



Scottish Affairs Committee

Oral evidence: [Renewable energy sector in Scotland](#), HC 83

Thursday 9 June 2016

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Written evidence from witnesses:

- [ScottishPower](#)
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Members present: Pete Wishart (Chair); Mr David Anderson; Kirsty Blackman; Margaret Ferrier; Chris Law; John Stevenson

Questions 321 – 436

Examination of Witness

Witness: **Lindsay McQuade**, Policy and Innovation Director, ScottishPower Renewables, gave evidence.

Q321 Chair: Welcome to the Scottish Affairs Committee and our meeting in Edinburgh and our inquiry into renewables. It is great to see so many people here today. I want to remind everybody who is in the audience that this is a Committee of the House of Commons. There will be no interruptions, nothing said. It is a formal proceeding. We are delighted and very grateful that you are here today, so I hope very much that you will listen to that this morning. To kick things off, it is a great pleasure to welcome Lindsay McQuade. Lindsay, for the record, could you please tell us who you are, who you represent and if you have anything by way of a short introductory statement?

Lindsay McQuade: Thank you, Chair. My name is Lindsay McQuade. I am Policy and Innovation Director for ScottishPower Renewables and I would like to thank the Committee for inviting me to speak with you today.

Just so you are aware, ScottishPower Renewables is part of ScottishPower within the UK and part of the Iberdrola Group, the leading energy utility in Europe today. We have a current portfolio of over 14 gigawatts of wind generation across the globe, mostly located in Spain, the UK, North America and Latin America; 1.6 gigawatts of that resides in the UK and roughly 80% of that is located in Scotland. Again, for clarity and understanding of our role in the sector, we have an industry-leading operation centre just south of Glasgow at our Whitelee wind farm. From there, we control all 900 of our individual turbines. We

have also headquartered our global offshore business in the offices in the UK, in London and Glasgow. Hopefully, that gives you a sense of the organisation that I am part of.

Q322 Chair: We are grateful for that. Maybe just in the way of a first question, I know that ScottishPower has interests and responsibilities in generation, transmission and supply. Could you tell us by way of an opening question how all these different parts of the organisation come together, how all that works itself out and that there is no question at all of any sort of conflict of interest when it comes to these things?

Lindsay McQuade: Yes, I am pleased to do that. There are areas within our business that are ring-fenced operations. That is our networks business. It has a specific regulatory jurisdiction and certain licence conditions that it must adhere to. I am not part of that business and would not be able to answer questions in detail on that business. I am aware of some of their key projects in terms of public information, but I am part of the more commercial market-driven side of the business. That covers our renewables interest, our broader generation fleet, taking in our gas interests and our hydro portfolio as well as our retail customer business and our trading activities.

Q323 Chair: I presume, though, that there will be several conversations and communications and there will be a sense of working together when it comes to all the different parts of what ScottishPower's activities are. Could you talk a little bit, for example, as to how you work with colleagues on the transmission and generation side, or are they completely different and distinct operations within the organisation?

Lindsay McQuade: We are within separate companies in terms of our corporate structure. We also have defined business units that all report back into our parent company, Iberdrola, in Spain as well. Certainly, while there is interaction between those businesses, with regard to our transmission and distribution interaction, that is conducted the same way it would be for any other wind developer from a renewables perspective on an arm's length basis and there is clearly very limited discussion or ability to share information. All of that is very carefully managed and controlled and we are very mindful of our business separation responsibilities within the group.

Q324 Chair: Thank you for that. We will be hearing from some of the transmission interests in the next session, but perhaps on to much more familiar territory. In the course of this inquiry, we have heard from various industry groups that the recent announcement, when it comes to the closing of the Renewables Obligation for onshore wind and the delaying of the next round of Contracts for Difference, means fewer renewable electricity generators will be deployed in Scotland in the future. How is this—particularly the closure of the Renewables Obligation—having an impact on some of the plans and proposals that ScottishPower had?

Lindsay McQuade: The Renewables Obligation was a very effective means of kick-starting a sector, particularly in Scotland because of the natural resource that we have in this area. There is now close to 9 gigawatts installed onshore wind capacity with the vast majority of that being located in Scotland. We have 1.46 gigawatts of that capacity installed, with the majority of our interest in the south-west region of Scotland. We currently have 500 megawatts under construction and those megawatts were anticipated as accrediting under the existing Renewables Obligation scheme. It was due to finish on 31 March 2017. The early closure by a year, along with the advised grace periods, has been a

way of softening what would otherwise have been a shock and would have had an impact on investor confidence. The design of those grace periods to align to those projects, which have been heavily invested in and supported on the basis that the Renewables Obligation would exist, has allowed us to continue to invest. Those projects are under construction. To give the Committee an idea, that is roughly £650 million worth of investment that will complete in Scotland in the next 12 months.

Q325 Chair: I did see that ScottishPower was welcoming the grace period that was announced recently, so I presume that all the projects that ScottishPower had within the pipeline will be concluded and completed and, because of those grace periods, you will now be able to conclude all the arrangements that you had in place. Is that right?

Lindsay McQuade: At the time the announcement was made on 18 June last year, we did have a project listing and there were a few of those projects where a planning decision had not yet been made. Of the three projects that affected, two were subsequently refused and one we still await a conclusion on. By and large they could not have applied under the rule, so there was an element of: we had invested in those projects, taken them through a development process and invested in them, and then unfortunately the decision was taken that they were not to be consented. Of the remaining six projects, one managed to accredit prior to the 31 March 2016 deadline and the remaining five—I think totalling some 410 megawatts—will seek to accredit under the grace period provisions.

Q326 Chair: Just for clarity, I know there was quite a prolonged debate in the House of Commons when we had the Lords amendments. Are those specific projects ones that were covered in that ping-pong that we had between the House of Commons and the House of Lords?

Lindsay McQuade: The projects that we will seek to accredit under the grace period provisions were quite clearly consented in advance of the 18 June deadline, and I think a lot of the debate—that ping-pong—was centred around the nature and definition of what planning consent would actually mean. Thankfully our projects were on the right side of it.

Q327 Chair: That were concluded. Right, thank you for that. We have heard a number of concerns about the short notice that was given when this Government decided that they were going to cease their support for the Renewables Obligation for onshore wind. First of all, could you tell us how ScottishPower responded to this, if there were any concerns that you had, or maybe you welcomed this, and is there any impact that you have detected that it is having on investor confidence or about your own planning about continuing to invest in these types of projects?

Lindsay McQuade: The Renewables Obligation was due to close on 31 March 2017 regardless of the change that has then been made in the last 12 months. On that basis, we continued to review and consider what our future pipeline might look like. We do have a gigawatt of pipeline that we would seek to develop at some point—it does not mean that a full gigawatt will ultimately be deployed—and clearly with the move to Contracts for Difference, as developed under the Electricity Market Reform programme, there is a need to ensure that only the best and most competitive megawatts would ever be eligible for that. We would like to see onshore wind continue to be part of that mechanism, as we think it will deliver the best value for the consumer and it would ensure that the most cost-

effective technologies can continue to deliver low carbon generation to the customers that are attached to the grid.

Q328 Chair: I know you said in the response there that this was anticipated and expected by 2017. Was the recent announcement and the fact that this has been brought forward anticipated or expected at all or was there any planning in place for 2017 that has now had to be disrupted because of the fact that this has been brought earlier without any of the consultation that usually accompanies a decision of this stature?

Lindsay McQuade: We would acknowledge the fact that the manifesto pledge was quite explicit and that the implementation came quite soon after the election outcome. As a result of that manifesto pledge, we looked at our portfolio and considered the risk associated with that and that, if we were to continue to invest in certain projects, yes, we potentially could have been exposed. Fortunately, we have been able to manage that position and the projects that we still have on our drawing board—for want of a better expression—we would seek to deploy at some point in the future. We would very much like to have that there. There is no part of that pipeline that we have put on hold, per se, and we are continuing to maintain our appetite for future development, but perhaps at a slightly reduced pace in anticipation of the delivery of 2020 targets that we understand the Government consider to have been achieved. We have effectively had to align our projects to a post-2020 delivery period.

Q329 Mr David Anderson: I have a supplementary one. Thanks very much for coming, Lindsay. If a project was as close as possible to one that was agreed pre the cut-off date, if you were going to do it after the cut-off date, is it possible to say how much different the cost would be to you as a company per megawatt or however you would define it, or is that too complicated?

