which is the responsibility of NIE and is paid for by customers, is a separate policy decision. The two things should be kept separate. I do not think they should be kept together. If a developer wants to build a connection from his generator to the grid, that is dead on, but if NIE is not going to upgrade the rest of the grid to bring it online, that should be up to NIE, because it says it is not in the economic interests of wider society. We are not even getting that response. We are not seeing somebody trying to build a single wind turbine on top of a mountain, six miles from the nearest point on the grid, and NIE saying, "Look, it doesn't make economic sense for that to happen". It is saying, "We will give you a response in nine months", and, three years later, that person is still sitting there waiting. That is not good enough.

1717. **Ms Pyper**: I agree with you. I think that has been part of the problem. NIE has not been frank, open and transparent enough about developers looking for a connection. If I were a small business, I would rather know that I cannot get a connection than be told that I am being put in a process somewhere and not hearing anything for 90 days. I would rather be given an honest assessment that says, "We cannot connect you at this time because ... ". That, at least, would give me as a developer or a small business some certainty. I absolutely agree with you there. We are pushing NIE to be much more open and transparent about the realities of whether it can or cannot connect. That is part of the process as well. I totally understand.

1718. **Mr Frew**: Accessible heat maps will go some way —

1719. **Ms Pyper**: I agree with you.

1720. **Mr Frew**: — to allowing developers to find out the areas and locations where they could.

1721. **Ms Pyper**: I think a lot of what we are seeing here is a mismatch in expectations, because, on the one side, we have had policy and support through the ROCs, which has given people an expectation about whether they can make the investment in a wind turbine, in AD or some other sort of renewable technology, because there is assistance and subsidy there to do it. That expectation has really mushroomed, but it has not been matched by an expectation about how quickly they can get connected or what the grid is capable of delivering. So, we have seen a mismatch. That is why, later in your discussions today, you will see DETI's review of the target and of the renewables subsidy mechanism. The two things go hand in hand: the support and incentive to invest in renewable generation and the ability of the system, which was never designed for renewables, to cope with the sheer volume of demand from developers.

1722. **The Chairperson**: Thank you for that. Phil, are you finished your point for the moment anyway?

1723. **Mr Flanagan**: I have spent long enough on contestability, Patsy. I am getting a headache here.

1724. **Mrs Overend**: NIE states that the Competition Commission's price determination did not include a mechanism to pay for reinforcement of the 33-kilovolt network. I understand that problems are being caused by small-scale renewables on that network because power is flowing in the wrong direction. That leads to a safety issue that has to be addressed. There is also the need not to constrain renewable generation from farms. NIE stated that, as things stand, the only viable option for it is to change its statement of charges so that developers pay, which would mean that many schemes would not be viable. NIE states that you are considering that.

1725. **Ms Hedley**: We are engaging with NIE about its statement of charges. We will always continue to engage with it on any changes it wishes to make that impact on anyone who interacts with it. In relation to the Competition Commission's findings, NIE asked for investment for the 33 network purely to facilitate small-scale renewables. The Competition Commission found that it was not in the public interest. The money that would be spent on doing that would have to be paid by somebody. Either it would go on everybody's electricity bill or the generators themselves would pay for it. At this point in time, consumers are already paying for the ROCs, so the cost is already there for the incentive mechanism. The Competition Commission did not believe it appropriate to allocate the network development costs, too. Those generators do not pay to use that network. Large-scale generators do pay to use the transmission network. Consumers pay for that network. It is going to be paid for for the next 40 years. Somebody needs to pay for it. So, if we approve additional moneys and we allow NIE the money, it will go on bills. So, this money has to be paid by somebody. The Competition Commission deemed that the consumer base, general consumers — you and I — should not be paying for this through our domestic bills.

1726. **Mrs Overend**: NIE is saying that it does not want to be paying for it. Is that the case?

1727. **Ms Hedley**: NIE is a regulated company. It identifies where the investment is. We assess it and deem whether it is economic or appropriate, and apply allowances. NIE did not accept our determination on the current price control. We went to the Competition Commission, and its determination is currently in force. We will obviously look at it again for the next price control, but the Competition Commission did not allow any money for this type of development within the allowances that it put in place.

1728. **Mrs Overend**: OK. So, that affects those small-scale generators that want to connect through, because the network is not capable of supporting them.

1729. **Ms Hedley**: It was not designed for small-scale generators to be using the network to make money.

1730. **Mrs Overend**: NIE also stated that GB has experimented with alternative methods of connection, offering choice and introducing smarter solutions, which have lowered connection costs. Is there scope for a similar approach here?

1731. **Ms Hedley**: The Competition Commission allowed NIE money for smart grid solutions, so it has been looking at this. It has been looking at what is happening in the rest of GB, and we expect it to move forward with that. If all the electricity from larger-scale generation is not needed, we have the ability to turn the larger-scale generation down, not just off. So, instead of a wind generator being guaranteed the generation of 100% export, the network operator manages how much you are exporting so that you do not overload the grid. That strikes me as being a reasonable way forward.

1732. **Mr Flanagan**: Patsy, can I ask a quick question on that?

1733. **The Chairperson**: I will let Paul in first, and then we will come to you, Phil.

1734. **Mr Flanagan**: That is OK.

1735. **Mr Frew**: When Action Renewables was here, it stated that connection costs account for 22%, or even as much as 50%, of the total capital costs. We are led to believe that that is averaging out at 5% in the UK. So, it is 50% capital cost here and 5% in GB. That cannot be tolerated. How can that be the case?

1736. **Ms Hedley**: It depends on where you put your generator and how far away the grid is. Somebody has to pay for it.

1737. **Mr Frew**: Why is it so different? Is it because our grid is not up speed or in good enough shape, compared with GB?

1738. **Ms Hedley**: The network was designed for what was needed at the time, economically. At that stage, we had three large generators — Coolkeeragh, Ballylumford and Kilroot — and Power Station West was there. The grid was not as strong in the west because there was no need. It was built for what was needed. With generators coming on, there is not the demand there. If there is not the demand of the load, the alternative is to move the electricity to where the load is.

1739. **Mr Frew**: So, are we saying that GB got it right with regard to positioning their generators at a time —

1740. **Ms Hedley**: No, the position of a generator is based on the type of generator that it is. Wind turbines are being placed where it is windy; the placing of the original generators was based round the fuel source and the needs to build those generators. You will find that there are cases in GB where the costs to connect are extremely high, but there are also instances where the costs are low, and it may be more difficult to get planning permission for your development. There is not a lot of wind generation in the south of England.

1741. **Mr Frew**: So, are we saying that, because of the scale of GB, it is averaging out at 5%, and that if you take the north of England or the north of Scotland regions, you may well see that there are 50% costs?

1742. **Ms Hedley**: Every individual case will be based on where you are from the network. So, there will be a very wide variation. An average for the whole of GB is slightly misrepresentative. Our average is based on Northern Ireland, and we know that we have more kilometres of line per person than they do elsewhere and that we do not equate to a network in the south of England.

1743. **Mr Frew**: The Committee has also been informed that, under the security stage payment requirements by NIE, developers could be asked to pay up to 70% of connection costs within 90 days of receiving planning consent and making a grid connection. It seems that the scales are very much tipped in favour of NIE. NIE can take so long to do all this work, and then, when all the ducks are in a row, the developer has to pay instantly. Seventy per cent of connection costs, considering that they could well be 50% of the total capital costs, all within 90 days, is not realistic. Is anything being done? Are you looking at ways of making that more sustainable and affordable for developers? I know that they will be incentivised by ROCs and everything else, but surely that is a massive burden on any generator or developer coming in to, let us face it, basically improve the grid in one way or the other, even though it may seem piecemeal.

1744. **Ms Hedley**: That has been raised with us and we discussed it as part of the renewable grid liaison group. NIE is not passing risk on to consumers in that it is not spending money when the whole project is not paid for. You end up with a stranded cost. We have asked NIE to look at that again. There was a stage when you had to pay 100% up front before it would even start. It has moved away from that position, and we will continue to discuss that with it.

1745. **Mr Frew**: The additional cost of installing the half-hour meters is £450. In GB, it averages out at around £150.

I know that it is small fry but, for people to become educated and use the gird in a smarter way, half-hour meters will be essential. Can anything be done to get that cost down from £450 if it is averaging out at £150 in GB? Surely we should explore that cost and get that price down.

1746. **Ms Hedley**: We can look at it, but, in GB, they are bringing forward smart metering. It is another area that we are considering going forward. There are economies of scale. In GB, everyone will have a half-hour meter, irrespective of the need; whereas, here, the same numbers are not involved. We can certainly look at that.

1747. **Mr Frew**: When you say you will look at it, can we put a date and time on it? Will it be done this year or next year?

1748. **Ms Hedley**: With something like that, we will engage with NIE after this and look at that now.

1749. **Ms Pyper**: We are also looking at the opportunities to roll out a smart metering programme in Northern Ireland. They have begun that in GB and in Ireland, and we are looking to see what an appropriate system would be for Northern Ireland. The dynamics here are quite different because a high proportion of people already have pay-as-you-go meters. A lot of people have meters and are used to meters. At the moment, we are engaging with DETI — it is primarily DETI's policy on smart meters — to see what the most cost-effective solution is for Northern Ireland rather than looking at what has been implemented in GB where, although the actual cost of the meter is low because of economies of scale, it is a very expensive smart metering solution that they are putting in place. We are not sure that it would be right to put that burden on consumers in Northern Ireland. So, we are looking at what an appropriate system for us might be.

1750. **Mr Frew**: Whilst we look at everything, if an initiative or something is going to come up in the future, everybody involved in that will stop doing what they are doing and will wait to see what happens with the initiative or consultation. Whilst you say you will look at it, you will basically create a vacuum where nobody will do anything because they do not want to spend recklessly when it could change in the future. Can we be agile and quick about it and get it sorted as quickly as possible? Whilst they hear of our review coming round the corner, everybody will sit on their hands.

1751. **Ms Hedley**: We will go away and look to see what those costs relate to and whether they are justified. As regulators, we can do that.

1752. **The Chairperson**: I really do not accept the economies of scale showing such a disparate amount of between £450 and £150. To my mind, that is just somebody putting in the arm in. I take it you will look at that.

1753. **Ms Hedley**: Absolutely, and putting —

1754. **The Chairperson**: More importantly — forgive me for saying so — but in terms of your approach to things, there is a fair bit of talking to NIE and listening to NIE. On something like that, I think that it requires a bit more authority around the place rather than just saying, "Hi, boys. What about the cost of these meters?".

1755. **Ms Hedley**: NIE has a licence obligation to provide information to us when requested, so we will just go back and ask for detailed information on those costs. Our main role is to audit and look at what NIE is doing and spending. This is in our comfort zone. It is easily done, and we will do it.

1756. **The Chairperson**: OK. Given that, from what has been presented to us, it is in the realm of being utterly unreasonable, what do you do about it?

1757. **Ms Hedley**: Based on information from this.

1758. **The Chairperson**: Yes. We will take it as a case example.

1759. **Ms Hedley**: We would write to NIE to seek information on the breakdown of the costs, how it is allocating them and what is within them. We would then

look at the costs that we have for other areas, including the time allocated for labour, to see whether we deem it appropriate. We know what NIE's labour costs are and how much we expect it to spend on meters. After we get that information, depending on what comes out of that small investigation, because it is only on one piece, we would then sit down and speak to NIE about that and decide what is best going forward.

1760. **The Chairperson**: I presume that you will keep us informed given the interest.

1761. **Ms Hedley**: We can keep you informed of that.

1762. **The Chairperson**: OK. Thanks for that. Phil, you wanted to come in on a further item.

1763. **Mr Flanagan**: I have one question on the whole issue of cost. There is a debate out there about whether incentives fit in with the wider economic strategy of the Executive. Do you have any information on how much a megawatt of electricity from a small-scale generator costs versus that from a large-scale development?

1764. **Ms Hedley**: No, because it depends on the type of generation and what you include in those costings. So, it is one of those areas where you need to very carefully define what you are comparing. If the generator is wind, the sorts of costs associated with that are the capital costs of the plant, because you are obviously not paying for fuel. If the small-scale generator is thorough anaerobic digestion, you are obviously talking about having a fuel source.

1765. **Mr Flanagan**: I am talking about comparing a small-scale wind development with a large-scale wind development, built in a similar location with the same connection to the grid but at a different price and with a different capacity. Have you looked at the cost that consumers have to pay over the lifetime of that project, based on paying for the grid connection and for the incentivisation that goes along with it?

1766. **Ms Hedley**: The grid connection is paid for by the developer. The policy for a large-scale wind farm and a small-scale wind farm is not the same. One is what is called a shallow connection, and the other is a semi-shallow connection. So, there are different policies on what different developers pay for what is needed. The capacity of a large-scale wind farm is much higher. Such wind farms tend to be in locations that are a lot windier and they have the ability to run a lot more often than small-scale developments. Large-scale developments also have the ability to be turned up and down based on need. With small-scale developments, it is either on or off. There are a lot of factors, and you can make a lot of assumptions to come up with something, but I do not have any figures for you.

1767. **Mr Flanagan**: There is a limited budget for expenditure in grid investment. Have you given NIE any directive to focus particularly on small-scale or large-scale connections?

1768. **Ms Hedley**: There is an allowance. It is not a limit. NIE can spend more than the allowance. There is a risk-sharing mechanism, which means that if it spends £1 more, consumers pay 50p of that. So, it is up to NIE to meet its legal obligations, which, in law, means that it has to develop the network economically, efficiently and in a coordinated manner. If somebody felt that they were not being connected and that NIE had failed in those obligations, they could raise a dispute, and we would be the dispute body. There is no limit on the amount of money that NIE can spend. It is up to it to meet its legal obligations and to develop the network appropriately.

1769. **Mr Flanagan**: Under the Energy Order, it is your responsibility to protect customers, deliver value for money and all those types of things, and protect customers from bills. Has there ever been an instance where you have said to NIE, "This connection does not make financial sense for customers. You should not do it"?

1770. **Ms Hedley**: The connection cost goes to the developer, so it is up to developers to decide whether it is financially appropriate for them. We protect consumers regarding investment in the grid, not from the cost of connection.

1771. **Mr Flanagan**: When I am talking about the connection, I am talking about upgrading the grid along the way to facilitate that connection.

1772. **Ms Hedley**: We would say to NIE that, if it provides us with information on what grid is necessary, we will assess that and decide whether it is economically viable going forward and approve it. NIE has not asked us for any investment that we have not deemed to be economically approved. So we have not limited NIE —

1773. **Mr Flanagan**: But it is something that you look at?

1774. **Ms Hedley**: We always look at it very carefully.

1775. **Ms Pyper**: And we have not turned down any investment that NIE has put forward.

1776. **Mr Flanagan**: I know that.

1777. **Ms Pyper**: I think that is the thing. We do not, however, look at individual connections unless there is a dispute. So, it is not that NIE is coming to us with every individual case; although, if they come and make an individual case, we can look at it.

1778. **Mr Flanagan**: That is fine; that is grand.

1779. **The Chairperson**: We now move to grid investment.

1780. **Mr Agnew**: Thank you for your answers so far. There have been many. I want to go back to a figure that Jenny brought up earlier: roughly 150 microgenerators come online per month, which equals about 1·5 megawatts (MV). We all agree that that is fairly small-scale in terms of the overall target. Take that over a year, and it is 18 MV, which is still fairly small scale. However, look at a big project, such as the two tidal projects. I think I am right in saying that each of those is 100 MW. They going to take roughly five to seven years; that would be about right. But, in five to seven years, you will have got on board 100 MW of small-scale generation.

1781. I pick up from DETI's review, and from some of what has been said today, that small-scale generation is just not seen as being strategically relevant and, maybe to be blunt about it, it is a bit of a pain to try and accommodate it. In other words, "Why are we wasting so much time and money on this?" But small-scale generation can be turned over much more quickly. Is that being taken into consideration in all this?

1782. As well as that, there are the other advantages to small-scale generation: you are democratising energy production and getting more energy production into the community; there is more access to it in the community — not too many communities are going to build a large-scale wind farm. We are all consumers; and the generators are also consumers. When you are looking at small-scale generation, is that balance being taken into consideration?

1783. **Ms Hedley**: We need diversity. We do not need one answer with respect to renewable energy. We want a mix, so small-scale generation has a part to play. NIE now has 30 MW of microgeneration, the very small stuff, connected to the network. And that is connecting at a rate of, as Jenny said, about 150 per month. That will continue, and it fits into the overall ethos of individuals using less energy and the energy efficiency directive's direction of travel.

1784. It is not that we are saying that we have a preference for one over the other; we do not want discrimination. We want to give everybody the opportunity and the market to move forward so that there is innovation here. Our role is to keep transparency; make sure that there is not discrimination and that people are able to move forward in the best way. But, we do not have an image of how this has to break down in the future. We just want to make sure that there are no barriers here for people.

1785. **Mr Agnew**: How does that reconcile with the Competition Commission's ruling for investment in the 33 kilovolt (kV) network? If I understand all this correctly, that is what we need to do to accommodate more small-scale generation.

1786. **Ms Hedley**: That would be for the people wanting to export and sell, whereas microgeneration is more for people who are creating electricity for their own use, although there is some smaller amount of export. What you are getting here is this: OK, if they want to move to a 33 kV level, where is the benefit in having them move around at that higher level? At this point in time, as I mentioned earlier, larger-scale generation is being constrained and curtailed, and this type of smaller-scale generation moving up is just going to increase the curtailment and constraints for the other wind generators that already exist. So, there is a balance there, in terms of both the diversity piece and the investment piece. Do we want to spend a lot of money here, when we do not necessarily see any value for the person paying the bill; the general consumer? The Competition Commission looked at the evidence and said that it is not in the public interest.

1787. **Ms Pyper**: Excuse me — at this point in time, but not forever. This is simply in relation to this particular funding package, this particular price control. The arguments are there, and we will have to look at that — as we are starting to do already — in our next price control. It is important to remember that the case was not there at this particular point in time.

1788. **Mr Agnew**: Maybe I am misreading, but my concern is that the direction of travel seems to be the Competition Commission saying that we should not give the go ahead for investment on the 33 kV network. DETI is reviewing the 40% target, and what we have heard today I have interpreted as a suggestion that maybe ROCs are not working for consumers. I suppose that that is what I am getting at. Are we in a position where we are saying that incentivising small-scale generation is too difficult to manage, is costly, and that we should stop doing it, or that, at least, we should decrease it?

1789. **Ms Hedley**: That is not what we are saying. We are saying that maybe building lots more network is not the answer. Maybe we need to think about other solutions and be more innovative. NIE is suggesting that perhaps we can choose when and where they are used, turning them on and off as well, and we already do that at the larger scale. So, there is no point in having all small-scale generation to the stage where it is either on or off because you need to keep your security of supply. There is an awful lot of change in energy at this point in time, and innovation is starting to come through. It reminds me a bit of the step change between when there was the occasional mobile phone when people said, "Oh my goodness, look at that mobile phone" to where, suddenly, everybody has two. So, we are sort of at that transition stage in the energy industry, and who knows where we will end up in 10 years time? Our job is to make sure that there are no blocks and that we allow this to move forward in the best way.

1790. **Mr Agnew**: However, we put in a network for mobile phones so that everybody could have one; so, be careful with that analogy.

1791. **Ms Pyper**: It is simpler technology. I think back to the figure that I quoted at the start. We have seen a growth of 234% in small-scale renewable generation over the past three to four years. That is a huge rate of growth, and we do need to look at grid investment. To expect that to happen over a short period of time is where there is a mismatch in expectation. We need to be looking at forward planning to accommodate small-scale and larger scale renewables.

1792. **Mr Agnew**: It sounds like what you are saying is that it is not a matter of if but how. Are we talking about how we move to smart grid? Is that what we are saying? Are we saying that what we are doing currently is not sustainable, that there is too much demand, it is

becoming too costly, and that we need to find alternative solutions? Is that the smart grid?

1793. **Ms Hedley**: Just to be clear, the grid is already smart. There is not a step change in that we have not been smart before and we will suddenly be smart in the future. The smart that currently occurs does involve a human being in the middle of it making some of the decisions, and a lot of the smart grid is about automating some of those decisions so that they are faster. Any movement of smart, again, has to be economically justified. It is not technology for the sake of technology. It is technology that will add value for consumers, who are paying the bills.

1794. **Mr Agnew**: Maybe it is not fair to ask this, but I will ask it. Is NIE being too conservative about the smart grid? You mentioned that the Competition Commission approved investment in smart grids. There is certainly frustration that this is not moving forward more quickly. You have probably got that around every question we have asked; we want everything now and tomorrow. Is there a concern that NIE is too risk averse?

1795. **Ms Hedley**: Electricity companies, not just NIE, are naturally risk averse, and with good reason. Electricity kills. If you get it wrong, things falls down or things blow up: it is a dangerous commodity. I am not saying that NIE is too risk averse. I can sense the frustration. I know that it is looking at what is happening worldwide now and trying to bring linked technologies in, but, to be clear, electricity is a dangerous substance, so it is not a bad thing that the electricity company is risk averse to some of these technologies.

1796. **Mr Agnew**: What work is taking place between you and NIE to move this forward ? What work is currently under way, and what role does DETI have, if any, in that work?

1797. **Ms Hedley**: We have the renewables grid liaison group, which basically brings all the parties together. Some developers have come across technologies and systems elsewhere, through their own contacts, that they have brought to the group and that NIE is now exploring. So, it is not just about relying on NIE to find solutions. Everybody who is interested is finding solutions. DETI is an observer on that group.

1798. Our role is to implement the policy that Government puts in place. Obviously, they are interested in how it has been implemented and the speed of implementation. I feel that the engagement that we have at that group is very positive. I believe that NIE is keen to find solutions and move forward. It is feeling the pressure of stakeholders wanting a solution sooner rather than later. There should be some very positive developments in the next year.

1799. **Mr McKinney**: I have to pop out for a few minutes, but that is not the reason why I want to jump in here; I think that this is an appropriate point to jump in.

1800. There needs to be more transparency in this debate. You have people who are planning, believing that they operating in a way that is consistent with the renewable energy target and thinking that they may get a business opportunity out of it in relation to ROCs, who then find themselves held back operationally and, from what you are suggesting, maybe even from a policy perspective. We have learned that the sustainable energy interdepartmental working group has not met since its action plan in 2012. What is your view on having an Executive-level meeting to sort out some of these issues?

1801. **Ms Pyper**: I will answer that because I was in DETI, and, back in 2008-09, I was instrumental in the establishment of the sustainable energy interdepartmental working group —

1802. **Mr Agnew**: SEIDWG, as we like to call it.

1803. **Ms Pyper**: Yes, SEIDWG. It sounds like Hedwig.

1804. **Mr McKinney**: Segway.

1805. **Mr Flanagan**: That is bound to be the first Harry Potter reference in a Stormont Committee. [Laughter.]

1806. **Ms Pyper**: SEIDWG was established because Minister Foster believed that it was needed; that there needed to be Executive-level engagement; that it needed to be cross-departmental, and that it needed to look at all of these issues in a coordinated way. You would not expect me, as I sit here now as chief executive of the Utility Regulator, and having being involved in the establishment of SEIDWG, to say anything other than that I think that it was a good body and a good mechanism. I would be keen to see it re-established and for the Utility Regulator to play a part.

1807. **Mr McKinney**: But, is there not a need for it now given what you are talking about: the change in the debate, in actions and in the entire circumstances? Two years later, is there not an urgency for it to meet?

1808. **Ms Pyper**: I would not disagree with that. It was a valuable group and had a valuable role. As I said, we are keen to see it re-established and to play an active part in it.

1809. **Mr Agnew**: Tying in with all that we have discussed is something I have been pushing for some time, which is an assessment. We continually hear about the difficulty and cost of bringing renewables online. What we do not seem to have is a big piece of work stating the cost benefits to consumers. We know that the — I will try to get the terms right — system marginal price is lower when only renewables are on the system because there is a zero unit price, which benefits consumers. However, there does not seem to be any quantifying of that.

1810. I think that I am right in saying that DETI is working with you to try to do a piece of work around that. Given that DETI is undertaking a review and that you are talking about your number of priorities, presumably this piece of work will feed into a lot of the answers. Have we got a timescale for that piece of work?

1811. **Ms Pyper**: No, I do not know the timescale for DETI's work. However, as I said, the policy piece is a key part of the jigsaw. We were interested to see that you have a briefing from DETI on a number of aspects of this. Again, this is perhaps where the value of SEIDWG comes in. It is a forum to talk about some of these issues with all the stakeholders.

1812. **Mr Agnew**: I will move very briefly to the big-scale side of this. I recall your predecessor citing the figure of £1 billion to move from the 27% that everybody seems to think is achievable. We will probably get there. There will be a lot of bumps along the way, but we are on the right direction of travel. I am getting very nervous about the 40%, and DETI is reviewing that.

1813. NIE has considerably estimated down its cost improvements in technologies and whatever to £420 million. What is the difference in the impact of that on the end consumers? For so long, we worked on the £1 billion figure. We are down considerably to £420 million. Will that significantly reduce the impact of the upgrade of the grid to accommodate 40% renewables? Will that reduce the impact on consumers?

1814. **Ms Hedley**: We never assessed the £1 billion. It was never submitted to us. It was a figure that NIE quoted, but we had no background to it. The detail of the smaller figure — £420 million — was submitted to us as part of RP5. Therefore, we are aware of the detail on the projects involved in that. That is not all going to be delivered in the next few years; it is quite a long-term programme, and it is reliant on the North/South interconnector happening. There is money in there for the North/South interconnector. However, if that does not occur, not only will that not be spent, but some of the following projects will not make sense either.

1815. We have figures for the impact that the £420 million will have on bills, and we

can provide that to the Committee. I do not think that we have them with us. That does not cover investment for small-scale generation; that is purely the large-scale generation, and the Competition Commission agreed that that has value and it has given us a mechanism to approve that as and when it is crystallised.

1816. **Mr Agnew**: It relies on the North/South interconnector, and often it is the figure quoted to get us to the 40% renewables. I am trying to find out whether it is more likely to be approved than the figure of £1 billion. Does it make the 40% target more realistic? I got the impression from your predecessor that never in a month of Sundays was he going to approve a £1 billion investment.

1817. **Ms Pyper**: We did not have any background or reason to accept a £1 billion figure. We have more detail and background on the £420 million, but, again, the North/South interconnector is key there.

1818. **Mr Agnew**: It is not going to be approved. Presumably the request would not go in for £420 million without —

1819. **Ms Pyper**: Yes, without a certainly that we were going to be able to get the benefits and do something with the additional generation.

1820. **Mr Agnew**: I have one final question, Chair, if that is OK. Maybe you are not aware of the issue regarding the connection of the offshore wind farms. I picked up some level of dissatisfaction about agreement on how it was going to be connected, although, to be honest, I did not fully understand the issues. Are you aware of a level of dissatisfaction? Can you explain to us what the issues were?

1821. **Ms Hedley**: Our awareness of offshore is that NIE is keen to bring contestability in, and it sees that as the key part of the jigsaw for it in that development. That is the only knowledge that we have on that.

1822. **Mr Agnew**: Is that still achievable within the time frame?

1823. **Ms Hedley**: We believe so.

1824. **The Chairperson**: I have one final question. You have probably picked up on the comments anyway, but SONI considers that it is incredibly complicated to have to go on an individual project-by-project basis for transmission infrastructure investment. Have you any views on whether that is a correct analysis?

1825. **Ms Hedley**: Does this relate to the £420 million again?

1826. **The Chairperson**: Yes.

1827. **Ms Hedley**: At this point in time, none of those projects is currently justified. If we get the North/South interconnector through planning permission and it is built, we believe that there is a clear economic benefit to that and, therefore, we would want to approve that investment. However, there is no point in us giving a cheque from consumers for £100 million to build it if planning permission is not in place and it cannot be built.

1828. **The Chairperson**: What if its view was that the transmission infrastructure should be managed through a strategic programme? It is saying, potentially, that it could be over 25, 40 or 50 years. Have you any comments around that?

1829. **Ms Hedley**: There has been a development of a strategic transmission plan, and we are waiting for a submission on what that is. It does have —

1830. **The Chairperson**: Sorry, who —

1831. **Ms Hedley**: It was NIE, and it is now going to be SONI, because of a transfer of responsibilities. SONI is under an obligation to provide a 10-year plan, and that goes to Europe. That is actually published each year. We feel that we need longer than that but, at the same time, right now we have a 10-year plan for transmission infrastructure.

1832. **The Chairperson**: That begs the inevitable question again: how much longer than that?

1833. **Ms Hedley**: We would like it to go out at least 25 years. Obviously, the further out you go, the less robust it is. The 10 years should be fairly robust, but it requires certain other permissions to be in place. Again, we are back to the North/South interconnector. That was originally a concept in, I think, 1994. The plan was to have it in place by 2012. I am not sure when it will actually be built. Most large transmission infrastructure requires planning permission. We have seen throughout the world those types of projects being seriously delayed.

1834. **The Chairperson**: OK. Thanks for that. Phil, I know that you were dipping in and out —

1835. **Mr Flanagan**: Aye, half an hour will do me, Patsy. Only joking; two or three minutes will do me. You have heard from us and everybody else about the difficulties with grid connections. How big a problem is that for us in reaching the Programme for Government targets and the 2020 renewable generation targets?

1836. **Ms Hedley**: We do not see this as a problem for that. There are issues for individuals, and we need to improve the processes, but if you look at where we are now with 18%, the numbers currently connected and how the larger scale ones in particular are moving forward, we still believe that the target for 2020 is achievable.

1837. **Ms Pyper**: I think that you have probably heard from a number of other stakeholders as well that the target is achievable.

1838. **Mr Flanagan**: Right. Are we just settling for the target, or are we trying to go well beyond it at this stage? Was there any inclination in DETI or anywhere else to set a target to have 100% of our electricity generated from renewable sources by x year?

1839. **Ms Pyper**: Europe is really dictating the pace on that; it is looking at the next tranche of targets. Fundamentally, it is a policy issue, but DETI will need to be sure that there is the technical ability to exceed the 40% target. A lot of work was done to assess whether 40% was technically achievable before the Executive endorsed it. A further round of work will need to be done to move beyond that. We will be part of that. DETI will be looking to see the targets Europe is dictating and how Northern Ireland maximises the resources it has.

1840. **Mr Flanagan**: Have you done any work with the regulator in the South to see how much would need to be spent on grid investment to bring the island to a stage where 100% of the comparable figure is generated from renewable sources?

1841. **Ms Pyper**: We have not done any work on a target of 100%, but we have done a lot of work with the CER on a project called Delivering a Secure, Sustainable Electricity System (DS3), which is about trying to maximise the efficiency of the existing grid to move beyond 40% in terms of what the grid —

1842. **Mr Flanagan**: What sort of a number are you looking at?

1843. **Ms Pyper**: — can cope with.

1844. We have been looking at DS3 in terms of 75% and what else needs to happen on the system to maximise the flexibility and the way the grid operates. As well as the physical existence of the grid, there is the operation of the grid and how much more efficient we can make that. It is an active project. As part of the wholesale market, it is always going to be a source of dialogue between us and the CER because it, like us, is governed by Europe-wide policy. The drive will be for increasing renewables, so there is only one direction of travel, as far as I can see.

1845. **Mr Flanagan**: What engagement have you had with large energy users or members of the business community with regards to problems they are having with accessing the grid for renewables or new plants or extensions?

1846. **Ms Hedley**: I have visited a number of large energy users to talk to them about not only their electricity but their gas and water issues. We also engage

with Northern Ireland Manufacturing and CBI, which represent a lot of those people. We have quite a lot of dialogue with their representatives and individual organisations willing to talk to us.

1847. **Ms Pyper**: It is an ongoing part of our day-to-day business in the executive team, but when we held our board meeting in Derry/Londonderry last month, we received evidence and discussion from a number of the large users in the north-west, and from Stephen Kelly from Northern Ireland Manufacturing. The board has also been hearing at first hand a lot of the issues. It is an ongoing part of our dialogue. You would be surprised if folk like Seamus Downey and Stephen Kelly were not talking to us very regularly.

1848. **Mr Flanagan**: The Chairman referred to SONI. On the grid and the network, SONI made a loss of £3 million in 2012 and reported a profit of £16 million in 2013. Why is there such a difference in its allowed recoveries of revenue between 2012 and 2013?

1849. **Ms Hedley**: We do not have that detail with us, but we could come back to you.

1850. **Mr Flanagan**: OK.

1851. **Ms Pyper**: Was that reported in the 'Belfast Telegraph' yesterday?

1852. **Mr Flanagan**: Yes, it was reported by John Simpson on 1 July.

1853. **Ms Pyper**: Yes, I saw the clipping yesterday.

1854. **Mr Flanagan**: So, you can come back to us with further details on that?

1855. **Ms Pyper**: I will come back and explain.

1856. **Mr Flanagan**: Do you know, off the top of your head, whether that additional money will be put back into reducing the network charges that customers pay, or will it go back to the Free State Government?

1857. **Ms Hedley**: As a regulated entity, SONI has a revenue entitlement based on its price control. We ensure that, every year, it makes a submission to us. We assess the submission and it is allowed to collect that revenue from consumers. We capture any profits it makes through efficiencies during the next price control. We are currently looking at its next price control. So, if it has greater efficiencies, it will get less money for the next price control period. We would not go back in and remove profit that it has gained from being efficient. However, I do not know whether that is what that money is and would need to look at that. We will do so.

1858. **Mr Flanagan**: You have not studied the report in detail yet.

1859. **Ms Pyper**: No.

1860. **Mr Flanagan**: That is fine.

1861. **The Chairperson**: I have one final question. When SSE talked to us, we heard about the issue of having planning consent before going to connection. It said that that was a good idea because it prevented the hoarding, for want of a better phrase, of power potential. We also heard from Action Renewables, and there was a lot of merit in what it said. Hoarding is grand, if you are referring to a big wind farm or, as we are now coming to, solar farms and the like. That makes sense. However, when it comes to smaller ones — and you have already alluded to the fact that that could mean a turbine for a farmer — it is not necessarily hoarding and will not lead to huge quantities of hoarding. Is there potential for a bit of common sense to kick in when it comes to getting planning permission before going to the connection stage?

1862. **Ms Hedley**: NIE is looking at that. However, I point you to the heat map and the congestion that currently exists on the network. The micro-type generation does not require planning permission and is actually moving forward at a rate of 150 connections a month.

1863. **The Chairperson**: Which ones do not require planning permission?

1864. **Ms Hedley**: Micro.

1865. **Ms Pyper**: Microgeneration; the very, very small stuff.

1866. **Mr O'Boyle**: Anything under about 4 kW, such as a solar panel on a roof.

1867. **The Chairperson**: Sorry, we are not talking about that. We are talking about wind turbines on farms. That is what —

1868. **Ms Hedley**: For a lot of them, the capacity, at this stage, might not be there, irrespective of the process.

1869. **The Chairperson**: Do you pick up the point that I am making? The bigger guys are saying that there is the potential for hoarding. Action Renewables made the point to us that that is not really an issue where you have single smaller applications coming in. Do you accept that rationale?

1870. **Ms Hedley**: I am not sure that I do. However, if you look at the congestion that currently exists on the network, you will see that this is an issue that might not exist because there might not be the capacity there to hoard.

1871. **The Chairperson**: So, it is an academic argument.

1872. **Ms Hedley**: It might be.

1873. **The Chairperson**: Grand.

1874. Thanks very much for that session. You have a few things to relay back to us, and there are a few points that we need further clarity on. Thanks very much for your ongoing engagement and your time today. If we have any further questions, we can write to you. Are you happy enough to answer those?

1875. **Mr O'Boyle**: Yes.

1876. **Ms Pyper**: We noted that you had questions for other stakeholders, so we expected that.

1877. **The Chairperson**: That is grand. Thanks very much indeed.

25 September 2014

Members present for all or part of the proceedings:

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

Witnesses:

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

1878. **The Chairperson**: With us here today to brief the Committee from the Ulster Farmers' Union (UFU) are Mr Barclay Bell, deputy president; Mr Gary Hawkes, chairman; and Mr Chris Osborne, senior policy officer. You are all very welcome indeed. It is good to see you again. Thanks very much for attending. We already have the papers in front of us, so it will be a bit of a dialogue between us as we seek to explore the issues and what they mean. Do you want to give us a brief overview? Are you kicking off, Barclay?

1879. **Mr Barclay Bell (Ulster Farmers' Union)**: Gary is going to lead here.

1880. **The Chairperson**: OK, Gary, if you want to give us a brief overview, we will then have questions from members.

1881. **Mr Gary Hawkes (Ulster Farmers' Union)**: Thank you very much, Chairman. We are basically here today to talk about the microgrid, the situation and the benefits for Northern Ireland and where we are with the difficulties that, as you are aware, we have been facing in the agriculture sector. We are looking at moving forward and alleviating the difficulties that people have with conditional offers. They have spent a large amount of money over the last number of years being encouraged to take part in the developments in renewables in Northern Ireland. At today's figures, we estimate that the rural and agriculture sector has spent up to £20 million on planning fees, consultancies, wildlife requirements and surveys. It is now getting astronomical offers from Northern Ireland Electricity to get grid connection, due to congestion on the lines.

1882. Most of the people are encouraged to go for a certain size of development. They were all advised, because nobody who was involved in it had any knowledge; it was all professional advice from leading authorities who told us the route to take. When most people did that, they found out that it was incorrect and was not the route to take. We have been left holding the child now in a really difficult situation. We are trying to relieve it for our members. We are looking at alternatives. The microgrid is one that we see as a great opportunity for the agriculture sector for the shifting of load and the creation of a mixed input.

1883. We are trying to encourage NIE to put in a managed grid system. The 11 kV system, which is the system in all of the rural sector, is unmanaged. If you put in an offer for a 250 kW turbine, NIE will make you an offer for that size, but you do not actually use that. Basically, the requirement is only for a very small period of the year; and it could be as low as 6%. So, you are looking at and paying for something that you cannot manage, but they perceive that you may achieve it at one time of the year, and you have to have that capacity available to you. With a more-managed system, a lower cost for grid connection and a smart monitoring system, where loads can be monitored and dispersed among other producers to manage the load, we see quite a future in this.

1884. The agriculture sector also faces quite a rigorous demand to reduce its carbon footprint. The sector is working, as I am sure you are aware, on anaerobic digestion (AD), and quite a bit of development on that is going on Northern Ireland. There are quite a few planning applications for AD facilities are in the planning process, but, again, people are unable to make progress on those issues.

1885. These things are very important, not only to energy production but to the environment. There are environmental benefits from reducing the levels of methane, nitrous oxides and other carbons that are affecting the environment. So, we are not really here to have only an energy debate; we are also here to talk about our commitment to the environment.

1886. **The Chairperson**: Thanks very much. You raised a number of issues about moneys being spent by farmers on planning consultancies and other consultancy. In some cases, did people who were touting for trade call with farmers and advise them to do this, that and the other when the wind speeds might not have been appropriate? One man came to me and told me that someone had advised him, rather improperly, that he should have stuck the turbine in a bit of a hollow, which is not a place where it would work. So, there are clear issues about the levels and quality of advice. Possibly, some of the less-than-scrupulous consultants are only thinking about the coupons in their back pockets rather than the longer-term benefits to the farmers. So, clearly there are issues there.

1887. Have your members come to you and complained about the adequacy of the advice they have been given, or, in some cases, the improper advice they have been given?

1888. **Mr Hawkes**: As I mentioned earlier, about four to five years ago, farmers were invited to consultancy shows and events in Northern Ireland. It was widely advertised that farmers should come along and take part in those events, and at the various stands they were advised by the organisations and the Government representatives, "This is the route to take, these are the people to consult and this is how to manage your project." We knew that that was the best advice available. However, a lot of the advice was from architects and consultancies who were looking at the possibilities for where developments could take place rather than at the reality of the financial situation.

1889. With the state of the rural economy, if only 60% of what is in the pipeline achieved benefit due to a better support network system, there would be a potential income of between £45 million and £60 million a year to the Northern Ireland economy. That would not be a one-off figure, because that is underwritten by the Government for 20 years through the renewables obligation certificate (ROC) system or the tariff system, which farmers can avail themselves of. It has been calculated that the total income will be £1·2 billion, which is a substantial amount for the rural economy and is underwritten by Ofgem.

1890. So, our members are being offered this opportunity but cannot access it. It is a very frustrating situation for people when they can meet all the requirements and comply with all the legislation on wildlife and planning rules, only to come to a part of your business plan where you can go any further. That has a negative effect on the economy.

1891. **The Chairperson**: I will not even go down the route of asking about ADs and how they are affecting conacre. That is another thing.

1892. Some people were given poor advice from the word go. That is not because they were encouraged by government to go to a particular consultant, it is just that people have been going round various farms and saying to them, "You will gain x, y and z", when they were actually selling them a pup. I do not think that there is anything that we, as elected representatives, can do about that. That is just down to bad, ill-

informed advice. People are being given that sort of advice too, on occasions, about planning, dwellings on farms, and I deal with that quite a bit of that. I think that maybe there is an issue. A note of caution should be given to the farming community about the level and quality of advice that we are being given on some occasions. Sometimes, people are being misled.

1893. **Mr Hawkes**: Prior to this situation, the farmers' union did not have an organisation to deal with that. This is a new remit; it is rural enterprise. It is a new thing, this renewable energy, so the union has decided to take on that mantle and, since that, we have been advising people, through our offices, to be wary and careful and study where they are going. That has changed the situation. At the moment, we advise people to consult people who have the know-how.

1894. **Mr Chris Osborne (Ulster Farmers' Union)**: I still receive probably three or four telephone calls a fortnight from farmers who have been approached by third-party companies that want to lease a part of their land for the erection of wind turbines. The advice that we always give is to run the contract past a solicitor; but, first and foremost, there is a certain amount of land-grabbing going on. There is a lease part of the contract where there is no obligation for the "power company" to see the contract through to fruition. This is actually creating some of the problems that we are seeing in the grid. These grid applications go in, but they are never actually finished.

1895. **The Chairperson**: They are never going to see the light of day.

1896. I will move to an issue that you have highlighted, and I am very interested in finding out how it works. How are the microgrids

1897. managed? How do they operate? Can you explain that to me in a wee bit more detail? We have the briefing notes, but, when the Lecale one is up and running, it might be an idea for us to go down, have a look at it and see how it works.

1898. **Mr Hawkes**: Chris will update you on some of the ones that are taking place.

1899. Basically, we would like to see NIE managing things. Take, for example, an NIE district line, and four turbines have been approved for it. In theory, four turbines add up to 1 MW. What happens then is that NIE says, "Right. That line is overloaded." They are right, on paper, but, as I say, it only reaches that potential on 6% of the year. We want it managed, so that NIE is looking at what is happening on a day-to-day or hourly basis on that line to achieve more load and more freedom on capacity. Up to now, NIE have not done that. It just gave you, in black and white, what you put in your quotation for. Now, we are looking at a situation where we need to have it managed. NIE is offering Project 40, which you may have some details on, whereby curtailment might come into place. If there is too much capacity, you might be cut back; but that is a better situation, possibly, than not been able, at the early stage, to get your business on the go.

1900. **The Chairperson**: There are other ways to tease that out. Usually, NIE does not really do anything for the value of it. What is in it for them, that they might take on management of it?

1901. **Mr Hawkes**: There is quite a bit in it for them. There is voltage control. NIE has a big issue about voltage, spiking and additional loads of uncertainty. A managed grid can control that; you can control your suppliers and the loads on it. That is what a managed grid is; it is something that we do not have in Northern Ireland. It is not really in the UK much, either; but it is the future and the way forward to incorporate an awful lot more small-scale energy on the 11 kVA system, not the 33 kVA, which the bigger wind farms are on. At a local level, it creates local security of energy and distribution within a district or area. You have fewer weaknesses and better quality.

1902. **Mr Osborne**: I would like to add that NIE would probably be able to get cost avoidance out of this as well. At the moment, NIE faces significant bills to upgrade certain substations in the country. A microgrid would avoid those particular costs. So when NIE goes to the Utility Regulator for RP6, which is coming up shortly, for example, that would probably be significantly reduced if there were a microgrid system in place.

1903. You asked about how a microgrid would work. If you want to look at that, you should google Fort Bragg in North Carolina. There is an army base there, from which an area of 100 square miles is run as a microgrid. You may want a little bit more detail about that. Do you want me to give you a bit more detail about how we envisage Lecale would work as a microgrid?

1904. **The Chairperson**: I think so, yes. Ultimately, we will go and visit the place because we could probably theorise about it all day and still not get right what it means. What input does the System Operator for Northern Ireland (SONI) have in terms of fluctuations if, say, the microgrid is not generating enough power or has to be reduced or fluctuated up or down? What input would it have to this?

1905. **Mr Hawkes**: SONI complains about not being able to recognise the smaller scale. It can monitor the production of big wind farms and bigger connections, but what is being proposed, scatter control, will be in every situation, at a cost, of course, to people but if it can manage the connection, it is something we can accept.

1906. That means that it will have a focus. There will be facilities on your site that SONI can control and curtail your output. What it does not have at the moment is controls at substations locally to see the heat. Heat is SONI's big concern and to be able to recognise that if there is a power failure somewhere else on the network, it can switch off a link-up or manage and disconnect that sector and leave the rest on.

1907. In Northern Ireland, as I am sure you are aware, when the electric goes out, it can go out for a whole quarter of the country because that is how it is divided. You can have the whole north-west or south-east off, but in a managed system that would not happen. It can be very localised.

1908. **Mr Osborne**: It is what they call islanded.

1909. **The Chairperson**: Oh, islanded. Right.

1910. **Mr Hawkes**: Island — where there is still supply available to meet a certain demand but they can sit and function and say, "This demand can go this far". You go to the limit of your consumers' downtime.

1911. **Mr Osborne**: The microgrid would work in conjunction with NIE as the distribution network operator (DNO) and also with SONI, because the idea, as Gary mentioned, would be islanding. Enthusiasm has been generated in the US by, among other things, Hurricane Sandy, where they knew that some substations would go down but the microgrid would be able to work with the other system and bring in load or whatever else it might be.

1912. **The Chairperson**: Thank you for that.

1913. **Mr Agnew**: Thank you for bringing this to us because the microgrid is an interesting concept. What stage is it at? Is it at the idea stage? Where are you in negotiations, for example, with NIE, or how far on are we?

1914. **Mr Hawkes**: We were very frustrated for quite a while earlier this year not going anywhere with this development. We were just sitting with conditional offers moving nowhere at all. Conditionality was that you got a big quote plus additional conditional costs and it was not viable. So we had to encourage NIE to look at alternatives, and one was SONI's Project 40, which, since midsummer, has allowed limited and more-managed connections to the standard grid.

1915. The problem is that NIE is a large and cumbersome organisation and operates under a lot of legislation and requirements. NIE's view is that it is working to its licence conditions. As long at it meets those conditions with DETI, it will not alter from that. Stepping into a new development or way of working, it is there only to keep the lights on and keep the grid safe and manage it in accordance with the requirements of the consumer.

1916. To move onto another development and phase, it is difficult to turn that ship around and get NIE to place an emphasis on how to modernise. We are coming from a farming background and trying to tell NIE to modernise its grid. You understand where we are coming from there, if you know what I mean: a culchie coming up telling us how to run our system.

1917. **The Chairperson**: You'll not get lost at the same time.

1918. **Mr Osborne**: Steven, further to what Gary was saying in terms of movement, I go back to Lecale again because that is probably the most high profile project that we have. Farmers have come together in a conglomeration and B9 Energy and David Surplus are working on it as well to integrate a storage system. David Surplus has been in contact with the architects in NIE because nothing can happen until they give the go ahead. I am due to brief Michael Atkinson, who is in charge of connections, on how we see microgrids working in Northern Ireland.

1919. **Mr Agnew**: I am just trying to get a sense of how likely this is to happen. It is certainly a very interesting idea at this stage. Does it feel like this is going to happen? Is it a possibility? Is it a probability?

1920. **Mr Osborne**: With regards to the specific location in Downpatrick, it is going to happen. There are no ifs or buts about it; it is definitely going to happen. We are experiencing problems in contacting some of the farmers who are going to be involved, but that is nothing to do with legislation; that is just down to farmer practice. As we know, they are never available due to other obligations. We are working with an independent consultancy on that to get farmer buy-in. That is crucial.

1921. **Mr Agnew**: On what kind of scale would the Lecale project be? What sort of generation do you envisage in the area?

1922. **Mr Osborne**: We envisage that it is going to be able to run probably a small village. There is going to be a business park. I think that the chairman talked about how it is going to be managed. It is going to be managed from where Bishopscourt airbase was. In terms of generation capacity, there will be five 250 kW wind turbines, two 500 MW AD units and quite a lot of solar photovoltaics (PV). It is also going to link in with the SeaGen project in Portaferry.

1923. **Mr Agnew**: That is excellent.

1924. In the brief that we were provided with, the scale of jobs was referenced. Can you give a bit more detail around what you envisage in terms of job creation?

1925. **Mr Osborne**: Job creation will come from the business park. I would rather that David Surplus was sitting here answering that question. It is envisaged that it will be at least two dozen jobs in the community, which is a start. That can be expanded on. The key is job creation.

1926. **Mr B Bell**: That is a very important thing about the whole project. It is very much a community project. It is not just farmers benefiting; it is local businesses and local community groups. The whole community will feel the benefit from this.

1927. **Mr Agnew**: I know that there is quite an active Lecale conservation group. Are you working with it or trying to bring it along at this point? They are quite a suspicious bunch, I think it would be fair to say.

1928. **Mr Osborne**: The idea that the UFU supports is a community solution. The Lecale environmental group is a part of that because it is a part of the

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

1929. **Mr Dunne**: We appreciate you coming in today and making your presentation. The Committee has received evidence of changes in attitude towards small-scale wind and single wind turbines due to the visual and noise impact. How do farmers work alongside local residents and other farmers who have concerns about developments?

1930. **Mr Hawkes**: We have two situations in Northern Ireland. We have the small scale, which is mostly community involvement and farmer involvement. You bring in community involvement because the majority of the people who are building the turbines are consulting their local people. It is well enough debated locally that the development is going on. My encouragement to people is that, if they are successful in their development, they contribute something to their townland or district. They all have established community set-ups, so everybody is very interested in that, and the farmers are keen to encourage people and supply some funding to little projects. That involves the community. You then have larger organisations, for example, SSE and others that have put up huge facilities which you can see for miles about. One has a big impact and the other a much lesser impact.

1931. **Mr Dunne**: OK. What advice do you give to farmers on consultation with their neighbours?

1932. **Mr Osborne**: There is no definitive advice that you can give. When one farmer is dealing with another, they are often related to each other in terms of neighbouring location. There can be a falling out, not as a result of the turbine, but for other reasons.

1933. **Mr Dunne**: There could be a history, then?

1934. **Mr Osborne**: Yes, and that takes away from the reason why we are sitting here today. One of the things that might change relations a little bit, with respect to the microgrid, would be if a number of turbines were going to reduce energy bills. That could change the arguments quite a lot. If somebody thought that they were going to get a reduced energy bill, he might be a bit friendlier with neighbours who are putting up a small wind turbine.

1935. Am I correct in saying that you represent North Down?

1936. **Mr Dunne**: Yes.

1937. **Mr Osborne**: I notice that, at the top of Ballymiscaw, a small-scale wind turbine has been erected. That is very interesting, because that turbine would be capable of producing an awful lot of energy. I would like to know how many objections there were to it in comparison with a 250 kW one. What I am saying is that the microgrid will probably result in those higher turbines getting smaller. There will probably be fewer of them.

1938. **Mr Dunne**: Chairman, I hope that I am not encroaching on other members' points. Generally, we have heard a lot about a lack of resources from NIE to manage the renewables sector, engage and all the rest of it. Is that a major problem? Are they not putting in the resources or the people on the ground to do the work? Is that what you are finding and, as a result, are response times too slow?

1939. **Mr Hawkes**: Absolutely. I totally agree with that point of view. Up to now — I mean this year, midsummer — NIE had a certain number of staff involved in dealing with ever more demand and actually being overcome by the amount of work that they had to do. They were not really able to deal with it. Lately, NIE has increased the staffing quite a bit. It has also increased the equality,

and the latest development is that you can look at their new website, which we encouraged them to produce. We explain to people that, rather than ringing up NIE all the time, they can look at the website, see where they are and what is feasible in that area. They have designed a new website. The issue of funding —

1940. **Mr Dunne**: Is the heat map available?

1941. **Mr Hawkes**: Yes.

1942. **Mr Osborne**: Let me just add that I dealt with NIE yesterday about this. The new heat map will be launched next week. It will be a lot more interactive. It was launched at the end of last year, and, within a week, it was out of date, because the amber areas turned red very quickly. Now, if you put in a postcode — somewhere in Comber, for example — you can focus in and see the 33 kV network and the 11 kV, and it is a more detailed and itemised heat map.

1943. Just to follow on from what Gary was saying, by engaging with NIE, we have improved customer relations for landowners, and landowners have approached us over the last couple of months to say that things have improved on the ground. There is now a call centre to deal with specific queries, and it is actually working at the moment.

1944. **Mr Dunne**: Good. We had quite a heavy meeting with the Utility Regulator here. That was some months ago; time flies. I had a meeting with the chief executive recently; in fact, this week. She believes that the regulator has put quite a bit of pressure on NIE to make improvements. So, I am glad that things are starting to improve, but obviously there are is quite long way yet to go. NIE is a major challenge. We feel that NIE has a Civil Service-type mentality. The organisation has staff in place and is slow to move and change, and it has not really stepped up to the mark. However, we are glad that there has been some movement. Thank you very much.

1945. **Mr Frew**: Thank you very much for your information up to this point, gentlemen. There are a couple of things that I want to talk about. I will be as quick as I can. One is managed connections. How does Project 40 sit with you as an organisation, and the fact that we could be limiting some of our businesses with regard to what they produce and what profit they make out of it. What is Ulster Farmers' Union's stance on that? I can understand why it would be done and that it will move things forward, but ultimately we will have to put more into our infrastructure. I know of a couple of substations, one at Kells in my constituency, that people are telling us are, as you said, nearly maxed out. How can we allow that to continue? Whilst we should look at other avenues and things to be done, ultimately things will have to be improved upon and enhanced. How do you see it as a long-term strategy?

1946. **Mr Hawkes**: The way I look at it, it is a tiered system. We have to do something immediately, something now to resolve some of the issues that we have in line — not the future ones. Project 40 will deal with the smaller scale that fits onto farms, such as solar PV or a small AD, which we deal with in the agriculture sector. They may have to lower their planning expectations compared with what their architects or consultants told them and go for what is realistically available and the grid can offer.

1947. The managed system means that you have to manage and maximise your output. If NIE give you a 100kW of a grid connection, you, as the promoter of that, would have to manage it as best you could in a mix of energy outputs. You may have a turbine, but you may also need solar power because you need to be maximising that 100kW connection as much as possible.

1948. If I go back to what I said earlier, if you have 250kW in a turbine, a turbine is only 25% efficient and meets that target only 6% of the time, so you need to get that target way up, and your income will increase on the smaller connection.

1949. **Mr Frew**: Is it not the case that you are putting a limiter on the amount that they can produce? That is not necessarily

a bad thing, but the rationale for that being done is so that you do not have to put in a bigger cable along the line. That is OK for one farmer, but if you had five, seven or 10 landowners down one strip in the same area, all going for a managed solution, you are still going to have the same problem in that you will still have to increase the infrastructure. Am I correct?

1950. **Mr Osborne**: The most important point is that the managed connection will change the way people look at small-scale renewables. I had an article in the newspaper a couple of weeks ago saying that big was not necessarily best. What will happen with the managed connection is, say, you want to put up a 150kW wind turbine that will cost you £500,000 — which is what we were hearing on the ground that people were being quoted to connect — that £500,000 is going to become £50,000.

1951. When you are doing your business plan, that will change how you look at the output. You are not going to be trying to get as much as possible. You are going to be able to make a living and a decent return on a smaller turbine and a grid connection of £50,000.

1952. **Mr Frew**: Ultimately, is that not a false economy? You have reduced that man's potential to generate electricity and just kicked the can down the road with regard to advancement in the grid, which will ultimately have to happen anyway.

1953. **Mr Hawkes**: NIE tells us that, if we insist on that system of improvement, it will take years. We will sit exactly as we are now, and nothing will happen. The first phase is Project 40 to get some relief and additionality onto the 11kVA system, which is a more managed control system, and the expectation is that people will get at least something moving forward. The next phase is capital investment, moving the grid into the 21st and 22nd centuries, moving it forward into a system that can cope with a lot more potential.

1954. **Mr Frew**: I can understand the logic behind it, but it is still a short-term fix, would you agree?

1955. **Mr Osborne**: Yes, we were quoted in the press as saying as much. However, this brings in the microgrid as well, and the microgrid is long-term.

1956. **Mr Frew**: Yes, that is my next point. How does it work? I understand the concept of microgrid and what we are looking at, but how does it work in practice, and how do you connect into the grid that is not of a grid, if you know what I mean?How will you protect the security of supply while running it in conjunction with the grid?

1957. **Mr Osborne**: If you have a substation, you already have the infrastructure in place and you will be running it along with what is already there. Should anything go wrong, it is in one area. There are 210 substations in Northern Ireland. If you have a microgrid in one of those areas, it could be cut off automatically. However, should the other 209 go down, you will still be running.

1958. I talked about the security of supply. I do not know whether you were here when I mentioned the US. The US has 55,000 substations. It worked out that it would take nine of those to be identified by terrorists for the whole United States to go down. Basically, you are working on a localised solution. It is more secure.

1959. **Mr Frew**: So, it is a microgrid within the main infrastructural grid.

1960. **Mr Osborne**: Yes.

1961. **Mr Frew**: The most basic form of microgrid is a renewable heat source that supplies heat to a housing development. I assume that it will be something of that nature, only on a grander scale, with more of a mix of generation. How do the wires work? How do we get to the generators, suppliers, businesses and households? Where do we connect into the main grid?

1962. **Mr Osborne**: Through a substation.

1963. **Mr Frew**: You are talking about a source of power going one way and one going the other way.

1964. **Mr Osborne**: Yes.

1965. **Mr Frew**: Is the grid able to cope with that intelligent design?

1966. **The Chairperson**: I presume that you have checked out the capacity of the substation. One thing that has been coming back to us, particularly from west of the Bann, is how much the substations needed upgrading. Presumably, your substation has enough capacity to work with this.

1967. **Mr Osborne**: Yes. That is why Lecale was identified by B9 Energy and the collection of farmers there.

1968. **Mr Hawkes**: Up until now, NIE did not consider it demand that you were close by and could mop up some of this. At the end of the day, NIE does not mind you connecting, as long as you can identify demand or use it. The agriculture sector can be very adaptive. It can use quite a bit of the energy in the sector. However, we have to meet the legal requirements for the grid, and we have to meet the Ofgem requirements for the legal use of the energy.

1969. **Mr Frew**: But are you off the grid or on the grid? If you are off the grid, it is going to cost us all more.

1970. **Mr Osborne**: If the whole microgrid is producing more than the net level of electricity, that can go into the substation, and NIE can avail itself of that as it sees fit. The substation allows NIE to take some of the electricity that has been produced out of the Lecale substation and bring it to Strangford, Ballynahinch, or wherever.

1971. Gary touched on a point that sort of answers your original question, Paul, about how it is going to work. You identify the demand. That is the whole point of what a microgrid does. At the moment, we have a supply-sided solution. If you move to an individualistic approach, you can identify the demand that is going to be in the Lecale area. That is easy to do, and it is what we are doing on the ground at the moment. We have looked at the village of Ardglass and at the fishing side of things. We are bringing together how much electricity and heat is needed.

1972. You must remember as well — I have not touched on this — that a storage solution is central to a microgrid working. You will have the storage there that will also manage the heat and the electricity to be used during peak times, should the turbine not be turning for whatever reason.

1973. **The Chairperson**: Paul raised this very important point: for all intents and purposes, is it off or on the grid? Obviously, if it is off the grid, everybody else's costs start to go up to compensate for that. That is one of the cases that has been made. Is the microgrid off or on the grid? Perhaps you want to check that out and get back to us.

1974. **Mr Hawkes**: We are not the people who are designing the Lecale system and proposal. It is a concept. The basic way in which these things work, if they were to multiply out, is like a circle. If you draw a circle on a map, you —

1975. **The Chairperson**: I have the concept all right. It is —

1976. **Mr Hawkes**: One will overlap the other one. The circle will overlap the next one by 25%. The circles will interlink.

1977. **Mr Frew**: How do they interlink and overlap? Ultimately, it is going to come down to a piece of cable going into a piece of plant that will flow electricity one way or the other. I understand the reason and rationale for it. It is the same as the managed connections. To me, it is the future — there is no doubt about it — but it would have to be managed well, and we would have to have a grown-up conversation about what we do with the existing infrastructure, and where and when we upgrade it.

1978. **Mr Hawkes**: Absolutely.

1979. **The Chairperson**: To whom do people pay their bills?

1980. **Mr Hawkes**: Npower. Of the money from your bill, so much goes towards different allocations. NIE has a budget of £100 million to £110 million to look after the management and improvement of the grid, but that is for maintenance and management, and new lines where necessary. That does not include money for any improvements or for the requirements of this type of development. NIE's attitude is that additional funding would have to be found. The regulator says that it cannot be taken in the form of consumer charges, so we have to find additional funding for this type of modernisation. NIE will allocate small amounts, but it will not take on this second phase.

1981. **Mr Frew**: You see, the microgrid is something similar to the problem facing a lot of farmers, whereby they want to produce energy just for their farm. They do not want to sell the electricity to the grid; they just want to produce it to make their farm more efficient. This is on a grander scale, where you have a community wanting to do that for themselves.

1982. **The Chairperson**: Perhaps the concept has not been worked through at this level of detail. I am not asking whom people pay their bills to for the fun of it. We have had issues here where, if you move off the grid, it is the rest of the consumers who pick up the tab. We have already heard that from bigger industries and from firms around Belfast. They are talking about moving off the grid, and, as a consequence, everybody else pays for the maintenance and upkeep of the networks. Has it been worked through to the stage of knowing to whom you pay your bills and what the implications are for everybody else if people set up their power semi-statelet as a result? Clearly, that has an impact on what we are working through, given its potential effect, or not, on other consumers.

1983. **Mr Osborne**: You touched on the issue of the community. The community would own that grid.

1984. **The Chairperson**: I am sorry, but I am talking not just about the effect on the community but about, potentially, the community moving off the grid or being seen to move off the grid. Other people's bills have to compensate for that happening. The implications of, for example, some of the big businesses moving off grid have been explained to us. As a consequence, people have to pay for maintenance and upkeep of the electricity network. The less that they are contributing to that, the more that everybody else has to pick up. This is an important point, because everybody else is saying, "That is grand for the people of Lecale, but what about the people of Belfast, Cookstown or other parts of mid-Ulster if their bills start to go up as a consequence?".

1985. **Mr Hawkes**: Some of these solutions are not here yet in totality, but the difficulty with the renewable energy sector supplying into the grid is consistency. It is just the one big problem.

1986. **Mr Frew**: For wind, anyway.

1987. **Mr Hawkes**: Wind, but AD not so much. Solar is variable, too. If you mix them together, you can integrate a storage system, which has been developed. You do not just take electricity from here, send it over there and say that you will take it out in a week's time. This is managed, where the production can increase for a few hours higher than the consumption. It can be stored retrospectively and then, as production goes down, you can tailor it out. This is a very critical part of NIE's problem —

1988. **Mr Frew**: Storage is key.

1989. **Mr Osborne**: This is more than managed to a grid. Instead of this going on here — production from eight o'clock to 10 o'clock, and then there is calm weather and nothing happens. We can manage it. There are ways of doing that.

1990. **Mr Frew**: Storage is the key, then.

1991. **Mr Osborne**: Absolutely.

1992. **Mr Frew**: If you cannot store it, it will not work. It still does not resolve the issue of who owns that generated electricity, who pays for it and whom do you pay to?

1993. **The Chairperson**: And how many meters do you have? Do you have one meter or two meters? Who owns the meters? Those types of things.

1994. **Mr Osborne**: My understanding is that there would be no risk outside the substation. That would answer your question about a bill payer in Ballynahinch, for example, having to put some money towards Lecale. My understanding is that it will stay within the Lecale area, as will ownership and management.

1995. **Mr Frew**: Who puts the grid up?

1996. **Mr Osborne**: The grid is already there.

1997. **The Chairperson**: If you are talking about NIE managing it, there would have to be some bang for its buck in it. It would not just do it for the fun of it.

1998. **Mr Osborne**: Yes. That level of detail is not —

1999. **The Chairperson**: There are questions, and perhaps the consultants whom you are dealing with will have to answer those questions. Although it would be good for Lecale, we are looking at the overall picture right across the North and the potential issues that might be raised as a result.

2000. So, who do you pay your bill to? Who owns the meters? Is there one meter or two meters? Are you off-grid or on-grid? If you are off-grid, there is the potential ramification of every other consumer in the North having to compensate for that. Clearly, those things will need to be worked through. As a consequence of what we are talking about here, a fair number of technical questions remain to be answered.

2001. **Mr Osborne**: That is something that we intend to do with the Utility Regulator. We need to speak to her about the licence and that type of thing.

2002. **Mr Frew**: I have one final question, which is important to the inquiry. I alluded to the point about dual connections on farms. Let me take it right down to the basic level of a farm. You want Farmer Jim to put up a turbine. He wants it only to help his broiler house or cattle shed, but he cannot do that because that means that there are two connections to supplies. There is the grid supply — ordinary NIE — and the wind turbine supply. NIE will not allow that at present. What are your views on that? Have you been doing any exploratory work with NIE on that to allow that to happen?

2003. **Mr Hawkes**: That is a very important point, and it raises something that I have an issue with NIE about. Different farmers in different areas can do different things. One might be in a good area to produce energy, where there might be a large chicken unit, pig unit, dairy unit or processing facility not too far away — perhaps a kilometre away. You could have a meal company supplier. Those are big energy sources. Why can we not sell against our output as metered to those customers? As you said, can NIE take its management charges out of it?

2004. **Mr Frew**: Yes, I know what you are saying, but the question was more about the practicalities of you having two electricity supplies going into one place — the NIE grid and the turbine. You are not allowed to do that at present. You are forced to sell your generation to the grid.

2005. **Mr Hawkes**: That is a problem. If the farmer wants to use the generation on his own facility, he will have to apply to NIE for spill-out for the maximum that you can possibly do for safety reasons. That is where the problem lies. Even though he could use most of it on his own facility —

2006. **Mr Frew**: He is not allowed to do that.

2007. **Mr Osborne**: The only other way is to go off-grid completely. NIE will disconnect you.

2008. **The Chairperson**: Chris, come in very briefly, because other members are looking to come in.

2009. **Mr Osborne**: I know where Paul is coming from. It is to do with rural development funding and farm diversification measure 3.1. There was a requirement in that that said that you would be given a 50% grant for the building of a wind turbine to go on your farm. However, the condition was that you had to export 100% of your electricity. That is where the dual connection is coming from.

2010. **Mr Frew**: It is not even that. It is the fact that there is a safety issue with NIE. It will not allow it.

2011. **Mr Osborne**: Yes, but that is not a problem if Gary has a 50 kW wind turbine on his farm. He can still use the electricity himself if he built the turbine without availing himself of funding. He can then export the excess on to the grid and get his ROCs. That is not a problem at the moment.

2012. **Mr Frew**: Are you sure?

2013. **Mr Osborne**: Yes. Dual connection comes under measure 3.1. Barclay has one on his farm at the moment.

2014. **Mr B Bell**: We have a small-scale wind turbine on our farm, and there is not a problem there.

2015. **Mr Frew**: So, you can supply a shed with the energy created through your wind turbine.

2016. **Mr B Bell**: We have a small-scale wind turbine on our own farm and there is not a problem there.

2017. **Mr Frew**: So, you can supply a shed with the energy created through your wind turbine?

2018. **Mr B Bell**: We are using it in an overall farm situation.

2019. **The Chairperson**: But the energy is coming directly from it into your farm?

2020. **Mr B Bell**: Straight to the meter board.

2021. **The Chairperson**: Right.

2022. **Mr Osborne**: Dual connection was a condition under farm diversification measure 3.1. It is not a problem at the moment, because that has gone.

2023. **Mr Frew**: And it is not an issue with NIE?

2024. **Mr Osborne**: It was an issue with NIE. A lot of guys did not get funding because NIE would not give a dual connection for health and safety reasons. However, it is not a problem, if I were to want to build a wind turbine, to use some of the electricity and sell the excess. That happens every day with guys putting turbines up around the country.

2025. **The Chairperson**: OK. Thanks for that.

2026. **Mr Frew**: I will check that out.

2027. **Mr Douglas**: Thank you for the presentation. I had a couple of questions, but they have been answered already. I hope that you have not touched on this. It is just a point of information, because I was not present. My apologies for that. Are there any existing examples of microgrids operating in either the Republic of Ireland or elsewhere in the United Kingdom? That question is for Chris.

2028. **Mr Osborne**: Not that I know of, Sammy. I know that Lecale will be the first of its type in the UK at least. We are looking to the US for examples. Harvard and Princeton have microgrids as well.

2029. **Mr Hawkes**: There is one 11 kVA isolated demonstration grid system in Norfolk, which includes storage. It has a managed storage facility. It is the only one at the moment, and it is a demonstration-type system. How that is doing, I am not sure.

2030. **Mr Anderson**: I will be as brief as possible. Thank you for your presentation. You have updated us by showing us this letter about conditional offers, Gary. NIE has withdrawn the offers that were sitting around. What is the significance of all that? How do you see that going forward? Is it now the case that the only offers coming forward

will be the ones that NIE can guarantee to connect?

2031. **Mr Osborne**: The most important thing, and we have had this clarified by the Utility Regulator, is that you will not lose your place in the queue if you want to go ahead. However, what may stop your project from going ahead is if NIE finds that, at the end of the day, it is going to cost several million pounds to upgrade the substation. That is where we can identify some people who are going to be very annoyed. What that has done, though, is to create more certainty, because, when we had conditional offers, guys did not know whether their projects were going to go ahead.

2032. **Mr Anderson**: So, that has given more certainty to a lot of people.

2033. **Mr Osborne**: Yes, because, before, guys did not know, whereas now they are going to be told, one way or the other.

2034. **Mr Anderson**: Are they now under the impression that they are going to get connection? Or are the applications just sitting there, stacking up in the queue?

2035. **Mr Osborne**: No. NIE is working through the applications to tell people yes or no.

2036. **Mr Anderson**: So, there are no guarantees as yet? NIE is just working through them?

2037. **Mr Osborne**: Yes. It is a work in progress, which is more favourable than what it was.

2038. **Mr Anderson**: Well, it is better than what it was.

2039. **Mr Osborne**: Yes. It is movement.

2040. **Mr Anderson**: It is movement in the right direction, with the help, obviously, of the Utility Regulator and all who —

2041. **Mr Osborne**: The improved heat map is going to be crucial.

2042. **Mr Anderson**: Yes, my colleague said so. You talked about that earlier. That is fine.

2043. **Mr Dunne**: We heard a lot from various people about the planning permission issue. We heard that NIE will not touch it or really get engaged properly without planning permission being in place. What is your opinion about that? Do you think that NIE should move on and at least make some effort to try to help farmers and potential developers with an application before this is finalised?

2044. **Mr Osborne**: We have gone on record as saying that we believe that it should be the same as in GB. In GB, you can work to have a grid connection at the same time as you are working to have a planning application.

2045. **Mr Dunne**: They run in parallel?

2046. **Mr Osborne**: Yes, whereas here you must have one before the other.

2047. **Mr Dunne**: So, that is still a big issue. Planning can take so long, as we all know.

2048. **Mr Hawkes**: Then you are waiting in a queue system, your whole business plan could be missed by a few weeks, and that is you finished. You do not have any control of that. You cannot do anything to improve your situation. It is a lottery, so it is not a very good way in which to manage it. If someone comes in in front of you, that is you out. At least we can allow people on on a smaller scale, and it will be the last person on who will be the first off.

2049. At least people will have some hope of getting on. Although it may not meet their full expectations, at least the situation will move forward in a more prosperous way. The grid will be better managed than it is at present, and then we will have to look, at the next stage, at how we move forward the renewables sector in totality, adding to this. There does not seem to be another show in town. That is our issue with NIE. It does not accept this system. There is nothing else, and, without it, it is the end of renewables in Northern Ireland. There is no point in carrying on otherwise.

2050. **Mr McKinney**: Thank you for your presentation and answers. You already touched on the storage thing. Can you

tell me a wee bit about compressed air storage?

2051. **Mr Osborne**: That is a conversation you need to have with B9 Energy and David Surplus. We are looking at more of a short-term solution in the form of second-life traction batteries. Dare I say, that is something that would be coming from, say, Wrightbus. Wrightbus has a large number of batteries that have no life after they come out of a "Boris bus". A large number of those batteries could be a storage solution on a farm, probably on the back of a large lorry. That would be achievable a lot quicker than compressed air storage, because that is still very much a work in progress.

2052. **Mr McKinney**: What would be the efficiency of a battery formerly used in a bus? Is it refurbed, or what is the expression?

2053. **Mr Hawkes**: The issue is with curtailment, as we believe it. NIE would be able to give developers an idea of what curtailment they are facing. They are calculating a complex situation, but they are able to calculate what they perceive curtailment may be in that line looking over the previous history of loads. The situation will leave the person, rather than investing hundreds of thousands of pounds in a grid connection that he does not have any ownership of whatsoever, able to invest in a reasonably good connection, with a system between you and NIE, with you producing your energy from one or two sources. If NIE notified you to say that it had an overload system on the line coming up, you would have to curtail your production or switch off.

2054. The storage would take that oversupply — that 10kW, 15kW or 20kW that may be interfering with the overall load on the line — and store it. You can buy in one-, two-, three- or four-hour capacities. You can block it up to whatever you think your need is. Then, when demand changed on the line, that would be fed back in. It would not be stored. It is what is called a "shaving", so you are shaving off overproduction. If you happen to go very high over, you face switch-off, but NIE would be able to give a developer an indication. That is what we are waiting for.

2055. **Mr McKinney**: Yes, but it comes back to Paul's point about the security of supply. If you are off-grid for whatever reason, you have to rely on the battery to supply your area. How long can it do that for? What stress-testing has been done on that?

2056. **Mr Osborne**: At the moment, at farm level, you would not want to be relying on purely a battery. There would still be a diesel generator sitting there as backup.

2057. **Mr McKinney**: What about the village?

2058. **Mr Osborne**: That type of solution would be like in Lecale, whereby you would have a compressed air storage system. That was more focused towards the village solution. The second-life traction battery would be a farm solution; that is, one small business as opposed to one small village.

2059. **Mr McKinney**: Sorry, I was dealing with the Lecale solution in general.

2060. To go back to the original point, how efficient is the compressed air system as it would apply to that bigger microgrid project?

2061. **Mr Osborne**: B9 Energy tells me that it is a very efficient system. It is possibly the most efficient system that can work alongside renewable energy, as far as storage is concerned.

2062. **Mr McKinney**: I assume from your previous answers that it compares much more favourably than anything to do with batteries.

2063. **Mr Osborne**: Yes. Battery is a small-scale, on-farm solution.

2064. **Mr McKinney**: Has anybody done anything about the export of the battery from the farm to elsewhere if there were a greater uptake of battery usage in cars, etc. In other words, you get the milk lorry leaving the farm in the

morning and the battery lorry leaving the farm in the morning.

2065. **Mr Osborne**: That is definitely more of a long-term consideration, but I know what you are saying.

2066. **Mr Hawkes**: The main thing that we are trying to achieve here, which NIE does not like, is voltage spiking. That is a big problem. NIE creates an auto capacity for that — unused capacity — so there is quite a bit of capacity in the system for safety reasons in case you have a voltage spike. At present, the producer does not have to control that. NIE accepts it. We are saying that, if these were controlled on-site and managed and did not enter the grid, it would create more capacity, because NIE would have fewer risks to take. Those are the things now where we were trying to place more onus on to the producer of energy to spend some of his excess capital that he had to spend on the grid on something with an asset value that he could sell or lease. The units of storage, batteries, or whatever, will be leasable.

2067. **Mr Frew**: I know about the concept of the battery and the saving from the electricity, but should that onus be placed on the community and on the individual renewable generator, or, as a concept, should NIE, SONI, Eirgrid or whoever be doing that anyway throughout its system? The second part of that question is this: are we going the wrong way about this? Should we not be looking at interconnection throughout Europe as opposed to trying to go the other way?

2068. **Mr Osborne**: Can I answer that, Paul? The answer to the first part of your question is that we have opened up the debate on storage, and my most recent article in 'Farming Life' asked the questions. We should have had the conversation about storage four or five years ago when four ROCs were introduced. So, we are pushing that along at an organisation level.

2069. Your second question concerned interconnection. Moyle is only working at 25% at the moment. Yes, it is already there, but if that were working properly, we would not be having this conversation.

2070. **Mr Frew**: Yes, and the North/South interconnector is fresh.

2071. **The Chairperson**: Phil, you are back with us. You had your name on the list.

2072. **Mr Flanagan**: If you are going to close the meeting, I will ask one question with my mouth full. I hope that Hansard can understand me.

2073. **The Chairperson**: They can understand you anyway.

2074. **Mr Flanagan**: It usually sounds like I have my foot in my mouth.

2075. I am sorry that I missed your presentation. I will read Hansard, but I am sure that nobody has asked this question. There is a perception in the non-farming community that small-scale wind is the new subsidy for the farming community and has replaced the sale of a site for a bungalow. How do you respond to that?

2076. **Mr Dunne**: Planning Policy Statement 21.

2077. **Mr B Bell**: I think that there is probably another angle to it. We mentioned carbon emissions. It is another factor that farmers will have to consider, because it will play a big role going into the future. We have to reduce our carbon emissions big time, and we see the whole renewables sector as contributing largely to that. I do not think that you can compare renewable energy to the sale of a building site. It is a definite contributing factor to any farm business, and getting the right size of generation on farms is the key factor. With suitable capacity on farms, it can play a very big role and be a contributing factor to the whole Northern Ireland economy, not just the farmers' economy.

2078. **Mr Flanagan**: I am not trying to put words in your mouth, but am I reading into that that you are saying that small-scale renewable developments are not to wider society's benefit as much as larger-scale ones are?

2079. **Mr B Bell**: No, it is the other way around: small to medium-sized ones are of much more benefit.

2080. **Mr Flanagan**: To the wider electricity consumer base.

2081. **Mr B Bell**: To the whole community, yes. The grid could cope with it better.

2082. **Mr Flanagan**: That is interesting. Thanks for that.

2083. **The Chairperson**: Gentlemen, thanks very much for your time. We perhaps sprung a few questions on you a wee bit, so you may want to send additional information. There were a few issues that were a wee bit unclear. If you want to expand by supplementing what you have said with further technical or other information, that would be very welcome. It was good to see you.

7 October 2014

Members present for all or part of the proceedings:

Mr Phil Flanagan (Deputy Chairperson)
Mr Steven Agnew
Mr Sydney Anderson
Mr Gordon Dunne
Mr Paul Frew
Mr William Humphrey
Mr Fearghal McKinney

Witnesses:

Mr David Surplus *B9 Energy Group*

2084. **The Deputy Chairperson**: Briefing the Committee from the B9 Energy Group is Mr David Surplus. You are very welcome, David. Do you want to make your opening statement, and we will follow up with some questions?

2085. **Mr David Surplus (B9 Energy Group)**: OK. Hello, everybody, and thanks for inviting me. I would like to open by reminding you about B9 Energy and the relevance of what we have done in the past. We started in 1992 as a wind farm developer. We were one of the most successful of the early pioneering companies and built 10 wind farms altogether in Northern Ireland. In 2006, we recognised that onshore wind farming had ceased to be entrepreneurial — the best sites had gone, there was more competition, it was a bit more difficult to get planning permission and grid access was becoming difficult — so we sold that company and cashed out of onshore wind development. We put the proceeds from the sale into the other emerging renewable energies. We built an anaerobic digestion plant and are commissioning the large digester at Dungannon, which is the largest on the island of Ireland. We also invested in developing solar photovoltaics (PV) projects. We also recognised that energy storage would be needed in the future: the higher and higher penetrations of intermittent renewables on the grid meant that, sooner or later, we would have to store a lot. We also developed an interest in offshore technologies and have worked up projects for tidal energy on the north coast and for offshore wind. We are part of the First Flight Wind consortium that holds the Crown Estate licence for developing the offshore site off the County Down coast.

2086. The recent figures from the Department of Enterprise, Trade and Investment (DETI) suggest that there is a chance of significant curtailment of wind power by 2020 — maybe even up to 9% of delivered energy — because of the lack of load at the times when the wind is blowing. For a very large project like offshore wind, that is a potentially significant barrier to investor confidence etc.

2087. We set about trying to define which of the energy storage technologies would be the most useful in smoothing out the intermittent renewables in the Northern Ireland context. We conducted four years of in-house research on batteries, compressed air, electrochemical processes, electrolysis, hydrogen methanisation and ammonia. We looked at all of those techniques. We also looked at how to convert electrical energy into heat and at electrode boilers, heat pumps and large-scale water storage. In trying to establish the balance between load and generation, we quickly realised that a new technique of microgrids emerging in the United States, Germany and Denmark would be relevant for the deployment of energy storage. In fact, microgrids need energy storage as much as energy storage needs microgrids, and renewables need the whole lot.

2088. Our energy storage company has now gone down the road of trying to understand how microgrids work — what they are for a start — and how best to try to deploy them in the Northern

Ireland context. We really are looking at everything, starting from a domestic house with solar panels on the roof that currently exports all its unused power to the grid. We are looking at allowing it to hold on to some of that power in a battery and use it after the sun has gone down. The investment in an energy storage battery would be justified by the avoided cost of importing power from the grid. Moreover, it is lawful to run a private line to your next-door neighbour, join hands with him and work together. You might have a big roof and no power; he might need a lot of power but have no roof space. So the two of you would work together. That is the first point at which you would consider forming a microgrid

2089. We are working on a microgrid for the Willowbank industrial estate in Larne, and it will be a grouping of five or six firms. They all have different power requirements and different areas of roof that would be useful for solar. We are trying to integrate them all. We are working with Coleraine Borough Council on a very large-scale urban microgrid and with the Down District Farmers for Renewable Energy, a local community group, on a large-scale rural grid network at Lecale in County Down.

2090. There are difficulties with microgrids, of course, but they promise to strike a much lower price for electricity than you currently have to pay to the main system. A load customer would not pay as much for their electricity, and a generator connected to a microgrid would be paid more for their electricity than the current offtakers pay. So it is a win-win, irrespective of whether you are a load customer or generation stakeholder. Both would benefit.

2091. In Germany, the preference is for social enterprises as the ownership model for microgrids. We have teamed up with the Larne Enterprise Development Company Ltd (LEDCOM), a social enterprise specialist, and are looking at how we can establish the governance of microgrid companies. They would be limited by guarantee, probably have charitable status, and they would be social enterprises. That way you would get the buy-in from the various authorities, including the planning authorities, and gain the confidence of the industrial and commercial customers who would become part of the network.