Lindsay McQuade: The cost is largely driven by the wind turbine. It represents around about 60% of the overall capital cost of an onshore development, less so to an offshore development because there are other components and more complexity developing further away from the shoreline. In terms of that differential, we would expect competition to drive supply chain prices to become much keener going forward, as well as looking for other efficiencies and optimisation of that technology.

There are larger scale turbines, taller turbines that are used elsewhere in Europe. They capture a better yield because they tend to be out of any turbulence and they also have a bigger generator in them. What you could find is that you might have fewer larger turbines to try to minimise your balance of plant requirement, your cabling and the amount of infrastructure to construct that turbine, and look to try to optimise and better space your turbines as well, from a planning and a yield perspective, to try to make sure that you have the most efficient layout for that plant possible.

Q330 Chris Law: ScottishPower has obviously supported in principle the Contracts for Difference, in terms of increasing competition and driving down the cost of renewable energy. Can you tell me what improvements you have seen come as a result of the emergence of Contracts for Difference or is it too early to say?

Lindsay McQuade: I am not sure how aware the Committee is, but there has already been a Contracts for Difference allocation round and we elected to bid in one of our offshore projects. That offshore project is not in Scotland. It is in the southern North Sea near East Anglia. It is our East Anglia ONE project and that project came in somewhere in the region of 14% below the anticipated price level. I think having the element of competition will drive down and continue to support best value for consumers of this type of new generation coming through.

Although we did not bid in any onshore wind projects to that first allocation round, we are aware of others in the market that did so and the outturn price again was up to 17% below the administrative strike price that had been suggested by Government as the maximum recompense that those projects could achieve.

Those projects then have to deliver against those prices that have been awarded to them and the contracts that have been awarded to them, and I am quite sure they will be working very hard with the supply chain to get best value through that project and also to optimise with regard to UK content in many instances as well.

Q331 Kirsty Blackman: In terms of future rounds of Contracts for Difference and what they are going to look like, how much clarity do you have on that and what would you like to see? What would be helpful in terms of future clarity?

Lindsay McQuade: The reset speech of last November was particularly helpful for the offshore wind sector. The development timescales for offshore wind are lengthy—up to seven years in some cases—and, therefore, it is important that you have that foresight and you understand what opportunity and what appetite there is for that capacity to be connected at a later date. As I say, the announcement in the reset speech by the Secretary of State that it would be an intention of this Government to hold three further allocation rounds prior to the next election was a very helpful indication, particularly to the offshore wind sector because of the scale of the investment that is going into that sector.

We anticipate the next round will be quarter 4 of this year. That is still to be defined. What was incredibly helpful was the fact that, in the Budget announcements of this year in March, there was clarification as to the £290 million that would be allocated to that pot for a considerable competition to then take place. Understanding the overall £730 million cap for the three allocation rounds gives the supply chain, as well as the developers and investors, a good indication of appetite for what is going to come through. I think, based on the administrative strike prices that were also suggested at the time of the Budget, moving from £105 shading down to £85 for a 2026 delivery project, shows the degree of ambition and that is our part of the bargain. If the Government are going to commit these funds to us, we then have to demonstrate that we can achieve that cost reduction and we will be working hard with the supply chain to do so.

Q332 Mr David Anderson: Lindsay, as we discussed, the Government have a commitment to ending renewables subsidies. Your company is quoted as saying, “The existing CfD framework can be used to facilitate the delivery of projects without subsidy”. Guaranteeing a price under CfD, does that necessarily mean that a subsidy might be payable if the energy price falls below the guaranteed price?

Lindsay McQuade: As an organisation, we have considered this point very, very carefully. I think, while wholesale price is often seen as being the benchmark for where any CfD might be repegged, and that is the market price, it does not take account of a number of interventions that have happened to affect that wholesale energy price. From the perspective that you have fully amortised plant connecting to the market, you have plant that is carbon emitting and perhaps you do not have an effective carbon price signal, the Government have the carbon price floor but, again, there have been various decisions as to the trajectory that that will follow and those interventions have an impact on the wholesale price.

With regard to gas plant or any flexible plant, we have also seen the capacity market come in and that capacity market also has a dampening effect on the wholesale price. I think if you were to correct for those interventions and other externalities, you would have a price that would be somewhat above the existing wholesale price. It should be noted as well, there is no plant that is capable of being invested in just now on the wholesale price that is currently available in the market and there is very much a need to ensure that there is that investment coming forward.

If there was a way of coming up with a competitive mechanism to show that there was an optimal result, and understanding the competition that could come into that, I believe that you would get a very cost-effective outcome; you would see something that would be lower than the levels of support that have previously been on offer and you would get a better result and better return for the consumer at the end of the day.

Q333 Mr David Anderson: Given that is the position, what, if any, discussions are ongoing between the Government and the companies to try to show this works to the benefit of everybody concerned?

Lindsay McQuade: Discussions to date have been fairly high level. While people are trying to wrangle with the complexity of what a market stabilisation mechanism could look like, what it would actually do and how it would operate, and the CfD could provide the answer. That said, there could be other market mechanisms that could deliver a similar result and a better result for consumers. The discussions that we have had are ongoing, and we will look forward to engaging further with DECC to try to help them in exploring what that solution could look like so that the best result can be achieved.

Q334 Chair: We are seeing the Minister next week and we want to explore some of the issues to do with CfDs to try to get a better sense of exactly what is going to be on offer. I think you said there—which I think is our figure confirmed—that £290 million has been set aside for CfDs. We have no idea what the strike price is likely to look like just now and I don't know if you have a better idea or suggestion from conversations that you have had. What would you like us to say to the Minister in order to gain confidence to go forward with CfDs? What sort of solution do you think would be in the best interests of a company like ScottishPower and probably others who are in this sector?

Lindsay McQuade: As I mentioned earlier on, the reset speech did an awful lot for the offshore wind sector. We understand that the Budget allocation that has been set aside is with regard to less established technologies. That is obviously a wider group than offshore wind, so offshore wind will still have to compete for that funding beyond its own technology group. Even on that basis, looking at the projects that could meet the eligibility

criteria, we still anticipate that there could be up to 9 gigawatts of competition against a potential 2 gigawatts of outturn. The prices that have been—

Q335 Chair: Before you move on, given the recent announcement we had on ROCs for onshore wind, are there any concerns at all that the Government—and we will be asking the Minister this—might then exclude onshore wind from CfDs? Is there any discussion or talk or worries that that may be something that might be an outcome?

Lindsay McQuade: We would look to suggest that CfDs are a helpful tool to ensure that competitively priced generation can participate. Onshore wind and solar PV are the least cost options of electricity generation, of a low carbon nature, that could currently connect to the network. We would like to see those technologies optimised going forward, while ensuring that they are managed with regard to the proportion of capacity so that there would not be any peculiar effects on the network. That has to be set against other technologies that are coming through with potential other wider economic benefits, like offshore wind, and that that could be managed through the setting of minima and maxima within the respective pots of CfDs. Onshore wind currently sits in pot one for established technology. The less established technology pot, which is the only pot that has been allocated a budget for this forthcoming round, therefore, could not take in onshore wind for this allocation round. We would very much encourage the Government to consider inclusion of an allocation for onshore wind and established technologies going forward, because we think that would deliver the best value for the consumer.

Q336 Chair: Hopefully, we will get a better idea when we do see the Minister next week. I don't know what your view is but, certainly, in the conversations we have had and some of the representation we have had to this Committee, there does seem to be a culture within Government just now that is a bit averse to onshore wind, in the way that it made the announcement in advance of the manifesto commitment and even just some of the things that we are hearing about CfDs. Does that culture impact in any way upon your planning for the future? How do you start to deal with that if that is seen to be the view of a Government that is effectively responsible for funding this?

Lindsay McQuade: Obviously onshore wind is a change to the landscape in certain areas and it has to be fully considered. Its location is absolutely paramount and it has to be managed within the wider landscape. I think that there is a responsibility on the part of developers to ensure that they are sensitively sited and that we engage with communities as early as possible in the development process, way before we have even submitted a planning application, to ensure that they understand what our plans are, have the opportunity to comment, to feed back, and that there is that good interaction and we seek to build a relationship with that community. Ultimately, if we manage to develop that wind farm and bring it through to construction and operation that will be, therefore, the period of the planning consent that would apply. Working with the local community is often something that we have found to benefit our projects as well. They might have an insight into certain points that are better or worse or they might have a particular perspective on how things would look. I think that planning acceptability is something that we have to work very hard at as an industry, with communities and local councils, to ensure that they are appropriately sited.