2092. We are intentionally leaving out the domestic sector from microgrids at the moment because you cannot really rely on them as a source of long-term power purchase agreements. However, once a project is across the line, is financially closed and at construction phase, you would then go to the domestic sector and sell them power. That would be on a shorter-term basis and done through the social enterprise mechanism as a way of reducing fuel poverty. People's ability to pay their bills would be determined and a price given to them that would allow them to have affordable energy. That gives the industrial and commercial stakeholders in the microgrid a good route to corporate social responsibility, which they are very interested in.

2093. That is where we are at. I know that you have some questions, and I am happy to answer them as best I can.

2094. **The Deputy Chairperson**: Thanks very much for the presentation, David. What is the potential scale at which microgrids could operate here?

2095. **Mr Surplus**: On the urban side, the microgrid proposed for Coleraine would contain about seven miles of buried cable, and in the same trench will be a heat pipe. That microgrid would link all the industrial estates, the hospital, the university and the town centre traders under one system. It would have a 33,000 volt network and connect to a 110 kV substation. That is the footprint of an urban system. In rural environments, we were very keen to see the regulations for the single electricity market (SEM), a provision called a demand side unit that allows third parties to take control of the 11 kV networks.

2096. It is not yet fully developed and cannot be done today. However, we thought that, with a bit of development, it would be a good mechanism whereby we could

take on board the monitoring and control of 11 kV rural networks and establish those as part of the microgrid. It would terminate at the 33 kV substation. If we were to do that, we would be able to do it another 69 times because there are about 70 such rural substations in Northern Ireland.

2097. **The Deputy Chairperson**: At what capacity could the microgrid that you propose for Coleraine operate?

2098. **Mr Surplus**: We do not know yet. We are writing the strategy document and will present that to the council in November. Provided the council accepts it, we move to the technical and commercial feasibility. Eventually, we would work up an economic appraisal in readiness to send to funders, both public and private, to try to get the money together to build it. In theory, the microgrid would take in just about all of the existing loads in the town.

2099. **The Deputy Chairperson**: In a best-case scenario, how soon could it be up and running?

2100. **Mr Surplus**: I do not really know. It would depend on the complexities of the necessary permissions, wayleaves and planning, as well as the level of support from the local community and the council. So far, this has not really been done in the UK on this scale. It has been done in other countries quite successfully, and we are trying as best as possible to use models already developed in Germany and Denmark, for instance, and adapt them for Northern Ireland conditions.

2101. **The Deputy Chairperson**: You talked about 9% curtailment. Is that for onshore and offshore wind?

2102. **Mr Surplus**: I cannot remember, but it is a big number and way beyond the difference been profit and loss as a wind farm owner-operator. Therefore, a very serious question in the future is whether wind projects will be viable, because power purchase agreements with the offtakers of energy would contain a clause saying that the wind farm is subject to curtailment from time to time. It would not be prescriptive about when it would happen or how long each episode would be. All that it would be able to say is that, over the life of the wind farm, the problem would steadily worsen.

2103. Northern Ireland has one of the highest penetrations of wind on any grid in the world, so we are beginning to get those problems. That high penetration has the potential to bring the wind industry to a halt. Of course, because it is the cheapest form of renewable, it is the mainstay of our moving towards our renewable targets. Rather than curtailing the wind turbines, we want to be able to put a controllable load on to the grid at the right moment and have enough of it so that we can just flick a switch and put on the load, meaning that turbines do not need to be curtailed. That would preserve the revenue streams for the wind farm owners and allow them to have fewer financeability issues. We think that the application of the load at the right moment is, therefore, a very valuable service to the wind farm industry. Of course, it will have to pay for that service. It is probably worth about one third of the revenue from the wind farms at the time when the load on demand is in place. For an offshore wind farm, the fee for providing the load on demand might be around 5p a unit. At the same time, the energy storage, or load managing, company would have to buy its electricity from the single electricity market. However, at the point of curtailment, the market price comes right down to its minimum to try to dissuade new generators from coming on. Therefore, you would be buying your power at 2p or 3p at the same time as somebody was giving you 5p for the service that you were providing. So, to an energy storage company, it could be a negative net cost of electricity. If you start putting that into the economics of batteries, isothermal compressed air energy storage and even into electrolysis, you begin to see that, in this new world, there is a type of economic driver that did not exist in the past. We are trying to identify that, characterise it, quantify it and convert it

into revenue streams that would help to monetise the technologies so that we could bring these projects to market.

2104. **Mr Frew**: Thank you very much, David, for your information so far. Your presentation was very informative and very impressive, and you gave it without notes, which is very good. You certainly know what you are talking about. I am intrigued by the concept of microgrids. I certainly have a thirst to learn more about them. Maybe the Committee should look at researching the best models around the world at present. I understand the concept and the rationale, but I still cannot get into my head how it works in practice. I assume from your presentation that, to some degree, you work on that as you go along because it is not yet a complete science. Say, for example, that an 11 kV grid supplies everybody. You have a microgrid and want to lay an almost parallel circuit to pick up everybody in a town the size of Coleraine, and you also want to take control of the 11 kV system. How do the cabling, switch gear and technology work in practice? How can your circuit operate parallel to the grid as we know it?

2105. **Mr Surplus**: There are different types of microgrid. One is off the grid, which is autonomous and separate from the grid. It would be for an area such as a small island and is sometimes called an islanded system. It is self-contained and does not use the existing grid at all.

2106. Another type is a grid-tied microgrid, which sometimes acts on its own and sometimes is connected to the grid so that power can move from the microgrid on to the main grid, and vice versa. The amount of energy transferred across that grid tie is determined by two things: the maximum import capacity (MIC) and the maximum export capacity (MEC), which are different. The existing grid was designed for one-way traffic from the central power stations to all the loads distributed at the end of the 11 kV networks. It was not designed for generators to be embedded into the 11 kV network. If you have an existing grid connection, you can use it up to the maximum import capacity any time you like as long as you are connected and everything is safe. A microgrid would want to do that because most of the wind farms are out in the west of Northern Ireland. They connect in at up to 110,000 volts, and that power can make its way over to the east. So, if you had a microgrid in the east, it could organise itself to put its loads on to the grid at the right time, when the wind was at its peak, and allow the turbines to continue running so that they would not be curtailed. You would import off the grid up to the maximum import capacity every time that happens.

2107. When the wind dies down, that routine comes to an end until the next time. You then batten down the hatches: you have stored some of that energy and converted it into heat. You have compressed air tanks and full batteries, or whatever, and you start to use that internally, not with the grid in mind. You try to consume it in a managed way. Then, if you get to the point at which you are also generating on the microgrid — you might have solar panels and wind turbines connected to your own cables — you might want to export on to the grid, but you really want to avoid doing that because you do not get much money for it. Also, it means that, at another time, you would have to buy from the grid at a high price. Part of the economics of the microgrid is displacing the need to import high-price power off the grid, so that avoided cost is the economic driver. So, you are really looking at one-way traffic off the grid with the minimum possible going on to the grid, and anything that does go on to the grid would be at the peak time of day, between 4.00 pm and 8.00 pm, when energy prices are high. Then the energy storage plant can get involved with arbitrage, which is buying energy cheaply and selling it at a high price. That is one of the tenets of the economic viability of an energy storage project.

2108. A third type of microgrid is one that is on the grid. Commandeering may not be the right word, but you utilise the existing 11 kV network as if it were a microgrid and

manage it in a way that microgrids are managed. You use the same technology. In fact, the technology for managing a microgrid is exactly the same as the technology for managing the main grid anyway. General Electric (GE) has its UK headquarters in Bracknell, London, where it demonstrates all electrical control systems for 110 kV and the 33 kV systems. It does that for just about all of the utilities in GB, and it does some work here in Ireland as well. GE would simply give you an 11 kV version and monitor the voltage, principally, and the frequency on the system and ensure that the generation and load were always in balance. It would do that not only by curtailing the generators, which is one method, but that is the last option. Before you do that, you put as much load on to the system as you can, and the secret is to have as much controllable load as you possibly can.

2109. That is where Coleraine is so good, because it has the River Bann and a heat pump that would produce a lot of background heat for a district heating system taking in the whole town. On to that exact system, you put electrode boilers, which are very small and cheap but consume vast quantities of electricity to produce great quantities of hot water in a short time. They can keep going hour after hour after hour. It all depends on how big your water tanks are. In Coleraine, we propose to put in something in the order of 20,000 tons of hot water in five big tanks, each 20 metres in diameter and 20 metres deep. That very large thermal store would heat the town for days on end, even when the wind dies down. Coleraine is also particularly attractive because it has tidal farms feeding into it. Although intermittent, they are completely predictable, and there will be times when there is just too much power coming from the tide, and Coleraine would act as a sponge and soak that up.

2110. **Mr Frew**: So you need technology, storage capacity and generation, whether from solar farms, wind turbines, tidal or thermal, all of which come at a cost. Who pays for it?

2111. **Mr Surplus**: Broadly speaking, it is about the infrastructure: cables, wires, transformers, pipes, tanks, conversion devices, batteries and storage tanks or air. In Germany, microgrid companies are established as social enterprises, with, typically, a council and an electricity utility company coming together. All other stakeholders, be they load customers or generator customers, become shareholders in that social enterprise company. The company would then develop, own and finance the project, meaning that people connecting to the network do not have to pay for the capital expenditure or the grid connection.

2112. **Mr Frew**: What about with standard controls and rules of engagement, for want of a better word? Here in Northern Ireland, there is periodic price control, and NIE is a massive instrument in that, as is the System Operator for Northern Ireland (SONI), in monitoring and controlling the grid. Where do they fit into it all? Where is the cost burden or profit for them? What part do they play in the infrastructure?

2113. **Mr Surplus**: If a 33 kV private network is built as part of a microgrid, it has to be handed over to NIE to be the owner-operator. NIE would be responsible for it, and it would become its asset, but the trading over that network would be done by the microgrid company. The control system would have to meet the approval of SONI and all the other grid codes. It would all have to be approved and be compatible.

2114. **Mr Frew**: Did the Utility Regulator miss a trick in the most recent price control with microgrids? Was it aware of microgrids in the most recent price control? Was that a factor?

2115. **Mr Surplus**: I do not really know about that. We have been looking at microgrids for about three years now. That is fairly normal for the UK. They have been around for a few years longer than that in Germany, Denmark and the United States. It is all new stuff. A lot of people need to get up to speed before we can

press any "go" button. Of course, that is what we are trying to do now.

2116. **Mr Frew**: Chair, I think that Fearghal wants to come in with a supplementary question, but my last question is on the Frost Valley project in upstate New York. Are you aware of that project?

2117. **Mr Surplus**: I am not.

2118. **Mr Frew**: My question is this: would having microgrids here be more to do with security of supply or more to do with the cost and generation of electricity?

2119. **Mr Surplus**: In my book, it is to do with avoiding the curtailment of wind farms. Of course, microgrids offer a duplicate source of energy to people who are concerned about security of supply and reduce the cost of energy to industrial customers, who are the ones particularly affected in Northern Ireland at the moment by high prices.

2120. Microgrids will solve different problems for different people. In the United States, it is about resilience, because of storms like Hurricane Katrina coming through. Where there is a tendency for there to be blackouts, only parts of the grid will go out, while other parts will be preserved. America is also very concerned about the threat of terrorism. Some of the big central substations could be taken out, which would black out large areas.

2121. **The Deputy Chairperson**: David, do you have any idea what financial savings a microgrid could offer against curtailment costs?

2122. **Mr Surplus**: For the wind farm owner, it means that you would continue with your revenue streams.

2123. **The Deputy Chairperson**: No, I mean from the point of view of an electricity consumer.

2124. **Mr Surplus**: I do not really know what the overall effect would be. What I do know is that we would see more of our home-grown energy used, rather than not used. That, in the round, would mean that we would import less gas to the power stations.

2125. **Mr McKinney**: This is just a small point, but it was raised last week, and it could be a big point, depending on what way that you answer. If a microgrid is off the grid, that advantages, for example, Coleraine, but it disadvantages consumers elsewhere, because we will still be left with the bill for the connections, etc, which Coleraine is not now paying for. In the narrow sense, it is valuable for the locale, but, in the wider economic sense, it still has the potential to disadvantage, does it not?

2126. **Mr Surplus**: I come back to the point that I made that we would still be using the existing grid to a large extent to pull in wind off the system when turbines would otherwise be curtailed. There would be that one-way traffic of energy into the microgrid, on into the future. That would allow more turbines to be built. When it is windy, those grids would be fully utilised in the way in which they were originally intended to be used. There are no real restrictions on that. We would be sucking all that power into the microgrid and holding on to it. Then, when the wind died down, we would try to use it.

2127. You are right that, at that point, we would not just be taking it off the grid willy-nilly but be using our own microgrid sourcing. If we had excess energy stored up, we would want to export back out on to the grid between 4.00 pm and 8.00 pm when the prices are high. That would mean that the Ballylumfords and Kilroots of this world would not have to carry so much spinning reserve for that peak in the evening. A microgrid would reduce the peak of generation in the evenings. Those are some of the benefits that we would give back to the main grid.

2128. I understand what you say. There would be an element of those customers who found themselves without the benefit of a microgrid having to begin to shelter quite a bit of the grid's running costs. It may not be as big an effect as you first might think. Of course, part of the feasibility studies would have to go into

all of that and define and quantify it. At the moment, it is all kind of conceptual. If it did have the effect of putting electricity prices up, all that that would mean is that it makes it more viable for people to go down the microgrid route. They could do that in the context of their own house as well.

2129. Companies such as Bombardier have now decided that they should do this themselves and effectively form a microgrid. I do not know whether they are calling it that, but effectively what they would be doing is taking their energy provision into their own control. For other companies, if the electricity price continues to go up at 7·5% a year, which is much more than the retail price index (RPI) — our power purchase agreements (PPAs) in a microgrid are index-linked for 20 years, and there is only RPI uplift — more and more businesses will make the decision to go down that route either on their own, in their industrial estate or in their town.

2130. **Mr McKinney**: In the absence of analysis, what you are saying is that there could be a big impact on the widest population not on that microgrid, notwithstanding what you are saying about the flows backwards and forwards, work to be done, modelling, etc. The concept of Bombardier leaving has an impact. The concept then of a load of people leaving has an impact on all those who cannot leave, because they do not have the connectability, the resource or whatever.

2131. **Mr Surplus**: I think that it is right to say that it has an impact. The impact, in our view, has not really been explored properly yet. We need to determine whether it is true to say that there will be a big impact.

2132. **Mr McKinney**: Those are important questions to answer, and should they not be answered before the development of other systems? Should the modelling not be done first to allow people to make confident decisions? The discussion that we had last week was on government's responsibility to look after the widest population and to ensure that the system is robust, in that it has the strength to take load, and all the rest of it, and is economically viable for as many people as possible, thus opening the door for everybody to take the low-hanging fruit, if you like. That is a pejorative term, but you know what I mean. It would allow people to take the advantage for themselves. Otherwise, from a social-justice perspective, swathes of the population would be unable to make decisions when faced with a bill.

2133. **Mr Surplus**: I accept that a lot of analysis needs to be done. All sections of society need to become involved in that. The only way in which we see that being done is through pilot projects and by trying to use the project environment to flesh all of that out. All the approvals that we need to go through allow everybody to ask those questions and get the answers that they need to hear. The industry is certainly minded to go down that route now. Of course, it does have a social agenda, but it is not perhaps at the top of its list.

2134. **Mr Dunne**: Thank you very much for coming in. I understand that NIE is issuing revised heat maps, and we have heard a lot about the need for them. What is your opinion on that? Do you think that they will help developers with their decision-making for future projects?

2135. **Mr Surplus**: The heat map is really a visual representation of the modelling that NIE does on its system to show what effect there would be on voltage and thermal ratings when generators are applied or not applied. Rather than having to ask NIE every single time about every single case, the heat map has been a useful tool for developers. From the colour on the heat map, they can make a decision without having to ask NIE. Therefore, it saves time and effort on the part of NIE and the developer. Most developers have to recognise that they take a development risk, as there are no guarantees that their project will be built, and there are a lot of hurdles that they have to get over. Developers would have to

understand the constraints that there are with grid connection and take a view as to whether they want to develop a particular project. The heat map is a very valuable tool with which they can begin to do site selection.

2136. **Mr Dunne**: What about your experience with NIE? How have you found it with regard to renewable projects and making connections?

2137. **Mr Surplus**: We have worked with NIE for 20-odd years. All our wind farms are connected to the NIE system in the North. We have had a very good working relationship with NIE, and we have sat on various committees together. From an engineering point of view, we have had no difficulty with it. NIE limited the size of our wind farms at the beginning, because it was not sure what effect we would have on the voltage and the frequency. However, the operating experience was that wind farms did not have such an adverse effect as NIE was worried about, so it allowed the wind farms to be bigger.

2138. The wind farming world is fine with it, because all the clustering, new substations and reinforcements out in the west to bring on the big wind farms is a well-established process that is working very well. Some people may have issues with it, but I think that, generally speaking, it is working very well. The problem that I have noticed is that, when you come down to the smaller farm-scale devices and try to connect to the 11 kV network, because it is dumb and blind — there is no monitoring and control — NIE always runs the risk that the voltage may rise above the statutory limit if there is too much wind at a time when there is not enough load. Therefore, typically on a summer's night, you find that there is a big risk that the statutory limit will be exceeded, and NIE is not allowed to tolerate that happening.

2139. That is the background, but the solutions are not simple either. In some cases, the connections can be done straight away, while, in other cases, you have to put the turbine next to an existing load, such as a dairy farm or chicken farm, to try to provide the balance. However, in our Lecale microgrid project in County Down, there is virtually no prospect of a cost-effective grid connection any time soon, yet the airfield at Ballyhornan could have up to 30 MW of solar PV. It is a very good solar resource, landowners want to do it, government incentives are in place and targets are there to be met, but Lecale cannot do it because there is no grid. Rather than export the power from the site, we propose to bring the load into the site and establish chicken farms, fish farms, hydroponic —

2140. **Mr Dunne**: On the site?

2141. **Mr Surplus**: On the site. Bring in new agro-industry that would provide —

2142. **Mr Dunne**: At Bishopscourt?

2143. **Mr Surplus**: Yes, at Bishopscourt. Lighting, heating, ventilation and pumping of water need electricity, and we build up the electricity at the same time as building up the new businesses. That is really because we are not able to go on to the 11 kV network with microgrids.

2144. **Mr Dunne**: Briefly, what would you do with any surplus electricity from that project?

2145. **Mr Surplus**: We would put it into very large hot water tanks probably.

2146. **Mr Dunne**: You would use it all.

2147. **Mr Surplus**: We would use that in the fish tanks, chicken houses and hydroponic tanks, and we would also hook up to the housing developments in Ballyhornan and provide them with heat.

2148. **Mr Dunne**: OK. Thanks very much.

2149. **Mr McKinney**: Can I ask about the storage issue again? There is the economics argument that has been touched on around storage, but, in practical terms, how effective is, for example, compressed air storage compared with batteries?

2150. **Mr Surplus**: There are several types of compressed air energy storage. There is a very big project being done at Millbrook in Larne by Gaelectric, which is a wind farm developer, and that is using salt caverns. A surface compressor compresses air into the ground and into the cavern that is made, and that air then comes out and goes through a gas turbine to generate electricity. Gas is being consumed, but, overall, because the compressors are running when wind farms are running, it is an environmental benefit to do such a project, but it is constrained to being put only where salt cavern reservoirs are. It cannot be put just anywhere.

2151. The more versatile technology that we have decided to focus on is called isothermal compressed air, which is technology that is emerging now from California. It is very small in scale, but it is modular, and, like Lego bricks, it can be built up into whatever size you want. You can put it at power stations and substations, and it can be done for end users, in whatever configuration you need to get round the bottlenecks on the grid and to avoid grid-upgrading. We are talking about constraints rather than curtailment now. It is basically a device that is a compressor/expander, and, when the wind is blowing, it runs as a compressor and compresses air into a tank. It also stores the heat of compression, and that is typically where inefficiency creeps in with compressed air. It stores the heat of compression in the hot water tank, or warm water tank, and then, later in the day, from 4.00 pm to 8.00 pm, the unit becomes an expander. It takes the air, the expander drives a generator, and you export on to the grid. To prevent it freezing into a block of ice, you use your warm water. There is 95% thermodynamic efficiency, and that means that you are getting very high return-trip electrical efficiencies of around 60% or 65%. If you locate next to a waste heat source and make the warm water into hot water, you can increase the efficiency further. We are looking at doing trials at Lecale and Coleraine with isothermal compressed air.

2152. There is adiabatic compressed air as well, which allows the temperature to rise up to 400°C. You still store the heat, but your are storing it in molten salt rather than warm water. The two are just different technologies. They are competing against each other to get to market first, and we are talking to both industries. The projections are that the cost of energy storage through that method would be about half the price of electro-chemical batteries, and the beauty of that is that you disassociate power with energy storage. For instance, in a battery, if you want more energy storage, you have to have more power. If you want more power, you have to have more storage capacity. They are inextricably linked, whereas, with this, you have the compressor/expander, which is your power unit, and you can make that whatever size you want. Your energy store is just tanks and pipes underneath the ground, and you can make as many of those as you like. It is very important for us to match the storage capacity to the length of time that the wind farms run for. They can run for 24 hours at full power. It does not happen that often, but it does happen. It is no good your batteries being charged after one hour or two hours. What are you going to do then? You will still have to curtail the turbines anyway. We need something that you can keeping running hour after hour after hour. Isothermal compressed air allows you to do that. The energy then comes back as electricity. If you have electrode boilers, you can do it hour after hour, but you are making hot water, so it can never come back as electricity. You need a load for the hot water at that point.

2153. **Mr McKinney**: I have no concept of the scale. How small could a unit be that would be still effective in delivering hours of electricity?

2154. **Mr Surplus**: The current technology is using reciprocating compressors. A 500 kW unit would be in a 20-foot container. If you need 2 MW, you will need four 20-foot containers.

2155. **Mr McKinney**: Is it transportable? Could you take that energy in compressed

format to a site that does not have a wind farm and power something there?

2156. **Mr Surplus**: You could in theory, but, you would not do that in practice. You would establish the power units where the grid needs them to be — where you need the load and generation.

2157. **Mr McKinney**: You need to offload the extent of power that you have saved. You have another area that does not have a wind farm and has a weakened grid. Why would you not transport it?

2158. **Mr Surplus**: Transport the compressed air?

2159. **Mr McKinney**: If it were the size of a 20-foot container, why could you not put it on the back of a trailer with its compressed air and take it to somewhere that needs it?

2160. **Mr Surplus**: You would just put another one in. They are distributed, and you put them all over the place. Wherever the grids needs it, you would put a new one.

2161. **Mr Frew**: Travel on the grid.

2162. **Mr McKinney**: From what you are saying, some form of the compressed air is the more efficient system for storage and return of energy at a higher level of loss.

2163. **Mr Surplus**: Yes. The projections are that it would be more efficient and cheaper. You cannot buy the system today, as it is still being developed, but an awful lot of money is being spent on doing that. Energy storage is one of the key things for the future of the renewables industry and our whole effort to combat climate change. It must be a success.

2164. **Mr McKinney**: It may answer some of the issues around what we were talking about earlier about the microgrid, because that is your return to the system.

2165. **Mr Surplus**: Yes. It is just like a big spring, storing up energy.

2166. **Mr Agnew**: Thank you very much, David. Over the years, I have been very impressed with B9. It is great to see, because, obviously, I am somebody who tries to promote the renewables industry. However, a local company is now showing that we can do it here. You mentioned the 10 wind farms that you have developed. You are part of the consortium involved in the first offshore project, and there are now microgrids as well, so you are a local company involved in innovation in a global industry, which is great to see. It is also great to see that you are successful in doing so.

2167. The microgrid idea is quite new to us as a Committee. We are still getting our head around some of the ramifications of it. Everything to date that we have looked at has been about the big grid, with the interconnector being the huge issue, but even projecting forward, there is the idea of a Europe-wide interconnected grid. Does this in any way run contrary to that, or do you see both things needing to happen simultaneously? Is this an alternative? Could we just have a series of microgrids? Perhaps we would not need that interconnection because we could have much more localised containment, or should the two be operating in tandem?

2168. **Mr Surplus**: They are complementary. They would operate in tandem and become part of a new hybrid system, in which you need the large-scale grid for large-scale transportation from big, central power stations, which, in theory, we still need because of inertia in the system and to keep the frequency correct. There may be ways around that in the future, but they are pretty embryonic at the moment. You need to be able to connect to the old style of centralised generation and have access to market for those power stations. At the same time, the way in which renewables are coming up now, a lot of them are distributed on a very small scale.You may as well deploy those, after you have done energy efficiency properly, and use that generation locally, because you will not then incur I^2R losses from transmission distances. The efficiencies would be better if you were

to use them locally. However, small-scale generators are not, by and large, as efficient as the big ones. Large wind turbines are much more cost-effective than small wind turbines.

2169. **Mr Agnew**: When you said "centralised generation", I suppose I was thinking of fossil-fuel generators. Would you consider a large wind farm to be, to some degree, a centralised form of power production?

2170. **Mr Surplus**: They are becoming so now. A large offshore wind farm would connect to the 275 kV network and sit alongside conventional power stations.

2171. **Mr Agnew**: So, even if we move away from fossil-fuel generators to 100% renewables or whatever, you will still need the large interconnected grid.

2172. **Mr Surplus**: Yes, and you would still need to use it in the conventional sense for which it was designed — the one-way traffic, and the large central generation down to the extremities of the customer base. The difficulty arises when customers try to send power back up the other way. The transformer is not designed for reverse power flowing. That is the difficulty, and we have to understand and allow for that, try to remove the problem areas and, at the same time, create new value. In a funny sort of way, out of the mist, these microgrids look like they could do that. We just need to get some projects done so that we can really get into the nitty-gritty and find out what the problems might be for universal deployment.

2173. **As a developer, we always have to ask this question**: "What would stop this project?" You have to find that out as soon as possible, so that you can give up and not waste your time or money. So far, we have not come up against any showstoppers on microgrids.

2174. **Mr Agnew**: OK. Which of your microgrid projects is more advanced and likely to come to fruition first? Is it the Lecale project, and you mentioned Coleraine? You said that you had to get one off the ground to see what is right or wrong for the others. Are any of them particularly further ahead?

2175. **Mr Surplus**: No, they are all running fairly well in parallel. I would like to get them all done, because we have chosen different sorts. We have large rural, large urban, small urban and a sort of domestic-level thing. We are trying to get all those done, so that the representation of the market sector —

2176. **Mr Agnew**: Which is a pilot in its own right?

2177. **Mr Surplus**: Yes. Some of them will be more potent than others. Which one will be successful first depends, in my view, on how much drive comes from other stakeholders in the project. Coleraine Borough Council, which is driving the microgrid up there is, in my view, the most proactive council in Northern Ireland. It is seeing that bolstering its enterprise zone status with low-cost electricity, which is greener in an environmental audit and has longer-term price security, is good and will provide a differentiator in the enterprise zone arena.

2178. **Mr Agnew**: You mentioned rural, which kind of, comes back to Fearghal's point. You described that as a win-win. Our concern is that it is win-win within the microgrid, but that everybody externally loses. You touched on that. Is it more difficult to do? Would you anticipate the possible scenario of having separate microgrids for rural areas where, I think, you have a more domestic but dislocated population and no big industry and where rural areas end up paying for the cost of the larger central grid?

2179. **Mr Surplus**: It is still difficult to comment on costs. There will be a rural problem if NIE continues to not allow microgrids to adopt part of the 11kV network. Then, farms, or agri-industrial plants such as creameries that you find in the countryside, would be fairly stranded. They would be on their own and would have to provide their own generation. It would be more like a self-generation situation, and it would only be if, fortuitously, a neighbour had a

wind turbine that they would be able to hook up.

2180. If you had a lot of people wanting to join in to that microgrid, they would all have to live next to one another so that the private line that goes from one property to the next would be uninterrupted. It would be much more difficult to see how that could completely satisfy rural demand, but, of course, it is early days in this. I fully expect that NIE, at some point, along with other distribution network operators in GB and the Republic of Ireland, will simply jump on to this and start doing it. I expect that they will bring forward projects that will utilise their networks in this intelligent way. It is not a technical challenge really because that level of monitoring and control is present at 33 kV. It is just that it has never been seen as something that was needed in the first place and that was then justified. At the end of the day, there is a small number of very small generators compared to the big wind farm situation. So, it is a cost and an effort that somebody has to go to at the moment that no one is particularly minded to embrace. That will change, I think.

2181. **Mr Agnew**: Finally, I want to come back to the issue of ownership, which I think Paul mentioned. When the UFU presented and talked about Lecale, they talked about the existing infrastructure and, effectively, using what is there. How much is this about developing new infrastructure and how much is about developing the existing infrastructure? You said that in the case of using NIE's infrastructure and developing your own, NIE and SONI would be the owner-operator. How does that work? I am not sure about ownership, who pays, and who runs the grid ultimately. We are used to NIE and SONI, and we kind of understand that. This is different.

2182. **Mr Surplus**: Yes, and the existing situation is that if we build a wind farm with its own substation on top of a hill and then have to put in 5 kilometres of new line to get to an existing point in NIE's system, where we could either tee in to a line or connect to a substation, our wind farm project would have to pay for the turbines, the substation and the new line all the way down. We would develop that, and it would be our cost. However, from the point of common coupling at the substation on the wind farm, the NIE side of it, with its protection units, transformers, and all the rest, would be handed over to NIE as an asset. So, it comes into NIE's ownership, and NIE is responsible for its maintenance. However, we would have to pay for it in the first place. In my view, that would be true of any infrastructure on a microgrid that was at 33 kV or 11 kV. The way the regulations are, it is about the body tasked with keeping health and safety correct, and it would have to do that. You cannot argue with the regulations on health and safety regarding electricity. It is very dangerous stuff.

2183. The project would pay for it, but it would go into somebody else's ownership in the fullness of time. If some of these pieces of cables and wires go across stakeholder boundaries, they can be in private ownership. They are behind the meter. It is just like if you want to run some extra cables from your house down to the bottom of your garden for a summer house. You can do that, and you do not have to tell NIE about it. You have your meter and you have your fuses, and everything is OK. Similarly, a large industrial complex could put in new load and new generation. As long as it is all protected by the G59 relays for over-under voltage, over-under frequency and rate of change of frequency, then the grid is protected against any fault you might create. For instance, there is a 500 kilowatt wind turbine at the Antrim hospital, and everything it generates is absorbed in the hospital. It never exports to the grid. Therefore, the hospital's grid connection did not have to change.

2184. **Mr Agnew**: Is it just when it hits the substation? I am still trying to understand when NIE says it is theirs. You used the example that it can run between two neighbouring farmhouses and that that can be done privately.

I suppose, essentially, it is when you connect into the main grid, and there might be a two-way connection. Is that it?

2185. **Mr Surplus**: Yes, I think that 11 kV would be the threshold.

2186. **Mr Frew**: Just on that, there was an issue around dual connections, particularly for farmers who had a turbine, which was that you cannot have two connections — one grid connection and a connection from another source — due to health and safety reasons, because if something had to be isolated, there would still be a live feed. Has that been resolved? It was not so much about ownership; it was a health and safety issue. The Ulster Farmers' Union told us last week that it was resolved, but I am not sure how or when it was resolved.

2187. **Mr Surplus**: I do not have any experience of that. I know that the farming world had to make a separation between farming and non-farming activity to attract grants.

2188. **Mr Frew**: The same principle will apply here. If you have another grid, and the load is going in and out of houses, factories or whatever, and there is a dual connection as opposed to the ordinary grid, you will still have the same health and safety issues.

2189. **Mr Surplus**: Yes, absolutely, but the responsibility for health and safety would lie with the microgrid company on the private network side, behind the NIE meter. The point of transfer of responsibility is at the G59 panel or at the point of common coupling to the grid. That is how health and safety would be demarcated. Both parties have to comply with the grid code and all other relevant regulations.

2190. **Mr Anderson**: Can I ask a quick question? I am sorry for having to nip in and out. What is the utility operator's position on this whole thing? Does it have an opinion?

2191. **Mr Surplus**: I think it is generally supportive of the view that microgrids have the potential to provide some benefits and solve some problems and is open to support proposals that come forward in any way it can. There has been a series of conferences on microgrids in Belfast in recent years called Acumen, and they have been very well attended by distribution network operators from GB. It is a very high-profile event, and the regulator's office was present at last year's conference. We heard presentations from microgrid operators in New York city, Austria and Denmark. All the people who were there were thinking that there is something in this. I am sure, like everything else and everybody else, it is still early days. We are all just trying to understand how to get this thing to move in a way that suits everybody, that there are only winners and that there are really not any losers. If there are people who lose out, then there are fights and disagreements, and that is counterproductive to getting where we need to be, which is a much higher penetration of renewables on the system so that we can meet and exceed our targets and help to solve climate change.

2192. **Mr Anderson**: I think that I said utility operator when I meant the Utility Regulator, and you picked up on that. Do you hope to have more conversations with the Utility Regulator as this rolls out and as you bring it forward?

2193. **Mr Surplus**: Yes.

2194. **Mr Anderson**: You said that the regulator is sympathetic to the process as a way forward. How much more conversation do you hope to have?

2195. **Mr Surplus**: Provided that Coleraine Borough Council approves the strategy document we produced for it, we will be tasked with socialising the report to the various stakeholders, including industrial people, commercial people and residents' associations in Coleraine. We would also go to the Utility Regulator, NIE, and others who would have a bearing on the successful outcome of the project.

2196. Socialising the report would be a two-way discussion with the regulator. It

would be to say what we feel could be done, based on the examples from Germany, in particular, and Denmark, and give our take on the opportunities that are on the ground in Coleraine, some of the shortcomings we foresee already and the barriers to doing it that we identify. We would then let the regulator come back to us with more questions. The next step includes technical and commercial feasibility. We need to populate a big list of tasks that the feasibility study would undertake. The regulator is very welcome to define a lot of the challenges and questions that we need to ask ourselves. That is, you could say, consultation.

2197. **The Deputy Chairperson**: David, will you tell us a wee bit more about Project 40? The Ulster Farmers' Union raised it with us last week and it is something that members would like to gain better insight into.

2198. **Mr Surplus**: I have not had any direct involvement with Project 40 and do not actually know the full technical details of it. Like you, I have heard about it second-hand through the Ulster Farmers' Union, which is involved in the project. From the outside, it looks to me as if it is really a question of curtailing the smaller embedded generating wind turbine. Of course, in any microgrid situation involving those machines, if you get to the point where you have not got a load to put on to the grid to make the balance happen, you must curtail the wind turbine. So, every microgrid will have a piece of logic to say, "switch the turbines off". Self-curtailment will be in it. Project 40 looks like it is going to do just that bit of microgrid logic, where, if the voltage rises to some threshold, you can switch it off. That would be a welcome step forward. It would allow some more turbines to have connectivity. Whether it goes far enough to satisfy all farmers who are currently stranded remains to be seen.

2199. **The Deputy Chairperson**: How advanced is the project in Larne?

2200. **Mr Surplus**: At the moment, Larne is applying to do a scoping study through the INI collaborative network programme. The stakeholders involved, including several factories, would apply for funding to form a collaborative network. That gives a background piece of money to start looking at how the project could be defined. It would pay for some days of consultancy in each of the factories to look at load profiles, energy usage patterns and things, and at beginning to flesh out how long a cable would be and what storage methods would be used.

2201. **A fundamental question is this**: do you want to have autonomous capability? We heard from the regulator in DETI a few months back that, from 1 January 2016 — when there will be a change in the situation at Ballylumford, with three final sets going into retirement; when there will be a Mr David Surplus restriction at Kilroot, due to the large combustion directive; when the North/South interconnector will not yet be live and when Moyle may still be running on 50% capacity — the reserve generation in Northern Ireland will be pretty thin and, they say, there will be a higher risk of blackouts. If you are an agrifood company with full fridges and lorryloads of meat, you cannot afford to have outages like that. A microgrid can be designed to operate autonomously so that, if the main grid has a blackout, you would open the breaker where you connect to the main grid, and the microgrid can be kept live. It would have its own diesel generator backup, as well as batteries and things, to ride through the period that the main grid is blacked out. We would be trying to get those definitions into the Larne specification very soon.

2202. **The Deputy Chairperson**: David, thanks very much. We might put some questions to you at a later stage. Would you be happy to answer those in writing?

2203. **Mr Surplus**: Yes.

2204. **The Deputy Chairperson**: Thanks a million.

Appendix 3

Written Submissions

Appendix 3 – Written Submissions

1. Action Renewables
2. DETI
3. Invest NI
4. Manufacturing NI
5. NIE
6. NIRIG
7. Simple Power
8. SONI
9. SSE
10. Ulster Farmers' Union
11. Utility Regulator

Written Submission from Action Renewables

ETI Committee

Meeting on Grid Connection Issues

Submission by Action Renewables

24/04/14

Prepared by Michael Doran (Executive Director), Jonathan Buick (Head of Projects)

Introduction to Action Renewables

Action Renewables is the leading Northern Ireland renewable energy organisation. We facilitate, educate and advise the private and public sectors on all aspects of renewable energy development. Action Renewables is a not-for-profit limited company, with charitable status. We were founded in 2003.

Action Renewables Experience of Grid Connection

Action Renewables facilitates renewable energy development. As an organisation, we assist everyone from individuals to large finance companies wishing to invest in renewables.

Two core activities of Action Renewables result in discussions with clients about grid connection issues. The first of these is carrying out renewable energy feasibility studies. To date, Action Renewables has completed over 130 feasibility studies for clients. All of these will involve an estimation of grid connection costs, when dealing with renewable electricity, but Action Renewables has always made it clear that this estimate assumes that the required connection capacity is available in the nearest feasible overhead line.

Within the past year, Action Renewables has had to take account of rising connection costs and revise its estimate of connection costs based on feedback from clients and information from NIE. Whereas in 2011 we would typically have suggested that a 225kW wind turbine could be connected for a cost in the region of £75,000, given suitable lines in the vicinity, we are now suggesting that this should be averaging in the region of £160,000. This is simply because we have become aware that in the majority of cases, an estimate of £75,000 for grid connection is unlikely.

The second element of Action Renewables' activities that involves discussions around grid connection is the trading of Renewable Obligation Certificates. This activity requires close liaising with project developers throughout their development, sometimes having begun over a year before the project generates electricity. Throughout this time, we are liaising with Ofgem in London regarding the technology and providing updates to Ofgem about the commissioning date. We are currently working with approximately 60 projects larger than 50kW at this stage of development.

Of fifteen clients we recently surveyed, the average quoted grid connection was £174,000 for turbines ranging from 90kW to 250kW, the average size being 200kW. £174,000 for grid connection is on a par with the actual installed cost of the average second hand refurbished wind turbine. Grid connection is therefore approximately 50% of the turnkey costs of many projects.

The least costly currently ongoing grid connection that Action Renewables is aware of, is £18,000 plus VAT. NIE were onsite laying out pegs marking the route of the connection within 10 days of the client having paid the full balance for the connection. However, this scenario is unusual and is considerably less expensive than the norm. What makes this all the more remarkable is that the connection is within an area where NIE has defined the grid as being at "saturation point" and "connection costs are likely to be very high". Compare this to another client who accepted a quote of £63,600 plus VAT for a connection in June 2012 and has still not been connected. In this case all that was required were wayleaves for three poles on the client's own land.

In a 2011 report to DECC, ARUP suggested that grid connection costs in the UK are 5% of total capital costs for onshore wind turbines. Even considering investment in new equipment, rather than second-hand, our survey shows that currently in Northern Ireland grid costs account for between 20% and 50% of total capital costs. For some projects, grid costs are even beyond this and are conditional upon NIE upgrading 33KV lines or substations.

Delays and lack of communication are also being felt by renewable energy developers in Northern Ireland. This uncertainty significantly increases the risk of investment in renewables, especially when it becomes impossible to accurately predict a timeframe for generation of income to allow return on investment. In some cases the delays are caused by the need to obtain wayleaves or planning permission for poles on third-party land. However, we also have clients who have waited almost a year for the wayleaves stage to be addressed after the route has been designed, and over a year for their wind turbines to be connected after all wayleaves have been signed, with little communication with clients about timelines for the construction phase. This has the potential to put projects at risk of failing, and investors, particularly individual landowners, in financial difficulty.

The issue

Action Renewables recognises the need to integrate more renewable energy generation into the energy supply of Northern Ireland in order to improve energy security, energy price stability and meet targets (both domestic and EU) for renewable energy, energy efficiency and carbon abatement. However, we also recognise the challenges that an increasingly decentralised renewable electricity supply places on a grid infrastructure which was designed with large, centralised power stations as the primary energy source. The issue we currently face in Northern Ireland is not a problem caused by NIE, but the inadequacy of the grid infrastructure.

As early as 2016, Northern Ireland will be facing the possibility of electricity supply problems, imposed because of faults and delays in constructing interconnectors, and a reduction and restriction at Ballylumford and Kilroot, respectively. If this situation continues, Northern Ireland will have an electricity supply deficit from 2021.

Renewables offer a ready-made indigenous solution to the supply deficit. Large projects such as offshore wind farms and tidal generation are key to the long-term energy security of Northern Ireland. These projects do, however take many years to develop. In the short term, however, there are currently around 900 planning permissions granted for wind turbines in Northern Ireland which have not yet been constructed. Grid constraints and excessive connection costs are the most common barrier, as many 33kV/11kV primary substations in Northern Ireland currently have

"conditional" status, meaning that significant 33kV investment is already required at, or upstream of, the substations to facilitate any further generation export.

It is likely that around 700 of the wind turbines with planning permission will be between 50kW and 250kW, the size which is most commonly developed by individuals. It should be noted that the potential income stream from these turbines alone is in the region of £100million per year, which could feed directly into the economy of Northern Ireland, supporting local livelihoods. However, investing in grid reinforcement is key to allowing this to happen.

At the same time, Action Renewables recognises that there is no competition in the "grid connection" market. Competition for constructing connections exists in the rest of the UK, regardless of which company is the Distribution Network Operator. Introducing competition into this sector could go some way to alleviate the delays and high costs currently being imposed.

But the greater decision - where the required investment in the grid will come from - will not go away. There are alternatives, including smarter management of the 11kV network involving energy storage and a complete roll-out of truly smart metering, allowing NIE to monitor electricity flows through the 11KV system and demand side management. Action Renewables suggests that a combination of greater management, grid reinforcement and connection competition will enable Northern Ireland to move towards a more secure, affordable and renewable electricity supply.

Addendum

Although not within the general remit of grid connection issues, Action Renewables would like to make the ETI Committee aware of a related issue concerning the export of electricity from micro-generation. The most significant form of micro-generation in Northern Ireland is small-scale solar power, or photovoltaics (PV). This technology is rapidly becoming a common sight on roof-tops across Northern Ireland. However, it has been brought to our attention that any export of electricity to the grid from these panels is not being recorded by NIE and therefore cannot be assigned to any electricity supply company. This export effectively reduces the losses on the network that all customers have to contribute towards.

At the moment, only one electricity supplier, PowerNI, is actively stating that it will purchase this exported electricity. NIE tells us that this electricity is not attributed to PowerNI. Given the micro-generation export tariff offered by PowerNI is regulated by NIAUR, we are struggling to understand the logic of this situation. In an era where competition has been introduced into the domestic electricity market, Action Renewables feels that a monopoly in the domestic export market is an anachronism.

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Written Submission from DETI

ETI Committee Review of Grid Connections

DETI evidence

5 June 2014

Department of Enterprise, Trade and Investment
www.detini.gov.uk

Statutory position

- Renewable Energy Directive
- DETI's general duties: Article 12 of the Energy (NI) Order 2003
- Strategic Energy Framework 40% Renewables target
- NI Renewables Obligation
- Connection: Articles 19-27 of the Electricity (NI) Order 1992 & Distribution Licence

Department of Enterprise, Trade and Investment
www.detini.gov.uk

Grid and Renewables

- 2008 All-Island Grid Study concluded that up to 42% of power demand on the island could be provided by renewables
- But grid strengthening would be required
- Investment in place to deliver 27%

Department of
Enterprise, Trade
and Investment
www.detini.gov.uk

Renewable Electricity

- Approx.600MW of installed renewables (mostly onshore wind)
- 1600MW required to reach 40%
- Current levels – approx. 19% electricity consumption from renewable sources
- Targets:
  - 20% by 2015
  - 40% by 2020

Department of
Enterprise, Trade
and Investment
www.detini.gov.uk

Since 2010...

- 40% target set in 2010
- In 2010:
  - 336MW capacity accredited under the NIRO
  - 590 accredited generating stations
- May 2014:
  - 611MW accredited
  - 4977 accredited generating stations

Department of
Enterprise, Trade
and Investment
www.detini.gov.uk

Generating stations accredited under the NIRO

	April 2010	May 2014	Percentage increase
Total No. of stations accredited under the NIRO	590	4977	740%
Total Capacity installed (MW)	336MW	611MW	82%
No. of small scale stations (below 5MW)	568	4947	770%
Small scale capacity (MW)	26MW	87MW	234%

Department of Enterprise, Trade and Investment
www.detini.gov.uk

Success brings challenge

- Success of renewables incentivisation has brought challenges
- Large scale – cluster timescales
- Small scale – connection costs, timescale, substation capacity issues
- Microgeneration thresholds
- Costs to consumers

Department of Enterprise, Trade and Investment
www.detini.gov.uk

Looking ahead...

- Review of small scale ROCs
- 40% target – costs and benefits study
- Looks at, among other things, grid implications in reaching interim steps to 40%
- Study will feed into wider review of the SEF in 2015

Department of Enterprise, Trade and Investment
www.detini.gov.uk

Written Submission from Invest NI

REQUEST TO DETI FROM THE ETI COMMITTEE

At its meeting on 15 May 2014 Invest NI briefed the Committee on its End of Year Outturn Figures.

Members asked for a written briefing on the difficulties companies experience in relation to grid connection.

DEPARTMENTAL RESPONSE

The availability of suitable power supply, at what from a company's perspective to be a reasonable cost, is an increasing issue. At present there is no uniform availability of capacity across the network which has been a problem for businesses seeking supply but also selling back in to the network from on site renewable power generation.

A potential problem was identified at Invest NI's Dungannon Business Park in relation to grid issues in the Dungannon area. This problem was however averted and the power needs of those companies locating on the Park are being met by NIE without the need for a contribution towards upgrade/strengthening works. However, Invest NI is aware that, in the short to medium term, there are issues in not only the Dungannon area but other areas for those businesses that are high voltage users.

The requirement for a significant uplift in power supply at one of our aerospace companies resulted in a potential charge for upgrade of between £2-4m with also NIE not being able to commit to a timeline. This resulted in the project not being considered at the company's current site.

Invest NI is still in negotiations with this company to secure a £25m investment but if this occurs in Northern Ireland it will likely be on a Greenfield site.

A large engineering company is currently in negotiations with NIE. In principle there is a commitment to HV supply but the key items of Timing and Costs have not been resolved.

A highly successful metal fabrication business wish to secure a third site from which to establish a specialist service. The power requirement at the third site would have added £70k of additional costs which the company was not willing to accept.

The company is currently working with Invest NI to consider a number of alternative options and sites that have suitable power supply.

We are aware of an issue with the connection of small scale photovoltaic systems to the Northern Ireland electricity grid in Fermanagh.

Reply prepared by: **Kevin McCann, Director**
Advanced Engineering & Construction, Invest NI

Date: **27 May 2014**

Written Submission from Manufacturing NI

MANUFACTURING
NORTHERN IRELAND

EVIDENCE TO ETI COMMITTEE INVESTIGATION INTO CONNECTIONS ON NI'S GRID

Manufacturing Northern Ireland welcomes the opportunity to provide some evidence to the ETI Committee for its investigation into connections on the electricity grid.

To begin, we recognise that the Committee's terms of reference refer to renewable connections, however, we would welcome the Committee extending this to a wider scope of connections. The Committee are well aware of the scenario which see's NI's manufacturers suffer the 2nd most expensive electricity in Europe and the impact this has on competitiveness and as a result winning business, investment and ultimately jobs. Our members, and others, do make application for renewable generation sources but there are also issues for businesses looking to increase supply, aggregating onsite back-up generation to off-set the cost of electricity as well as onsite generation to provide energy independence from the huge cost of electricity supply.

The Committee will also be aware from the Utility Regulators latest price comparison report, that Northern Ireland is perilously close to being the most expensive energy market in Europe and that others are successfully making efforts to address their cost of supply to consumers. Our members appeal to the Committee to use their influence to ensure that we get affordable electricity supply or that every effort is made to support those who create wealth and work.

In the submission, we supply a summary of 3 different scenarios from members – (1) a large, multi-national company keen to achieve competitiveness within their own group and as a result attract significant investment in production facilities securing the site for the next 15-20 years; (2) a local SME; and, (3) a business who works with our members to help offset the cost of electricity by aggregating back-up generation.

The submissions are from the companies themselves.

1. Large, Multi-National

Michelin in Ballymena employ some 950 skilled and well paid workers supporting a larger supply chain in North Antrim and further afield. The plant is very efficient, one of the best within the group, however their energy costs are amongst the highest leading them to invest in onsite generation from renewables including the installation of two 2.3Mw wind turbines within the past year.

Their experience has been so far:

- Communication from NIE is generally poor. Numerous emails requesting when the grid offer would be issued were unanswered. NIE frequently do not reply to emails or phone calls. We

have a grid connection invoice that will cost around £250k, and yet we are unable to get someone to answer our calls or respond to our emails when spending that amount of money. It would be beneficial to all if NIE could appoint an account manager for each project and maintain regular communication, even if the message is 'nothing to report'.

- Collaborative working – NIE's relationships with Distributed Generation developers are difficult at the best of times. Any changes to the technicalities of a grid offer can result in the project being put to the back of the queue and necessitating a re-quote. If this was to occur a developer could lose the capacity on the network due to another developer taking their place. This is not in line with the other UK DNO's.

- For our grid connection our developer was required to update some of NIE's infrastructure at their cost. This appeared unnecessary; they discussed this with NIE but NIE maintained their position – (update to NIE metering equipment, install new communication mast despite the report stating this would not be necessary).

- Payments to NIE – this was a convoluted process due to NIE stating their SAP system would not allow our developer to pay NIE direct. Funds had to come from Michelin PLC. This could be improved by NIE allowing funds to come from the developer, again, this is in line with other UK DNO's.

- NIE legal team appeared not to be very proactive and very slow to respond – this was evident during the renewing of the Michelin/NIE substation lease.

- Breakdown of costs – our developer requested a full breakdown of the grid connection costs so they could fully assess them, NIE declined to provide this information.

- Above all, a single supply options is not healthy in a market that needs reform if it's to compete with the rest of Europe. The initiative should be taken to open up the market and consider other interconnectors, for example the "North-South" interconnector that has been delayed.

2. Local SME

R Hogg and Sons Ltd, Macrete Ireland Ltd are a manufacturer and quarry. They have experience of renewables and have already successfully installed a wind turbine on another site which has fixed their energy costs and ensure competitiveness in contracting. Their experience has been:

- Planning permission has been granted for a v29 225Kw wind turbine on our site in Kilhoyle outside Limavady. The site is an operating quarry with a de-rated 33kv line.

- We had asked NIE for a connection cost to connect our new turbine to the grid. It was assumed that the turbine would be connected to the existing 33kv line which would be brought back up to full capacity. The cost of reconnecting our supply back to 700Kw would have been too much for us to cover. We had also wanted our connection upgraded to supply a new asphalt plant which is currently going through planning.

- All was going well and meetings were had on site to discuss bringing the 33kv line back up to 700Kw. At no time during these discussions were we informed of any change to our lines from 33kv.

- A letter was then sent to us giving a conditional offer of £530,000 to connect the turbine. This cost would mean that neither the turbine nor the Asphalt plant would be viable. A meeting was arranged with NIE to discuss the issue. During this meeting we were informed that the line would no longer be 33kv and as we reduced our availability NIE had the right to reduce the line to 11kv. It should be noted that at no time prior to the meeting had NIE ever mentioned the reduction of the line, the company was making commercial decisions on understanding that the 33kv line was still being available. As we were not informed by NIE of their intention to reduce the line we assumed our commercial decisions were fine. At the very least we would have expected NIE to inform us of their intention to reduce the capacity from 33kv to 11kv if we reduced our availability.

- We are now in discussions with NIE to see if the matter can be brought to a satisfactory conclusion. We feel that NIE have not been professional with the timing of the information they have given us and the lack of information given while we were making commercial decisions was at best unhelpful. At the very least they should have informed us that they would be reducing the 33 line if we reduced our availability. They have said "if you still had your 33 line we would have found it difficult to refuse your connection to this 33 line". Connecting to the 33 line would be much cheaper as the infrastructure already exists.

- PGC a trading arm of Macrete was about to start manufacturing 250Kw turbines and this was to be the first site for the machines where we could show case the turbine to our international, export customers. This project has now been put on hold because of this issue. The consequence of this is that we will not be employing new staff to manufacture the turbines. The connection costs have also put a question mark on the installation of the Asphalt plant which will also mean that new employment in an area, an unemployment black spot, has been put in question.

- To summarise NIE by their constant barriers to connections are starting to affect employment and general commercialisation in Northern Ireland. My understanding is that with a little thinking out side of the box most of these issues can be overcome. Can we afford in these difficult times to be dictated to by a company that has a monopoly I think not.

3. Aggregating Back-Up Generation

PowerHouse Generation Ltd. are working with MNI members and others to connect a product which aggregates back-up generators providing supply, if and when needed, to the grid. Sites which appropriate supply receive a payment which is used to off-set against the cost of electricity. The concept also provides additional security of supply for all NI customers. Their experience is:

- We have experienced a lack of allocated resource in NIE (e.g. people most times don't answer their phones and seldom give you a mobile contact number).

- There is also a lack of clarity on what the NIE connection process is and a lack of detail in connection offers. For example, the client does not receive a technical report setting out how NIE has arrived at the connection capacity (in MWs) and it is not clear what planning standards NIE has adopted, or more generally, what methodology.

- We have also found that NIE appears to have poor records in regard to existing Connection Agreements for existing demand sites (some with on-site generation). Even though the on-site generators already were properly tested (G59 test), commissioned and operated in the past, NIE don't have Connection Agreements, and are making DSU/AGU generators start the connection application process again at a significant cost.

- They are also introducing limitations (e.g. a maximum of 50 operating hours per year) without providing justification.

- More generally, post Competition Commission Final Determination, there is a need to review how NIE is facilitating small scale embedded generation. A review is needed by UR and NIE need to be held more accountable. There are other "smart control" lower costs solutions which NIE can employ, rather than the traditional expensive solution of investing in grid assets (lines and substations).

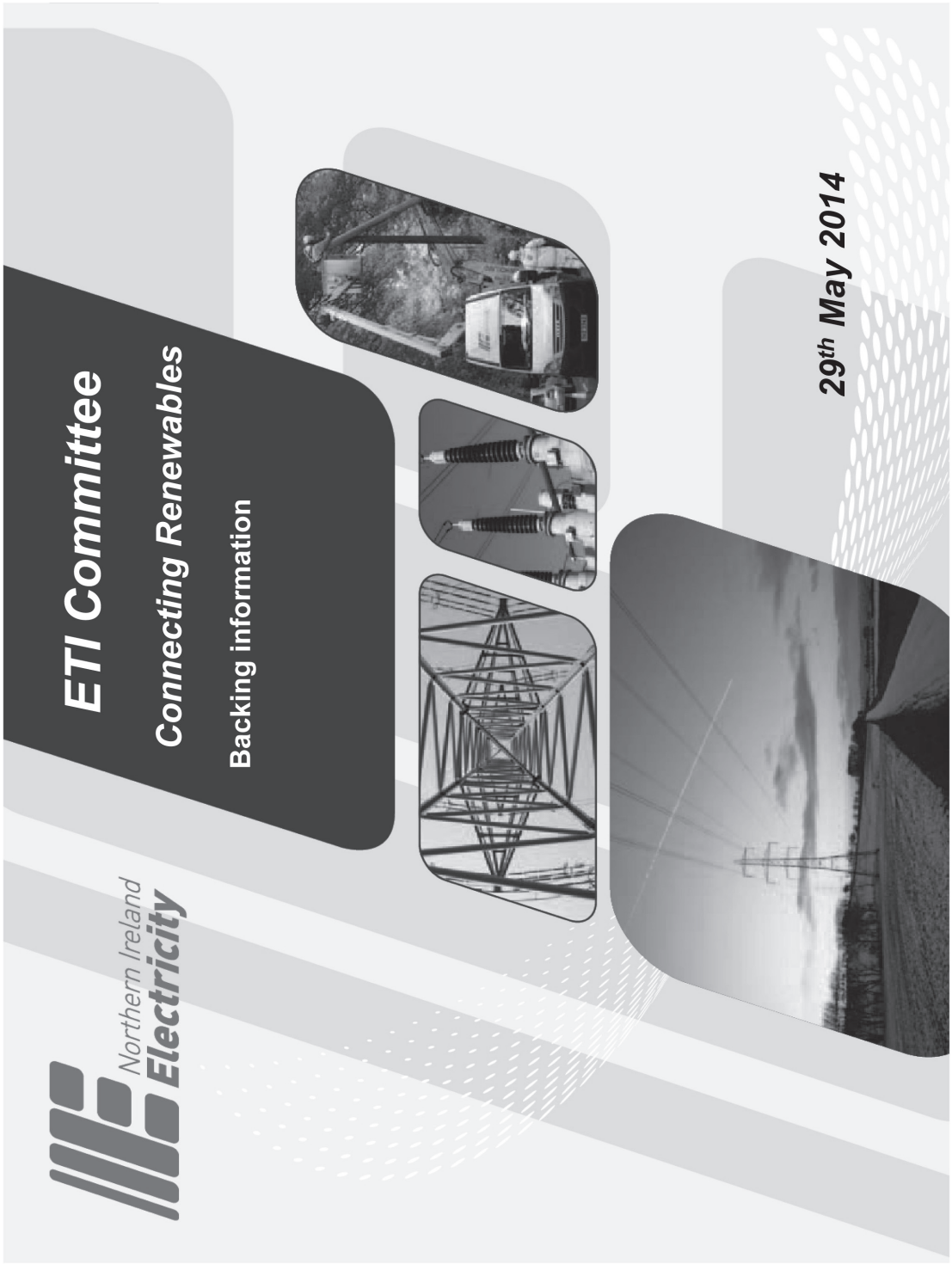
- On site generators can make a very meaningful contribution to security of supply in NI and provide a new revenue stream for industrial consumers, at a time when their electricity bills are the second highest in Europe. The Utility Regulator does not currently consent to this demand side participation, whilst there are no restrictions in the Republic of Ireland. The Utility Regulator has provided no explanation for this lack of consent, even though demand side participation is a clear policy of the SEM Committee. Whilst the Forward Work Plan of the Utility Regulator indicates that this will be addressed by the end of September 2014, there has been no communication with industry to implement whatever changes are necessary. We are all feeling very much in the dark and are concerned that the Utility Regulator will not honour the commitment in its Forward Work Plan.

The above, in the words of the businesses themselves, should give the ETI Committee a strong sense of the barriers which NIE are placing on businesses do what they can to contribute to supply, develop their own energy independence and off-set the cost of electricity. Companies are working hard to secure investment and jobs but they need affordable supply as competitiveness at home and abroad is lost.

We encourage the committee to recommend actions which will make a positive contribution to supporting business. In the meantime, if it is of use, we would be happy to encourage those who have contributed to this response to meet the Committee in person.

We are happy for this response to be published.

Written Submission from Northern Ireland Electricity (1)



Northern Ireland Electricity

Overview

NIE's approach to the connection of renewable generation, in support of the 2020 targets:

1. Definition of renewable types
2. Impact on and reinforcement of transmission system
3. Impact on and reinforcement of distribution system

Progress so far in connecting renewables is summarised, together with some information on future initiatives to enable further connections.

Northern Ireland Electricity

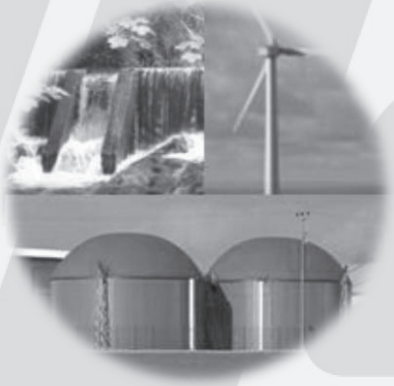
Renewables mix

Large Scale

Mainly Wind Farms

- Typical size - 10MW to 40MW
- 31 Schemes commissioned
- 552MW connected
- Incentivised at 0.9ROC + export energy
- Solar also emerging

Small Scale



Range of Technologies

- Wind Turbines less than 250kW
- Anaerobic Digesters less than 500kW
- Totalling c65MW connected + C250 schemes
- Incentivised at 4.0 ROC + export energy

Micro

Mainly Solar

- Micro generation mainly Solar PV less than 4kW
- Totalling c30MW

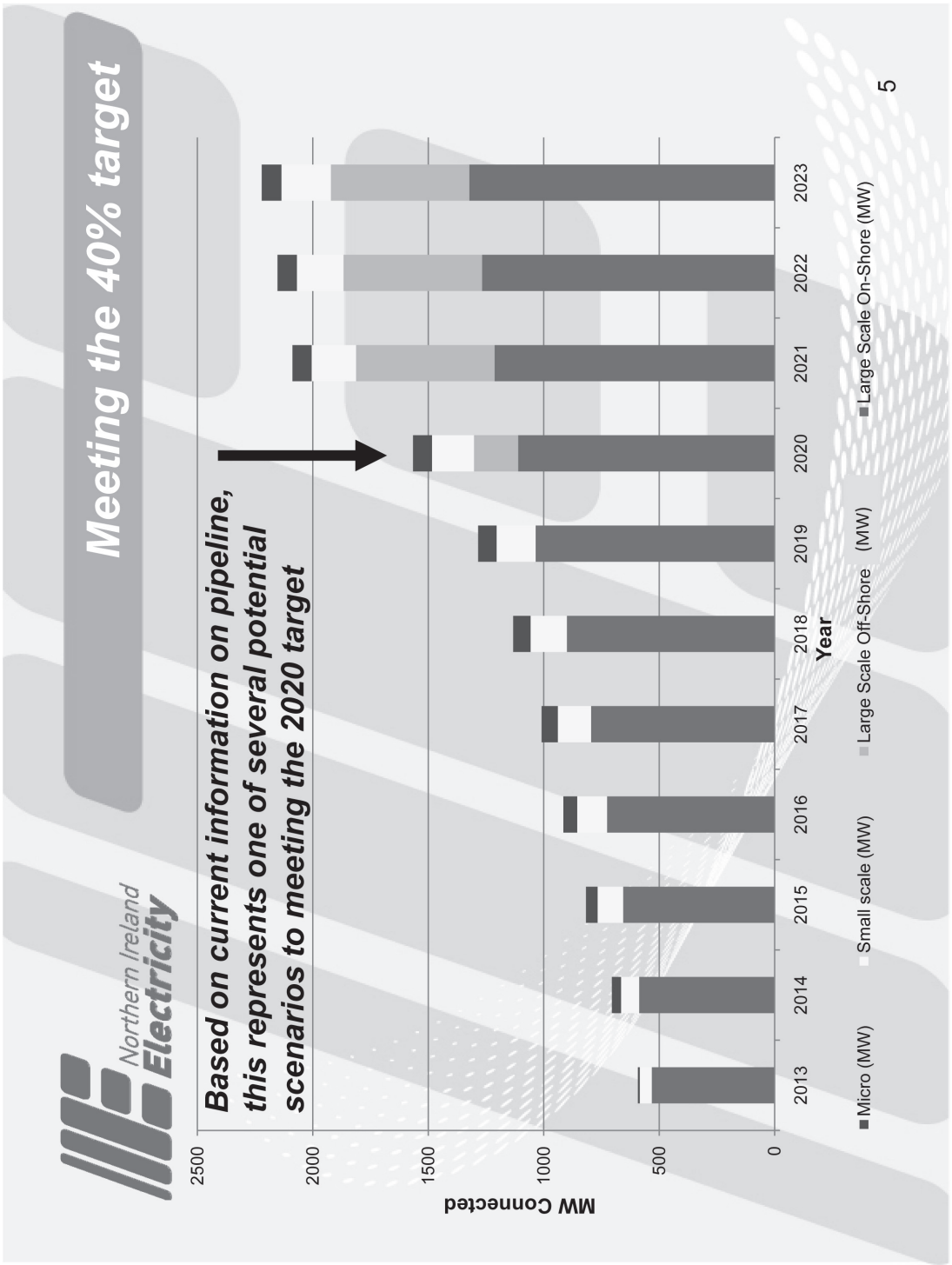
3

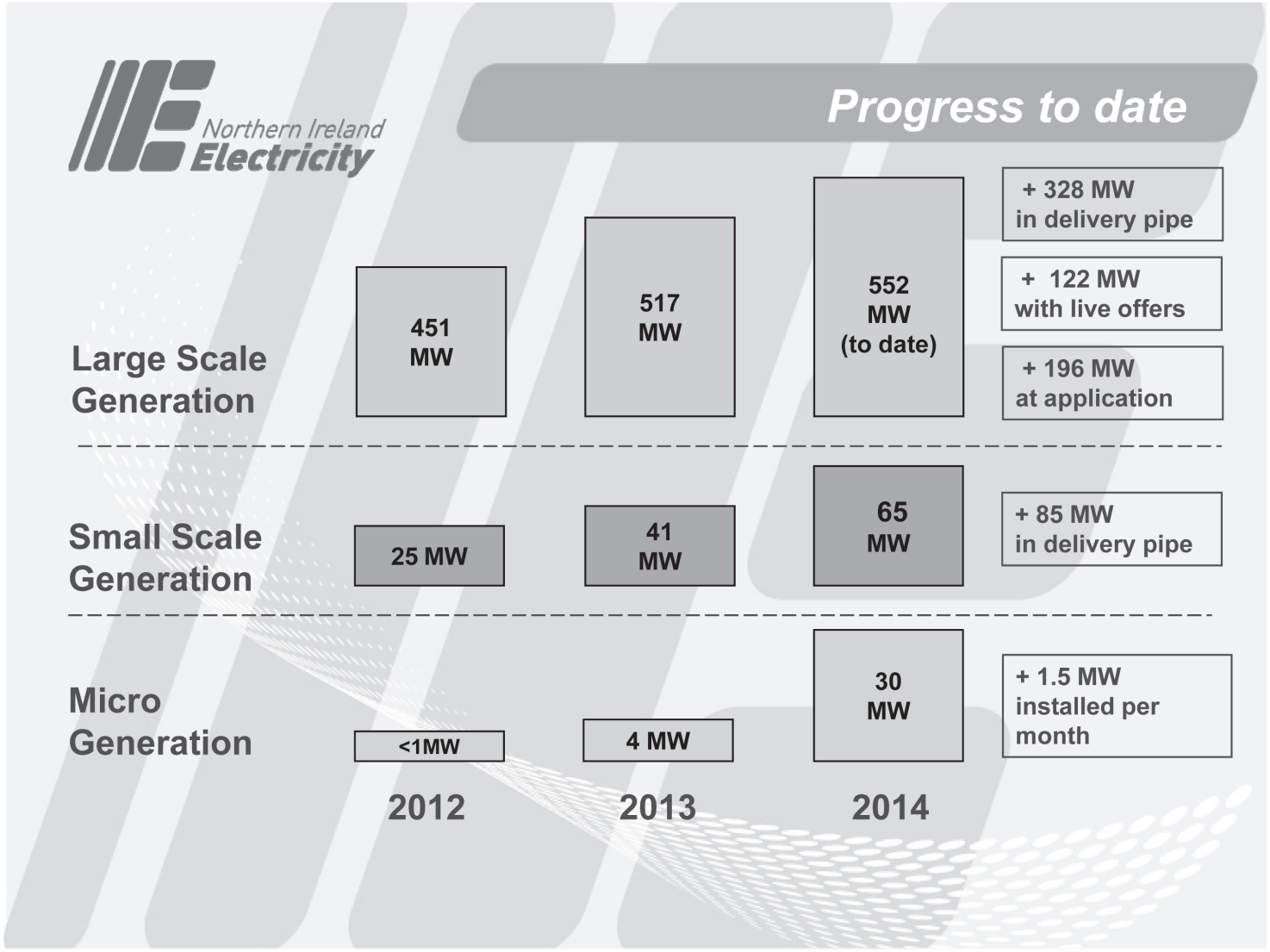
Note: figures correct at May 2014

Northern Ireland Electricity

Meeting the 40% target

- Currently at c16%
- 40% target = c1600MW connected
- Further network investment required
- So far large wind generation has been the main contributor - 552MW of the 645MW connected
- Large schemes will also be the main contributor as we move towards 2020
- Small scale and ‘micro’ much smaller contributors, albeit there is a high level of activity.


Meeting the 40% target
Northern Ireland Electricity
Based on current information on pipeline, this represents one of several potential scenarios to meeting the 2020 target
MW Connected
2500
2000
1500
1000
500
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year
Micro (MW)
Small scale (MW)
Large Scale Off-Shore (MW)
Large Scale On-Shore (MW)
5

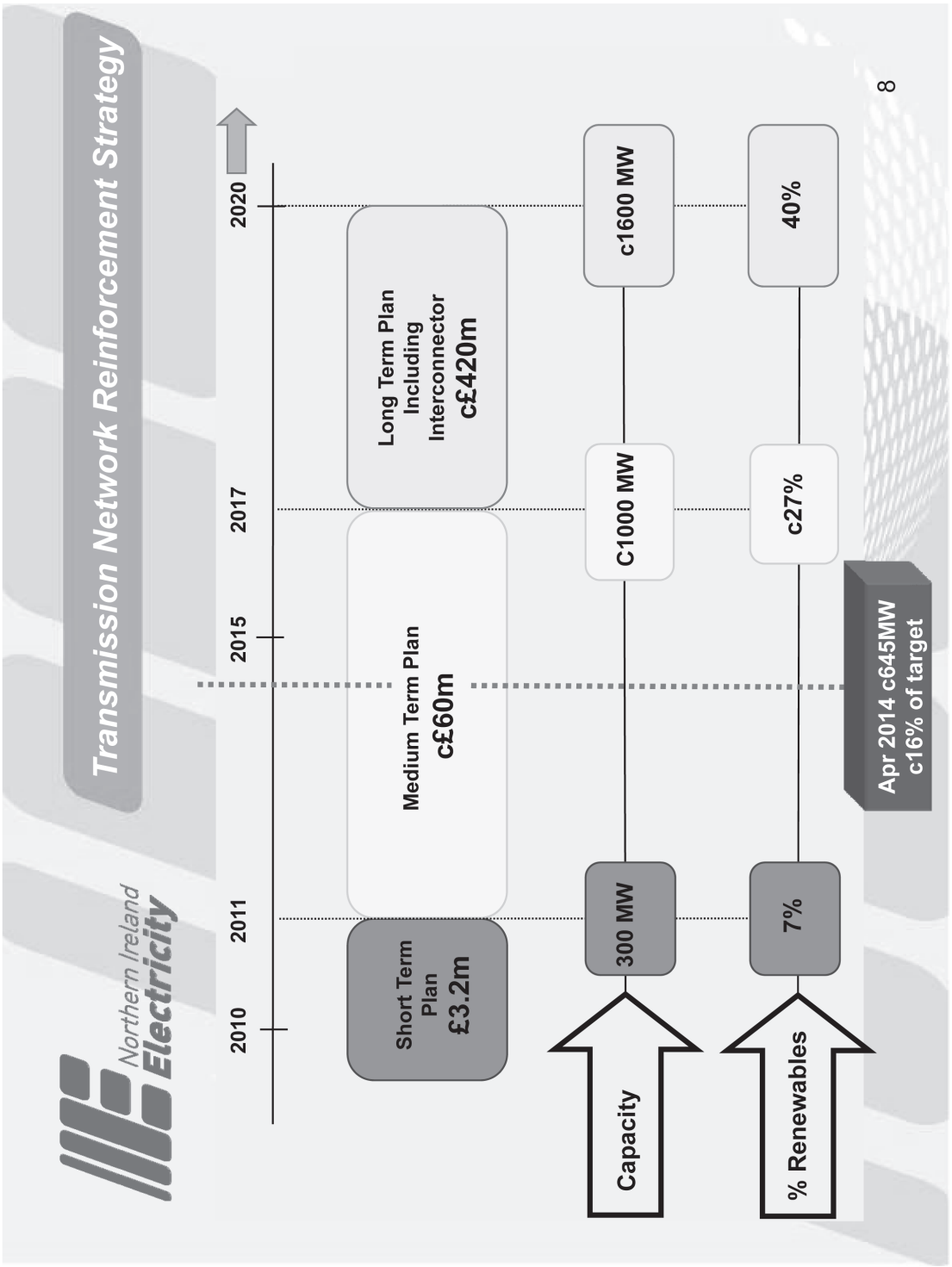

Northern Ireland Electricity
Progress to date
Large Scale Generation
451 MW
517 MW
552 MW (to date)
+ 328 MW in delivery pipe
+ 122 MW with live offers
+ 196 MW at application
Small Scale Generation
25 MW
41 MW
65 MW
+ 85 MW in delivery pipe
Micro Generation
<1MW
4 MW
30 MW
+ 1.5 MW installed per month
2012
2013
2014

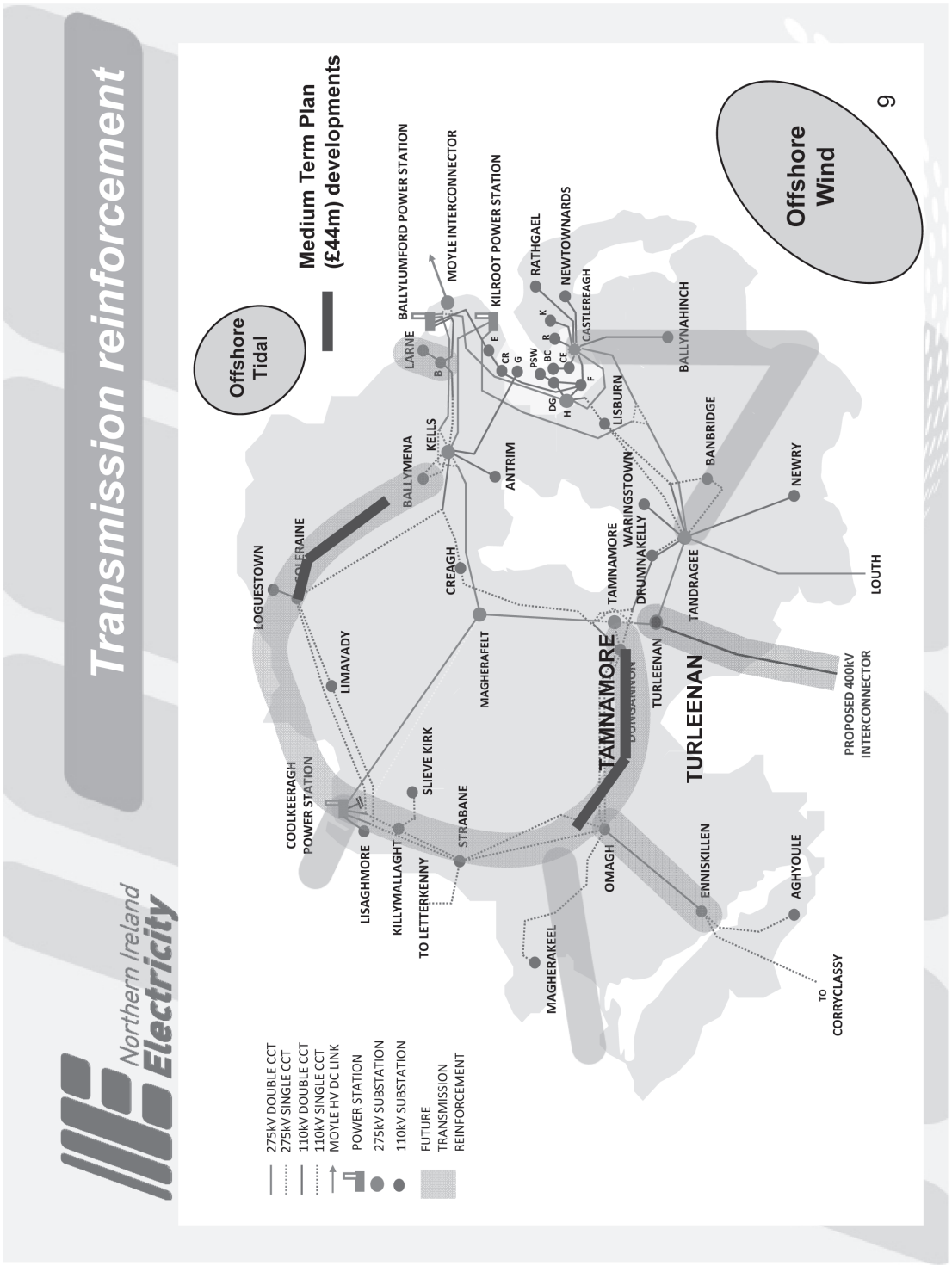
Northern Ireland Electricity

The transmission network

- Very high voltage lines, typically on pylons or wood portals, 110,000 (110kV) and above
- Reinforcement needed to:
  - establish ‘cluster’ substations so that several wind farms can connect to the grid, reducing the amount of overhead lines and hence environmental impact
  - enable generator power transfer around Northern Ireland, for example from wind generation that is mainly in the West, to where the cluster load is concentrated, mainly in the East
- Reinforcement plans in place and progressing well

7


Transmission Network Reinforcement Strategy
Northern Ireland Electricity
2010
2011
2015
2017
2020
Short Term Plan £3.2m
Medium Term Plan c£60m
Long Term Plan Including Interconnector c£420m
300 MW
C1000 MW
c1600 MW
7%
c27%
40%
Capacity
% Renewables
Apr 2014 c645MW c16% of target
8


Transmission reinforcement
Northern Ireland Electricity
Medium Term Plan (£44m) developments
Offshore Tidal
Offshore Wind
275kV DOUBLE CCT
275kV SINGLE CCT
110kV DOUBLE CCT
110kV SINGLE CCT
MOYLE HV DC LINK
POWER STATION
275kV SUBSTATION
110kV SUBSTATION
FUTURE TRANSMISSION REINFORCEMENT
LOGUESTOWN
COOLKEERAGH POWER STATION
LIMAVADY
LISAGHMORE
KILLYMALLAGHT
TO LETTERKENNY
SLIEVE KIRK
STRABANE
MAGHERAFELT
CREAGH
BALLYMENA
KELLS
ANTRIM
LARNE
B
BALLYLUMFORD POWER STATION
MOYLE INTERCONNECTOR
KILROOT POWER STATION
E
CR
G
PSW
BC
CE
F
DG
H
K
R
RATHGAEL
NEWTOWNARDS
CASTLEREAGH
LISBURN
BALLYNAHINCH
BANBRIDGE
NEWRY
LOUTH
TAMNAMORE
WARINGSTOWN
DRUMNAKELLY
TANDRAGEE
TURLEENAN
TAMNAMORE
TURLEENAN
PROPOSED 400kV INTERCONNECTOR
MAGHERAKEEL
OMAGH
ENNISKILLEN
AGHYOULE
TO CORRYCLASSY
9

Northern Ireland Electricity

North South Interconnector

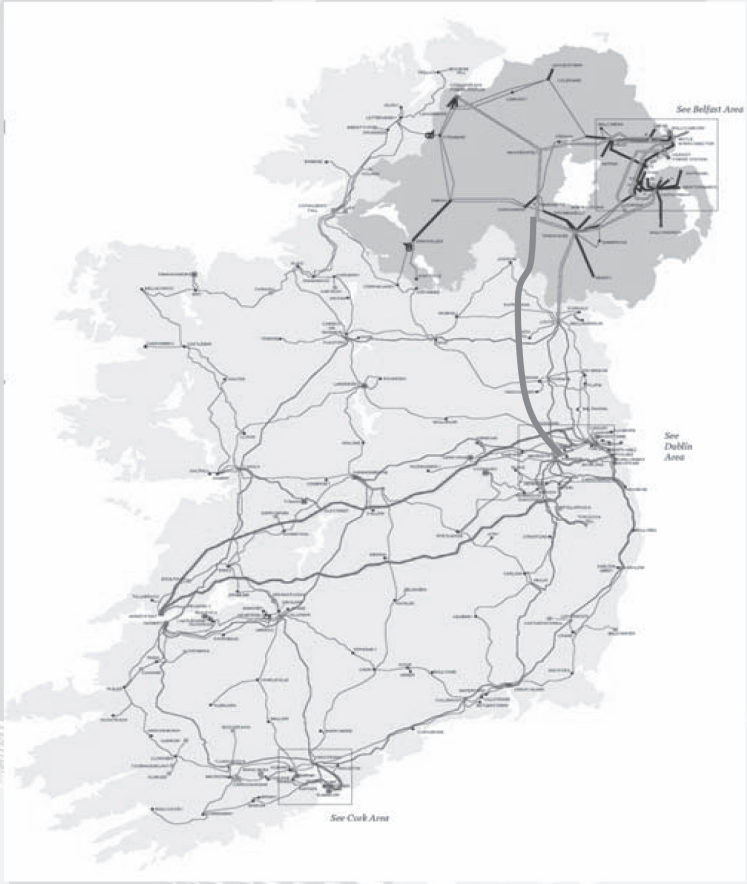
400kV North South Interconnector

– Turleenan (Moy) to Woodland

Joint Project with SONI and EirGrid

Benefits

– **Increases security of supply, vitally important going forward**
– **Market benefits and lower electricity prices**
– **Enables connection and flow of more renewable generation**
– **SONI and EirGrid responsible for planning consents**



Northern Ireland Electricity

The distribution network

- 33 kV, 11kV and low voltage lines
- Thousands of km - mainly on wood poles
- 11kV network of light construction
- Not designed for renewables generation
- Very congested, particularly in West
- Connections require significant reinforcement
- As a result connections quotations have escalated

11

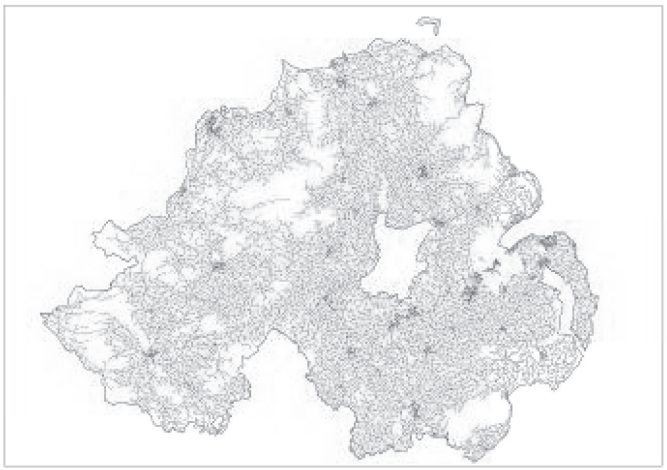
Northern Ireland Electricity

The distribution network

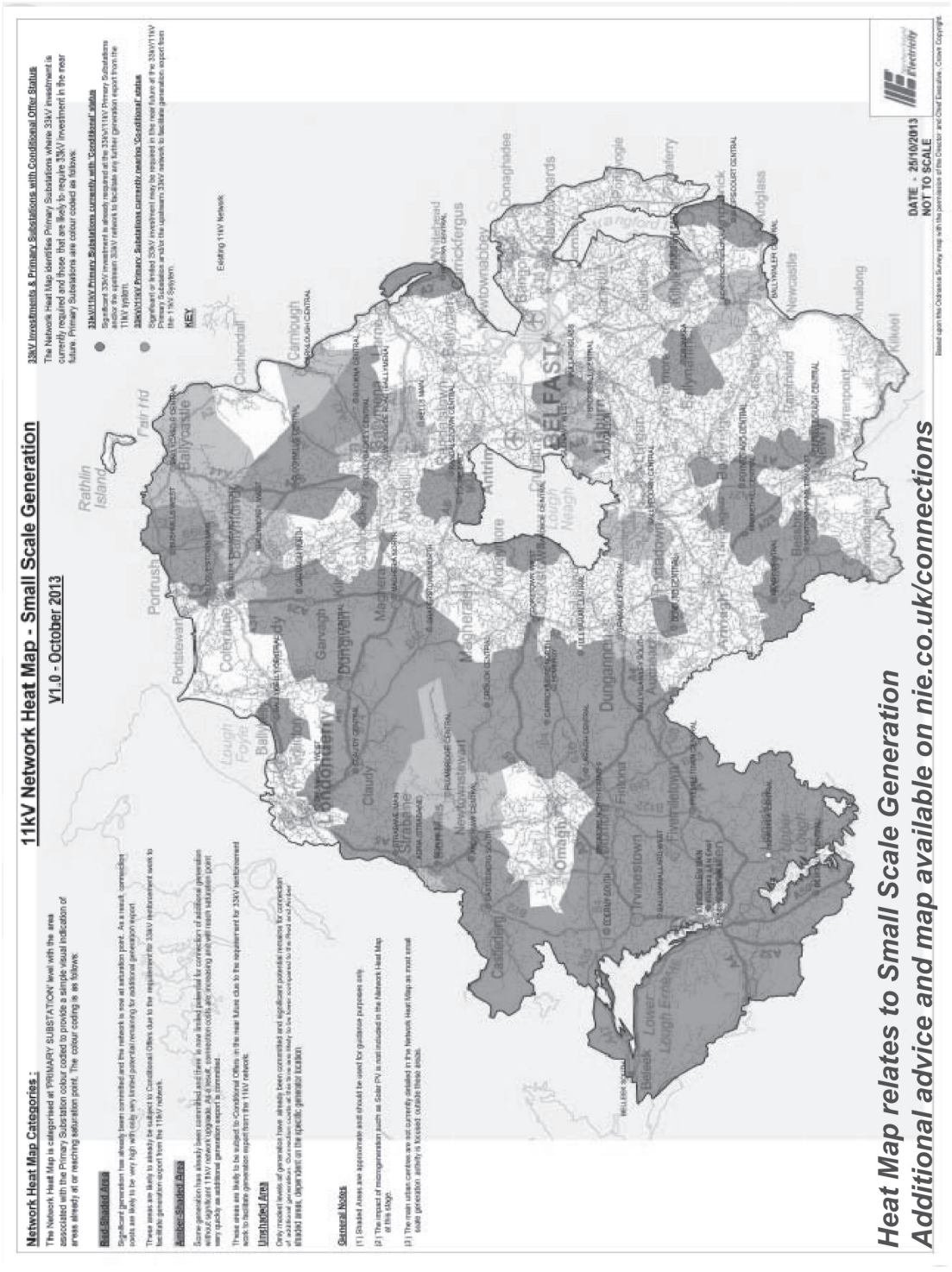
33kV Distribution Network in NI

3,110 km overhead lines and
640km underground cables

11kV Distribution Network in NI



20,800km overhead lines
3,500km underground cables


11kV Network Heat Map - Small Scale Generation
V1.0 - October 2013
Network Heat Map Categories :
33kV Investments & Primary Substations with Conditional Offer Status
KEY
Existing 11kV Network
DATE - 25/10/2013
NOT TO SCALE
Heat Map relates to Small Scale Generation
Additional advice and map available on nie.co.uk/connections

Distribution network congestion

- Congestion at 11kV – costs chargeable to developers
  - Many circuits now have several generators committed
  - Resulting in reinforcement in most cases
  - Leading to high cost offers, some in excess of £300k
- Congestion at 33kV costs not chargeable as defined in the Competition Commission's Final Determination for RP5 Price Control
- Approaching Network limits at c70 substations
- Most acute in West due to better Wind locations – 70% of rural substations
  - Conditional offers apply to most of these locations now
  - Investments approved by UR for 40 improvement schemes
- If more to generators are to connect then further investment is required

Northern Ireland Electricity

Next steps

Large Scale Generation

- Continue with Medium Term Plan – focus on 110kV
- SONI to develop investment plan for 275kV network
- North South Interconnector vital, SONI and EirGrid progressing planning consents
- Optimise cluster implementation timelines

Small Scale Generation

- Work through conditional offer position
- Follow up after CC decision on 33kV investment
- Continuing to work on alternative options
- Provide best information available

Vital for DETI, Utility Regulator, Industry and NIE to work together if the 2020 targets are to be met

Northern Ireland Electricity

Stakeholder engagement

- **Current forums** – RGLG; NIRIG; DARD events; MLA, Council and Developer meetings, ETI committee
- **Discussions** centre on better understanding for stakeholders and information sharing
- Topical items with Industry include **cluster charging, investment timelines, design protocols**
- On Small Scale Generation - Heat map now available on **nie.co.uk** along with position statements, FAQs and updates
- **Further information sharing options being considered**

Written Submission from Northern Ireland Electricity (2)

Northern Ireland Electricity

Network charges

- Network charges represent 20-25% of the domestic electricity price and c10% for large energy users
- Every five years the Utility Regulator reviews the prices which NIE is allowed to charge for network services
- The RP5 price control applies for the period from 1 April 2012 to 30 September 2017 and was referred to the Competition Commission (CC) in April 2013
- CC Final Determination (FD) published 15 April 2014
- CC agreed that it was “suitable case for a reference”
- Very little of the Utility Regulator’s determination was not revised by the CC.