Q337 John Stevenson: Turning to the new transmission charging system, which has recently been introduced, as we understand it this means that transmission charges for generators in Scotland are higher than in the south of England but demand charges for users are lower. How does this affect your renewable operations in Scotland?

Lindsay McQuade: I want to clarify that the Project TransmiT outcome is what I am assuming you are referring to?

John Stevenson: Yes.

Lindsay McQuade: Project TransmiT was a long time in development. It was an initiative that ScottishPower had an interest in, given the location of our plant being mostly in Scotland. That said, we also have plant down in the south-east of England as well. Our gas plant is located down there. I think the outcome of TransmiT effectively reduced the gradient of difference between northern and southern-based generation, in terms of the degree of transmission charging, so as to retain a locational element and to reflect the distance that power has to travel to reach demand centres. It was representative of the fact that there were various other objectives with trying to encourage generation in certain areas of the country.

TransmiT has reduced our cost for a short period on an output basis, but the level of network upgrade and investment sees that benefit being relatively short lived. It affects all generators, not just ScottishPower Renewables. That grid is going to transform so that we can better transport the generation that we are producing from Scotland and ensure that it can flow south as and when it comes on to the bars.

Q338 John Stevenson: Overall, do you think the new regime is broadly fair?

Lindsay McQuade: Following a long process—and I believe there was something like 28 different charging options that were considered by the working group—I think it was the best solution for what they had been asked to consider so that cost reflectivity was taken into account, the location of generation was taken into account, and the capacity of that generation was taken into account as well.

Q339 John Stevenson: Therefore, are you saying that you think of all the options that were available it was the best that was available? Would that be correct?

Lindsay McQuade: It was the proposal that we were supportive of that was eventually implemented.

Q340 Chair: Maybe you could help us a little bit more with all this. We are baffled by some of the changes that have come in, in terms of the new tariffs, which came into effect in April 2016. There seem to be a number of issues and new factors that are involved. Could you explain to us what the changes are from April 2016 over and above what the regime was before, so we get a better understanding of this, and also how this impacts on your business and what you are trying to achieve?

Lindsay McQuade: I would possibly defer to the next panel as being the real experts on this, but, from our perspective, I think the review of transmission charging was necessary and needed to be done but, no sooner had we done that, than we understand National Grid

intends to review the wider charges that are coming through. We are expecting a further update over the summer period.

It is constantly evolving and I think that is reflective of the fact that the entire system is changing just now. The type of generation that is connected to the system is changing. The installation of self-generation in consumers' homes is having an effect as well, and the fact that we are moving to a more distributed network system requires an evolution in the grid network that we have, how it performs and works effectively. Yes, I can understand why there is a need for a further review of that system approach and the charges that go with it.

Q341 Chair: We have always raised this with Scottish Members of Parliament and I think this Committee had a look at this previously—it is the whole issue of the high transmission charges that we seem to experience in Scotland. I am looking at a figure here, for example, and it is from the local authority. Even though I know a few Gaelic words I am not going to attempt to pronounce the Gaelic. It is the Outer Hebrides local authority who said that to be connected to the National Grid is seven times higher from the Western Isles than it would be if you were located in the north of Scotland, which is much higher than you would anticipate if you were in southern England, where most of the generation is going therefore. Is there any way we are going to get around this whole issue of high charges for Scotland? I know that your companies operate here; you are trying to untap some of this new renewable energy. There must be an easier and more convenient way to do this.

Lindsay McQuade: Again, I would perhaps defer to the next panel for their view and, in particular, my colleague from SSE, who might be better placed to talk about transmission within his own area. Obviously, there is a stronger locational element, so the further north you go it will be more expensive to transport that generation south because the demand centres are obviously smaller than those you would find south. There is that to-ing and fro-ing of generation.

I think what is going to be interesting is the fact that, historically, we have expected Scotland to be an exporter of power and, if you were to look at them on a regional basis, we have also seen other areas of the UK as being net importers. The deployment of, for example, solar PV in southern parts of England has resulted in a real shift in how that power is then flowing through the network. There are some quite dynamic analyses being carried out on how that impacts movement of the output of generation across that network, and that will obviously have implications for the charging methodologies that would then be proposed.

Q342 Chris Law: I want to ask an additional question. The UK Government have recently announced they are going to put £50 million up to develop battery storage and to look into that further. How positive a development is that and would you like to see a lot more involved in that?

Lindsay McQuade: I think battery storage will be a helpful innovation. Currently, the cost of it is something that most investors would think prohibitive, but we would expect that that cost would gradually come down. We very much hope that there is funding and R&D support that would help us better understand what the commercial application would be and the services that that storage could then provide to the likes of National Grid, and I am quite sure the next panel will discuss a bit more about that, too. Certainly, I think it would

be helpful if there were points at which generation from wind could be stored and more usefully used at other times.

I see it as being part of a suite of tools to try to better manage how we consume, when we consume energy as a consumer and to try to align that optimally with when and how generation is made. Storage sits somewhere in between the generation point and the point of consumption, and I think it could transform the utility of the generation that comes from the range of sources that we have.

Q343 Margaret Ferrier: Lindsay, I would like to talk about long-term energy strategy. There has been some criticism of the UK Government that they do not have a long-term energy strategy or a way of meeting future carbon emission targets. Both organisations and experts have called for this, so it is obvious we need a mix of energy. As I say, despite making several changes to support for renewables and agreement upon new nuclear power generation, the Government have not given any clear indication of that energy mix. Do you feel that the UK Government should provide the clarity about the energy mix that it wants for the UK and also the policies that it is pursuing to achieve that?

Lindsay McQuade: As I mentioned earlier on, we are part of the Iberdrola Group and one of the reasons that it invests as heavily as it does in the UK market is that it does view it as a stable market. I think long-term policy would absolutely help. To give the Committee a sense of scale, between now and 2020 our organisation will be investing roughly £3 million every day into energy networks and renewable generation, which comes in at around about £1.5 billion every year. It is not an insignificant sum, so we would not be doing that unless we felt that there was a stable and supportive regime for the investments that we are intending to make.

Setting that against the longer term context, we are aware of the 2020 targets. Looking beyond that, I think having an indication through the Fifth Carbon Budget and the frameworks that we have under that, understanding where we need to get to if we are to achieve the targets at 2030 and again at 2050, how that can then best be supported through more specific policy initiatives, would be very, very helpful. What is also important for us is we would like to see a level playing field between the various types of generation that are out there, to ensure that we do get a cost-effective deployment of generation and generation mix. With that we think competitive auctioning is certainly the way forward to ensure that that is the result that is then delivered.

Q344 Margaret Ferrier: How does ScottishPower then decide which electricity generating technologies to invest in?

Lindsay McQuade: Our competence to date has largely been in wind. We have initially deployed considerable amounts of onshore wind. ScottishPower started to make its first investments into onshore wind in the early 1990s. Some of those sites are now reaching the end of their life with those much smaller technologies. Taking all of that learning that we have had and continuing to apply that learning and understanding much more about how wind behaves, I can imagine that wind will continue to be our key investment prospect. We are also looking at how that wind could integrate with the system and we are also considering what other technologies in the longer term could be of interest to us. Right now, wind continues to be the most cost-effective option and it is one that we would continue to suggest should be very much part of the energy mix.

Q345 Margaret Ferrier: Are you actually looking at other energy generation like offshore?

Lindsay McQuade: We have an operational offshore wind farm in the Irish Sea. It is a 50/50 joint venture with Dong. It is West of Duddon Sands. That was our first operational wind farm. We hope our next operational wind farm will be the East Anglia ONE project, 714 megawatts. We expect that to come online in 2019. We are developing and continuing to invest in our offshore portfolio as well. As I say, wind offshore led on from the experience that we developed onshore. The turbines tend to be of a greater scale, but understanding the challenges of installing onshore turbines in peat, for example, is helpful when looking to the offshore environment as well where you do have challenging seabed conditions, you are further from shore and you require a multitude of vessels to create your installation. Taking that competence and applying it offshore is where we have gone to and we will continue to support that going forward.