Northern Ireland Electricity

CC Final Determination

- Closer alignment of the regulatory framework and reporting arrangements with Ofgem (the GB regulator)
- No retrospective adjustment to NIE's regulatory asset base
- WACC – 4.1% (in line with recent GB determinations)
- Significant ramp-up in network investment - rolling programmes
- and asset replacement
- Expenditure to support renewable generation and interconnection, subject to approval by the Utility Regulator on a project specific basis
- No allowances given for:
  - Network performance improvements
  - Increasing the resilience of the 11kV overhead line network to ice accretion events.

Renewables key messages (1)

- 2020 targets remain achievable. However, it will be extremely challenging to deliver due to the many parts of a complex 'multi-stakeholder jigsaw' that need to fall into place, not least the North South interconnector.
- It is important to understand the difference between the Transmission and Distribution Networks, which enable large and small scale renewables.
- Transmission - an organised plan is in place to reinforce the transmission network to enable large scale Renewables - the CC outcome will not impede this process.
- Distribution - Government targets for small scale since 2010 have resulted in unprecedented demand, leading to high levels of export onto the distribution network. There are no mechanisms or monies allocated from the CC outcome to reinforce the distribution network.
- Large Scale renewables will contribute the major part of the targets - significant further investment of some £420m required to enable the final step towards the 40% from the 27% level after Medium Term Plan.
- Large Scale developers are frustrated with the length of time taken to develop the connection methodology (cluster method) – this has created delivery issues.

Renewables key messages (2)

- **Small Scale is more complex to manage. The high level of applications presents many challenges, firstly to connect but also for the operation of the network.**

  <u>The distribution network is at breaking point in the West</u>

- **Alternatives to further exploit remaining distribution capacity are being considered actively by NIE. However, there is no 'quick fix'. Investment is required if progress is to be made.**
- **NIE is actively working with DETI, UR and the industry to bring forward and agree approaches which will improve the situation for both large and small scale renewables developers. This project will last for around six months.**
- **Meeting the 2020 targets requires close co-ordination of inputs from Planning Service, UR, NIE and the industry – this will not happen without strong leadership and a joined up approach.**

Written Submission from Northern Ireland Renewables Industry Group

NIRIG
NORTHERN IRELAND
RENEWABLES INDUSTRY GROUP
The voice of IWEA & RenewableUK in Northern Ireland

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NIRIG briefing note for ETI Committee Electricity Policy Review Part 3: Grid Connections

Submitted 24 April 2014

1. CONTEXT

The Northern Ireland Renewables Industry Group (NIRIG) is a joint collaboration between the Irish Wind Energy Association and RenewableUK. NIRIG represents the views of the large and small scale renewable energy industry in Northern Ireland, providing a conduit for knowledge exchange, policy development support and consensus on best practice between all stakeholders in renewable energy. NIRIG welcomes the interest that the ETI Committee is taking in electricity policy and is happy to provide industry perspectives on grid connection as part of this review.

Major changes are taking place in our electricity needs, our sources of fuel and in our fleet of power stations. Change will increasingly be driven by issues of energy security, competitiveness, climate change and by the need to move away from imported fuels. We believe that the energy sector is also growing in complexity as market reforms affect Northern Ireland from the UK and across the island of Ireland. With increasingly diverse sources of electricity generation being accommodated by the Northern Ireland grid we wish to state our commitment to collaborating and co-operating with key stakeholders to facilitate appropriate and timely network infrastructure build and policy development.

Further details on any of the information submitted in the note can be provided to the Committee at any point, if required.

Strategic Context and Policy Framework

Key policy drivers for energy in Northern Ireland are the Strategic Energy Framework (SEF) and Programme for Government (PfG). Additionally, two other Executive and Departmental Strategies are of significance to the energy sector: the Regional Development Strategy (RDS)[1] and Sustainable Development Strategy (SDS)[2]. Both highlight the need for sustainable development. The Regional Development Strategy contains a key objective to:

[1] http://www.drdni.gov.uk/rds_2035.pdf

- *Deliver a sustainable and secure energy supply (RG5)*

This specifies the need to increase the contribution that renewable energy can make to the overall energy mix and the need to strengthen the grid.

The SDS objectives include the following:

- *Ensuring reliable, affordable and sustainable energy provision and reducing our carbon footprint*
- *Driving sustainable, long-term investment in key infrastructure to support economic and social development*

European Directives, such as the Renewable Energy Directive, also set frameworks within which the energy system in Northern Ireland must operate.

The Transmission and Distribution System

The grid is made up of high-voltage (275kV and 110kV) transmission lines that are able to transport power efficiently over long distances, and lower voltage lines that distribute the power more locally to the users. High-voltage lines generally run overhead on pylons and along the sea-bed for the transportation of power offshore. Lower-voltage distribution lines (33kV and 11kV) are carried by smaller pylons and wooden poles, and are usually undergrounded in urban areas.

The transmission system is operated and balanced by SONI-EirGrid and the network is owned by Northern Ireland Electricity (NIE). Windfarms generally connect at 33kV, although some may connect at 110kV. 110kV cluster substation connections are being constructed which will allow less intrusive impacts with fewer long 33kV lines. Individual wind turbines generally connect at 11kV.

NI peak demand for electricity is 1777MW, with a summer minimum of 516MW. Currently 531MW of large-scale wind generation is connected to the electricity system in NI, with approximately 54MW of connected small-scale generation (including single turbines, solar, biomass and other technologies). The wind farms are predominantly located in the North and West of Northern Ireland, where wind resources are greatest and the electricity transmission network is lightest.

[2] http://www.ofmdfmni.gov.uk/sustainable-development-strategy-lowres__2_.pdf

2. NIRIG's KEY MESSAGES FOR ETI COMMITTEE CONSIDERATION (regarding recommendations and next steps)

- NIRIG believes that it is in everyone's interest that Northern Ireland is seen to be as attractive to investment as possible. This requires a stable regulatory regime and timely and efficient delivery of key infrastructure (including interconnectors) which in turn requires strong support from all stakeholders
- Cross-party support for the decarbonisation of the NI electricity system and for the long-term deployment of renewable energy would be one of the most effective methods of reducing carbon emissions
- NIRIG strongly recommends that the Sustainable Energy Inter Departmental Working Group (SEIDWG) be reformed now. Strategic coordination on our energy future is vital
- Further strengthening of Northern Ireland's sustainable development would be made possible by bringing forward the DETI Energy Bill to strengthen the requirements for sustainability
- Clear policy-making processes should be implemented to enable efficient and timely policy development. Recent experience demonstrates delays of many years in grid-related policy-making, for example in cluster development
- NIRIG believes that support should be given to NIE to enable work on small-scale connections to be taken forward within a reasonable timeframe
- NIRIG believes that the requirement to have a valid planning permission before making a grid connection application is positive for renewable electricity developments
- The rebate policy for transmission connections should be extended to non-domestic consumers and be extended to a 10-year period
- Contestability should be introduced as soon as possible
- Transmission System Operator (TSO) and Distribution Network Operator (DNO) Innovation should be encouraged. NIRIG would encourage in particular an emphasis on innovation with respect to smart grid solutions

NIRIG
NORTHERN IRELAND
RENEWABLES INDUSTRY GROUP

3. NIRIG's VIEWS ON ISSUES PERTAINING TO LARGE-SCALE GENERATION

Explore the strategic approach to electricity grid investment;

Appropriate, future-proofed and timely network development is intrinsic to our security of supply. Our Strategic Energy Framework emphasised the need for strategic grid development and the Utility Regulator requested that additional guidance be provided by DETI on strategic investment. We still do not have a complete grid policy, strategy, or vision in NI and we can see that the lack of joined-up approach has led in some cases to very significant delays in network infrastructure. Clusters are one example; the North-South interconnector is another. In the Republic of Ireland such strategic direction is provided by EirGrid's Grid25 Strategy[3].

Collaboration between Northern Ireland stakeholders and across the UK and Ireland is vital. Due to our location and excellent capacity to generate from indigenous energy sources, we need to collaborate with stakeholders across the UK and Ireland in order to utilise our resources efficiently and ensure that the NI consumer can avail of the opportunities in trading electricity effectively. Key stakeholders would include the UK Department for Energy and Climate Change (DECC), EirGrid, the Single Electricity Market Committee (SEMC), Irish Department of Communications, Energy and Natural Resources (DCENR) and GB National Grid.

The future of energy will be one with more diverse energy sources, more technologically advanced networks and a more flexible relationship between supply and demand. In order to achieve the network that we all need, coordination is vital and we strongly believe that government departments and key stakeholders need to engage through a forum such as the Sustainable Energy Interdepartmental Working Group. SEIDWG (and its grid sub-group) had an important role to play in coordination of sustainable energy policy. We strongly recommend that this group reform now – this is timely as it could therefore provide an advisory role in the forthcoming SEF review.

To meet our SEF targets and beyond we need to commit and invest now. The development of infrastructure requires a very long lead-time as it involves, among other things regulatory approval, planning consent, procurement processes and wayleaves. Recent experience demonstrates the regular delays in network infrastructure in Northern Ireland and we need to move forward in order to have the necessary grid in place to accommodate renewables that will enable us to reach our targets. This infrastructure will be in place for 40-50 years and needs to be understood as a long-term investment for consumers. There is a need for deep reinforcements such as RIDP (Renewable Integration

[3] http://www.eirgrid.com/media/GRID25.pdf

Development Project) to commence now in order to deliver firm access to generators as early as possible.

Northern Ireland has seen very slow infrastructure development over recent years. Clusters are one example, where significant delays in policy development have led to a three-year wait for connection offers due to four separate consultations being issued by NIE and NIAUR to formulate cluster policy. This has led to a number of wind farms waiting for revised connection offers for more than three years, and pre-approval for clusters themselves, which will take in some cases a further 5 years to build have also been held up by delays in decision-making on NIE's fifth price control, RP5. RP5 itself took a considerable length of time to reach its conclusion.

Interconnection is vital for security of supply, efficient markets, utilisation of renewables and reduction of the constraint & curtailment of renewables. **There is no alternative**. All stakeholders need to support timely delivery and efficient functioning of current and planned interconnectors. A risk of security of supply from 2016 has been identified by the electricity system operator for Northern Ireland, SONI, in their Generation Capacity Statement for 2013-2022[4]. They make it clear that progress on the N-S interconnector is of utmost importance.

The estimated cost of the North-South Interconnector is around £90m[5] and work to provide longer term repairs to the Moyle Interconnector is estimated to cost £60m[6]. However once operational it is expected that these two interconnectors have the potential to deliver significant annual savings to consumers, and resolve the security of supply concerns.

Increased interconnection will lead to the most efficient working of the market across both the island of Ireland and across the UK and ultimately mainland Europe. Increased interconnection will allow the most cost-effective energy source to be used in the Irish and GB markets, to the benefit of consumers. The DETI 2050 Vision[7] sets out two scenarios for interconnection, both of which require new or upgraded interconnectors with GB and additional tie-line capacity with the Republic of Ireland. The Moyle interconnector has not functioned efficiently and has led to imports of electricity to Northern Ireland from GB even when Northern Ireland is generating high levels of wind energy. Indeed, this wind energy is curtailed (turned off) when we import electricity from GB. Coordination with equivalent departments and system operators in Scotland may wish to be considered by the Committee on this issue.

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[4] http://www.soni.ltd.uk/media/documents/Operations/CapacityStatements/All-Island_Generator_Capacity_Statement_2013-2022.pdf

[5] Estimated cost provided by NIE is £84m (http://www.nie.co.uk/documents/Policy-Statements/P-110404-Final-Capital-InvestmentRequirements-Publ.aspx) , plus costs spent to date.

[6] Estimated costs provided by Moyle Interconnector Limited http://www.uregni.gov.uk/publications/correspondence_between_the_ur_and_moyle_interconnector_regarding_the_repair

[7] http://www.detini.gov.uk/2050_report.pdf

Future-proofing involves investment now in order to meet the needs of the future. The regulatory framework in NI and decision-making within RP5 and indeed RP6 and beyond must take account of the long-term needs of consumers and investors, rather than focusing on short-term cost-efficiency. DETI has the ability to ensure a more sustainable approach to network infrastructure by making progress on the Energy Bill, which was consulted upon two years ago. We would strongly recommend that this be progressed this year. The transmission network should be developed through a series of related investments that should be viewed as a whole, rather than through individual projects in isolation. NIE should publish Network 25 as soon as possible and this should be supported by all government departments and other stakeholders.

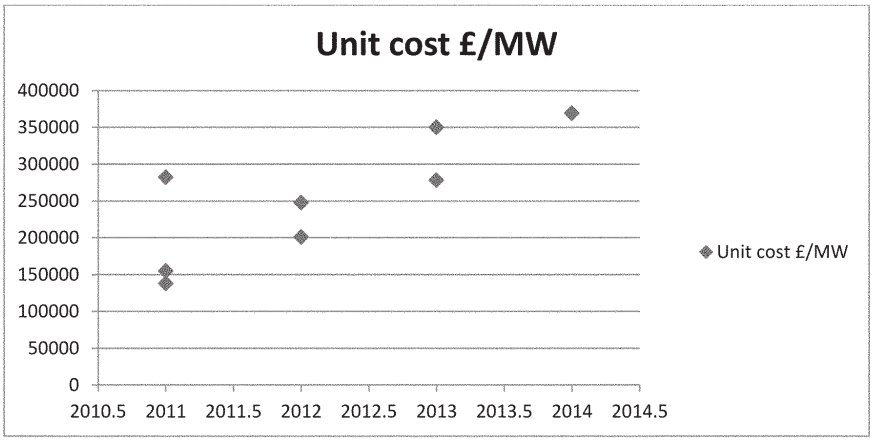
Broader policy frameworks, including the IME 3 Directive and RES Directive, must be fully complied with in decision-making on infrastructure investment. Most new renewable energy projects in NI will not have firm access to the transmission network during and beyond the current five year price control period and will be faced with grid constraints which require grid reinforcements to address. The RES Directive (Directive 2009/28/EC) which provides for priority dispatch and access for renewable generators and an obligation to reduce the curtailment of renewables should be a significant factor in all regulatory decision-making on grid infrastructure.

Explore the relationship between grid strength and connection costs for developers;

Network strength and flexibility are both important. Smart network management represents a very positive opportunity going forward but must be accompanied by infrastructure build-out. Northern Ireland has a historic legacy of low investment in infrastructure as the present electricity network was largely in place by the late 1960s, having been developed to link major fossil fuelled power stations and to deliver bulk electricity to the more heavily populated parts of the country. For security of supply and the facilitation of renewables, on-going maintenance, strengthening and build-out of the grid is required, particularly in the west.

Grid strength has an impact on costs for both small-scale and large-scale renewables. NI large-scale generators face higher connection costs per MW than any other region of the UK and Ireland and are also required to pay higher levels of deposits than most of the UK and Ireland. The cost of grid connections in Northern Ireland is likely to be higher on per MW basis than the rest of the UK mainly due to the scale of projects. A smaller number of turbines per project suggest that the "fixed" costs of grid and access are disproportionately high. The general trend of grid connection costs in Northern Ireland is upwards, as can be seen below:

Table 1: Sample grid connection costs Northern Ireland



NIE has also recently proposed the implementation of a new policy on security requirements for cluster connections which are extremely onerous. Stage payment triggers are described in the Statement of Charges as

Stage 1 – 10% of connection fee with acceptance of terms.

Stage 2 – 20% of connection fee prior to commencement of consents process (DOE Planning/land rights) if applicable.

Stage 3 – 20% of connection fee post completion of consents process (DOE Planning / land rights obtained).

Stage 4 – 30% of connection fee to order long lead time materials.

Stage 5 – 20% of connection fee prior to construction commencing on site.

In 2013 NIE put forward a policy stating that all wind farms connecting to a cluster would be required to pay a security bond. The application of the security results in a situation where a development could potentially be asked for Stage payment 1 (10%), Stage payment 2 (20%) and security to cover the remaining 70% of connection cost all within 90 days of receiving planning consent and making a grid application.

The funding of such a security at that stage in the lifecycle of the development, well before financial closure, may be impossible for many developments. Moreover such a security would then have to remain in place for at least two years pending construction of the cluster. This is particularly onerous on developments appearing later in the process. This

could lead to a situation where certain developments would not proceed, creating a scenario where payback of customer does not take place.

NIRIG believes there is potential to remove, or at least minimise the risk of development being unable to proceed due to impossible financial demands, by postponing the request for a security payment to a later stage. This would result in the security being in place for a shorter period, making it easier to obtain funding, and as any stage payments made in the interim would be deducted from the security this would result in a lower security requirement. This would assist in allowing the development to progress to financial close before security is required.

NIRIG has also proposed that as late-comers to a cluster actually reduce customers' risk exposure (originally allowed by the regulator) that therefore these late-comers should not be expected to provide the same security requirements. The application of the same rule set as NIE proposes actually jeopardises the completion of those late connections.

The strength of the grid impacts upon generators' costs well beyond the point of connection. Additional costs can be incurred when the network is unable to absorb the electricity generated and particularly in the case of wind energy, it must be turned down/off or 'curtailed'. In March 2014 SONI published a paper[8] which shows Northern Ireland in 2020 having curtailment ranging from 4-10% together with constraints in years up to 2020 of 8% at some nodes.

The SEM Committee acknowledges[9] that "increasing levels of curtailment is a serious issue for the financial viability of certain wind farms". A number of initiatives are on-going to minimise curtailment. These initiatives include:

- DS3, *Delivering a Secure, Sustainable Electricity System* – a programme which aims to increase the secure level of system non-synchronous penetration (typically wind) from 50% (currently) to 75% in the coming years
- Integrated SEM (I-SEM) - a major review of the SEM design to implement the EU Target Model so as to improve the coupling of markets through the efficient operation of interconnection. The I-SEM has to be implemented before the end of 2016.
- In May 2011, the SEM Committee published its decision Single Electricity Market - *Demand Side Vision for 2020* (CER11/078) which set out thirteen decisions for implementation.

However, even with the successful implementation of these initiatives dispatch-down will remain at circa 4-7% when there are sufficient installed wind farms to meet the 2020

[8] http://www.soni.ltd.uk/media/documents/Operations/Generators/Northern%20Ireland%20Generator%20Output%20Reductions_2014-2020_v2.1.pdf

[9] *Treatment of Curtailment in Tie-Break situations Proposed Decision paper (SEM-12-090)*, SEM, Oct 2012

government policy targets. If these mitigation measures are not met, curtailment will be significantly higher.

As per previous SEM rules, firm projects are currently paid market revenues through Dispatch and Balancing Costs when curtailed. However the SEM committee has decided (SEM-13-010) that no windfarm will receive curtailment compensation from 1st January 2018.

Review processes in place for developers applying for planning permission and grid connection;

NIRIG believes that the processes in place are adequate and that the requirement to apply for planning permission before grid connection has worked well for NI. However, the system requirements and energy mix are changing so rapidly that policy development needs to be properly resourced and managed. As noted above, policy-making on clusters has taken considerably longer than was expected and has been a long drawn-out process, impacting upon planning permission and progress towards our targets. The formation of the Renewables Grid Liaison Group is a welcome development in enabling key stakeholder discussion on operational connection policy; however, we believe that this could be improved still further. We have some concern that the consultation process to date has not always provided the rules and frameworks necessary to allow industry to move forward with confidence.

We would support the creation of a clear set of structures and principles regarding the consultation processes between SONI, NIE, DETI and NIAUR to avoid disputes and increase the effectiveness of the consultation and decision-making process. We believe that more effective consultation will lead to effective solutions and allow for informed decision-making on matters of policy. We would like to see a process whereby the following principles are adhered to:

- Clear processes should be in place so that regulatory and departmental buy-in is provided at all relevant stages of the consultation process
- Formal consultation should take place at a stage when there is scope to influence the policy outcome.
- Consultation documents should be clear about the consultation process, what is being proposed, the scope to influence and the expected costs and benefits of the proposals.
- Keeping the burden of consultation to a minimum is essential if consultations are to be effective

- Consultation responses should be analysed carefully and clear feedback should be provided to participants following the consultation.

Review any requirements there are for renewable electricity developers to connect to the grid;

NIRIG believes that the requirement to have a valid planning permission before making a grid connection application is positive for renewable electricity developments. The requirement to apply for planning permission before applying for grid connection was developed in the 1990s and is supported by industry. Experience from GB and ROI demonstrates the challenges that can arise when grid capacity is committed but due to planning permission delay or otherwise it cannot be utilised for long periods of time.

The rebate policy for grid connections should be extended. There are different refund policies associated with SONI Transmission and NIE Distribution Charging mechanisms. Under SONI's Connection Charging Policy[10], partial refunds will be paid to all transmission connected customers up to 10 years from the date of the first connection. Under NIE's Connection Charging Statement[11] a rebate policy extends for 5 years and is only in relation to domestic customers.

Small generator connections are increasingly facing high and at times prohibitive costs of connection involving many kilometres of line upgrade. A rebate policy would potentially assist this problem. In addition, large (non-cluster) generator connections at 33kV sometimes face substantial lengths of 33kV new construction with spare capacity after the connection and a rebate policy could alleviate substantial upfront costs.

Under Transmission policy there is a rebate system if generators have a Connection Agreement with the TSO (SONI). As 33kV connections have Connection Agreements with NIE, this transmission rebate is not clear: many 33kV connections have to pay for transmission assets (under the 'one voltage level above' policy). We believe that this disconnect should be addressed.

Given the development life cycle of many of these larger developments (in many cases 8-10 years from concept to build) it is considered that 10 years would be more appropriate timeframe for rebate for this group of developments.

Delays in the development of cluster policy have had a negative impact upon the ability of developers to build out projects that received their planning permission a number of years ago. In March 2010 NIE launched a consultation on 'clustering': the connection of

[10] Transmission Connection Charging Methodology, SONI – Effective from 22nd Dec 2010 Section 6
[11] Statement of Charges for Connection to the Northern Ireland Electricity Distribution System, NIE – Effective from 1st Oct 2012 Section 6.8

groups of electricity generators to the distribution system by a single line. As a result 14 wind farms that had already received grid connection offers were expected to wait for modified 'cluster' connection offers from NIE. It was only at the end of 2013, and after four separate consultations, that NIE began to reissue modified connection offers for those wind farm sites that had originally received connection offers in July 2010.

Wind farms comprising 475MW of capacity are now awaiting connection, involving 26 sites which have planning permission but have yet to be connected. Given that planning permission for many of these wind farms was obtained prior to 2010, the long delay has led to imminent planning permission expiry. Having recognised the potential expiry of planning permission for a significant number of wind farms, NIRIG has previously outlined a range of potential solutions to the problem to DoE such as legislative change to allow for planning permission extension, and the introduction of variations to pre-commencement conditions. We suggest that these proposals be given serious consideration.

Crucially, the need to reapply for planning permission will also have a knock-on effect on the entire cluster. If one wind farm in a cluster were to lose planning permission the whole regulatory justification for that cluster is likely to be jeopardised (as it will fall below the 56MW threshold at which a cluster is designated), meaning that the cluster will not get built and will further delay every wind farm associated with that cluster.

Resubmission of planning applications would also represent considerable cost to developers (breach of covenants, re-pricing of loans, additional planning fees, fresh EIA etc.), serious investor uncertainty, weaker investment cases due to increased levels of curtailment, and would also require considerable resources from DOE at a time of major change and restructuring.

Importantly however we also urge that serious consideration should be given to applications for 10-year planning permissions for wind farms going forward which is the regime in the Republic of Ireland.

Consider the feasibility of introducing competition into grid connections;

Contestability should be introduced as soon as possible, with detailed proposals for consultation. This is vital for maximisation of efficiency and ability to reduce cost to consumer. NIRIG fully supports the introduction of contestability, as outlined in the recent draft NIAUR Forward Work Programme 2014-15; however this needs to cover both Transmission and Distribution assets to be effective. Given the long development time associated with large sustainable generation projects and the prohibitive costs facing small scale generation, it is critical that contestability is introduced as soon as possible if 2020 targets are to be achieved. To facilitate progress we would recommend a consultation process that involves detailed proposals at an early stage.

NIRIG
NORTHERN IRELAND
RENEWABLES INDUSTRY GROUP

4. NIRIG's VIEWS ON ISSUES PERTAINING TO SMALL-SCALE RENEWABLE GENERATION

Explore the strategic approach to electricity grid investment;

Currently there are major constraints on the 33kV network caused by the export from renewable generation connected to the 11kV network. It is likely that cost effective, SMART initiatives could solve much of the problem but agreement must be reached on a sensible approach to investment in the 33kV network to support the connection of small scale generation.

Explore the relationship between grid strength and connection costs for developers;

NIE has made good progress on managing the extremely high levels of small-scale applications they have received. More progress on funding, development and innovation is required and regulatory back-up is crucial.

Currently in the majority of cases developers are receiving very expensive offers to connect to the electricity network. Similar problems have been experienced on the networks of the Distribution Network Operators (DNOs) in GB and alternative solutions employing 'smart' technology have been applied. Essentially the 'smart' technology exploits the fact that the problem on the network only arises under certain conditions (i.e. when the generation from the turbine and load on the line is low). The 'smart' technology is then called upon to act to reduce the generation under these conditions thereby removing the problem on the network.

Using this technology means that it is not necessary to reinforce the line and the high connection costs are avoided. However, the project developer has to accept the fact that, under certain conditions, the output of its generation will be reduced – this is called *Non-Firm Access.* NIRIG would encourage more proactive use of 'smart' technology to provide viable connection offers.

Review processes in place for developers applying for planning permission and grid connection;

Currently developers require planning permission for their development before making an application for connection to the electricity network. This ensures the best utilisation of available capacity. Given the current problems with connection to the network we believe that some facility for an indication as to whether a potential site is likely to be high cost or constrained by 33kV congestion would be helpful - in effect be a 'budget estimate'. The

requirement for a development to have planning permission before making a full application for connection would remain.

When small scale renewable generation was in its infancy developers tended to look for good sites and then think about connection to the electricity network. This approach has had to change in that now developers have to first think of the electricity network and where it might be possible to get an economic connection before then looking for potential sites around those locations. The problem with this new approach is that information about the electricity network and its capacity is severely limited. NIRIG has previously requested that such information be provided by NIE, who have responded by publishing a heat map[12] which gives an indication of where there is limited potential for additional connection without significant line upgrades. However, it would also be of benefit to allow developer access to their geographic representation of the distribution network (Geographic Information System - GIS). Working together, positive progress has been made in the management of jobs from quotation through to construction, including provision of information but we believe that more could be done to reduce timescales for connection and further improve the flows of information to developers.

Consider the feasibility of introducing competition into grid connections;

As for large-scale generation, we believe that this would be a very positive step to help to address high connection costs.

[12] http://www.nie.co.uk/documents/Generation/SSG_Heat_Map_251013_V1_final.aspx

Written Submission from Simple Power (1)

simple power

15th April 2014

Mr Patsy McGlone MLA
Chairperson
Committee for Enterprise, Trade and Investment
Northern Ireland Assembly
Parliament Buildings
Stormont
Belfast
BT4 3XX

Re: DETI Committee Electricity Price Review – Grid Connections

Dear Mr McGlone,

Thank you for the opportunity to respond to your Committee's inquiry and request for information in relation to grid connections for 'on-farm' single wind turbines.

We had previously written to the Committee (23rd November 2013) clarifying certain aspects of evidence on grid costs of small scale renewables being given by other respondents. This note sets out in some detail Simple Power's experience of applying to Northern Ireland Electricity (NIE) for grid connections.

1. **Summary response**

By way of a brief reminder, the Northern Ireland small-scale (farmed based) wind turbine sector is characterised by many single site developers and a few multi-site developers. Simple Power is, by some distance, the largest operator in the sector in NI. Our company is locally owned and employs 9 full-time staff and sustains approximately 40 indirect jobs through specialist local contracting and professional services.

Simple Power was formed with a business model of offering landowners a risk-free route to securing an income from a wind turbine on their land, by bringing the benefits of professional project management, process standardisation, finance and scale to site development. Due to the risks and costs involved and the difficulty in obtaining finance, many NI farmers could not otherwise benefit from the small scale wind incentive.

Our business model has proved attractive to farmers and Simple Power now has some 250 sites across Northern Ireland agreed or under option. However, due to the difficulties in obtaining NIE grid connections, Simple Power has had to revise its target for what can be achieved within the timescale for current NIRO legislation.

The difficulty in obtaining a viable connection offer to the NIE grid is now ***severe***. Only a small proportion of connection applications are receiving an acceptable offer – or any offer at all.

The difficulty in obtaining a suitable connection offer is due to both the very high cost being asked from developers to reinforce the 11kV network to accommodate a small scale connection and the inability of NIE's 33kV network to cater for the number of applications being sought.

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In addition, even when a suitable connection offer is available the length of time to provide the connection is between 12 and 18 months.

Companies in Great Britain have adopted *'smart'* solutions to providing reasonable cost connections to their 11kV networks and to the congestion problems on their 33kV networks.

NIE needs to adopt a similar, proactive approach to finding alternative solutions and also to come to an agreement with the Utility Regulator for capital expenditure to reinforce the 33kV network where required. NIE also needs to examine its processes and timelines for providing connections and reduce the time from connections acceptance to physical connection considerably.

2. The 11kV problem and its solution

NIE's rural 11kV network was developed mainly to provide supply to dispersed farms and dwellings. During much of this period the company operated under capital expenditure constraints and as a consequence the network was built to the minimum specification necessary to supply these properties. Hence the network now experiences difficulties in accommodating small scale generation onto the rural network. This has resulted in very high connection offers to developers. Offers of £500,000 and above are not uncommon. The economics of small scale projects cannot support connection costs of this magnitude.

The table below shows the disparity between consented and actually connected projects to the end of 2013.

Table 1: Consented versus Connected Projects

Projects > 100kW	2010	2011	2012	2013	Total
Consented	50	135	313	281	779
Connected	7	5	30	13	55

The table shows the small number of small wind turbines between 100kW and 250kW connected and does not include Anaerobic Digestion schemes which would exacerbate the problem.

Similar problems have been experienced on the networks of the Distribution Network Operators (DNOs) in GB and alternative solutions employing 'smart' technology have been applied. Essentially the 'smart' technology exploits the fact that the problem on the network only arises under certain conditions (i.e. when the generation from the turbine is high and load on the line is low). The 'smart' technology is then called upon to act to reduce the generation under these conditions thereby removing the problem on the network.

Using this technology means that it is not necessary to reinforce the line and the high connection costs are avoided. However, the project developer has to accept the fact that, under certain conditions, the output of its generation will be reduced – this is called *Non-Firm Access*.

Our view is that NIE could be more proactive in using 'smart' technology to provide viable connection offers.

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3. The 33kV problem and its solutions

The difficulty in gaining access to the 11kV network is further exacerbated by the ability of the 33kV network to cater for the output of the aggregation of generators on the 11kV network.

At the moment some 70 33kV substation locations (approximately 30% of the network) are classed as 'conditional', meaning any connection offer is conditional on the 33kV restriction being resolved. Therefore developers have no prospect (or timeline) of receiving a connection offer on the networks supplied by these substations.

A small amount of expenditure (some £2.3m) was recently agreed by the Utility Regulator to rectify some 40 substations but this still leaves large parts of the electricity network, and hence the country, incapable of providing a connection for a small turbine.

'Smart' technology has been applied in GB to managing the 33kV problem and thereby avoiding capital expenditure where it is feasible to do so and, again, NIE needs to be more proactive in pursuing these solutions.

However, in our view there will need to be some expenditure on the 33kV network to resolve the difficulties at many more of these locations. Otherwise the number of small scale renewables able to connect to the network will be severely limited.

NIE has provided estimates of costs to the Utility Regulator for removing the restriction at the 33kV substation in question but there seems to be little or no constructive dialogue between NIE and the Regulator to come to an agreement.

Developers recognise that 33kV reinforcement costs fall on consumers and therefore a sensible approach must be taken to the amount of expenditure allowed.

However, we also believe that if NIE and the regulator were to engage constructively then a mix of solutions involving 'smart' technology plus some additional expenditure could be agreed. The problem cannot be allowed to sit indefinitely with no attempt to find a solution.

From our perspective a large part of the problem has been the standoff between NIE and the Regulator over the recent dispute with the Competition Commission.

In our view the way forward in addressing this problem is for NIE and the Regulator (and DETI if needs be, as the architect of the policy) to engage in order to agree the solution.

Although any solution may take some time to implement, an agreement as to the nature of the solution would give developers confidence that there will be a future opportunity.

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4. The connection application process

There are a number of simple things that NIE could do in the connection application process that would be of great assistance to developers by avoiding time and money being wasted on sites that are unlikely to be viable due to high connection costs.

a. Budget Estimates

Currently developers require planning permission for their development before making an application for connection to the electricity network. This was a sensible arrangement, to ensure the best utilisation of available capacity, but it was predicated on the assumption that the connection cost was likely to be reasonable. Given the current problems with connection to the network we believe it is **unreasonable** to require developers to spend money progressing sites through the planning process when the probability of an acceptable connection offer is extremely limited. NIE need to introduce a facility where a request can be made by a developer to get an indication as to whether a potential site is likely to be high cost or constrained by 33kV congestion. This would in effect be a **'budget estimate'** and would help developers decide whether to progress the site through the planning process. The budget estimate would need a quick turnaround, say 2 weeks. NIE would also benefit from not having to provide fully designed quotations for projects that have no prospect of proceeding.

The requirement for a development to have planning permission before making a full application for connection would remain.

b. Access to NIE Geographic Information System (GIS)

When small scale renewable generation was in its infancy developers tended to look for good sites and then think about connection to the electricity network. This approach has had to change in that now developers have to first think of the electricity network and where it might be possible to get an economic connection before then looking for potential sites around those locations. The problem with this new approach is that information about the electricity network and its capacity is severely limited. NIE need to allow developers access to their geographic representation of the distribution network (Geographic Information System or GIS). This would be of great assistance to developers as they try to identify sites that are likely to have a reasonable connection cost. Other electricity companies (such as Scottish and Southern) allow such access as a matter of routine. NIE has produced a 'Heat Map' showing areas of the country where developers are likely to face high cost or 'conditioned' offers - in effect a congestion map. While this is a useful step it still leaves developers guessing as to what lines they may be able to connect.

NIE needs to consider how to develop their Heat Map to identify for developers circuits that have capacity for the connection of generation.

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5. Timescales for providing a connection

Where a connection is available, developers are experiencing very long timescales from NIE for providing the connection – usually up to 18 months.

The following table provides examples of energisation timelines for a number of Simple Power projects:

Table 2: Time elapsed between payment of deposit to NIE and date of energisation

Townland	Date NIE Deposit Paid	Date of NIE Energisation	Elapsed Time (mths)
Sixmilecross	Oct-12	Oct-13	12
Fivemiletown	Jan-13	Feb-14	13
Clogher	Oct-12	Feb-14	16
Moira	Jan-13	Mar-14	14
Castlerock	Aug-12	O/S	19
Ballygawley	Oct-12	O/S	17
Dungannon	Apr-13	O/S	12
Drumbo	Feb-13	O/S	13
Donnemana	Apr-12	O/S**	23
** - Legal issues and now earthing issues			

Understandably where wayleaves have to be obtained from third parties this can present delays. However, our experience is that obtaining wayleaves and engaging with developers to explore alternative routes and methods, could be better managed. Even without wayleaves projects can take 12 months to connect.

In our view the 90 days allowed for NIE to provide a quotation in the first place is overly long. For example, a normal customer connection is required to be provided with an offer in 30 days. We do not see the reason for a 90 day period for small generators. Indeed, our experience is that NIE does not come to the site to look at the job until some 70-80 days have elapsed.

It would also help developers greatly if NIE had a system of indicating early on that the project is going to incur a high connection cost or will be conditional. Developers could then avoid the time and expense of pursuing costly planning consents. NIE would also benefit

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from not having to provide fully designed quotations for projects that have no prospect of proceeding.

NIE has produced a 'heat map' showing areas of the country where developers are likely to face high cost or conditional offers - in effect a congestion map. While this is a useful step it still leaves developers guessing as to what lines they may be able to connect.

It would be much more useful if NIE could provide more network information to developers and perhaps what lines / substations still have the capability to connect small scale generation. Such a scheme would save a good deal of nugatory work for both developers and NIE.

These are some particular examples and it would be our view that a commitment by NIE to a thorough analysis and self-imposed challenge to the adequacy of all aspects of the current connection process including resources and overall information flows to applicants would yield significant benefits for both developers and NIE.

It's worth noting that developers would be quite willing to pay for additional resources in the generator connections department; any such costs, when shared across all applicants, are liable to be quite small, compared with the cost of connection.

6. Conclusions / Recommendations

i. 11kv network

NIE should be more proactive and urgent in pursuing 'smart' technology solutions on the 11kv network. This technology is routinely applied on networks in GB.

Competition in connections (contestability) should be introduced as soon as possible. This would enable developers to provide their own (e.g. overhead lines) and give them the ability to better manage their costs and timelines.

ii. 33kv network

Similar to the 11kv network there are 'smart' technology solutions being applied in GB to solve capacity problems in the 33kv network thus minimising the need for capital expenditure.

NIE and the Utility Regulator should, as a matter of priority, agree a suitable level of capital expenditure to address the problem of congestion on the 33kv network. This problem cannot simply be allowed to persist with no prospect of a solution.

iii. Processes and information

With a serious commitment to do so, our view is that NIE could significantly improve the connection process and reduce the timescales namely:

- Quotation timescale should be reduced from 90 days;
- A process for budget estimates would save much nugatory time and effort for both parties;
- Access to the NIE GIS to assist developers in identifying suitable sites;

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- Additional resources (or better use of existing resources);
- Better information flows to developers on the progress of their application;
- More interaction with developers on problems with projects as they arise – giving the possibility of early consideration of alternative options (e.g. a developer may be willing to consider some additional cost if it saves on the connection time);
- End to end job management with a clearly identified contact person for each job;
- NIE should be able to better manage their overall connection process such that dates given to developers for their connections are adhered to – constantly changing connection dates plays havoc with turbine purchasing and construction scheduling.

We have set out examples where developers in general experience difficulty. NIE knows its own process more intimately and should be able to bring forward these other improvements.

We believe it is absolutely essential that NIE develops an Action Plan, with timescales, to clearly demonstrate a commitment to providing solutions to the problem and issues highlighted. An example of a possible action plan is attached to this letter.

Part of the problem that we experience is NIE's very cautious approach to 'new' solutions or committing to provide timelines and wider information. They appear to be very nervous that such commitments (even with suitable caveats) of information could be used to challenge them at a later date.

This caution can perhaps be justified in certain circumstances but it can be a major inhibitor of innovation or pursuing novel solutions in the interest of consumers.

Also, in our view a significant barrier is the form of regulation. At present NIE derives almost the entirety of its profitability from charging for use of the network, i.e. for transporting electricity from power plants to customers. NIE has no commercial incentive for providing connections, i.e. they eventually only recover their costs. We believe that NIE would be encouraged to carry out connections with more urgency and innovation if there was a commercial incentive for them to do so, i.e. connections should be a 'profit centre' as opposed to simply a 'cost centre', as at present.

If for whatever reason this is not possible, then targets should be set for providing connections to the network with meaningful penalties if the targets are not achieved.

We trust this information is of use to your Committee and your advisers looking at this problem.

If you need further information or clarity around any issue, please feel free to contact me.

Yours sincerely,

Philip Rainey
Chief Executive

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ANNEX 1

POTENTIAL NIE ACTION PLAN:

1. **On the 11kV network, NIE to establish a regime whereby generators can connect and then control themselves within technical limits set by NIE.** This approach would massively reduce connection costs.

2. **NIE to agree with NIAUR an appropriate approach to investment in the 33kV network to support the connection of small scale generation.** This would be directed at cost effective, SMART solutions to solve the network problems resulting in developers receiving conditional offers.

3. **NIE to establish a process for providing developers with 'budget estimates', available at the very early stage of potential projects, with a quick turnaround** (2 weeks maximum).

4. **NIE to allow developers to access their geographic representation of the distribution network (Geographic Information System or GIS).** This would be of great assistance to developers as they try to identify sites that are likely to have a reasonable connection cost.

5. **NIE to consider how to develop their Heat Map in order to identify for developers circuits that have capacity for the connection of generation.**

6. **NIE to continue to refine the process of job quotation right through to construction in order to reduce timescales for connection and improve the flows of information to developers.**

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Written Submission from Simple Power (2)

Single Wind Turbine Grid Connections

Suggested Actions for NIE

Identification of Sites where Connection Costs May be Reasonable

Traditionally developers identified potential sites, took them through the planning process, then applied for a connection to the network. This process takes considerable time and money and would only work if there was a reasonable expectation of getting a connection quotation that was economic for the project. In most cases now connection quotations are very high cost so are not economic. The method by which developers identify potential sites has had to change. Developers now have to look at the electricity network and identify locations where there may be capacity to connect generation. They then have to look at the network more closely to try to identify potential sites where connection costs may be economic. To enable this new process NIE need to make available more information about the electricity network specifically as follows:

1. **NIE urgently needs to revise its 'heat map' to identify for applicants circuits that have capacity for the connection of generation.**

2. **NIE urgently needs to provide applicants with access to its Geographic Information Service (GIS) in conjunction with a revised heat map, this would assist developers in choosing sites likely to have reasonable connection costs.**

If these facilities were in place experience will prove whether or not they are sufficient for developer's needs. If they don't prove sufficient then NIE will need to provide applicants with a 'budget estimate' for a grid connection – indicating before planning etc. is progressed whether a potential site is unsuitable due to high costs or network constraints.

Capability of the 11kV and 33kV networks

While recognising the fact that there are limitations as to the capability of the 11kV and 33kV networks, there are cost effective SMART initiatives that NIE could implement that would allow much more generation to connect without excessive connection costs or the need for significant investment in the 33kV network.

- Re 11kV network, NIE need to establish a regime whereby generators can connect and then control themselves within technical limits set by NIE. This will be reasonably straightforward and has been done as routine by other electricity companies.

- Re the 33kv network, NIE need to establish a regime where, if an overload situation occurs, generators are simple switched off for the duration of the problem. Such situations are normally rare so should not be a problem for generators. Again, this will be reasonably straightforward and has been done as routine by other electricity companies.

- NIE need to agree with NIAUR an appropriate approach to investment in SMART initiatives for the 33kV network to support the connection of small-scale generation. (This last bullet point should also be put to NIAUR when they appear before the Committee).

It is vitally important that NIE undertakes a solid commitment to deliver each of the above actions within an agreed timeframe; NIE could also agree an interim deadline whereby it will update the Committee on the progress of each action.

It is also vital that the relevant authorities exercise their powers to hold NIE to account regarding the timely delivery of the required actions such as those above.

Written Submission from SONI

SONI
Grid Connection Processes

Committee for Enterprise, Trade and Investment
Thursday 5 June 2014

Introduction

SONI is the licensed independent Transmission System and Market Operator in NI

Recent history

- part of NIE until 2009
- sold by an open commercial tender to EirGrid

Following a EU certification process the network planning function transferred from NIE to SONI in May 2014

SONI is responsible for

- Safe & secure operation the NI transmission grid
- Economic & efficient planning for transmission network investment
- Operating the mandatory pool wholesale Single Electricity Market
- Providing offers to parties wishing to connect to the transmission network

NI Transmission Network

System Operator for Northern Ireland

SONI

NIE

USERS

UREG

DETI

Connections relationships

System Operator for Northern Ireland

USER
Generators or Demand customers
Grid Code compliance
Licence required
Pays connection charges
Pays tariff charges

UREG
Regulates income for SONI & NIE
Approves all tariff & connection charges
Approves transmission projects on a case by case basis
Grants licences to Users

DETI
Licences Utility parties
Sets Policy

SONI (TSO)
Makes connection offers to T Users
Liaises with D connected generators to provide access to transmission network and SEM
Plans connection methods & identifies network investment needs to meet standards
Collects connection charges
Collects Use of System tariff charges

NIE (TO)
Owns all transmission assets
Advises SONI on the costs of installing transmission assets
Delivers connection & infrastructure requirements identified & planned by SONI
Maintains the network
Receives tariff & connection charges collected from customers by SONI

Connections Activity

System Operator for Northern Ireland

Existing position

- 5 main generation site connected to the N Ireland transmission network - Ballylumford, Kilroot, Coolkeeragh, Moyle and Slieve Kirk
- No demand customers connected to the NI transmission network
- Vast majority of renewable generation is connected to the Distribution system

Proposed Connections

- Consultation process ongoing regarding access arrangements & requirement for Planning Permission
- 3 on-shore transmission applications progressing
- discussions & feasibility studies ongoing with other parties
- 3 off-shore renewable generation parties

To facilitate connections SONI plan and operate the transmission system in accordance with Licence and agreed Standards ensuring continuity and security of supply to all customers

Connection arrangements

A User must;

- apply to SONI for a new or modified connection offer
- provide specified information before an offer will be provided

SONI will provide the following;

a) An offer outlining the proposed connection arrangement and the associated charges
b) All the contractual arrangements that must be entered into
c) The access the party will have to the transmission network
d) If access is limited the associated transmission reinforcements required to provide full access
e) A forecast of the level of generator output reductions

The connection charging arrangements in the SEM are aligned and are referred to as a 'shallow' arrangement

Connecting more generation

System Operator for Northern Ireland

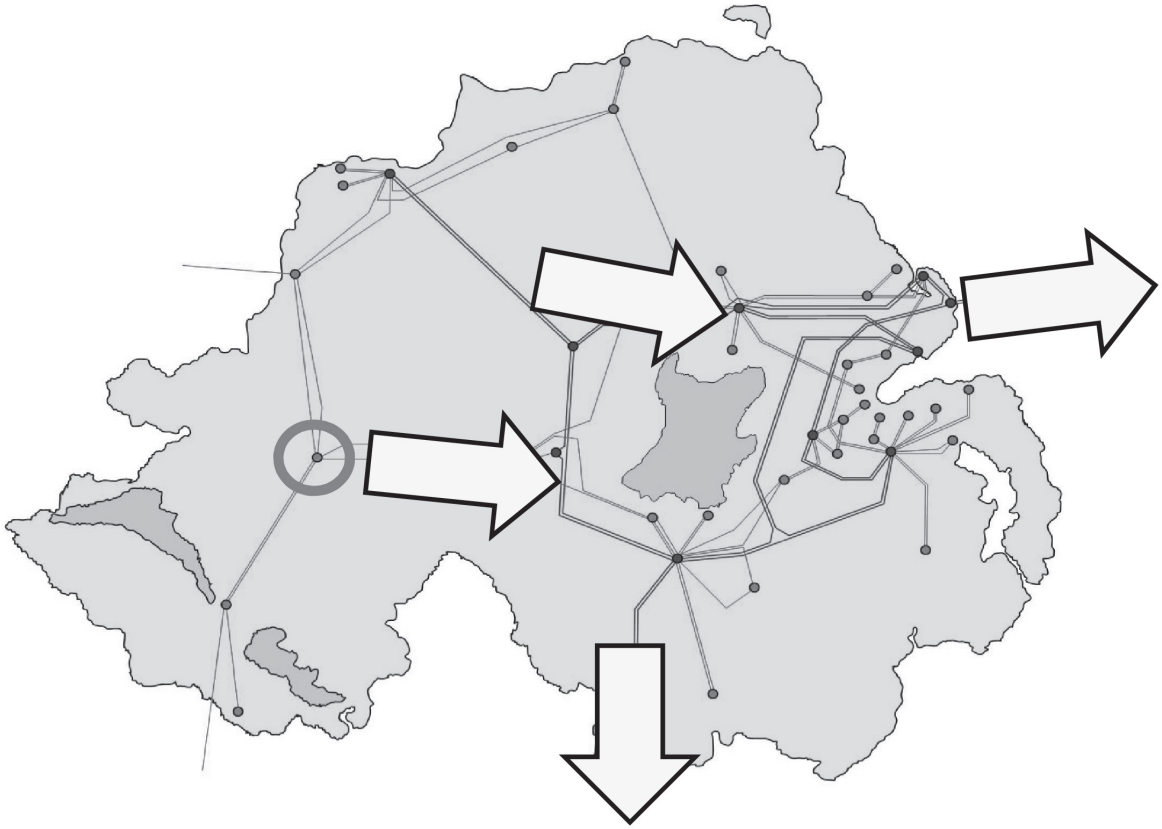
What is required;

- Urgent investment in transmission infrastructure
- Security of Supply resolution required for post 2015
- Delivery of interconnection capacity - N-S tie-line & Moyle
- More flexible generation plant to respond to changes in demand and wind output.

The DS3 Program set up to address technical limitations of the transmission system and to develop new services that are required to support the secure operation of the system

Access to the network

System Operator for Northern Ireland



EIRGRID semo SONI

Chargeability

- Charging Policy approved by UREG and in SEM is ‘shallow’
- Customer pays for 100% of the least cost technically acceptable shallow connection arrangement
- SONI use costs from NIE to quote to connecting parties
- Only NIE can construct transmission assets
- Process is contained in a SONI Charging Statement that is approved by UREG
- Network and connection arrangements must comply with certain standards.
- Any ‘deep’ reinforcement works are approved by UREG, constructed by NIE and recovered through the T Use of System tariff. Investments are approved by Ureg.

Written Submission from SSE

briefing note to:

Committee for Enterprise, Trade and Investment

Review of Electricity Policy: Part III Grid Connections

29 May 2014

Company Representatives:

David Manning	Director of Corporate Affairs
Iain Wright	Head of Regulation
Bernice Doyle	SSE Grid Manager

1. SSE Introduction

1.1 SSE operates as an electricity generator, an electricity and gas supplier and provider of energy services in Northern Ireland.

1.2 Since entering the market in 2008, SSE has invested around half a billion pounds into the future of Northern Irish energy. We are the largest wind energy developer and operator in Northern Ireland where we operate 125.1MW of installed capacity, with a further 501MW in the Republic of Ireland. This is part of an overall generation portfolio on the island that includes 1068MW of conventional power stations.

1.3 An example of the local economic benefit delivered by SSE is our recently completed 73MW Slieve Kirk Wind Park in Co. Derry-Londonderry. SSE's investment in this project totalled £125 million, of which £36 million was spent on goods and services from 75 local businesses. This project will also contribute a further £18.5million to the local community through commercial rates payments, landowner leases and community funding.

1.4 From the perspective of a developer, operator and owner of generation stations and as a supplier of electricity, the electricity network is essential to transmit power from generation sources to customers' homes and businesses. The adequacy, timely delivery and maintenance of the network are crucial to our business.

2. Key Issues

2.1 Requirement for Planning Permission for Issue of Connection Offer

2.1.1 SSE notes that a connection application will not be processed until planning permission has been granted. We see the rationale for this policy such that capacity is not 'hoarded' by projects which are ultimately not developed. The "Gate" process in ROI has had problems in this respect.

2.1.2 SSE welcomes the adoption of the Planning Act and awaits its full implementation. The provision of timelines for submissions by statutory consultees will make for a more efficient decision making process.

2.1.3 SSE's experience is that connection offers are issued relatively promptly once planning permission has been granted. However, we have found that delays in the actual delivery of the connection infrastructure are unacceptably long. SSE has experienced delays of over 5 years in the delivery of connections. We would highlight that this level of delay is a real barrier to investment and damages Northern Ireland's attractiveness as an investment location. This is particularly the case for SSE as projects must compete internally for funding.

2.2 Contestability

2.2.1 Northern Ireland operates a shallow connection charging regime. This means that developers must pay for the local wires that are required to connect the generation project to the wider distribution or transmission system. Generators pay towards the 'deep' asset reinforcements, necessary to transport the electricity they generate, through Use of System Charges. Currently, generators in Northern Ireland must engage and pay the system owner to construct these shallow connection assets in accordance with rates and procedures set out by the Utility Regulator.

2.2.2 In similar jurisdictions, including the Republic of Ireland and GB, generators have the option to take responsibility for the construction of these connection assets themselves. SSE has found that the contestable delivery of connections offers cost savings and reduces delays in connecting projects i.e. the benefits of competition are realised. We have taken responsibility for the connection of many projects, including our Athea and Galway Wind Park windfarms in RoI. We also reached agreement with NIE for the contestable delivery of the Slieve Kirk connection. If we had not done so, the project would not yet have been built, foregoing the £36m local economic benefit illustrated above.

2.2.3 We would strongly advocate that contestability be introduced in Northern Ireland for both transmission and distribution connected generators. This would require the Utility Regulator to amend the SOs' licences and for a process to be introduced, which would include definition of the necessary technical interface specifications between the connection and the grid.

2.2.4 We note that the Utility Regulator's current work plan indicates that it will deliver contestability. However, this has been an objective of the Regulator for a number of years now. Both SSE and NIE have provided relevant documentation on the Slieve Kirk connection project to the Utility Regulator to assist in the development of a contestability policy for NI. We urge the Regulator to complete this project as soon as possible. This will enable developers to progress their projects in a timely and cost effective manner.

2.2.5 We would also highlight that it is important for the 'deep' infrastructure reinforcements to be developed so that full benefits can be gained from decarbonised and lower priced electricity generation.

2.3 Slow decision making on clusters

2.3.1 SSE welcomes the 'cluster' policy introduced by the Utility Regulator, under which neighbouring projects will share transmission and distribution infrastructure. This can be an effective way of reducing the cost and visual impact of this infrastructure. However, SSE has found that there are serious delays in delivering cluster connections due to the lack of timelines for decisions on each of the four funding approval stages required under the Utility Regulator's process.

2.3.2 SSE, like the regulator, does not want customers to be burdened with the cost of unused infrastructure (should one or more of the clustered projects decide not to proceed). A balance must therefore be struck between this aim and the need to enable developers to move ahead and construct projects. We submit that allowing contestable construction of cluster connections delivers on the customer protection objective, as the 'first' developer(s) will carry the investment risk of over-capacity should others decide not to develop their projects.

2.4 Need for general network upgrades and North South Interconnector

2.4.1 SSE highlights that upgrades to the grid, other than to facilitate renewable development, are also necessary and that there is a general need to maintain and expand capacity to reflect patterns of demand. We would highlight that delays in construction of the North South Interconnector are stated by the Regulators to cost energy customers on the island over £16million per annum[1]; almost £100m since the Single Electricity Market commenced operation in 2007.

2.4.2 We would also highlight the importance of delivering projects that maximise the use of renewable energy, such as the System Operators' DS3 programme. This involves the regulators, system operators and participants on the island working to resolve the technical challenges that must be overcome in order to ensure that the grid is able to transmit the level of renewable generation that will be available and necessary for Northern Ireland and Ireland to meet their 2020 targets.

2.5 Uncertainty in the energy sector

2.5.1 Finally, we would like to highlight that there are a number of elements of uncertainty for market participants in Northern Ireland:

- Significant market changes in GB under the EMR Project (led by DECC).
- Changes to the SEM market on the island of Ireland.
- A transition from ROCs to 'CfD' renewable support mechanism in GB and NI.
- Timeframe for planning decisions.
- Process, cost and timeframe for actual delivery of grid connections.

2.15 Delays associated with the delivery of connections make it difficult to make investment decisions. Delays increase costs and undermine the investment case for projects that deliver tangible economic and employment benefits. Greater investment certainty is required in order for Northern Ireland to deliver a competitive, secure and sustainable energy portfolio. Ultimately, the focus must centre on delivering for customers.

[1] http://www.cer.ie/docs/000727/13149-consultation-paper.pdf

Written Submission from Ulster Farmers' Union

ULSTER FARMERS' UNION

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24 April 2014

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

Dear Jim,

The Ulster Farmers' Union is the principal and largest representative of the farming community in Northern Ireland with a base of over 12,000 members.

Electricity Policy Review (Grid Connections)

1. **Background**
2. **Structure of the Grid**
3. **RP5 and UFU Submission to Competition Commission – Reliance Upon 11kV Network**
4. **Grid Connection Capacity Problems**
5. **Competition Commission Findings – April 2014**
6. **Distribution Grid Connection and Planning Permission**
7. **Security of Supply Concerns**
8. **NIE Proposed Solution**
9. **UFU Proposed Solution**
10. **Support for Storage Solutions**
11. **Terms of Reference Questions**
12. **Summary**

1. Background

Grid Connection is the largest barrier and most insurmountable difficulty facing small scale renewable electricity developers in Northern Ireland, with frustration and anger amongst our membership.

Initially, the UFU were inundated with calls from members who had received very expensive grid connection quotes. The situation has since worsened, with an even larger number of our members now in a position of limbo as their applications are subject to "conditional offers". This means they are unable to connect to the grid because of a lack of available capacity. Despite having applied for and been granted planning permission, paid significant money up front, and gone through the long application process, yet they get to this stage of the application process and they do not know whether they will be able to connect at all, in many instances, they are waiting for other applicants to pull out and free up more capacity.

As of 31 December 2013, there were 686 single wind turbines awaiting planning permission. This is not the direct result of a problem in planning policy, rather the result of a failing grid connection process. This does not account for the large number of Anaerobic Digestion units (and other small scale generation projects waiting to connect to the grid.

In October 2013, NIE published a "Heat Map", illustrating the increasing levels of capacity congestion on the grid and this is a live illustration of the problems being faced on the ground.

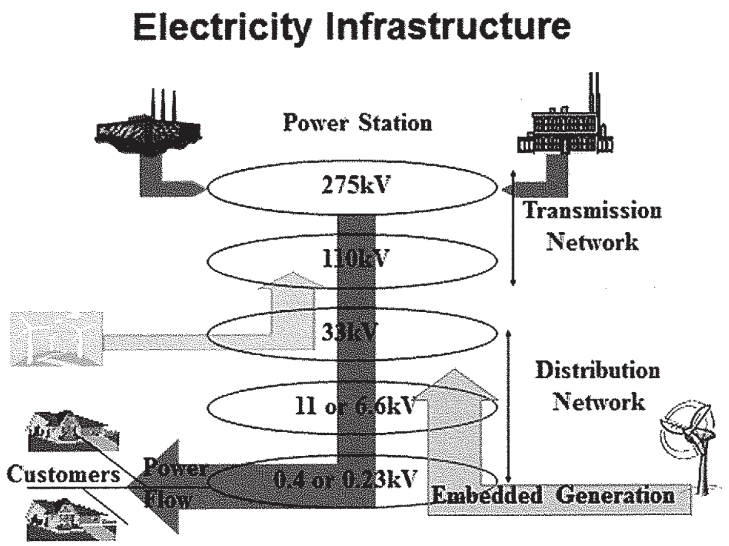
However, as the UFU submission will show, this is now outdated and the picture has deteriorated further since then with no sign of any improvement or easing of capacity congestion.

In the following representation, the UFU will detail why Grid Connection is failing in Northern Ireland and what we perceive to be the solutions to relieve the current log jam.

2. **Structure of the Grid**

The following illustration (figure One) shows the electricity infrastructure in Northern Ireland. The lower voltage distribution network is where our members are connecting (33kV and below).

Figure One - Northern Ireland Electricity Infrastructure



3. **RP5 and UFU Submission to Competition Commission – Reliance Upon 11kV Network**

Back in 2013, the Utility Regulator (Northern Ireland Authority for Utility Regulation) referred the disputed price determination with Northern Ireland Electricity Limited (NIE) to the Competition Commission (CC) now known as the Competition and Market Authority (CMA). This followed NIEs decision to reject the Utility Regulator's price control determination for the period January 2013 to September 2017 (also known as RP5). The price control covers charges made for the transmission and distribution of electricity by NIE.

When submitting evidence to the Competition Commission, the UFU stated that NIE should be granted the level of investment they had originally submitted in order to improve and enhance resilience on the 11kV network and thereby enable rural dwellers to access services they so heavily rely upon.

With 25,000 farms throughout Northern Ireland, our members are dependent upon the 11kV network and lines. If you consider the fact that in NI there is approximately 3.5 times more overhead line per customer than the average Distribution Network Operator on the UK mainland, this illustrates the importance of a resilient, reliable electricity network being available. It was only by sheer luck that the ice storm in Spring 2010 did not result large and wide spread outages on the 11kV network. The

aged lines (c.40-50 years old in many cases) on the network are highly susceptible to what is known as ice accretion.

This was turned down and the 11kV network remains at the mercy of the elements and the UFU are concerned about the impact of prolonged outages and any health and safety compromises which may arise as a result.

We will return to the Competition Commission ruling shortly as it also impacts upon reinstatement work on the 33kV lines.

4. **Grid Connection Capacity Problems**

As well as the UFU concerns about inadequate investment on the 11kV network, we have grave concerns about the decreasing levels of spare capacity on the 11 and 33kV networks.

Connecting individual small scale renewable energy generation units to the electricity network is proving to be a major problem for our members, on both the 11 and 33kV lines. Please refer to Figure One above.

- **11kV lines** - On electricity grids there is the necessity for generated capacity to match the load. Traditionally this would have been achieved by adjusting the throttle control in the central power station (i.e through generation). However, the nature of small scale renewable generators (embedded and intermittent) joining the grid means that this equilibrium between demand and supply has to met through the control of loads as well as a generation. Initially, the UFU were inundated with calls from landowners complaining about very expensive grid connection quotes. It transpired that this was attributed to lack of capacity on the 11kV network. This congestion has been brought about by "circuit level" activity. In other words, embedded capacity of small scale generation currently connected to the 11kV network.

- **33kV lines** - The situation worsened last year, with NIE identifying that capacity limitations are now arising on parts of the 33kV network. The Aggregated Volume of generators building up created problems at 33kv level and led to what is known as reverse power activity. The "conventional" power flow is from high to low. Yet, when connecting small scale renewables to the grid, this is done through embedded generation. Embedded generation alters the characteristics of the distribution network as it changes this network from a passive network with power flows in one direction to an active network with reverse power activity. The main problem is that AD plants create Permanent reverse power and this is unprecedented in network systems. In light of these problems with the 33kV lines, NIE have issued conditional offers for those landowners applying to connect to the grid. The conditionality means that the project will not proceed until a decision is made from the Competition Commission and then the Utility Regulator. This means that there will be a delay to many projects and a significant number will not be completed due to the significant upgrade/infrastructure costs likely to be borne by the landowner.

- **Conditional Offers** - Capacity problems have led to the issuing of "Conditional offers" to grid applicants. Would-be generators are issued with a conditional offer at the 11th hour. They have already applied for planning permission (see below), sometimes they have secured capital funding to buy the turbine/AD etc, carried out other related works, paid for a NIE feasibility study and then when they apply for grid connection, they are informed by NIE that the offer they are issued with, will be conditional upon upgrade/reinforcement work taking place on the 33kV sub station. Such infrastructure work is outside of the £2.3m agreed by the Utility Regulator (see below) and is unlikely to be carried out. These are showing as red on the NIE Heat Map and the problem is that the map is now outdated and many amber areas have turned red since the time of publication. Capacity is only freed up when applicants further up the queue withdraw their applications.

Hence the frustration being expressed by our membership.

5. Competition Commission Findings – April 2014

NIE initially called for an ex ante allowance of £30m for distribution load-related expenditure. NIE proposed that they could allow case-by-case approval with different approaches for low and high cost reinforcement work. The Utility Regulator rejected this immediately in their provisional determination and emphasised that it had no desire to change the connection policy.

In their response to the CC, DETI confirmed that they were looking into funding through European Regional Development Fund 2014-2020 to part-fund investment in the 33kV network. NIE responded by saying that such funding would be 2 years away and as a result, many projects (c. 130 Conditional Offers) will never actually materialise. This would be partly due to the fact that part-funding means that the generators would have to pay the full cost of the 33kV reinforcement work upfront and such is the level of money involved, they would render the project unaffordable for so many.

On 15 April 2014, the CMA published their findings and the local press hailed it as a success for domestic electricity users as in their eyes it meant no increase in their bills. But closer inspection reveal it to be another set-back for the small scale renewables sector, with the CC concluding that it was not in the public interest to make an allowance for further network reinforcement on the 33kV network, since the risks of NIEs proposals outweigh the potential benefits.

6. Distribution Grid Connection and Planning Permission

In Northern Ireland, grid connection offers can only be made by NIE after planning permission has been granted for a site. The problem is that with many cases, by the time planning permission is granted, the grid is full to capacity and either the applicant is unable to connect (it issued with a conditional offer) or facing very expensive grid connection costs meaning it is not worthwhile proceeding and upfront costs are written off as lost.

This is in contrast to GB where the two applications can be made simultaneously.

Had this been the case the above log jam could have been eased. We will clarify this point by say that it would not have been avoided, rather it formed part of the structural barriers we have described above. Parallel planning and grid connection applicants would mean that less farmers would not be left in a state of limbo.

The muddled planning policy stated above, together with an electricity grid with is not able to accommodate those applying to connect means that we have a toxic mixture where many small scale renewables projects will not materialise and many applicants will be out of pocket.

7. Security of Supply Concerns

In July 2013, DETI and the Utility Regulator issued a joint press release airing their concerns on the security of supply on the Northern Ireland grid. Generation capacity is under pressure currently due to a fault on the Moyle Interconnector and it is only running at ¼ capacity. Also, in order to comply with the EU Emissions Directive from 2016, there will need to be the withdrawal of 510MW of generation capacity at Ballylumford power station and place restrictions on generation at the Kilroot plant. The severity of the situation is clearly identified by DETI/Utility Regulator, there is a risk that there could be prolonged outages on the system if no action is taken and deficit of supply occurs.

To remedy the situation, SONI has assessed that securing an additional 250MW of generation capacity from January 2016 would be adequate to manage the risk of a prolonged outage of a large conventional generation plant. However, at what cost is currently unclear.

This coupled with the current capacity problems on the 11/33kV means that the grid is under severe strain.

8. NIE Proposed Solution

In October, the Utility Regulator approved investment of up to £2.3m to facilitate additional small scale generation at 40 primary sub stations. However, congestion continues at least 30 others and according to NIE, connections will only materialise if there is significant grid strengthening, but this will only come at significant capital expenditure. NIE have said that the CMA might make the position clearer although this is still not clear despite the findings being published on 15 April.

Automated Network Management (ANM) has been identified by NIE as a means to get more people connected onto the grid at less cost. Control arrangements are needed to be in place which will mean a more efficient use of extra capacity going forward. NIE presented the initial findings to the Small Scale Renewables Workshop in March and the UFU would be of the opinion that it will not go far enough to bring enough small scale renewable generators onto the grid.

Despite the two solutions pursued by NIE, the grid connection situation has not improved and if anything, it has actually deteriorated.

The Ulster Farmers Union believe that the grid cannot be upgraded in this manner, what is proposed is a large capital outlay to free up a relatively small level of capacity.

Instead we have proposed an alternative which we are actively involved in promoting as an alternative which could be open to any small scale renewable rural developer in NI;

9. UFU Proposed Solution

On 10 February, Lecale DSU was launched and it is a joint initiative involving the Down District Farmers for Renewable Energy (DDFFREE), South West College, East Down Rural Community Network, Invest NI, local residents groups and the Ulster Farmers Union.

The proposal is to development a microgrid and storage solution for the Ardglass/Ballyhoran area. They will generate and store their own energy and utilising the surplus for their own use or even selling it to local community.

A Microgrid solution is rather than connecting to the grid and distributing the electricity around NI and beyond, the electricity will not go any further than the local sub-station and will be distributed locally. Where not distributed or used, it will be stored through a storage solution.

A significant share of the grid capacity problems on the distribution network have been attributed to problems associated with "load control" or lack of. Experts believe that load control can be achieved through Storage and/or heat transformation. Storage up until now has been the "holy grail" for small scale renewables, the problem up until now has been the electricity has been generated when it was not needed and there has been no way to store it.

The former airfield at Bishopscourt airfield has been identified as the preferred location for a "centre of excellence" base for the micro-grid serving the energy and heat requirements of 300 homes in nearby Ballyhoran. The project will incorporate a broad mix of renewable technology; small scale wind, Solar PV, on-farm AD and the Seagen tidal test site at Portaferry.

Storage will initially be in the form of 2nd life traction battery charging (from Electric cars). Longer term, the storage solution will be met by ICAES (Isothermal Compressed Air Energy Storage) will be central to a Northern Ireland Energy Storage Demonstration Park located in the local area. This will be the first of its kind outside USA. As well as being stored, excess wind can be put to other uses;

namely Ammonia Production. An Ammonia production plant is proposed for Ardglass. Ammonia can be used to power tractors, fishing trawlers and in charging Electric Vehicle. However, this project will take it to another level. Excess wind can be converted to hydrogen, via electrolysis, reacted with scrubbed nitrogen to produce ammonia. It will be then then liquefied for storage and burnt in gen-sets. These gen sets will be operating a "peak-topping" service between 4 and 8pm daily.

Curtailment of renewable energy has been mooted by some as a means of getting more small scale generation capacity on to an already stretching grid. This would be the line of thought for the ANM project being considered by NIE. However, storage such as this will provide the load and therefore avoid the need for curtailment. The System Marginal Price is very low during curtailment. Yet storage helps maximise the opportunity for arbitrage to the benefit of generator and customer alike. This will need to be packed up by Regulatory backing with specific consideration being paid to Competition Law.

Increasing the export capacity is likely to require expensive grid re-enforcement, as we have already stated, yet the Lecale proposal allows existing grid to be used and avoid the significant cost to the industry and wider consumer. Going forward, there is much work to be done (including interaction with the Utility Regulator and NIE) but if this "intelligent" solution does get off the ground it could be rolled out to other areas in NI and ease the grid connection problems, with the roll out of reactive power management as described above with the future possibility of voltage regulation (something not currently available).

10. Support for Storage Solutions

Renewables support in Northern Ireland has traditionally taken the form of ROCs (Renewable Obligation Certificates), where a renewable generator is rewarded for every unit of electricity they generate and export to the grid. This policy has meant that no support has been considered for storage. Producing electricity in this way is very inefficient with a considerable amount wasted. If a storage solution was available, the farmer could store the electricity generated and use it when it is needed most. This would improve on-farm energy efficiency and reduce greenhouse emissions generated by using traditional fossil fuels. The UFU are calling for storage technology to be supported in line with a microgrid solution.

The two solutions proposed are interlinked but will involve a change in thinking in relation to renewables. Up until now the drive has been to build large renewable generators to reap the rewards of ROCs, but this has led to much waste and perhaps led to many of the barriers experienced so far. Instead now, we should consider small units and utilise renewables to improve on-farm energy efficiency and provide energy to the local community rather than exporting it out of the area.

11. Terms of Reference Questions

The following questions were proposed in the terms of reference;

i. Explore the strategic approach to electricity grid investment;

The UFU would make the case that, as far as small scale renewables connecting to the grid is concerned, there has been no clear and defined strategy, with patch-work solutions to on-going and so far unresolved grid highlighted above.

ii. Explore the relationship between grid strength and connection costs for developers;

There is no direct correlation. A developer might have an endless pot of money, but this does get back the capacity problems at the 33kV substations.

iii. Review processes in place for developers applying for planning permission and grid connection;

Grid connection and planning permission should be considered in parallel and not the way it current operates in Northern Ireland.

iv. Review any requirements there are for renewable electricity developers to connect to the grid;

These requirements need to be overhauled. NIE have admitted that they do not have the resources to deal with the number of grid connection applications. When we meet with NIE they say that they are working to improve interaction with applicants, but we are hearing otherwise. When the situation is as critical as it is, transparent and regular interaction is crucial and it is not always forthcoming from NIE.

v. Consider the feasibility of introducing competition into grid connections;

The UFU would welcome this, however, is the Grid in its current state, able to cope with Competition? It is doubtful as it currently stands, however, microgrid solutions should be encouraged.

vi. To bring forward recommendations on how these problems can be resolved in the interests of consumers, renewable energy developers and the local economy.

Please refer to detail on micro-grid development and storage.

vii. Summary

The UFU believe that it is time to consider micro-grid solutions (with its associated benefits) by way of a way forward. By relieving the obligation to connect to the grid for wider distribution, you are removing a significant cause of this unyielding problem. In addition, NIE and the Utility Regulator should commit to reviewing the existing connections charging policy and consider how reinforcement work should be paid for in the future.

If you have any queries do not hesitate to contact me on 90 370222 or via email, christopher@ufuhq.com

Yours sincerely,

Chris Osborne
UFU Senior Policy Officer

Written Submission from Utility Regulator

Utility Regulator
ELECTRICITY GAS WATER

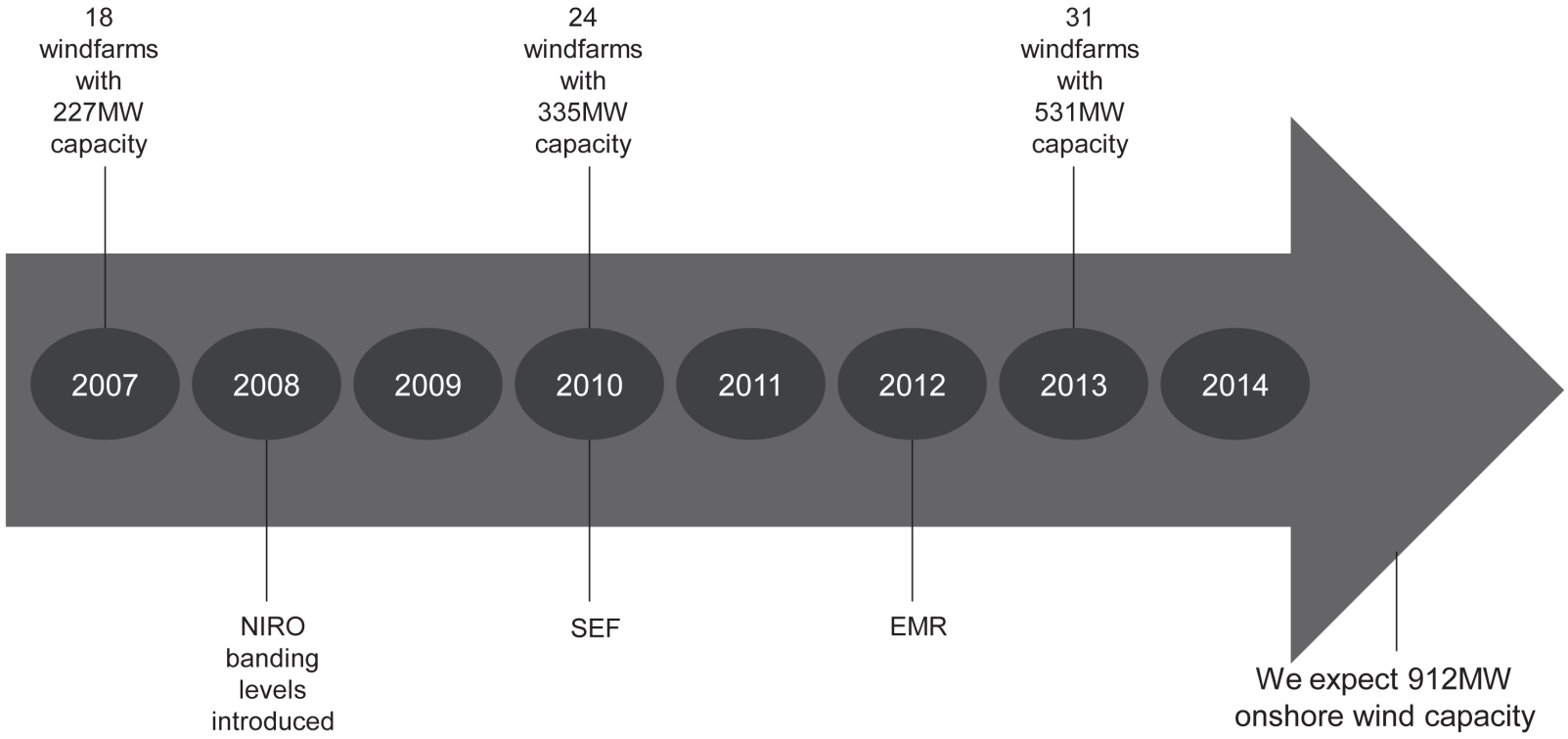
Grid Connections

18

Our role

- Price Control and investment
  - Determining the revenue allowed for network investment.
- Appeals, complaints and disputes
  - Acting as dispute resolution authority in relation to connection issues
- Approval NIE statement of charges methodology
  - As is the case in GB, we approve the methodology, we do not approve individual charges.
- Licence compliance
  - Ensuring NIE meets the criteria in its licence directly related to grid connections

The renewables journey



Generation from renewables has increased from 8% in 2009 to 15% today

Investment by UR

- Investment in renewables
  - £30m investment for renewable generation approved by UR in early 2013
  - £2.3m approved by UR to facilitate small scale renewable connections in late 2013
  - UR has never turned down a request for renewables investment to date.

- Generation from renewables has increased from 8% of total available capacity in 2009 to 15% today

CC final determination

- Allows an overall investment of £1billion by NIE.
- NIE asked CC for specific additional investment in 33kv network - CC concluded it was not value for money.
- NIE can apply to the UR for network reinforcement to accommodate renewables on a case by case basis.

Challenges for the grid

- Wholesale market change – SEM - Regional Integration
- Meeting renewable targets – EU 40% target
- Change to subsidy mechanisms – EMR
- Cost/benefits of investment in renewables – DETI review of cost of meeting renewables targets
- Planning and grid issues
- EU funding opportunity
- Diversity

Appendix 4

Case Studies

Appendix 4 – Case Studies

1. Wind NI
2. Winters Renewables

Wind NI

Hi Declan,

Thanks for attached document, good to see!!