Q346 Margaret Ferrier: Is there a longer lifespan for the offshore or is it the same lifespan that they have as onshore wind turbines?

Lindsay McQuade: With the turbine manufacturers that we work with, to date there has been a suggestion that 25 years was the expected asset life. What we have found is that assets can go on beyond that and certain components of the turbine itself could go on beyond that time as well. Life extension would ensure that we do not prematurely retire what could otherwise be useful generation capacity, and we would expect that maturation to also happen in the offshore environment as well where turbines tend to be younger in their life now.

Q347 Kirsty Blackman: A couple of questions. You have said a couple of times that wind continues to be the most cost-effective option. In terms of bill payers paying their electricity bills, is it the most cost-effective option for them or is it the most cost-effective option for you guys to generate?

Lindsay McQuade: Looking at it from a bill payer's perspective and the type of generation that could compete—for example, a CfD—we see onshore wind being well placed to come in as among the cheapest of those technologies because it is established, because we understand how it performs and because we understand very well the supply chain that we would work with to ensure that we can make sure we have an optimal cost that is coming through there. That would then translate into the supplier obligation, which is how we get the payment for the CfD for the generation that flows back through the supply chain.

Q348 Kirsty Blackman: One more question on a slightly different topic but following on from Margaret's questions: in relation to your long-term planning and how far out you can plan, you have mentioned the energy reset speech and how helpful that is in terms of offshore wind and long-term planning. With the changes that we are seeing from Government in a wider range of things, are you guys able to effectively long-term plan the technologies and the projects that you are going to be investing in 10 to 20 years out or do you not have the clarity for that?

Lindsay McQuade: When you are talking 20 years out I think the world and the system could look incredibly different, but a year to 10 years, yes, projects that we are working on

today would be projects that we would see commissioning or entering into construction in between a five and 10-year timescale. As I mentioned earlier on, the planning process does require a lot of effort, a lot of detail and a lot of engagement, and that is even before the planning application goes in. The planning process can then take a number of years for an application to proceed to be considered and, again, we will work with stakeholders to try to ensure that they have the information that they need on which they will then make their decision. Yes, today we are already thinking about the developments that will come on to the bars post-2020 out to 2025. That is part of our day to day operation.

Q349 Chair: A couple of last questions from me. I was going to ask a little bit about storage, which I think you have already answered quite comprehensively. Therefore, maybe you could say what else could be done to deal with some of the intermittency issues that we do have when it comes to onshore wind. One of the things that we have heard consistently through the course of this inquiry is that this is the shortcoming of so much of our renewable supply, the fact that there are intermittency issues. I know that storage is one way and I know that dealing with demand is another. How do the power companies intend to try to deal with some of these things? Do you have any other creative solutions that we have maybe not heard about?

Lindsay McQuade: I think we are fortunate in Scotland that the wind does tend to blow in some parts of the country pretty much all the time, the same as the rain tends to fall in some parts of the country most days as well and that is the reason we have existing hydro fleet. There is the need to ensure that there is a sufficient and appropriate generation mix so that you do have appropriate generation that can come on at points where wind speeds are not perhaps so high, which can also then flexibly be removed when the wind does blow to ensure that again you have a consistency in supply for the consumer.

Q350 Chair: Lastly, another thing we have heard is that the costs of bringing the renewable to tap and to consumers are hidden in all sorts of ways in the bills. How much of the bill that I would pay, for example—I think I am a ScottishPower customer—is that going to be reflected in terms of all the efforts and costs of bringing renewable, particularly onshore wind, on tap?

Lindsay McQuade: The Renewables Obligation and the small-scale FIT regime and the CfD will be brought through on the consumer bill. As an organisation, ScottishPower has done a lot to try to make bills much more transparent so that the customers can see what elements are going where and the money that they are paying. On the bill itself, I guess to give you an example and perhaps a visual as well, we have done some analysis on the 539 megawatt Whitelee wind farm south of Glasgow and we estimate that it costs an average bill payer £1 out of their £1,200 bill to fund Whitelee through the Renewables Obligation. That is the largest wind farm in the UK and obviously there are others there. I would need to come back to the Committee with a definite figure to support the RO projects, and I would be pleased to do so. On top of that, there will also be small-scale FIT costs and the CfD will then come in as well.

Q351 Chair: There is also the Levy Control Framework, which the Government have decided year on year is going to be not so much reduced but reduced in real terms. Is that achievable and is that feasible and is that the right way to approach it?

Lindsay McQuade: The Levy Control Framework is the overall envelope in which the schemes that I have mentioned are contained. That gives a clear indication perhaps longer

term than the Budget for the allocation rounds of Government's appetite to invest in low carbon generation and the various schemes through that. The Levy Control Framework was announced as £7.6 billion out to 2020-21. We have yet to see what the intention is to extend beyond that period and what that might look like, but we are operating on the basis that the £730 million that was announced for the three allocation rounds will be added on to that £7.6 billion as an overall cap for now. We would like to see that increased because, clearly, we have an aspiration to take that forward. Again, reflecting the fact that it will be competitive, we would expect that degree of adjustment to be manageable within the parameters that Government would find acceptable.

I think what is also interesting to note is that you might start to see the retirement of RO plant that perhaps is not suitable for life extension or repowering. That would then free up some of those RO proceeds, and so for that £1 that would perhaps be spent on the RO you would then get a more productive £1 put into another scheme, again trying to get a better return for consumers on that basis.

Q352 Mr David Anderson: Can I ask a supplementary question about security of supply? You mentioned earlier to one of my colleagues about a 10-year view of where we are. Ten years ago we would not have predicted the earlier demise than expected of the coal generation situation, and 10 years ago we probably were expecting the nuclear industry to be more secure than what it is at the minute with the ongoing concerns around whether Hinkley B will or will not be built. I understand exactly what you are saying about the wind will be blowing somewhere, but the wind is not going to blow enough to make up the gap with the insecurity of those two industries. Given these uncertainties, what is your view on how stable the overall security of supply is for the whole of the electricity generation for the nation?

Lindsay McQuade: I think the capacity market is trying very hard to ensure that there is that security of supply element and that it does outturn at a lower carbon intensity than what we have seen in the past. I think the capacity market has perhaps delivered prices below what would be required to support new gas generation. There are a number of changes being made to the capacity market to try to align to what we understand to be the policy intent of that mechanism. Encouraging investment into new build gas we see as being fundamental to try to support further or enhance security of supply. If we end up with a flexible network with various proportions of respective generation types that should allow us to have the most flexibility and ensure that we can effectively deliver electricity to customers' homes.

Chair: Lindsay, we are very, very grateful and, unless we have missed anything, thank you ever so much for that. If there is anything further that you feel that we have not covered, please give any further submissions to this Committee in the course of its inquiry. I think we have had very comprehensive submissions from you already, but thank you once again for your oral evidence.

Examination of Witnesses

Witnesses: **Kersti Berge**, Head of Scotland, Ofgem, **Phil Sheppard**, Director of System Operator Operations, National Grid, and **Andrew Huthwaite**, Director of Commercial and Connections, Scottish and Southern Energy Power Distribution, gave evidence.

Q353 Chair: Thank you ever so much for coming along this morning. Just for the record, going from my left to right, tell me who you are, which organisation you represent and if you have anything by way of a short introductory statement.

Andrew Huthwaite: My name is Andrew Huthwaite. I am the Director of Commercial and Connections for Scottish and Southern Energy Power Distribution, which is part of the SSE Group. As the Committee may be aware, SSE is a vertically integrated energy business with wholesale, retail and network segments that is governed by very strict business separation rules. It is important for the Committee to note that I am here to answer questions from a networks perspective, which is a regulated business, and, to be clear, I am not in a position to answer matters on wholesale or retail businesses, which includes SSE renewables.

I should point out that I have recently moved into my current role. My previous role was Director of Transmission Development within the transmission area of the networks business. It is in that context that I believe I am here today to answer questions and specifically around the island links.

Kersti Berge: I am Kersti Berge. I am from Ofgem, the energy regulator for the GB market, including Scotland. I have two roles at Ofgem. I am head of Ofgem in Scotland where I am responsible for explaining what Ofgem does to groups like this, and I am also the partner for the regulated networks. Ofgem is the regulator for the GB energy market and the networks, and I suppose there are three main parts to what we do. We ensure that the markets work as they should, so that is the wholesale market for electricity and also the retail markets but that is probably a separate discussion from the one today. We are also responsible for regulating the monopoly networks. Most of the networks are monopolies and we need to make sure that they do not overspend and deliver what is needed for consumers. At a high level, the third role is we are responsible for administering the Government's economic and social programmes—sorry, environmental and social programmes.

Chair: I was going to say economic would be a very big task, but there you go.

Kersti Berge: I think we will get on to that because one of the things we need to explain is that we are not an economic development agency.

Chair: We will come to that. Thank you.

Phil Sheppard: Good afternoon. I am Phil Sheppard. I am director of SO operations for National Grid. I am here representing National Grid in our system operation role. In this role, we carry out the final balancing of the network and the system. Once the market closes we do that fine tuning, making sure that the network is available and we supply balance every second to make sure the energy is there when you need it.

Q354 Chair: I am grateful. You all represent very different roles when it comes to the sorts of issues that we are looking at here. It seems to me around this table we have generation, transmission and supply, and regulation. Could you explain a little bit how all this works together and what sort of relationship each part has, of what looks a very complicated and specialised field? We will maybe start with you, Ms Berge, if you could help us with that a little bit more, given you are in more the regulatory role and maybe looking at it from outside.

Kersti Berge: Yes, let me try to do that, so explaining the UK energy market.

Chair: Just in two sentences, yes.

Kersti Berge: To start with, the Westminster Government is responsible for setting energy policy at a very high level. What that means is they are responsible for ensuring security of supply and for ensuring that we meet our low carbon targets, and it chooses the high-level policy instruments and designs these to make sure that we meet these objectives. The regulated network companies are responsible for building and maintaining the network. For electricity, it is the high-powered transmission network and also the smaller distribution system. The system operator is responsible for, as Phil said, operating the system on a day to day basis. Electricity is a funny one because it has to balance exactly at any moment in time. Making sure that that happens is Phil's role, I suppose, and National Grid has a range of tools it can buy forward in the market to make sure that that happens but it also needs to balance the market on a second by second basis.

Q355 Chair: Before we leave this point, National Grid owns and operates the high-voltage electricity transmission system in England. In Scotland it is SSE and ScottishPower. Why is that? Why is there that distinction? I think we discussed that briefly this morning before you came in and we were trying to understand why that was the case. Could you help us with that?

Kersti Berge: Yes.

Chair: Or maybe Mr Sheppard does. Sorry, we will come back to you, Ms Berge.

Phil Sheppard: It goes back a very long way. The system was originally set up as a Central Electricity Generating Board for England and Wales, and then we had two separate companies in Scotland, which were vertically integrated, which did everything from generation through transmission, distribution and supply to end customers. When the CEGB was privatised in England and Wales, a separate market was set up and in 2005 there was a new trading arrangement that incorporated Scotland into what was the England and Wales trading arrangements. As part of that, there was separation between the generation and transmission and distribution. That is the reason you have ended up with three separate companies owning transmission across Great Britain. It allowed competition for generation and competition in supply.

Chair: Thank you. Ms Berge, sorry, we were breaking you in full flow, unless you had concluded.

Kersti Berge: No. I would say that is a good description of the way it works. It makes sense because in GB we have a very integrated market between Scotland, England and Wales, and it does make sense for a system operator to manage the market as a whole. What National Grid does is it works very closely with ScottishPower transmission and SSE transmission to do that.

Q356 Chair: It would strike me—and I am not an outsider; I obviously live here—that in Scotland there would be almost a conflict of interest, given that SSE and ScottishPower are also providers and producers of electricity at the same time they, therefore, have a role in the transmission. Is there any sense that we should be concerned about that or does it work perfectly well?

Andrew Huthwaite: As I said in my opening statement, we are governed by very strict business separation rules. As a transmission owner in the north of Scotland, we have to respond to requests for connections, whether that is generators wanting to connect to the network or demand customers wanting a supply from the network. Our focus is very much responding to that demand and providing those services. We do that irrespective of who the developer or the customer is. I think the transparency that we have through the regulator and the licence obligations that are placed upon us ensures that we do that on a non-discriminatory basis.

Chair: Thank you. Maybe I should declare an interest, given that Scottish and Southern Energy is based within my constituency. I make that clear for the record, too.

Q357 Chris Law: I understand the move to sustainability and a low carbon economy may not be a central plank of your remit of business. However, you have all made various commitments to that move. What I want to ask is: how do your commitments and the formula work as regulators and operators of the UK electricity network? Who would like to go first?

Chair: They are all rushing here. We will give Ms Berge a shot at this one.

Kersti Berge: Shall I start?

Chair: Yes.

Kersti Berge: It does that in a number of ways. First of all, as regulator of the monopoly networks, we are responsible for giving the companies money to build the network. The way in which we do that is we set price controls. We give them money over a certain period for building and maintaining the network, and we have changed the way in which we set the price controls in a number of ways to reflect that. First, we have set it for a longer period. I think it used to be five years and it is now eight years. That gives the companies an incentive to innovate because they keep some of the benefits from that innovation. We have approved a lot of expenditure in the baseline price control. I think it was £2.3 billion for the next eight years in the core price control settlement for the two Scottish companies. In addition, recognising that there is quite a lot of uncertainty in the transition in terms of what is going to come on where, we agreed that for some of the very large projects we would take the decisions on a case by case basis. For example, the Caithness-Moray link, which we approved about a year ago, a bit longer ago, we would look at that when it is clear that the need is there. We are doing that with a number of other cases. So, that is one; we provide the price controls.

In our new price control regime, we are also awarding to companies money specifically for doing innovative things. It is over about £100 million a year, and this is to put in place clever solutions that avoid lots of new transmission build or distribution build, again given that we are getting a lot of new renewables on in new places on the system.

The third thing that I would highlight in relation to this from Ofgem's perspective is we are also responsible for finally taking some of the decisions around the charging arrangements and also some of the connection arrangements. We initiated work looking at how the transmission charging arrangements work for a system where we have a lot of renewables in. We reached a decision last year—which I can go into in a bit more detail—on a project to transmit that changed that and ensured that renewables paid a more reflective or fairer share of the transmission system. That is the highlights. There is lots of detail behind that.

Chris Law: Andrew and Phil, please, if you could also add to that.

Andrew Huthwaite: Yes. As I indicated earlier, our main position on this is to respond to demand. Obviously, the drive for the low carbon economy will affect that demand in terms of what we have to provide, which ultimately will drive the reinforcement and the need that we have in terms of infrastructure build.

Touching on Kersti's point, we are very focused on innovation through the price review, particularly at distribution level. We have introduced a number of innovative schemes where we have been able to allow the connection of generation ahead of the need for some large-scale reinforcement or in place of the need for large-scale reinforcement. That is something that we are very proactive on. There are examples of schemes in Orkney and other schemes around the distribution area where we have managed to facilitate that through innovation.

Chair: We want to specifically come back to Orkney so we will leave that one there now. Unless Mr Sheppard has anything else to add, we will move to Mr David Anderson.

Q358 Mr David Anderson: This is for Phil Sheppard. Part and parcel of National Grid's job obviously, as was mentioned at the beginning, is to balance as closely as possible supply and demand. With the increase in intermittent supply, what impact is that having on you in being able to do that?

Phil Sheppard: Some of this is around knowledge of what is going on in the network. Where we have directly connected wind farms, we know what they are; we have metered them; we can see what they are doing. Then it is a question of making sure that we can forecast accurately, and when we can forecast accurately we can see what residual balancing there might be left to do, that the market might leave the system operator to do the fine tuning in real time. When it comes to solar, if you go back three years I think people would be surprised that we could cope with 10 gigawatts of solar on the network but that is what we have currently. That is embedded in the network and the issue for us, when it comes to making sure that we take account of solar, is it is less visible to us because it is in distribution networks. We are working with developers and distribution networks to get more granularity on what is going on at different times of day. Cloud cover itself is very difficult to forecast, so there is more uncertainty in our forecasts now because of the impact solar has during the day.

We have introduced more tools in our toolkit that allow us to do some of this balancing. For example, we have a new product that we call demand turn-up, which is about shifting demand. If you own a large refrigeration warehouse it might be sensible to run that during the day when the sun is shining or overnight when it is windy but there is not high demand, rather than run it in morning peaks and evening peaks. By doing that and giving us more tools and having better visibility of renewables, the more flexibility that you have, the cheaper the cost of operating the system and the cheaper the cost ultimately to consumers.