So here is a few points/gripes;

- We applied in camlough rd for a 250kw connection and NIE said it would be around £500,000
- We then asked for a 150kw connection and NIE said it would be around £300,000
- There seems to be issues with a lot of substations going conditional which means they need upgrade work before a firm offer can be made. There is no schedule of when these will be upgraded or and commitment to them being upgraded which is obviously very concerning for us.
- We have had offers as high as £1.1m to connect a 250kw turbine

We might also try and put something format into the assembly also Declan, do you know when the closing dates is?

Will get that letter out to you in the next week or so

Cheers

Jonny

Winters Renewables

Dear Nathan

We have had some very serious problems with obtaining our grid connection.

The problems are with NIE and their inability to get things done on time. We paid for the grid connection deposit on September 2012. They then had to carry out an earth study which was completed in February 2013. Myself and my funders tried numerous times to get NIE to start the legal process for the transformer lease. We started our digester build in June 2013 and completed it in January 2014.

The NIE engineer covering our job only got in contact with us the week before Christmas 2013. The correspondence between my solicitors and theirs only begun in the third week of January. It is only in the last week that a final lease document has been made ready to sign.

In the mean time NIE wouldn't give us the earth cable to be buried around the plant room so we have been unable to complete the Civils on the site. They also wouldn't let us lay any other cables necessary.

I've been told that it will take them another 8 weeks to get the connection sorted once the lease has been signed. I don't see why they couldn't have issued us an invoice for the job which we would have been willing to pay, completed the work and be ready to switch us on once the lease has been signed.

The line that they are connecting into is beside the digester.

It's costing me a small fortune!!

You can gladly come and visit my site any time you like.

Kind regards

Gavin Winters
Winters Renewables

Appendix 5

Research Papers

Appendix 5 – Research Papers

1. NIAR 388-14, Ordnance Survey ‘open data’
2. NIAR 387-14, Grid Connection: Measures to Prevent ‘Capacity Hoarding’
3. NIAR 613-14, Smart Grid Capital Expenditure Within Price Controls

Northern Ireland Assembly

Research and Information Service
Briefing Note

21 August 2014

Aidan Stennett

Ordnance Survey 'open data'

NIAR 388-14

1 Background

In evidence to the Enterprise, Trade and Investment Committee (05 June 2014) the System Operator for Northern Ireland (SONI) commented on the issue of renewable developers seeking access to Northern Ireland Electricity's geographical information system. Specifically, SONI were asked:

> *A lot of the developers — Simple Power being one — come here and say that, if NIE allowed developers to access its geographical information system (GIS), it would greatly assist them in targeting areas where they could connect to the grid at the most productive cost. Why is it such a closed shop? What is your opinion on access to that information? Why is NIE so guarded with that information when we have seen throughout the world, particularly in GB, that that information is accessible?*[1]

To which they replied:

> *As part of the process of the transition of the role from NIE to SONI, one of the areas of interest to us, as the group responsible for planning, was to get access to the maps and information that you refer to. NIE is happy to share the information with us as a licensed entity, but Ordnance Survey is not. We have to submit to Ordnance Survey and get a licence*

1 Official Report Committee for Enterprise, Trade and Investment, Electricity Policy Review Part III - Grid Connections: SONI and EirGrid (05 June 2014) http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Committee-Minutes-of-Evidence/Session-2013-2014/June-2014/Electricity-Policy-Review-Part-III—Grid-Connections-SONI-and-EirGrid/

> *or copyright permission for all Ordnance Survey-based maps in Northern Ireland, which, I understand, involves a significant sum. NIE's topographical network information is overlaid on Ordnance Survey maps. So there is and has been a copyright issue about NIE giving out Ordnance Survey information to third parties. It is almost as simple as that. We will have to incur an upfront cost in the region of a quarter of a million pounds and ongoing copyright fees.*[2]

From this statement it is evident that the issue arises from Ordnance Survey rather than NIE. The purpose of this paper is to understand why this cost occurs in Northern Ireland (NI), but not in Great Britain (GB). The availability of mapping data in other regions is also examined.

2 *Ibid*

2 'Open data' Ordnance Survey in GB and NI

Before outlining how two Ordnance Survey copyright regimes developed within the UK, it is worthwhile to note that Ordnance Survey GB and Ordnance Survey NI have operated as separate entities since 1922.[3]

A second point of note is that Ordnance Survey NI itself became part of Land and Property Services Northern Ireland (LPs), an internal branch of the Department of Finance and Personnel, in 2008.[4] In GB, Ordnance Survey is an independent non-ministerial government department with Executive Agency status. It is accountable to parliament through the Secretary of State for Business, Innovation and Skills.[5]

Since 2010 Ordnance Survey GB has offered a range of products free of charge under its OS Open Data Licence. The licence allows users to:

- Copy, distribute and transmit the data;
- Adapt the data; and
- Exploit the data commercially, whether by sub-licencing it, combining it with other data, or including it in their own product or application.

Users must acknowledge Ordnance Survey in their use of the data sources.[6] The products available through this licence are:

- Boundary-line vector maps, which show electoral and administrative boundaries;
- Code-point Open, which maps all of the current postcodes in GB;
- 1:50 000 Scale Gazetteer, which maps 250,000 place names and areas of interest in GB;
- OS Vector Map District, which allows users to overlay their o wn information onto customisable map backgrounds;
- OS Streetview, which provides a street level map;
- 1:250 000 Scale Raster, which provides a large-scale regional map;
- OS Terrain 50, which maps regional terrain;
- Strategi, which maps the road network;
- Meridian 2, which provide customisable digital maps;
- OS Locator, which is a searchable gazeteer of road names;
- Miniscale, a smaller-scale national map; and
- Land-Form PANORAMA, which enables environmental analysis.[7]

3 Ordnance Survey *Timeline of our history* (accessed 13 August 2014) http://www.ordnancesurvey.co.uk/about/overview/timeline.html

4 Northern Ireland Direct *Ordnance Survey NI and Land & Property Services* (accessed 13 August 2014) http://www.nidirect.gov.uk/index/information-and-services/property-and-housing/your-neighbourhood-roads-and-streets/ordnance-survey-of-northern-ireland/about-osni/ordnance-survey-ni-and-lps.htm

5 Ordnance Survey *Governance at Ordnance Survey* (accessed 13 August 2014) http://www.ordnancesurvey.co.uk/about/governance/index.html

6 http://www.ordnancesurvey.co.uk/business-and-government/licensing/using-creating-data-with-os-products/os-opendata.html

7 http://www.ordnancesurvey.co.uk/business-and-government/products/opendata-products-grid.html

It is important to point out that this list only represents a small portion of the products Ordnance Survey GB offer. A much wider range of products is available at cost which is dependent on the product type, licence type and usage needs.[8]

By contrast LPS does not offer an Open Data Licence that can be exploited for commercial purposes. The Northern Ireland Mapping Agreement (NIMA)[9], however, enables all Northern Ireland Civil Service Departments, Agencies, Non Departmental Public Bodies, and Local Councils to access 17 Ordnance Survey NI products. Northern Ireland Government Departments pay a charge to LPS for NIMA on behalf of each and all of the bodies which fall under their remit.[10]

Commercial entities wishing to use Ordnance Survey data are required to purchase it. The cost depends upon the specific product required, which will in turn depend upon a company's specific needs (a full break down of product cost for 2014/15 is available the on NI Direct, please see footnote 11 for link[11]). For illustrative purposes table 1 provides indicative cost for NI customers of data sources that are available through Open Licence arrangements in GB. Please note: the table lists the closest corresponding product, rather than an exact match; as such the results are only intended to be illustrative.

Table 1: Indicative cost to NI user products equivalent Open Data Licence Products in GB

Product	Nearest Equivalent NI Product and Price
Boundary-line vector maps	50k vector DEAs, County, LGD, Wards, Euro Regional Map, PCs, Townlands, Water Total £1325.50 (available as separate products in NI)
Code-point Open	Central Postcode Directory - £250
1:50 000 Scale Gazetteer	OSNI 1:50,000 Scale Gazetteer text - £424.70
OS Vector Map District	50k raster, 50k vector transport and water - £2,029
OS Streetview	OSNI Street map - full NI £495.00, per council area £60.40
1:250 000 Scale Raster	OSNI 1:250,000 scale - £62.90
OS Terrain 50	OSNI 50m Digital Terrain Model - full coverage £2,052.50, per 20km2 tile £76.10
Strategi (250k vector)	OSNI 1:50k (more detailed than 250k) Transport £774.20, settlements £32.30, vegetation £32.30 Total: £838.80
Meridian 2	1:50K vector settlements £32.30, water £209.70, transport £774.20, NI outline £53.80 Total: £1070
OS Locator	(Place name not a road name gazetteer like OS Locator) OSNI 1:50,000 Scale Gazetteer text - £424.70
Miniscale	1:1mill raster £21
Land-Form PANORAMA	OSNI 50m Digital Terrain Model - full coverage £2,052.50, per 20km2 tile £76.10

Source: Land and Property Services and Ordnance Survey GB

8 A full pricing breakdown is available http://www.ordnancesurvey.co.uk/docs/ordnance-survey-business-portfolio-price-list.pdf

9 A similar agreement is in operation in GB through the Public Sector Mapping Agreement

10 NISRA *Crown Copyright* (accessed 21 August 2014) http://www.nisra.gov.uk/home/crowncopyright.asp.htm

11 Ordnance Survey Pricing list http://www.nidirect.gov.uk/index/information-and-services/property-and-housing/your-neighbourhood-roads-and-streets/ordnance-survey-of-northern-ireland/product-range/price-lists.htm

3 The development of open data in GB

In November 2009 the then Prime Minister, Gordon Brown, announced a consultation on the future operating model of Ordnance Survey GB. The consultation proposed that a range of data sets would be made free at the point of use. The consultation was part of the Government's Making Public Data Public agenda, which sought to:

- Increase the transparency of government;
- Empower citizens by giving them access to accurate information relating to public services; and
- Create social and economic value within the framework of the Digital Britain agenda.[12]

The Open Data Licence went live on 1 April 2010. Whilst the data made available as part of the Open Data Licence is free at the point of use it is *'funded as a result of a commercial agreement between Central government and Ordnance Survey, for the licence for OS OpenData and for its on-going maintenance'.*[13]

During a presentation of an *Ordnance Survey review of OS OpenData costs and benefits* at a January 2014 Advisory Panel on Public Sector Information[14], it was estimated that:

> *Few jobs had been created as a result of the release of Open Data although one user had built a 5-employee enterprise. Ordnance Survey had estimated the increase in GDP consequent on Open Data as £13 to £28m per annum, compared to a cost of £20m. The greatest benefit was internal business efficiencies for users. Extra taxation income was estimated at £2.9 to £6.1m. But these figures took no account of consumer surplus.*[15]

It was noted in the same presentation that beyond data falling under the open licence *'Ordnance Survey retains a high cost, high value, high margin model for its remaining data'.*[16]

12 Communities and Local Government *Policy options for geographic information from Ordnance Survey – Consultation, Government Response* (March 2010) http://www.nationalarchives.gov.uk/documents/government-response-os-consultation.pdf

13 Ordnance Survey *OS Open Data FAQs* (accessed 14 August 2014) http://www.ordnancesurvey.co.uk/business-and-government/help-and-support/os-opendata.html

14 The Advisory Panel on Public Sector Information is a Non-Departmental Public Body of the Ministry of Justice. It provides advice to Minsters and to the Director of the Office of Public Sector Information and the Controller of Her Majesty's Stationary Office. As part of its role it reviews the Public Sector Information Regulations.

15 Advisory Panel on Public Sector Information *What is the value of open data?* (28 January 2014) http://www.nationalarchives.gov.uk/documents/meetings/20140128-appsi-what-is-the-value-of-open-data.pdf

16 *Ibid*

4 Why not Northern Ireland?

As outlined above, while Ordnance Survey GB has offered data free at the point of use since April 2010 to commercial users, no similar offering exists in Northern Ireland. This is due to the two organisations being separate entities and the fact that a similar package of funding made available to Ordnance Survey GB was not made available to their counterparts in NI.

A 2012 report on Land and Property Services by the National Archives Office of Public Sector Information found that:

> *While LPS continues to license its core mapping products diligently there are two areas in which more could be done to maximise the reuse of LPS data. First, by giving consideration to the release of some small and mid-scale mapping data without charge. Second, by more fully exploring the potential for licencing data from other LPS sectors, land registration being an example.*
>
> *In respect of mapping data, more freely available data would not only be of benefit as far as commercial stimulus and citizen re-use in Northern Ireland is concerned, but there would be significant synergies available through combining the data with equivalent data for Great Britain.*
>
> *With the limited exception of a free town names gazetteer, LPS has a long standing policy of charging for data on a cost recovery basis and following the "user pays" principle.*
>
> *LPS has put this question to its Minister and, in the absence of an equivalent funding package to that which was put in place to support Ordnance Survey's open data initiative, it continues to receive support for this stance.*[17]

17 National Archives Office of Public Sector Information *Fair Trader Scheme Report – Land & Property Services, Northern Ireland* (March 2012) http://www.nationalarchives.gov.uk/documents/information-management/lps-ifts-report.pdf

5 Open map data in other Countries

The Open Data Index 2013, compiled by the Open Knowledge Foundation, provides a comparison of open data policies in 70 countries based on community surveys. With regards to open mapping data the survey focussed on the availability of National Map (at a resolution of 1:250,000 or better) and whether this map exists in digital form, publically available, is free of charge, online, machine readable, available in bulk, open licenced and up to date. Eleven countries, including the UK, scored 100% on this measure.[18] The table that follows provides a brief overview of mapping data available in the remaining ten countries. All information is sourced from the specific country's Ordnance Survey equivalent.

It's noteworthy that the Republic of Ireland scored 55% on this measure, largely because the national map is not available for free. Ordnance Survey Ireland does not operate an open data licence.[19]

Table 2: Open geospatial data in ten leading countries

Country	Agency	Licence	Details
Australia	Geoscience Australia	Creative Commons 3.0 Australia	The default position for copyright on public sector information in Australia is a creative commons licence. This allows user to share and adapt the public information for any purpose, including commercial gain, so long as the information is attributed to owner. Geoscience Australia states 'Save for the content on this website supplied by third parties, the Geoscience Australia logo, the Commonwealth Coat of Arms, and any material protected by a trade mark, Geoscience Australia has applied the Creative Commons Attribution 3.0 Australia licence'. (http://www.ga.gov.au/copyright)
Austria	Geoland.at	Creative Commons 3.0 Austria	Austria offers 286 'shape' files under its open data licence; this allows commercial use (http://www.data.gv.at/). In addition, Geoland is a portal which provides 'open and simple, Austria-wide access to geospatial data and services of the Austrian Provinces for a variety of purposes'. (http://www.data.gv.at/)
Finland	National Land Survey	National Land Survey open data licence	The National Land Survey (NLS) made its topographic datasets available for private and commercial purpose on 1 May 2012. 'The open data products can be used without compensation and with extensive and permanent rights of use.' (http://www.maanmittauslaitos.fi/en/opendata) (Full list http://www.maanmittauslaitos.fi/en/opendata/list-of-the-digital-data-products-to-be-opened)

18 The Open Data Index 2013 *Full Country Index National Map* (accessed 21 August 2014) https://index.okfn.org/country/dataset/map

19 Ordnance Survey Ireland *Copyright* (accessed August 2014) http://www.osi.ie/Services/Copyright.aspx

Country	Agency	Licence	Details
New Zealand	Land Information New Zealand	Creative Commons 3.0 New Zealand	Over 40 authoritative Land Information New Zealand (LINZ) land and sea datasets are available for free from the LINZ Data Service. (Full List http://www.linz.govt.nz/about-linz/LINZ-data-service/dataset-information) The information was made available with an explict aim of encouraging economic growth by encouraging commercial entities to make use of the data. (http://www.linz.govt.nz/about-linz/linz-data-service/about-lds/faqs)
United States	U.S Geological Survey	Creative Commons 3.0 United States	U.S. Federal data available through Data.gov is offered free and without restriction. This includes a range of geospatial data. The availability of such data is part of the wider Project Open Data (http://project-open-data.github.io/policy-memo/)
Iceland	National Land Survey Iceland	Act on Information and Act on Surveying and Base Mapping	Since January 2013 all digital NLSI data has been freely available to the public and the commercial sector. This includes geographical data (full list http://www.lmi.is/en/stafraen-gogn/)
Denmark	Danish Geodata Agency	Law on Geodatastyrelsen	Since 1 January 2013 a significant amount of data is freely available for private and commericial use. This includes: basic map data; current topographic maps; geographical names; Landinddelinger; DHM - Denmark Elevation Model; Cadastral Data; Historical maps – geo-referenced Historic map - not geo-referenced; maps to print; and Geonøglerm. (http://eng.gst.dk/) (full list http://eng.gst.dk/media/gst/2364689/Openpublicgeodataoverview1.pdf)
Norway	Kartverket	Creative Commons 4.0 international	The Authority provides free access to a variety of geospatial data sets and illustrative maps. This includes Data Setta in the national map base; Administrative boundaries; Road data with addresses; Digital terrain models; and Stadnamn Data. (http://www.kartverket.no/Kart/Gratis-kartdata/Gratis-kartdata-fra-kartverket/)
Netherlands	Land Registry	Creative Commons	A set of geographical data under the heading 'Key Register Topography' is freely available. The use includes commercial purposes. (http://www.kadaster.nl/web/Themas/Registraties/brt.htm)
Canada	Geobase	Open Government Licence	At a national level the geobase portal, an online portal from which data can be download, including: administrative boundaries; Canadian Geodetic Network; Geographical names; elevation data; land cover; hydro network; power Line network; l railway network; road network and satellite imagery. (http://www.geobase.ca/geobase/en/data/index.html)

Northern Ireland Assembly

Research and Information Service
Briefing Note

15 September 2014

Aidan Stennett

Grid Connection: measures to prevent 'capacity hoarding'

NIAR 387-14

1 Introduction

In Northern Ireland renewable generators seeking grid connections are required to secure planning permission before making a connection application. This prevents unviable projects from entering the grid queue. The process design has received support from the industry. For example, in evidence to the Enterprise, Trade and Investment Committee (May 2014) SSE Airtricity stated:

> *Where planning permission and a connection offer are concerned, SSE notes that a connection application will not be processed until planning permission has been granted. We agree with that policy, as it prevents the hoarding of grid by projects that may ultimately not be developed.*[1]

Similarly, the Northern Ireland Renewable Energy Industry Group stated in a written briefing to the Committee (April 2014):

1 Official Report *Committee for Enterprise, Trade and Investment – Electricity Policy Review Part III (Gird Connection): SSE Airtricity* (29 May 2014) http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Committee-Minutes-of-Evidence/Session-2013-2014/May-2014/Electricity-Policy-Review-Part-III-Grid-Connection-SSE-Airtricity/

> *Currently developers require planning permission for their development before making an application for connection to the electricity network. This ensures the best utilisation of available capacity.*[2]

Conversely, in their evidence to the Committee, the Department for Enterprise, Trade and Investment (DETI), noted *'calls for running the planning and grid connection process side by side'*. According to the DETI the rationale behind such calls was the belief that such an approach *'may speed up the process'*.[3]

In Great Britain (GB) and the Republic of Ireland (RoI) planning permission is not a prerequisite for grid connection applications. Both jurisdictions do however operate, or are considering, certain grid queue management mechanisms. The following paper outlines the mechanisms employed or being considered.

2 Great Britain

GB has three transmission operators – National Grid Electricity Transmission (England and Wales), Scottish Power Transmission (Southern Scotland) and Scottish Hydro Electric Transmission (Northern Scotland and Scottish Islands). National Grid also functions as the system operator and is responsible for the stability and security of the system as a whole.[4]

There are 14 distribution system operators in GB, these are controlled by six groups as follows:

- Electricity North West;
- Northern Power Grid;
  - Northern Power Grid (Northeast) Limited;
  - Northern Power (Yorkshire) PLC;
- Scottish and Southern Energy;
  - Scottish Hydro Electric Power Distribution PLC;
  - Scottish Electric Power Distribution PLC;
- Scottish Power Energy Networks;
  - SP Distribution Ltd;
  - SP Manweb PLC;
- UK Power Networks;
  - London Power Networks PLC;
  - South Eastern Power Networks PLC:
  - Eastern Power Networks PLC;
- Western Power Distribution;
  - Western Power Distribution (East Midlands) PLC;

2 Northern Ireland Renewables Industry Group *NIRG briefing note for ETI Committee Electricity Policy Review Part 3: Grid Connections* (Submitted 24 April 201) http://www.niassembly.gov.uk/Documents/Enterprise-Trade-and-Investment/20140424%20NIRIG%20briefing%20to%20ETI%20Committee%20regarding%20Grid%20Connection.pdf

3 Official Report *Committee for Enterprise, Trade and Investment – Electricity Policy Review Part III (Gird Connection): Department for Enterprise, Trade and Investment* (5 June 2014) http://www.niassembly.gov.uk/Assembly-Business/Official-Report/Committee-Minutes-of-Evidence/Session-2013-2014/June-2014/Electricity-Policy-Review-Part-III—Grid-Connections-DETI/

4 OFGEM *The GB transmission network* (accessed 02 September 2014) https://www.ofgem.gov.uk/electricity/transmission-networks/gb-electricity-transmission-network

- Western Power Distribution (West Midlands) PLC;
- Western Power Distribution (South West) PLC; and
- Western Power Distribution (South Wales) PLC.

To be connected to the transmission system in England and Wales generators must be deemed as large, which equates to having a generation capacity of 100MW or more.[5] In Scotland smaller generators may be connected to the transmission system. For the Scottish Power Transmission system the lower limit is 30MW. In the Scottish Hydroelectric operated transmission system generators with a capacity of 10MWs or above may connect.

National Grid notes that at transmission level, management of the grid queue is a challenge.[6] Their '*Transmission Networks Quarterly Connections Update'* (April 2014) states that:

> *With 100GW of generation contracted, and these projects being prioritised using current connection principles based on signed agreement data, we are facing situations where the ready willing and able projects are not always able to come forward and connect. Consented projects [those with planning permission secured] may be behind a number of other generators and their associated reinforcements works…*[7]

The operator recognises that it is in is a position where it needs to *'consider how* [it] *can use current frameworks to accelerate these projects'.* For this reason, the operator is considering options for connection optimisation. These options have emerged from a series of Customer Seminars. No firm plans have yet been published; however, preliminary comments from National Grid suggest that medium and long term solutions are being considered.

In the medium term the operator is considering prioritising consented projects over those without consents by enforcing their contractual rights more rigorously.[8] Each contract between National Grid and a developer contains certain milestones that developers agree to meet upon signing a connection agreement. Currently failure to meet a milestone will allow National Grid to enter into discussions with the developer about what failure means to the future of the development (developers also have the option of paying a fee to move the connection date, see below). In the last six months, however, National Grid has begun to introduce legally binding milestones into contracts. This has been described as a step change.[9]

A longer-term two-stage change is also being considered:

> *…the first stage [is] a notice of intent so the Transmission has visibility of all those interested in developing projects, and the second state [is] a firm right to use capacity based on certain criteria the project would have to meet.*[10]

In addition, the Operator imposes a delay charge on those developers who request a delay to their connection date. National Grid argues that this charge should *incentivise market supporting behaviours from participants'.* The charge is designed to be cost reflective and takes into consideration *'any investment* [taken forward by the transmission operator] *earlier than would otherwise be required and, potentially, additional costs being incurred in respect of delivering the connection project to the revised date*. It also considers *'any incremental spend*

5 National Grid *New Transmission Contract* (accessed 02 September 2014) http://www2.nationalgrid.com/uk/services/electricity-connections/new-connection/

6 Telephone conversation with National Grid 1 September 2014

7 National Grid *Transmission Networks Quarterly Connections Update* (April 2014) http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=33529

8 *Ibid*

9 Telephone conversation with National Grid 1 September 2014

10 National Grid *Transmission Networks Quarterly Connections Update* (April 2014) http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=33529

over and above what would otherwise have been incurred in meeting the original connection date'.[11] The charge is therefore:

> *…determined based on the capitalised spend for the particular project up to the point of delay. Capitalised spend will be those costs incurred at the point of processing a competent modification application, and calculated as an annuitized actual charge using a 40 year straight line depreciation and a rate of return of 6%. Where any capitalised costs includes an additional component of incremental spend, which is incurred by the Transmission Owner as a direct consequence of the delay, this will be included in a delay charge. This will be determined based on actual costs at the end of the delay by the Transmission Owner on a scheme-by-scheme basis… [National Grid] believe the appropriate code provision for the charge, i.e. treating the infrastructure work assets as 'proxy connections', is a One-off and should be applied as Transmission Charge. A Transmission Charge will be paid in monthly instalments between the original and revised connection dates.*[12]

National Grid issued an open letter on the delay charge in June 2014 and is *'seeking views on our proposals to increase transparency of the charges that apply when customers delay their date for connection to the National Electricity Transmission System'.*[13]

Furthermore, CAP150 provides National Grid with the power to terminate contracts but Transmission Owners have commented that it is in reality not often used due to the right to change connection date.[14]

The diagram at Figure 1 provides an indication of likely connection dates National Grid would expect to offer connection applications in specific geographical locations around GB.

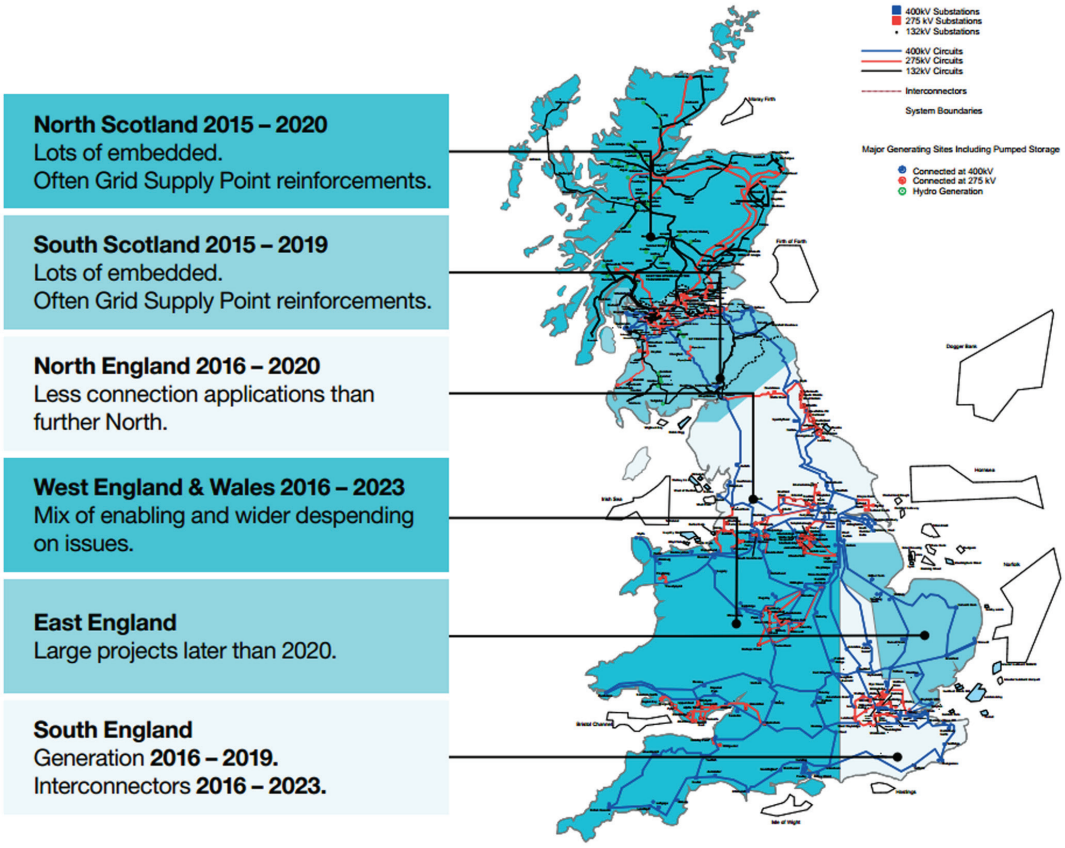
11 National Grid Open letter: charges associated with requests to delay connections to the National Electricity Transmission System (23 June 2014) http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=34056

12 National Grid *Transmission Networks Quarterly Connections Update* (April 2014) http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=33529

13 National Grid Open letter: charges associated with requests to delay connections to the Natio nal Electricity Transmission System (23 June 2014) http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=34056

14 Telephone conversation with National Grid 1 September 2014

Figure 1: Illustrative Connection Timescales – Likely Connection Dates[15]



Source: National Grid

National Grid's Transmission Entry Capacity (TEC) register provides a record of existing capacity allocation within the system. Total allocated capacity as of 5 September 2014 is 187,082.23MW of which 73,798.08MW are connected, this includes all forms of generation. With regard to renewables (biomass, hydro, pump storage, tidal, wave, and offshore and onshore wind) there is a total TEC allocation of 80,157.73MW, of which 10,881.58MW is connected. The TEC registry shows that of the total renewable TEC allocation the largest proportions are either at a scoping stage (38,625.50MW or 48% of renewable TEC allocation) or are awaiting consents (19,393.85MW or 24% of renewable TEC allocation). The complete breakdown as TEC allocated to renewable projects by status is as follows:

- Built – total TEC of 9,393.98MW (12% of renewable TEC allocation) across 81 projects. Of built projects a total of 8,955.58MW is connected, with a further 376MW due to be connected April 2016;
- Projects awaiting consent account for 19,393.85MW of total TEC (24% of renewable TEC allocation). These have TEC effective from dates ranging from 21 October 2015 to 01 April 2025 (this is a wave project off the coast of Orkney);
- Project with consents approved account for 10,959.10MW of total TEC (14% of renewable TEC allocation). A total 566MW of consented generation is connected. These have TEC effective dates ranging from 31 October 2014 and the 31 October 2021 (this is an offshore wind farm North East of Inverness);
- Projects that are at a scoping stage account for 38,625.50MW of total TEC (48% of renewable TEC allocation). These have TEC effective data ranging from 28 June 2015 to the 1 April 2026 (this is an offshore wind farm in the East Anglia region); and,

15 National Grid *Transmission Networks Quarterly Connections Update* (April 2014) http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=33529

- Projects under construction or commissioning account for 1,785.30MW of total TEC (2% of renewable TEC allocation). Of these projects 1,360MW are connected. Those that remain to be connected have TEC effective dates ranging from 31 October 2015 to 01 April 2016.[16]

National Grid have commented that whilst they do have projects that may not be developed within the grid queue, they only require 30GW of contracted generation to connect over the next 10 years to meet requirements.[17]

3 The Republic of Ireland

RoI employs a group processing approach to renewable grid connections. Since 2004, renewable generators of above 0.5MWs in capacity seeking connection are considered in batches, known as the 'gate system', rather than individually. There have been three 'gates'. The main features of this process are:

- As noted above, renewable generator connection applications are considered in gates where all completed applications are processed in one batch;
- Applications are divided into TSO and DSO groups depending on the geographical and/or technical nature. Further subgroups exist within these groupings;
- The system operator will consider the groups and their potential impact on the electricity system and the requirements of generators before offering connection; and
- Based on the above, the system operator will issue connection offers to individual operators within each group.[18]

A key point of the group processing system is that once a gate is closed no further applications will be considered until the next gate opens. According to the Minister of Communication, Energy and Natural Resource:

> *The group processing approach allows for a more strategic view to be taken of network requirements and serves to put in place efficient connection solutions to cater for a large number of applications and to ensure optimum network development, minimising network costs and, where possible, avoidance of network bottlenecks.*[19]

Gate 3 limited renewable connections to a total of 3,900MWs, an amount which corresponds to the amount of renewable energy required to meet the jurisdictions 40% target. The majority of applications came from onshore wind developers, with 151 applications in total – a combined capacity of 3,200MW. The remaining applications came from four offshore developments. These have a combined capacity of 795MW.[20]

By way of comparison, Gate 1, which was finalised in December 2004, processed applications equating to 373 MW of renewable capacity, whilst Gate 2 processed applications equating up to 1300 MW.[21]

16 National Grid TEC Register (5 September 2014) http://www2.nationalgrid.com/UK/Services/Electricity-connections/Industry-products/TEC-Register/

17 Email correspondence with National Grid 31 August 2014

18 http://www.eirgrid.com/customers/gridconnections/generatorconnections/groupprocessing-gate1andgate2/

19 Houses of the Oireachtas Written Answers – Electricity Transmission Network (2 May 2012) http://debates.oireachtas.ie/dail/2012/05/02/00034.asp

20 Leahy J, Dublin Institute of Technology, *Gate 3 Grid Connection Group Processing Approach – An Analysis* (May 2010) http://arrow.dit.ie/cgi/viewcontent.cgi?article=1001&context=engscheledismsc

21 http://www.res-legal.eu/no_cache/archive/?cid=277&did=183&sechash=83ec9169

Eirgird's scheduled firm access quantities under gate three are timetabled up to 2020; these are subject to the completion of specific transmission reinforcements (as per Eirgrid's Grid 25 plan).[22] However, the operator EirGrid runs the ITC (Incremental Transfer Capacity) Programme to identify the scheduled firm transmission capacity to be provided to Gate 3 projects for each year up to 2025.[23] As of June 2014, ESB Networks have approximately 2081MW of wind energy contracted. These have estimated connection dates up to 2018. However, a number of projects are listed as 'on-hold' or 'date unavailable at this time'.[24]

In addition to group processing generators are required to provide financial security to system operators (Eirgrid or ESB) in the form of a capacity bond. The capacity bond, is a condition to a connection offer for all generators with a capacity of 5MW or above. It is intended to *'reflect the future value of network capacity and also to provide a disincentive to the hoarding of network capacity by generation project developers'.* The bond apples a charge for each MW of Maximum Export Capacity (MEC) a particular development plans to install.[25]

Eirgrid outlines the two bond regimes currently in operation as follows:

- Bond Regime 1 (BR1) is applicable to all generators with transmission connection offers issued before 25 August 2009 and to all non-renewable generators with transmission connection offers issued before 1 July 2013; and
- Bond Regime 2 (BR2) which is applicable to all renewable generators and non-renewable generators who received a distribution connection offer after 25th August 2009 and extended to all non-Renewable transmission connecting generators to whom offers were issued after 1st July 2013 (CER/13/145). Non-Renewable Transmission connecting generators who received offers between 25th August 2009 and 1st July 2013 can choose between Bond Regime 1 or 2.[26]

Table 1, summarises BR1 and BR2.

Table 1: Capacity Bond Regimes[27]

	BR 1	BR2
Amount	€10,000/MW	€25,000/MW
In place by	Offer acceptance	1 month pre-energisation / 2 years post CID whichever is earlier
Expiry date	6 months post Operational Date / 12 months post Scheduled Operational Date Longstop Date (SODLD) whichever is earlier	1 month post issuance of Op Cert & passing of Capacity Tests A & B
Additional Provisions	N/A	"Use It Or Lose It" provision on 1st anniversary of energisation

22 http://www.eirgrid.com/media/ResultsfromEirGridFAQAnalysisforGate3publishedOctober2013.pdf

23 http://176.9.160.135/search-by-country/ireland/tools-list/c/ireland/s/res-e/t/gridaccess/sum/148/lpid/147/page.pdf?out=pdf

24 ESB Networks Distribution Contracted Wind (June 2014) http://www.esb.ie/esbnetworks/en/downloads/DOC-050614-TV_DSO_Contracted_Wind_Generators_June_2014.pdf

25 Sustainable Energy Ireland *A Guide to connecting renewable and CHP electricity generators to the electricity network* (October 2008) http://www.seai.ie/Renewables/Hydro_Energy/SEAI_guidelines_connecting_RE_projects.pdf

26 Eirgrid *Connection Bonds and Charges* (accessed 16 September 2014) http://www.eirgrid.com/customers/gridconnections/connectionchargesandbonds/

27 *Ibid*

	BR 1	BR2
Additional Provisions	N/A	Penalty of €10k per MW for reduction in MEC pre-construction
First Stage Payment	10% of connection charge payable on offer acceptance.	the (greater of) 10% of connection costs or the lesser of €10k/MW and 50% of the connection cost with sliding scale mechanism that splits first stage payment into two instalments one payable on offer acceptance, the second on 12 months ahead of date specified in the connection agreement.
First Stage Refundability	Refundable minus costs and/or expenses reasonably incurred by EirGrid	Non-refundable

Source: Eirgrid

At distribution level, the bond is payable at third stage payment – one month prior to energisation, but not later than two years after the scheduled planning permission date.[28] The bond is set at €25,000/MW and is applicable to generators with a MEC greater than 5 MW. As such it is equivalent to BR2 as outlined in Table 1.

The 'use it or lose it' principle holds if 95% of MEC has not been achieved on the first anniversary of energisation. The proportion of the capacity bond equivalent to the MEC not achieved will be drawn down. The MEC will be reduced to reflect capacity tests carried out by the system operators.[29]

Furthermore, once a project has been included in a Gate, reductions in MEC will generally not be allowed. This is to encourage developers to be realistic when applying for MEC, to prevent the need to re-study network connections and to prevent a situation where other projects are disadvantaged (through increased cost associated with shared assets, for example). In certain circumstance, MEC reduction can be accommodated. The rules surrounding this are as follows:

- The reduction in MEC can be accommodated without negatively impacting on costs for other parties;
- The reduction in MEC can be accommodated by the SOs without negatively impacting on the delivery date of connection offers within a Gate;
- A capacity payment of €5,000 per MW will apply where a request to reduce is received post studies commencing for a Gate. No fee would apply if a change was made pre inclusion in a Gate;
- A processing fee will be charged to reflect the additional work undertaken by the SOs; and
- Both the processing fee and the capacity payment to be made prior to the processing of the reduction in MEC.[30]

28 Eirgrid/ESB Networks *Staged Payments and the Capacity Bond Recent Changes* (accessed 16 September 2014) http://www.cer.ie/docs/000112/cer10002(b).pdf

29 http://www.esb.ie/esbnetworks/en/commercial-downloads/Connection-Offer-Policy-and-Process-Paper.pdf

30 *Ibid*

Northern Ireland Assembly

Research and Information Service
Briefing Note

16 October 2014

Aidan Stennett

Smart grid capital expenditure within price controls

NIAR 613-14

1 Introduction

This paper outlines how smart grid capital expenditure is determined in the price controls that govern the operations of system operators in Northern Ireland, Great Britain and the Republic of Ireland. Whilst the focus on the paper is smart grid investment initiatives, the paper also provides information on smart meter roll out.

2 Northern Ireland Electricity

Northern Ireland Electricity (NIE) is subject to a price control by the utility regulator. Due to NIE's monopoly position, the Utility Regulator in consultation with stakeholders sets the amount of revenue NIE can earn. The aim of the price control mechanism is to ensure that NIE cannot abuse its *'monopoly position by charging prices which are excessive, and also to ensure that an appropriate level of service is provided to customers'.*

In addition to setting the amount of money the company can earn in a given period, the price control also sets the amount of capital expenditure (CAPEX) NIE can spend in the same period.

In its final determination for RP5 the Regulator separated NIE's CAPEX into three funds dependent on the type of activity:

- Fund 1: planned and unplanned asset replacement and refurbishment;
- Fund 2: load related investment, metering (excluding smart meters), connections and less predictable investment; and
- Fund 3: large projects for renewable generation or interconnection, where there is material uncertainty over the timing and level of expenditure.[1]

Capital expenditure on smart grid trials was included in Fund 3. Fund 3 recognised that the amount of investment required in the areas it covered was uncertain. As such, it was proposed that Fund 3 projects would be assessed on an individual basis, *'as the need and cost is determined'* by NIE during the lifetime of the RP5 period.[2] On this approach, the Regulator has stated:

> *Fund 3 is intended to cover large projects for which there is even greater uncertainty than in Fund 2, both as to timing and cost. This covers, in particular, smart metering and investments in the network required to accommodate the expansion of renewable energy that is anticipated to take place in order to satisfy EU renewable energy targets. The operation of this fund is straightforward: there are no allowances at this stage, but NIE T&D has complete freedom to present proposals for projects at any stage in RP5 and they will be approved to the extent that they are necessary and efficient. This approach insulates NIE T&D from essentially all of the (substantial) risk associated with these projects.*[3]

Due to this approach, the allocated expenditure for smart gird investment included in the Regulator's RP5 Final Determination was designated *'to be determined'.*[4]

On the 30 April 2013, the Regulator referred the NIE RP5 price control determination to the Competition Commission (CC), following NIE's rejection of the final determination. The CC's final determination changed the approach to smart grid investments during the price control period. Rather than a project-by-project approach, the CC included smart grid investments in its upfront cost assessment. Explaining this change of approach the CC stated:

> *…while we included NIE's proposed smart grid initiatives as part of our upfront cost assessment… there may be further potential smart grid initiatives and opportunities that NIE had not identified in its submission to us which could arise during the price control period. However, we were concerned that a project-by-project approval process for such initiatives could bring detailed regulatory micro-management and administrative burden during the price control period…*[5]

In setting out the NIEs CAPEX requirements, the CC determination allowed for an expenditure of £3m on smart grid initiatives.[6]

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1 The Utility Regulator RP5 Final Determination Main Paper http://www.uregni.gov.uk/uploads/publications/RP5_Main_Paper_22-10-12_FINAL.pdf

2 *Ibid*

3 The Competition Commission Northern Ireland Electricity Limited price determination https://assets.digital.cabinet-office.gov.uk/media/534cd495ed915d630e00003f/final-determination.pdf

4 The Utility Regulator RP5 Final Determination Main Paper http://www.uregni.gov.uk/uploads/publications/RP5_Main_Paper_22-10-12_FINAL.pdf

5 The Competition Commission Northern Ireland Electricity Limited price determination https://assets.digital.cabinet-office.gov.uk/media/534cd495ed915d630e00003f/final-determination.pdf

6 *Ibid*

The Regulator also included smart metering CAPEX in fund 3. The amount of CAPEX allowed for smart metering rollout was designated 'to be confirmed'. Again, the purpose of including this CAPEX in fund 3 was to allow a determination within the price control period. On the smart meter programme, the CC stated:

> *Our determination is that a form of volume-driver mechanism is appropriate for NIE's CAPEX in relation to electricity meters. In addition to upfront forecasts of NIE's CAPEX on electricity meters, the revenue restriction in NIE's Licence conditions will adjust mechanistically according to the out-turn volumes of metering investments that NIE carries out. The adjustment will be calculated by reference to unit cost allowances for different categories of metering CAPEX. This mechanism helps address substantial uncertainty about the volumes of metering investment that NIE will need to carry out.*
>
> *The mechanism we determined for metering CAPEX is focused on conventional electricity meters (including keypad meters) and is not intended to accommodate a potential future transition to smart meters. If the smart meter programme in Northern Ireland means that changes are needed to NIE's maximum regulated revenue before 30 September 2017, we expect the UR and NIE to make use of either the change of law provision in the existing licence conditions (which we propose to retain) or a licence modification.*[7]

This approach was taken as both NIE and the Regulator's submission to the CC noted that there was currently insufficient information available to allow for an upfront forecast of smart metering costs up to 2017. As such, the cost remains within fund 3 with the proviso that a change of law or licence modification will be secured should within period determination be required.