Q359 Mr David Anderson: In terms of how it works, my understanding is that sometimes you have to tell generators to stop producing and, ultimately, that feeds through into a cost to the consumer because they have to cover that for the generator not getting paid. Is the increase of intermittent technologies going to make it more likely that that price will go up?

Phil Sheppard: There is a whole topic of constraints and how you optimise investment in the transmission system. As Kersti mentioned earlier, there is a risk that if we invest too much in transmission too early, so that the need is not certain, consumers will pay the bill for stranded assets, large network assets that are not being used. Conversely, if we invest too late, there are lots of congestion charges that again fall through to consumers' bills. There is an annual process that we run with the industry that looks at all the different connections that are likely to come, the future scenarios. We look at a range of four different potential futures, what that might look like for generation and supply and what that might look like for network investments. Then we go through a process that we publish, which gets pushed through as a consultation document and gets feedback, which says, "This is the optimum investment". There is a rule we have about least bad cost investment. Through that process we try to get the right decisions and optimise the decisions about which investments in which piece of the network to minimise the level of constraints.

Q360 Mr David Anderson: You mentioned earlier about the CEGB and the relationships then, and I accept that when the CEGB was in place we did not have the intermittent technologies to the extent we do now. Given that you are having all these discussions about balance and constraints, and so on, do the markets make it more difficult, time consuming and more costly, because everything you do has to be agreed with different companies and possibly through legal agreements and so on? Is that more of a pressure on prices than it would have been if the system was still under public control?

Phil Sheppard: No. All the evidence that I have seen shows how much benefit has been delivered to consumers by moving through to privatisation. The figure I recall seeing about 10 years after privatisation was about a 30% price drop to consumers, something of that order but don't quote me. At the moment there is a very effective market and people from all around the world come and look at the GB market. It is rare in that it has bilateral agreements between generators and suppliers. It is a very effective market so, from a regulatory perspective and a policy perspective, many people come to look at this as a model to reduce costs in their countries. My view is that this is a very effective market. What we are looking to do, as we go through the transition from large-scale predictable plant to a much greener and much more intermittent and renewable world, is to make sure that the market continues to be as effective as it currently is.

Q361 Mr David Anderson: About five or six years ago or probably a little bit longer, I was a member of the Energy Select Committee. We had a meeting up in Aberdeen, mainly with the oil industry, and we got into discussions about transmission. There were huge concerns back then—and I don't mean disrespect, it is just a matter of age and time—that going forward, as we had it then, the grid was not going to be fit for purpose without huge income and work. Have things improved or do we still need to be doing more than we have done?

Phil Sheppard: The reliability of the overall GB transmission system is 99.99999%. It is one of the world's best transmission systems for making sure people have the energy they need and people can access the market. We continue to invest in it. As the distribution of generation changes across that network, then through the process we have in the new regulatory arrangements that Kersti touched on, and, through investment signals from developers, we make sure that we have timely investment.

Q362 Mr David Anderson: There is nothing to worry about? You are on the record now.

Phil Sheppard: I am on the record. An operator will never say “No” throughout the world but effectively, yes, we are comfortable in terms of making sure we have a reliable transmission system.

Q363 Chair: Can I ask a couple of questions on this? I have just seen here that the costs of balancing the network were higher in 2015-16 than they were in 2014-15. Why is that, if everything is so rosy as you have just said to us? Does this represent any sort of long-term trend when it comes to balancing the network?

Phil Sheppard: Over the last five years, the numbers have gone up and down. I think last year it was £868 million worth of overall balancing costs.

Q364 Chair: Over a five-year period it has actually reduced. Is that what you are trying to tell us?

Phil Sheppard: Each year it goes up and down. It depends on everything from generation availability to weather; if you had a particularly cold winter, whether it is hot in the summer. There are all sorts of factors, as well as the efficiency of the market, that change some of those costs.

Q365 Chair: One other thing I would like to throw out to you is that research we have here says that, for example, Denmark sourced around 40% of its electricity from intermittent generation. I know that you are trying to suggest that everybody is coming to look at the UK, but they are way ahead of us in preparing and getting themselves in place to deal with this renewables revolution. It looks like we are several years behind.

Phil Sheppard: The absolute numbers look different but the reason for that is that the system dynamics are very different in Europe. Central Europe is a huge synchronous—

Q366 Chair: Instead of them coming to look at the UK, should we be looking at Europe?

Phil Sheppard: It is a complex issue. If you think of the whole system, the bigger it is the less influenced it is by disturbances. If you have a very large system and you get the forecasts wrong it does not matter very much. If you lose 1 gigawatt of generation in Europe, the frequency meter hardly flickers. We are a relatively small system in comparison to the whole of Europe. If we have that 1 gigawatt of loss here you see the frequency meter move quite a lot. That is one of the reasons that, because we are not a synchronously connected system, we are connected by direct current interconnectors. The limits of what can be done on the system are different. It is slightly harder if you are in Ireland; they have a slightly smaller system again.

Q367 Chair: Are you able to identify the cost of balancing generation from renewables technology, as compared to the total costs of balancing the electricity system? Do you have specific figures for renewables?

Phil Sheppard: I think the costs of wind constraints are about 10% or 11% of that £868 million.

Q368 Margaret Ferrier: I am afraid it is Phil again in the hot seat. Another common complaint about wind farms is that they receive large constraint payments to not generate electricity. Is that a fair complaint? Why do some wind farms receive such significant payments for electricity that cannot be used?

Phil Sheppard: It comes back to economic investment. It is a bit like if you are building a motorway. Every now and again on a motorway you might expect, on a bank holiday weekend in the school holidays, a lot of congestion but it would not necessarily mean you would build another motorway alongside it. What we do as transmission operators, as we look at the areas that are congested, we are applying lots of smart things at the moment. It would be the equivalent of using fixed speed cameras or using the hard shoulder as a running lane during peak periods. At some point it becomes effective to build another motorway, and we do that and it takes a number of years to do it.

I think, also, the charging regime or the connection regime is complex and quite specialist. I understand why people do not understand it. If you are a generator in the GB market, you pay for connection to the system and then you have rights to export at any time on to that. You can sell your product through the transmission system at any time. If through maintenance or other reasons you are not able to sell your product, then effectively you are compensated for it.

Q369 Margaret Ferrier: Another question on that. To me it seems there are inadequacies in the transmission network as compared to limitations of the actual wind farms. When we were in Orkney we heard that only a minority of wind farms located there are eligible for constraint payments. What determines whether a generator receives a constraint payment and who is in control of this?

Phil Sheppard: Simply, if you are part of the GB market, you participate in that market and you are connected via the transmission system as part of that. If you are restricted in your output you do receive payments. If you are not part of that market then you don't.

Q370 Margaret Ferrier: On the particular question about Orkney, why is it that only some wind farms in Orkney are receiving these payments?

Phil Sheppard: I think that comes back to the Orkney question, which we will answer separately, if that is okay.

Q371 Margaret Ferrier: Would somebody else like to come in on that?

Andrew Huthwaite: I could add a comment that I think the bulk of the Orkney generators are connected at distribution level, so they do not receive the constraint payments that Phil referenced there. I do believe there are some generators there where commercial agreements have been put in place and that would be with National Grid, but I don't think that applies because they are distribution-connected generators.

Q372 Margaret Ferrier: When we were in Orkney, one of the biggest concerns we heard was that there is insufficient transmission capacity from the islands to the mainland and that is limiting their potential for additional renewable capacity being deployed there. They are keen to progress and they are being held back. What is being done to resolve that? What are the barriers to this situation? How can we resolve it?

Andrew Huthwaite: I will take that one. I think this brings it probably to a broader question about links to the islands to realise the generation and get that route to market for the generators. Speaking from a network's perspective, we have to respond to that request and that is what we do within the regulatory framework. The way that we approach it is we try to provide an economic and efficient solution for that route to market for generators. Then we have to go through the investment process, which Phil has outlined, for getting regulatory approval for the investment. In that process, we have to present a needs case that gives the justification for the investment and looks at all the parameters of the economic case and whether that investment is appropriate.

Q373 Margaret Ferrier: Thank you. Is it simply that the cost of connecting the islands with the mainland is not cost-effective, so you would not go down that route? It is cost rather than they have a natural resource but, because it is not cost-effective, we do not want to improve the interconnection.

Andrew Huthwaite: I think there is a desire to provide something for the islands. It comes down to how these investments are funded. The regulatory framework is there to protect the cost to consumers. We have to present the needs case and explore whether that investment is in the best interests of customers.

Q374 Chair: One thing that came out of the Orkney trip—and I feel obliged to say it now we have you here—was there was a lot of finger pointing at SSE, about their responsibilities and obligations in ensuring that they were going to get on to the network. I am listening to your answer here, and we are hearing all about cost constraints and whatever, but here is a wonderful resource, the selling off there that could help to reindustrialise some of our Western Isles. Should you be doing more to try to ensure that we get these islands properly connected, given that you have the responsibility for that?

Andrew Huthwaite: We recognise the benefit of delivering these links for the islands. There has been a lot of independent work done to establish what those benefits look like, from a social and economic perspective, but, as a networks company, we have to present a fully justified needs case for those investments and that sits within the regulatory framework. That is the process that we have to follow to bring forward those investments. The big issue at the moment is getting certainty from developers that the generation is actually there to support a justified needs case. There is a whole range of factors that could affect that. From our perspective, we are doing everything we can. We continue to work on all the island links in developing the projects that we need to bring forward an investment case. There are certain triggers that we need to justify that case through the regulatory process and, so far, they are not in place.

Q375 Margaret Ferrier: Have you been up to Orkney? Have you met with some of these generators and people who want to—

Andrew Huthwaite: Absolutely, yes. We take part in the Orkney Renewable Forum. We have a number of bilateral agreements with all the generators that have applied for connection. We are on the island looking at design solutions or trying to acquire land. We are doing survey work for the design solution that is currently trying to provide the overall network capacity required for Orkney. We are very proactive in that area and we have done a lot of work. We have been working for a number of years and continue to do so as we speak.

Q376 Margaret Ferrier: A last question to Phil regarding the National Grid. As I understand it, they have not connected Orkney to the National Grid. Is that true?

Phil Sheppard: That is the work that Andy was talking about doing, providing a large transmission connection to Orkney.

Q377 Margaret Ferrier: Putting you on the spot then, will you connect Orkney to the National Grid?

Andrew Huthwaite: If we get everything in place that allows us to bring forward our needs case to Ofgem and we get regulatory approval for it, then, absolutely, we are ready to connect Orkney.

Q378 Chris Law: With regard to timescale, should you get to that, how long would it take in order to connect the islands, basically?

Andrew Huthwaite: This is predicated on us getting through the regulatory approval process. That is also predicated on certainty coming for developers so that they can commit to the project. This is about customers' money and we have to protect against potential stranded assets. Based on the current plans, on the Western Isles we are looking at a connection in December 2020. Shetland is currently proposed as March 2021 and we are currently redesigning the approach to Orkney because we have had a significant shift in the generation requirements there. At one point we were upwards of 700 megawatts in requests and contracted position. That is now down at 420 megawatts. The disposition of that generation has shifted. Our original design solution was on the west of the islands and all the generation is predominantly now in the east, so we have to revisit the design solution. Based on what our current proposals are, we think it will be about 2022 before we can connect based on the current plan.

Q379 Chair: I know Ms Berge was desperate to give her contribution.

Kersti Berge: What I was going to do is try to take a step back and explain the basis on which transmission investment decisions are made, because we have talked a lot about the needs case. It goes back to what I said at the start, which is Government are responsible for setting policy in deciding what energy mix it wants and where it wants the energy mix. What happens is that, once there is a viable need for generation to come on, you can build a transmission link or a link to that generation. In terms of the Scottish islands link, the first thing that needs to happen is clarity from Government about what the level of support to the island links is going to be. Once that is clear, we can know whether the generation is going to be financially viable. Generators will take their investment decisions. Once that is

clear, we know whether there is going to be a need for these links. In energy policy, you always have to balance the three bits: you need to ensure security of supply, that you meet the Government's environmental targets and you need to keep a good close eye on the bills for consumers.

While some people think it would be great to build transmission infrastructure all over the country, there are obvious issues with that and one of them is the cost that this imposes on consumers. That is why the system is such that there needs to be a pretty clear case for the transmission link to be needed, and that is what companies like SHE Transmission have to demonstrate to us before we say, "You can go ahead and you can build that transmission link."

Q380 Chris Law: Can I add one point to that? When we had a visit to the islands we heard repeatedly they are already at 100% capacity. Most of the time they are producing energy that is in excess of what the interconnectors can carry. Is that not a clear trigger to anybody that now is the time to be moving the case forward for those interconnectors to be upgraded?

Andrew Huthwaite: Yes, it is a clear signal but, as Kersti has outlined, we need the developers to commit to the funding or the underwriting of the funding to build those interconnectors. As part of the process, if we get an infrastructure investment approved through the regulatory process, there is an onus on the developers to underwrite the costs of that during the construction period. Again, it is just to preserve the fact that we are spending customers' money and if the developers were to walk away and it did not come to fruition then there is some security there. The developers would have to post securities during the construction period. They do it with National Grid.

Chair: We have limited time. I think we have knocked this one about as much as we are going to get out of it, so we will move on now.

Q381 John Stevenson: Phil, we have had evidence in previous sessions of great concern being expressed that the increased dependency on renewables is potentially going to create problems with regard to security of supply. Is that something that is concerning you at the moment?

Phil Sheppard: When we look at security of supply, we use what is called a de-rated methodology. We look at the margin of supply over demand. We apply factors to all the different generation types. For all the combined gas cycle turbine fleet, we look at availability across that period and it might get a de-rating of 87%. At any particular time in the winter you would expect 87% of the CCGT fleet to be available. Looking at that margin, you are taking into account some diversification across those different groups. For wind it is slightly different. We look across the winter and there is an equivalent firm capacity method that is used. What that says is: if you had to replace 1 megawatt of gas plant with wind, how much wind would that be? It has this effective rate of 22%. Through this method, we are saying that 1 megawatt of gas is equivalent to 5 megawatts of wind. Through this approach you de-rate wind, so you are not taking it at 100% or 80% capacity. You are looking at this factor across the winter. You are not looking at it on one particular half hour or one particular day but across the winter, and that is the process we use. That is the method that goes into the processes that we, Ofgem and DECC look at for security of supply.

Q382 John Stevenson: On that basis, are you saying that you are very comfortable that the security of supply is effectively guaranteed now and for the foreseeable future?

Phil Sheppard: As an operator you can never say “Never”. What we do is look at each winter—

Q383 John Stevenson: I will change the question then. You are never going to say 100%, but are you extremely comfortable that security of supply is secure for the consumer?

Phil Sheppard: It is through this method, and through the capacity mechanisms looking at how we make sure that we have enough capacity in the coldest, darkest half hour of the winter. That is the process that we are going through at the moment for this coming winter. In July we will publish our winter outlook report. That is the report that will say, “This is how comfortable we think we are for the upcoming winter. These are the tools that we have as system operators to make sure that we get—”

Q384 John Stevenson: Do you think that the methods you are using to calculate are robust and will guarantee our security of supply?

Phil Sheppard: The methodology is appropriate for the purpose it is being used for.

Q385 John Stevenson: You have confidence in that methodology?

Phil Sheppard: I have confidence in the process that we are following, yes.

Q386 John Stevenson: Kersti, as the regulator, are you comfortable?

Kersti Berge: I am comfortable that National Grid does have the tools at its disposal to manage security of supply. As Ofgem, we did a report back in 2009 called “Project Discovery”. That highlighted risks to security of supply around this time, as well as risks to the Government not meeting their carbon targets. The Government responded with the electricity market reform programme. There are a number of new tools that can be used to manage security of supply and the capacity market is one of them. We have also given National Grid—in the interim until that comes into effect—new balancing tools, which is the ability to buy extra supply from thermal generators to manage this. We have also put in place a new regime for interconnector investment. Before, it was a nice easy offering: you had large thermal and nuclear generators that generated fairly steadily, and this was all exported to households. We are not there anymore. The world is changing. They were also carbon emitting. We do have, by the nature of renewables and the need to meet our carbon targets in the interim generation, to have a range of new tools in the toolkits of both National Grid and the Government to manage that. Those are the capacity market, the new balancing services, the various tools you use to buy forward in the market and interconnection with other countries. We talked about Denmark earlier.