3 Great Britain

OFGEM regulates the transmission and distribution companies in GB. Their price controls set out the allowed revenue for each company; they also include incentives to ensure system operators innovate and operate in a more efficient way.

The current distribution price control, which operates until March 2015, OFGEM established the Low Carbon Networks (LCN) Fund. The fund offers £500m in support to distribution network operators (DNOs) to trial new technology, operating and commercial arrangements. The fund places the cost of funding innovation on customers who typically fund 90% of overall project cost with DNOs funding the remaining 10%. To ensure that customers get the best return for their investment, DNOs are required to share any learning from trial projects to encourage the roll-out of successful trials and the realisation of network cost/carbon savings.[8]

OFGEM has divided the fund into two tiers. Tier one of the fund enabled first tier projects to recover a proportion of expenditure incurred on small-scale projects. Eligible trial projects include:

- A specific piece of new (i.e. unproven in Britain) equipment (including control and communications systems and software) that has a direct impact on the Distribution System;
- A novel arrangement or application of existing Distribution System equipment (including control and communications systems and software);

7 *Ibid*

8 OFGEM Low Carbon Networks Fund Governance Document v.6 https://www.ofgem.gov.uk/ofgem-publications/45703/low-carbon-networks-fund-governance-document-version-6.pdf

- A novel operational practice directly related to the operation of the Distribution System; and
- A novel commercial arrangement with a Distribution System User.[9]

Furthermore, to be eligible projects must demonstrate that they:

- Accelerate the development of a low carbon energy sector and have the potential to provide net financial benefit to future or existing customers;
- Have a direct impact on the operation of a DNO's Distribution System;
- Generate new knowledge that can be shared amongst all DNOs;
- Focus on network methods that are at the trial stage;
- Do not lead to unnecessary duplication; and
- Comply with the LCN Fund Governance Document.

Tier two of the fund provides annual competitive funding for *'the development and demonstration of new technologies, operating and commercial arrangements'*. Up to £64m has been made available each year. Funding is awarded to the *'best innovation projects which help DNOs understand what they need to do to provide environmental benefits, cost reductions and security of supply as Great Britain moves to a low carbon economy'*.[10]

At transmission level, the RIIO-T1 price control (2013-2021) introduced the Electricity Network Innovation Competition (NIC). The NIC is an annual opportunity for transmission companies to compete for funding to support the development and demonstration of new technology, operating and commercial arrangements. The fund provides up to £27m support. As is the case with the LCN, all customers fund successful NIC projects through transmission use of system charges.[11]

In GB, the Department for Energy and Climate Change is responsible for smart meter roll out. The Department has outlined a programme for the installation of 50 million smart meters to homes and non-domestic sites by 2020. The energy supply companies are responsible for meter installation, with a newly formed Data and Communications Company responsible for development of shared infrastructure necessary for smart meters to operate consistently for all consumers, regardless of their energy supplier.[12] The total estimated cost of the project is £11.5bn, with cost recovered through customer bills.[13]

4 Republic of Ireland

The Commission for Energy Regulation (CER) is responsible for setting price controls for the distribution system operator (ESB Networks), the transmission system operator (TSO) (EirGrid) and transmission asset owner (TAO) (ESB Networks) in the Republic of Ireland. The current price control, known as PR3, runs from 2011 to 2015.

9 OFGEM Low Carbon Initiative First Tier projects https://www.ofgem.gov.uk/electricity/distribution-networks/network-innovation/low-carbon-networks-fund/first-tier-projects

10 OFGEM Low Carbon Initiative Second Tier projects https://www.ofgem.gov.uk/electricity/distribution-networks/network-innovation/low-carbon-networks-fund/second-tier-projects

11 OFGEM Electricity Network Innovation Competition (NIC) - Funding Direction https://www.ofgem.gov.uk/ofgem-publications/85453/signednicfundingdirection.pdf

12 DCC Factsheet http://www.smartdcc.co.uk/media/5694/dcc_factsheet_1_-_about_us_and_our_commercial_framework_-_layout.pdf

13 House of Commons Library Standard Note – Smart Meters 11 September 2014 http://www.parliament.uk/Templates/BriefingPapers/Pages/BPPdfDownload.aspx?bp-id=sn06179

CER notes:

> *…under the PR3 determination the DSO was allowed an €18.2m fund to carry out research and development and sustainability activities. This was the first time the CER had made such a provision. The provision was made to allow for the DSO to explore technological advances in areas such as smart grids, generation integration and adaption of new network devices to support the integration of renewable generation into the network and to improve quality of supply.*[14]

The DSO determination also included €500m increase in expenditure for smart metering development.[15]

The TSO was allocated €2M for promotion of research over the PR3 period, the determination was not specific with regard to what this money was to be spent on.

CER are currently:

> *… in the process of commencing its PR4 price review for the prospective period 2016-2020 (incl). This will also include a review of the efficiency of expenditure of allowed revenues from the PR3 period. Smart Grid and Smart Metering are two areas which CER has singled out for particular attention and discussion with the regulated companies on appropriate expenditure amount and subject. The regulated companies have been asked to make specific submissions on both areas.*
>
> *CER will be specifically assessing the outcomes of the allocations for Smart Metering and Smart Grid from the PR3 period.*
>
> *The Smart Metering project, while progressing materially, has not reached the stage envisaged in 2009, so the expenditure for the PR3 period will be a small fraction of the allocated allowance, most of which will roll forward into PR4 where the major expenditures on acquisition and installation of Smart Meters will occur.*[16]

14 Commission for Energy Regulation Mid-Term review of WACC applying to the Electricity TSO and TAO and ESB Networks Ltd for 2014 to 2015 http://www.cer.ie/docs/000801/CER14026%20WACC%20Review%20Decision%20Paper%20Final.pdf

15 Commission for Energy Regulation Decision on 2011 to 2015 distribution revenue for ESB Networks Ltd http://www.cer.ie/docs/000046/cer10198.pdf

16 Email correspondence with CER 10 October 2014

Appendix 6

Correspondence

Appendix 6 – Correspondence

1. Additional information from the Utility Regulator
2. Electricity Consumption and Renewable Generation in Northern Ireland statistical report
3. Correspondence from Northern Ireland Electricity regarding microgrids
4. Correspondence from Utility Regulator regarding microgrids
5. Additional information from Ulster Farmers' Union
6. Correspondence from DETI regarding grid connection

Correspondence from the Department of Enterprise, Trade and Investment regarding grid connection

Request to DETI from the ETI Committee

At its meeting on 15 May 2014 Invest NI briefed the Committee on its End of Year Outturn Figures.

Members asked for a written briefing on the difficulties companies experience in relation to grid connection.

Departmental Response

The availability of suitable power supply, at what from a company's perspective to be a reasonable cost, is an increasing issue. At present there is no uniform availability of capacity across the network which has been a problem for businesses seeking supply but also selling back in to the network from on site renewable power generation.

A potential problem was identified at Invest NI's Dungannon Business Park in relation to grid issues in the Dungannon area. This problem was however averted and the power needs of those companies locating on the Park are being met by NIE without the need for a contribution towards upgrade/strengthening works. However, Invest NI is aware that, in the short to medium term, there are issues in not only the Dungannon area but other areas for those businesses that are high voltage users.

The requirement for a significant uplift in power supply at one of our aerospace companies resulted in a potential charge for upgrade of between £2-4m with also NIE not being able to commit to a timeline. This resulted in the project not being considered at the company's current site.

Invest NI is still in negotiations with this company to secure a £25m investment but if this occurs in Northern Ireland it will likely be on a Greenfield site.

A large engineering company is currently in negotiations with NIE. In principle there is a commitment to HV supply but the key items of Timing and Costs have not been resolved.

A highly successful metal fabrication business wish to secure a third site from which to establish a specialist service. The power requirement at the third site would have added £70k of additional costs which the company was not willing to accept.

The company is currently working with Invest NI to consider a number of alternative options and sites that have suitable power supply.

We are aware of an issue with the connection of small scale photovoltaic systems to the Northern Ireland electricity grid in Fermanagh.

Reply prepared by:

Kevin McCann, Director
Advanced Engineering & Construction, Invest NI

Date: 27 May 2014

Additional information from Utility Regulator

Angela,

Please find below our response to the additional questions from the Committee following the 3rd July meeting.

If you need any clarification/follow up information on any of the below, please do not hesitate to contact me.

Thanks and kind regards

Barbara

1 . Details of the ideas that the Utility Regulator has for improving the performance of NIE in relation to grid connections;

NIE is required to offer connections where it is economic to do so. As a result of an unprecedented level of applications for connections from small scale developers, the distribution network has been saturated in a number of locations across Northern Ireland. As you are aware, NIE has made a number of connection offers which are conditional on the necessary investment to the distribution network being made. It is regrettable that the issue of conditional offers by NIE has raised the expectations of developers that connections may be made in areas where reinforcement of the 33kv network would be required to accommodate further connections.

We published, on 14 August, our determination on a dispute involving such an offer and determined that it was not reasonable for NIE to expect connection applicants to accept the conditional terms. We have since asked NIE to provide clarity and certainty to applicants seeking grid connections.

On 15th August, NIE published a statement on the status of conditional offers and have subsequently written to all applicants affected.

As outlined in this statement, NIE has withdrawn any conditional offers and will now undertake a review of the Statement of Charges as well as considering alternative connection arrangements. We have met with a number of key stakeholders concerning these issues, including the UFU, and will continue to work with the company to expedite any innovative, fit for purpose and workable solutions to the current connection issues. We consider NIE's statement to represent a viable way forward at this stage, albeit that we recognise some developers will not be able to get connected.

Work has already begun to develop an approach whereby the output of any micro generator is controlled to avoid network capacity limits being reached and to reduce connection costs associated with network reinforcement. This is still in the early development stage and we will continue to work closely with NIE in an effort to expedite workable solutions that will maximise connections.

In addition to these next steps, we have also written to NIE highlighting our areas of concern and dissatisfaction in relation to connections stating that we would expect NIE to consider its performance against its licence requirements.

We have asked NIE to respond on how it proposes;

- to address the issues;
- to provide a methodology to apply reporting/auditing procedures to prevent future reoccurrence;

- to provide proposals setting out a timetable to complete an assessment of the connections process and implementation of remedial measures; and
- to state how NIE will improve its customers relationships in relation to connections.

We will keep the Committee informed in relation to these matters.

2. NIRIG and Action Renewables raised the issue of NIE's statement of Charges being high. Action Renewables informed the Committee that the additional cost of getting a half-hour meter in Northern Ireland is typically around £450 whereas elsewhere the cost is typically around £150. This is required to record the electricity being exported. How does the Utility Regulator assess the NIE Statement of Charges? How is it ensured that it provides best value? What is the Utility Regulator's role in determining the Statement of Charges?

Half Hour meters

NIE charge suppliers for the provision of a number of metering fieldwork services. These services include the energisation and de-energisation of meters, metering investigations and installation of Half Hour Communications (HH). These services are known as transactional charges and are approved by the UR.

(http://www.nie.co.uk/documents/Market-services/Transactional-Charges-Issue-4-April-11.aspx)

As outlined in the published transactional charges, the price for installation of a Half Hour (HH) Communications is £323 ex Vat.

The £323 transactional charge for installing a HH meter was developed based on the following breakdown of costs:- Labour - £106 and Materials – £217. The materials cost covers communications equipment including modem, aerial etc, as well as some provision for installing a BT line.

In comparison, published charges for UK Power Networks and ESBN in RoI are £369 and €450 respectively.

Statement of Charges

The Utility Regulator assesses the NIE Statement of Charges annually. Our role is to assess and approve the methodology and principles that NIE use in developing the Statement of Charges. Although we do not approve the costs, we scrutinise and seek information to justify any major changes from one statement to the next.

In autumn 2013 we carried out a baseline comparison of the Statement of Charges levied by NIE to other comparable Distribution Network Operators in the UK. Following this assessment we challenged NIE and required them to fully explain any differences between the Statements of Charges. We continue to scrutinise and challenge any further changes to the Statement of Charges requested by NIE, and will be closely involved in the review referred to in the answer to question one.

Additionally, any consumer, domestic or commercial, can challenge the charges levied on them by NIE as outlined in Section 9 of the Statement of Charges: http://www.nie.co.uk/documents/Connections/NIE-Distribution-Connection-Charging-Statement-Oct.aspx.

If resolution cannot be found, we have the power to determine complaints or disputes in certain specified circumstances. The outcome of the Complaint or Dispute may lead to a determination that enforces a direction on NIE.

3. NIE informed the Committee that to achieve the 40% renewable electricity target would require the implementation of its long term plan costing around £420m. What impact would this cost have on the cost of electricity to consumers?; and

We have not been provided with the outline or detail of the £420m spend as indicated by NIE to the Committee. As such we have not scrutinised or provided any assessment of this estimate.

As the Committee is aware, the electricity bill of a domestic consumer is, in simple terms, made up of three elements – 70% wholesale costs, 20% network costs and 10% supply costs.

An initial analysis of the figure provided by NIE which has not been subject to scrutiny, would indicate that the network element alone of a customers' bill would increase by over 9% over the next 40 year period, assuming all other costs remained constant. It should be noted that this very broad estimate assumes costs are spread in a similar proportion as the historical costs and this increase would be significantly greater for large businesses.

The UR continues to work towards the 40% renewable target as set by the Executive. Small scale renewable capacity has increased by 234% since April 2010 with overall current generation from renewable at c 15%.

4. It has been reported that SONI made a loss of £3million in 2012 and a profit of £16million in 2013. The Committee are looking for clarification on the reason for the extreme differences in these figures.

As part of the price control, SONI incurs varying levels of under and over recovery amounts year to year. These under and over recoveries are not unusual and can be caused by, for example, differences in assumed energy volumes or variations in expected costs. Any over or under recovery is returned to or paid by customers through tariffs. These fluctuations can often distort the SONI's overall reported profit figure from year to year.

SONI collects its revenues under a price control determination set by the UR. We are currently working on a new price control to be effective from October 2015 and have published our approach to this price control:

http://www.uregni.gov.uk/publications/soni_price_control_approach_information_paper

As part of this price control consultation, we will consider all stakeholder representations and input and welcome any comment from the Committee on the price control.

Electricity Consumption and Renewable Generation in Northern Ireland Statistical Report

PUBLICATION OF NEW STATISTICAL REPORT: ELECTRICITY CONSUMPTION AND RENEWABLE GENERATION IN NORTHERN IRELAND

Statisticians within DETI have developed a new statistical publication on the share of electricity consumption from renewable generation. The attached first report, which was published on the DETI website at 9.30am today, covers the 12 month period to March 2014. It is intended for 2015 onwards that reports will be published each March (to cover the 12 month period to the preceding December) and June (to cover the 12 month period to the preceding March).

This publication aids reporting on performance against the Programme for Government target which is to "Encourage achievement of 20% of electricity consumption from renewable sources by 2015" and the Executive's Strategic Energy Framework which includes a target to achieve 40% of electricity consumption from renewable sources by 2020.

Key figures

- For the 12 month period April 2013 to March 2014, 19.5% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This represents an increase of 5.8 percentage points on the previous 12 month period (April 2012 to March 2013).
- For the 12 month period April 2013 to March 2014, approximately 8,200 Gigawatt hours (GWh) of total electricity was consumed in Northern Ireland. Of this, some 1,595 GWh was generated from renewable sources within Northern Ireland.
- Of all renewable electricity generated within Northern Ireland over the 12 month period April 2013 to March 2014, 93.6% was generated from wind.

Given that this publication represents a statistical report in development, the report asks for views or comments to help inform decisions on any further development or refinement.

Future reports will be published on the DETI website at http://www.detini.gov.uk/index/what-we-do/deti-stats-index/energy_statistics.htm.

Please feel free to circulate this to any interested colleagues/parties as appropriate.

Regards,

Sean

Sean Donnelly
Analytical Services Unit
Department of Enterprise, Trade & Investment
Netherleigh

ELECTRICITY CONSUMPTION AND RENEWABLE GENERATION IN NORTHERN IRELAND: YEAR ENDING MARCH 2014

This publication presents information on Renewable Electricity Generation for Northern Ireland. It details information on the percentage of electricity consumption in Northern Ireland that was generated from renewable sources as well as information on the type of renewable generation. This publication aids reporting on performance against the Programme for Government target which is to "Encourage achievement of 20% of electricity consumption from renewable sources by 2015" and the Executive's Strategic Energy Framework which includes a target to achieve 40% of electricity consumption from renewable sources by 2020.

Issue No: 1

Date of Publication:
25 September 2014

Theme:
Business and Energy

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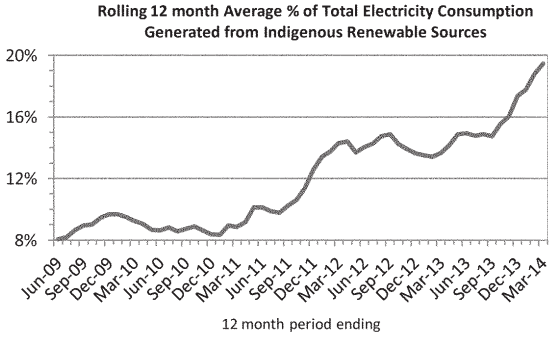
Contents **Page**

Key Points

- For the 12 month period April 2013 to March 2014, 19.5% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This represents an increase of 5.8 percentage points on the previous 12 month period (April 2012 to March 2013).



- Of all renewable electricity generated within Northern Ireland over the 12 month period April 2013 to March 2014, 93.6% was generated from wind.

- In March 2014, 23.5% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This is lower than the corresponding figure for the previous month (26.1% in February 2014) but higher than the corresponding figure for the same month one year ago (15.9% in March 2013).

Reader Information

Purpose	Report on renewable electricity generation as a percentage of electricity consumption in Northern Ireland.
Authors	Sean Donnelly, Alan McClelland.
Publication Date	25 September 2014
Reporting Period	April 2013 – March 2014
Publication Issue	1
Statistical Quality	Information contained in this publication has been sourced from Northern Ireland Electricity Ltd (NIE) and the System Operator for Northern Ireland (SONI). This first publication represents a statistical report under development and as such comments and feedback are actively sought.
Target audience	DETI, elected representatives, academics, the media and general public.
Further copies from	Sean.Donnelly@detini.gov.uk
Internet address	http://www.detini.gov.uk/index/what-we-do/deti-stats-index/energy_statistics.htm
Price	Free
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Technical Notes

This statistics release is the first of a bi-annual data series presenting information on renewable electricity generation in Northern Ireland. This publication aims to provide a consistent and regular means for disseminating information on renewable electricity generation in Northern Ireland.

Data Collection
The information presented in this bulletin is derived from data provided to DETI on a monthly basis by Northern Ireland Electricity Ltd (NIE). The monthly renewable electricity generation data is derived by aggregating output from renewable electricity generators who are connected to the transmission and distribution network using a combination of data held by NIE and SONI. The renewable electricity generation data details the total amount of renewable electricity generated by such generators in Northern Ireland, by type of generation, for each month excluding any transmission and distribution losses.

Electricity produced by those who generate their own electricity (mainly for their own use but some of which may 'spill' onto the distribution network) is excluded as information about such 'micro generation' or consumption is not available to NIE.

Taking into account that there are a growing number of micro generators of renewable electricity, the data presented in this bulletin therefore represents the minimum amount of renewable electricity generation in Northern Ireland. However, renewable micro generation is considered, at present, to be a small fraction compared to total metered generation. Further work will be undertaken to attempt to more accurately quantify the extent of micro generation.

It is also worth noting that some imported electricity that is consumed in Northern Ireland will have been generated from renewable sources outside Northern Ireland. However, the full extent of this is unknown and therefore cannot be reported separately.

Electricity consumption data is calculated by NIE by aggregating actual and estimated meter readings across both domestic and non-domestic sectors in Northern Ireland. The NIE electricity consumption data includes all electricity consumed in Northern Ireland across both domestic and non-domestic sectors regardless of where the electricity was generated (i.e. it will also include consumption of any imported electricity).

Rounding
Percentages have been rounded and, as a consequence, some percentages may not sum to 100.

Data Quality
Information provided by NIE that is presented in this bulletin has been validated and quality assured by NIE prior to provision to DETI.

Following receipt, DETI perform checks to verify that information is consistent both within and across returns. Trend analyses are used to monitor annual variations and emerging trends. Any queries arising from these checks are presented to NIE for clarification and if required, returns may be amended and/or re-submitted.

Data contained within this publication are not National Statistics.

Main Uses of Data
Data contained in this release are published primarily to aid reporting on progress against the Programme for Government target which is to "Encourage achievement of 20% of electricity consumption from renewable sources by 2015" and the Executive's Strategic Energy Framework which includes a target to "achieve 40% of electricity consumption from renewable sources by 2020".

The data allow the Department, elected representatives and the general public to assess the current status and trends in renewable electricity generation in Northern Ireland. These data are useful to policy makers and provide the necessary information to assess the effectiveness of any programmes/policies in this area. Additionally, renewable electricity generation information is used to inform the media, special interest groups and academics, and by DETI to respond to Assembly questions and ad hoc queries from the public.

Feedback
As we want to engage with users of our statistics, and particularly given that this publication represents statistics under development, we invite you to feedback your comments on this publication to:

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Renewable Electricity Generation

Headline Measure – Rolling 12 month average

For the 12 month period April 2013 to March 2014, 19.5% of total electricity consumption[1] in Northern Ireland was generated from renewable sources[2]. This represents an increase of 5.8 percentage points on the previous 12 month period (April 2012 to March 2013).

Figure 1: Rolling 12 month Average % Electricity Consumption from Renewable Sources

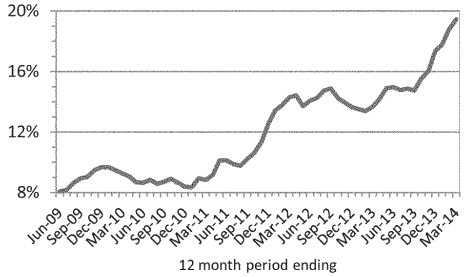
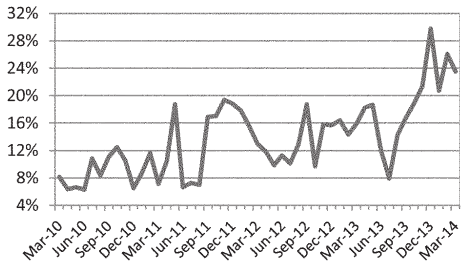


Figure 1 above shows the trend in the percentage of electricity consumption in Northern Ireland from renewable sources. In the 12 month period ending June 2009, some 8.1% of total electricity consumption in Northern Ireland was generated from renewable sources. This proportion has grown considerably with some 19.5% of total electricity consumption in Northern Ireland being generated from renewable sources for the 12 month period ending March 2014, a rise of around 144% in comparison to the 12 month period ending June 2009.

Headline Measure – monthly

In March 2014, 23.5% of total electricity consumption in Northern Ireland was generated from renewable sources (Figure 2). This is lower than the corresponding figure for the previous month (26.1% in February 2014) but higher than the corresponding figure for the same month one year previously (15.9% in March 2013).

Figure 2: % Electricity Consumption from Renewable Sources by month (March 2010 – March 2014)

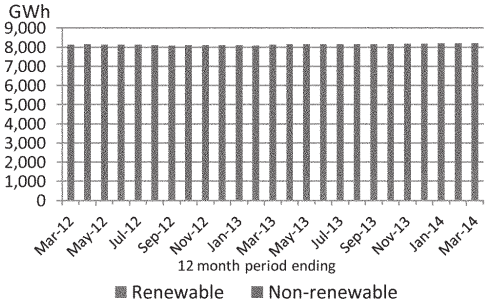


Renewable electricity generation varies markedly from month to month, as shown above. This variation is due to factors such as weather and also new renewable generation facilities coming on line at various points. The rolling 12 month average helps to take account of monthly variations to provide a better measure of the underlying trend.

Volume – Rolling 12 month period

For the 12 month period April 2013 to March 2014, approximately 8,200 Gigawatt hours (GWh) of total electricity was consumed in Northern Ireland. Of this, some 1,595 GWh was generated from renewable sources within Northern Ireland (Figure 3).

Figure 3: Rolling 12 month Volume of Electricity Consumed by Source (March 2012 – March 2014)



Volume – monthly

In March 2014, some 736 GWh of total electricity was consumed in Northern Ireland, of which 173 GWh was generated from renewable sources within Northern Ireland. This is lower than the corresponding figure for renewable electricity generated in the previous month (183 GWh in February 2014) but higher than the corresponding figure for the same month one year ago (118 GWh in March 2013).

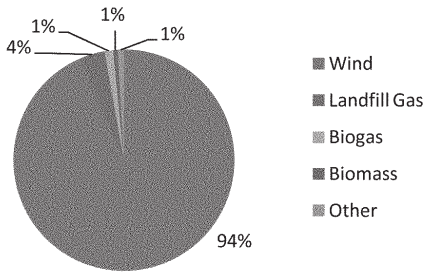
[1] This is the total amount of electricity consumption in Northern Ireland as recorded via metered data by NIE. Losses in transmission and distribution and any non-metered consumption are excluded.

[2] Electricity generated from renewable sources is for those renewable generators physically located within Northern Ireland and recorded by NIE and SONI. It excludes micro-generation and any imported electricity derived from known or unknown renewable sources.

Renewable Generation by Type of Generation

The vast majority of renewable electricity generated within Northern Ireland comes from Wind sources (93.6% over the 12 month period April 2013 to March 2014). A number of other renewable sources contribute to the overall total as shown in Figure 4 below.

Figure 4: Renewable electricity generation by type of generation (April 2013 to March 2014)



Other includes Hydro, Tidal, Combined Heat & Power (CHP) and Photovoltaic (PV)

Background Notes

Data sources

1. The source of the data contained in this release is monthly electricity distribution figures compiled by Northern Ireland Electricity Ltd (NIE). Of this data, part is supplied by the System Operator for Northern Ireland (SONI). The data is calculated by NIE using monthly generation data (some of which is provided to NIE by SONI) and monthly demand data (by aggregating actual and estimated NIE meter readings across both domestic and non-domestic sectors).

Measuring consumption

2. Figures for consumption of electricity used in this bulletin are calculated by NIE from data on actual and estimated meter readings. These figures represent the most accurate measure of electricity consumption available for Northern Ireland, and is the most appropriate data for measuring the stated targets within both the Programme for Government (2011-2015) and DETI's Strategic Energy Framework. Access to such robust consumption data is not always available and many other countries report their share of renewable electricity based on a 'proxy' consumption measure – i.e. a measure based on approximating consumption using generation, export, import and losses data.

Electricity generation and distribution in Northern Ireland

3. The electricity system consists of the following distinct businesses: generation, transmission, distribution and supply. Generation is provided by private sector companies who own the major power stations and by other generators, such as wind farms. Northern Ireland also has interconnectors between the Scottish and Republic of Ireland grids through which electricity can be imported and exported. Northern Ireland Electricity Ltd (part of the ESB Group) owns the transmission and distribution network and operates the distribution network which transports electricity to over 840,000 customers. The transmission network is operated by the System Operator for Northern Ireland. Electricity suppliers buy energy and sell it to customers. Business and domestic consumers in Northern Ireland can choose between a number of private sector electricity suppliers to meet their individual electricity requirements.

Correspondence from Northern Ireland Electricity regarding microgrids

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Website: www.nie.co.uk

Mr Jim McManus
Clerk to the Committee for Enterprise, Trade & Investment
Northern Ireland Assembly
Room 375, Parliament Buildings
Ballymiscaw, Stormont
Belfast BT4 3XX

13 October 2014

Dear Mr McManus

Committee for Enterprise, Trade and Investment
Electricity Policy Review: Ulster Farmers Union
25th September 2014

Thank you for your letter of 29th September 2014 to my colleague Peter Ewing. In relation to the potential use of microgrids, and the matters raised in the briefing session with UFU, we would comment as below.

1. **Lecale Project Overview**

NIE's understanding of the Lecale project is as set out below. We would point out however that as yet, NIE is not formally involved in the project and therefore we base our comments mainly on publically available information. We cannot therefore comment specifically on the technical or commercial viability of such a project.

2. **Lecale Project Overview**

Ardglass Development Association recently announced a 'Green Tech' jobs initiative for the Ardglass and Ballyhornan areas featuring a coalition of local farming interests, community groups and Green Tech companies.

Ardglass Development Association (ADA) is sponsoring the 'Community Based Intelligent Energy Programme' which will bring forward a number of projects with 'Green Tech' partners. ADA is backed by Down District Farmers For Renewable Energy (DDFFRE). This is an UFU-backed group of farmers in Lecale wanting to develop their businesses into energy production.

The aim is to turn the Lecale area into a centre of excellence for the storage of renewable energy and as a base to develop new green-tech products for export. The Programme is

based on the idea that the key to solving energy problems is to create a community level micro-grid that can manage power flows at the local level. It is envisaged that a series of projects will be proposed, including an 'intelligent micro-grid' demonstration project sponsored by a variety of economic and social partners in the Ardglass and Ballyhornan areas. The micro-grid would aim to be self-sufficient in electricity production and would be a net exporter to the grid via a community based 33/11kV substation.

The project would comprise a number of 250kW wind turbines, Solar PV, anaerobic digestion, 2nd life traction battery charging and ammonia production, together with 300 houses and electric vehicles as a captive customer base. The trial would also link in some way to the Seagen Tidal test site.

We understand that these schemes may seek to achieve a level of self sufficiency in electricity within the area and would balance export with demand to minimise any curtailment. To the extent that schemes may also seek to partake in ancillary services provision this would imply significant import / export requirements.

3. Principles of Micro-grids

Micro-grids are at an early stage of development. There are none currently operating in the UK, and only a small number internationally. The example in Fort Bragg in the US, a military base, is an example often quoted. The concept of a micro-grid is that, within the grid area, electrical and, potentially, heat demands are supplied by local generation, with the two being balanced as far as possible. Energy storage plays a role, and balancing import / export with the wider grid can also feature. Theoretically micro-grids can be achieved through a standalone third party network, as at Fort Bragg, or by using a portion of the existing local electricity network, owned and operated by the Distribution Network Owner (DNO). There is no example of the latter we are aware of.

Micro-grids however may potentially form part of the energy landscape in the future, and NIE is open to working with developers to explore the rationale for these in a NI context, and how the various challenges might be addressed.

Currently no mechanism exists for NIE to own and manage a micro-grid as a commercial concern. Micro-grids could alternatively rely on a level of third party ownership, management and operation of a micro-grid distribution network. In this case there would also be an import / export connection to NIE's distribution network.

There may be some confusion in respect of the relative principles of the 'managed connection', currently being explored by NIE's Project 40 initiative, versus the principles of a theoretical micro-grid as presented by the UFU.

It should be noted that term 'managed connections' referred to by NIE and 'micro-grids' operate on quite different principles. Micro-grids are likely to operate on a combination of income streams and energy saving principles. It is these specific principles that would influence the design and management of the connection of a micro-grid to NIE's network.

The principles of the 'managed connection' may apply to some limited extent in respect of managing any net export of electricity from a micro-grid to the Grid, but this would only be one part of managing generation and load flows within a micro-grid. Management of load and

generation flows in the micro-grid itself will require elaborate control systems, and would be the responsibility of the micro-grid network operator.

Any impact of micro-grids on NIE's network investment plans, as referred to in the Committee session, would depend on the number of micro-grids established, their size, how they operate technically and commercially, and the level of export to NIE's network at any point in time. Any cost-benefit analysis would need to consider this aspect.

4. Project 40 Overview

In May 2014, "Project 40" (the "40" referencing the DETI 40% target of consumption from Renewables by 2020) was established to assess industry best practice and consider a range of technical and commercial approaches for connection of large scale, small scale and micro renewable generation in order to optimise network access for renewable generation.

The focus is to: assess best practice; consider a range of renewables connection methodologies / approaches; develop the most effective commercial and technical models; and to engage and consult with the renewables industry to agree the most effective approaches. As part of this project, best practice from the GB DNO sector is being assessed.

Specific challenges are being considered through working sub-groups comprising technical, commercial, financial and legal representation from NIE, together with representation from Industry, NIRIG, the Utility Regulator, Ulster Farmers Union, DETI, DARD and others stakeholders where appropriate.

In relation to issues regarding capacity restrictions, NIE will undertake a review of the connection method approaches alongside the current Statement of Charges approved by the Utility Regulator. This review will consider various options to deal with the 33kV capacity issue. These options will include whether 33kV investment might be passed to developers and/or whether alternative connection arrangements might be offered.

A range of proposals are being tested with stakeholders as this initiative progresses, and important elements will go to wider formal consultation.

5. Managed Connections

As outlined above, 'managed connections' is currently one of a number of significant focus areas of NIE's Project 40 initiative. NIE is working with industry representatives, the Utility Regulator, and other stakeholders to explore whether a 'managed connection' approach may facilitate the connection of additional small scale generation to the 11kV network.

With regard specifically to alternative connection arrangements; work has been on-going to develop an approach whereby the output of the generator is controlled to avoid 33kV network capacity limits being reached and to reduce connection costs associated with 11kV network reinforcement. Similar approaches have been adopted by other network operators in GB, albeit there are inherent technical differences between the NIE network and those in GB which may impact the viability of this scheme.

Significant work and detailed network analysis is on-going to develop the principles of the 'managed connection' and to understand how effective and viable this approach may be on the Northern Ireland network.

In particular it will explore whether the managed connection approach will provide additional headroom on parts of the network that are approaching saturation, and where the current approach of offering maximum output ("firm") connections often requires substantial and costly network upgrade.

NIE expects to bring forward proposals for consultation shortly, however taking account of the comprehensive nature of the Statement of Charges review and the detailed technical work required before any alternative connection method could be finalised, it is likely to take to the later part of 2015 before changes could be implemented.

NIE would caution against drawing an early conclusion that the 'managed connection' will be the complete solution to the issues of connecting additional small scale generation to the 11kV network.

NIE will continue to provide renewable developers with relevant information regarding the level of congestion across the electricity network.

6. Multiple Points of Connection

Some clarification appears to be required on the subject of 'dual connections' referred to during the session.

Referring to page 10 of the Hansard transcript:

'You want Farmer Jim to put up a turbine. He wants it only to help his broiler house or cattle shed, but he cannot do that because that means that there are two connections to supplies. There is the grid supply — ordinary NIE — and the wind turbine supply. NIE will not allow that at present. What are your views on that? Have you been doing any exploratory work with NIE on that to allow that to happen?'

Confusion was evident in respect of multiple points of supply, referred to as 'dual connections' during the presentation. In the example above, the scenario is described as a connection of a single location / premises with one generator, connected via a single point of connection to the NIE network. This is the normal method of connection for this type of arrangement.

For clarity, requests for multiple points of connection occur when a landowner requests separate connections to the NIE network for two or more generators at a single owned or leased location e.g. a farm or premises. For reasons of Health & Safety, relating to emergency disconnection of supplies to a location or premises e.g. a farm, NIE will offer only a single point of connection to the NIE system regardless of the number of generators proposing to connect at that single owned or leased location.

7. NIE Generation Connection Resources

In response to the discussion referring to the *'lack of resources from NIE to manage the renewables sector'*, (ref. Hansard Transcript P6), NIE would respond as follows:

The significantly increased volumes of both generation applications and pre-construction activities for accepted offers during 2012/13 did result at times in customer service below the standard aspired to. NIE recognised this and implemented a resource strengthening plan with significantly increased staffing in late 2013 and during 2014 as set out below alongside improved call management and escalation procedures.

Staffing levels have increased in the areas of general management, design staff (to issue technical designs), planning staff (to assist in quotations and carry out pre-construction works), construction co-ordinators and administration staff.

Jobs typically follow through three main stages of [1] application to issuing quotation [2] offer acceptance / pre-construction and [3] construction.

In respect of stage [1] i.e. quotation, NIE has increased the level of office based staff working to connect renewables significantly over the past 18 months as application volumes continued to increase sharply during 2012. There has been an increase of 50% in office based resources dedicated to the management, design, planning and administration of small scale renewable connections when compared to 2012.

In respect of stage [2] NIE has put in place engineers who co-ordinate the pre-construction activities and expedite jobs progressing to construction. These individuals are also strongly focused on providing regular updates to customers progressing through the pre-construction stages.

In respect of stage [3], NIE has access to the over 200 customer operations and overhead line construction resources attached generally to delivering the wider connections related work on the ground. In this area jobs are allocated into a wider work programme of activities and, in the main, the construction stage has a more predicable timeline as it is within NIE's direct control and typically completes within 8 weeks. The pool of construction resources is adjusted to match the workload as required. Once construction work has commenced, there are normally few applicant queries around the final delivery of the works.

In terms of physical construction, the ramp up of activity in this area is evidenced by the number of jobs which have moved to construction phase in the last year and in addition the number which has been connected as outlined previously. In 2012, less than 20 jobs were sent to construction, in 2013 103 jobs were sent to construction, and to date in 2014 this has already exceeded 180. For the avoidance of doubt, NIE's recent Voluntary Severance programme will not impact the level of resources deployed in the generation connections arena.

Key stock items are retained and framework agreements are in place which allow NIE to flex resources as required to meet increases (or otherwise) in work volumes.

I hope the clarifications in this note are helpful to the Committee in its work. Please let me know if you need anything else.

Yours sincerely

ROBERT WASSON
Asset Management Director

L 141013 ETI committee submission

Correspondence from Utility Regulator regarding microgrids

Utility Regulator
ELECTRICITY GAS WATER

From the office of the Chief Executive

Jim McManus
Clerk
Enterprise, Trade and Investment Committee
Parliament Buildings
Ballymiscaw
Stormont
Belfast
BT4 3XX

16 October 2014

Dear Jim

Thank you for your letter (29 September 2014) regarding the Utility Regulator's views on the use of microgrids.

When considering microgrids, context is important. NIE, since 30 April 2013, is obliged under its licence to consider demand-side management and energy efficiency as an alternative to grid strengthening projects. There is also a consensus that the electricity network needs to have a co-ordinated and geographically dispersed deployment of microgrids. This is at the heart of the longer-term plan for grid development being developed by NIE called Project 40. The new wholesale electricity market, the ISEM, will also encourage the use of demand-side management and storage.

It is clear that existing network provision (specifically more modern urban and rural overhead cables built from 1950s onwards) is capable of accommodating significant amounts of newer technologies such as microgrids. To make this happen several elements are needed however. Firstly, conventional grid reinforcement will be needed. Secondly revisions to planning policy will be required. Finally there will need to be some technical changes around a reduction of planned supply voltage and the use of in-line voltage controllers.

Undoubtedly, microgrids have the potential to provide significant support to peak demand, voltage limitations and network losses. They can also make better use of the existing network assets and will enable more renewable generation to be utilised.

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Utility Regulator
ELECTRICITY GAS WATER

From the office of the Chief Executive

However it is important to balance that with the point that they cannot, on their own, replace the need for grid strengthening and interconnection on the scale required to meet the 40% renewables target. Without more interconnection, only a finite amount of renewable generation can be utilised. Interconnection is therefore essential to provide access to market for NI renewable generation (both large-scale and small-scale).

We have had useful engagement with both the UFU and NIE on microgrids and other demand -side technologies and will continue to do so. We would be happy to provide further information and/or clarification as necessary.

Yours sincerely

Jenny Pyper
Chief Executive

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Additional information from Ulsters Farmers' Union

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10 September 2014

Jim McManus
Clerk to the ETI Committee
Committee for Enterprise, Trade and Investment
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Dear Jim,

Electricity Policy Review (Grid Connections) – Additional Information

Background

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

NIE and Conditional Offers

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

The problems were attributed to two distinct issues;

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

and

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

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

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

Established 1918
Clarke Black, Chief Executive

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

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

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

Security of Supply

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

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

Time for Change

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

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

1. **Managed Connections (known as Project 40)**

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

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

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

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

2. Microgrid

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

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

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

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

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

Advantages of a microgrid;

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

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

3. **Storage**

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

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

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

Change of thinking

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

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

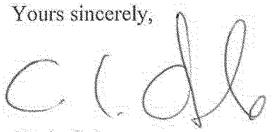
- **Need for policy support on Storage**

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

- **Grid Outlook and Changing Expectations**

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

Yours sincerely,



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Published by Authority of the Northern Ireland Assembly,
Belfast: The Stationery Office

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