Q387 John Stevenson: Sorry to interrupt. I understand that and, quite clearly, you are trying to put methods and so on in place to cover the potential eventualities that may occur. As we

are moving towards more renewables, the risks must be greater that we will have a problem with security of supply. Would that be correct?

Kersti Berge: The risks are slightly higher than they have been historically, but historically we had very high margins. What is important is that we can manage security of supply. Currently, National Grid's assessment is that the risks to security of supply are within the Government's target of what is acceptable. You can never get to 100%, but the more you ensure security of supply the more it costs so you need to take a balance. The Government have set a target. It is a bit technical but it is the value of lost load of three hours or something. The Government set what the security standard should be and National Grid has the tools to ensure that we meet that standard.

Q388 John Stevenson: Would you also agree that, if we are going to rely more on renewables, we are going to have to make sure that we have added potential supply available because there is a greater risk?

Kersti Berge: There is a range of ways in which you can manage a flexible system. We have work ongoing with DECC—and we have had for some time—on how you do that. One of these is demand side response. You can ensure supply by building more and more power stations. You can also manage it by companies and others signing commercial contracts. It is a bit like the motorway example where, at the times of peak demand when the wind is not blowing, firms can voluntarily say they will not use their refrigeration units as much at this time. That can be a very cost-effective way of managing an energy system that meets our renewable targets in a cost-effective way.

Q389 Chair: I think I am relieved to hear what you are saying about security of supply. Something that concerns me—and I am looking at some of the figures here—is the closure of Longannet, which produced 20% of our baseload, and then we are looking at the closure of Hunterston by 2023, which takes us up to about a quarter of what was the baseload in 2013. Listening to your response to earlier questions, it seems that the grid does not seem to be in a place yet where it is adaptable to all this coming on line. Are you absolutely confident, given we have lost all this baseload, that this could be met by the new builds that are coming on tap?

Phil Sheppard: Yes. Last year we did some collaborative work with SSE and ScottishPower for the Scottish Energy Advisory Board. We published that report showing how security of supply is evolving in Scotland. We are undertaking more work at the moment and we are reporting back to the Scottish Energy Advisory Board in September. That looks at quite extreme scenarios beyond what we normally expect in the security standards. It has looked at the closure of Longannet and Hunterston, the unavailability of Peterhead, a large water unit not being available in Scotland, combined with low wind, and: does the integrated system as a whole stand up and make sure that we can ensure supplies to Scottish consumers? We can, and that is the piece of work where we go into a lot more detail in September when we publish that report.

Chair: Perhaps we will move on from all of that and we will go to our good friend, transmission charging, which I know Kirsty Blackman is particularly thrilled to be asking a couple of questions about.

Q390 Kirsty Blackman: Yes, delighted. Transmission charging is incredibly complicated; it is something that is pretty difficult to get your head around. Can we start with you telling us what transmission charging is and what the theory is behind how it works?

Kersti Berge: Shall I have a go? First of all, I agree with your statement because it is quite complicated but I will try to explain it at a very high level.

The purpose of transmission charging is to recover the costs that transmission companies incur through investments in the network and through maintaining their assets. The principle of transmission charging—which to some extent is governed by EU law as well as British law—is that it should be cost-reflective; basically, that the parties incurring these costs should pay for them to a large extent. What I learnt when I was head of transmission charging is that nobody likes paying transmission charges and everybody complains.

At a very high level, the way in which transmission charges are cost-reflective is it reflects the location. If you are a generator in a quite remote location, and you come on and drive more transmission build, it is going to cost more than if you happen to locate right next to a large centre of demand such as Glasgow. That is one part of the cost-reflective transmission charging. The other thing we did through our Project TransmiT was to say that—before it was really just locational—different types of plant drive different transmission costs. With our review of transmission charging, we said that we are getting a lot of renewables in the system. Is it fair that everybody should pay independent of what kind of generator they are? We felt the answer to that was “No” because, whereas with conventional thermal plant when you have peak demand you rely on them to be able to come on and run at full capacity, you cannot do that with intermittent generators. They are not quite there on tap. They provide a lot of energy overall in the year, so when you get a renewable generator connecting, you don’t want to necessarily build a transmission system that can accommodate that at 100%. It does not drive as much transmission investment as a thermal plant, for example.

That was where we ended up on our review of transmission charging. This was challenged in the High Court by one of the companies. It is really difficult; as I said, nobody likes paying the charges.

Q391 Chair: Who was that challenged by?

Kersti Berge: It was challenged by RWE. I think I am allowed to say that. That was upheld, the fact that, yes, what you are saying is right. It is cost-reflective and the different types of plant drive investment in different ways. That is a very high level summary of the very complicated world of transmission charging.

Chair: That wasn’t bad actually.

Q392 Kirsty Blackman: The locational differences in the charges and how it is about your closeness to a centre for demand, does not necessarily take into account your ability to access the infrastructure. For example, if there is a more remote location that is further away from the centre of demand that already has the wires in place, or whatever it is you need, is that taken into account in the way that transmission charges are structured or is it just your geographical distance from a centre of demand?

Kersti Berge: It is a good question. At a bit more level of detail, the country is divided into about 22 or 27 transmission charging zones and the charges for these zones change yearly. The charges are paid jointly by generators and demand. In fact, the generators pay a third of the charges and the demand side pay about two-thirds of the charges. If a generator closes Longannet, for example, that means there is less generation and more demand, so the generators' charges go down in that region and demand goes up. If a generator closes and there is a link in place—this is my attempt at answering your question—that makes it easier for somebody else to come in because the charges in that zone will drop. That makes it relatively easier for somebody to come in. If a wind farm wanted to invest in Longannet's location that makes it more affordable for the new investment to come on there. That is kind of how it works.

Kirsty Blackman: That is really useful. The infrastructure is taken into account because of the way the charge—

Kersti Berge: Yes, because it changes annually.

Q393 Kirsty Blackman: You have talked a bit about the changes that have been made to transmission charging. Is that all of the changes that have been made or are there more that you have not mentioned?

Kersti Berge: There is a little bit more detail to it. For example, charges are determined by how different plants share the network. If you have only wind farms in a region, basically they don't share very well. Whereas if you have a region where it is 50:50 thermal generators and wind farms, they share very well, so that is a bit more efficient. There are some nuances to that, but the main big change was this fact that it reflects the different ways in which different types of generators use the network.

Q394 Kirsty Blackman: In terms of the changes, do you think that the new system is better than the old system was?

Kersti Berge: Yes.

Q395 Kirsty Blackman: Good. This is a fairly complicated question so I am going to read it out. Transmission charges can go up or down when new plants open or old ones close. Does this mean that if a new large-scale power plant was opened in one of the Scottish regions, the transmission charges for renewable generators already based in the location would go up?

Kersti Berge: Yes.

Q396 Kirsty Blackman: Is that fair and reasonable?

Kersti Berge: It is, because it is important that we have efficient investment signals. That signals this is an expensive place to have generation, so if you need more generation you will have to build out the network more.

Q397 Margaret Ferrier: Going back to Orkney, funnily enough, when we were in Orkney we heard that there is a perverse situation where there is peak production and they are

generating lots of electricity locally but it is not made available to local residents and businesses. Is that because of regulating the electricity system for the whole of the UK means that there are illogical situations at a lower level?

Kersti Berge: I don't think it is a result of UK regulation meaning there is an illogical system at a lower level. When I was head of electricity transmission networks, my first trip was to Orkney. I met with Shona Croy and a number of the councillors and visited the EMEC centre there as well. There are two issues. One is that transmission links and subsea links are very expensive, so you need to have a critical mass of plant coming on to justify that. As Andy talked about, they are reviewing and looking at the Orkney case. The amount of marine coming on has gone down and its location has shifted from the north-east to the south, so you need to have a good sense—not perfect but good sense—of what is coming on before you make these large investments. That is part of the story.

Another part of the story is, I think, quite a lot of this wind generation is smaller-scale location generation that wants to connect to the distribution network. That is an area we are working hard on, together with the companies, to try to get the distribution network operators to become a bit more like system operators—and we are seeing some very good signs here—so that they come up with clever, innovative solutions that allow more generators to connect without building lots more expensive network. When you get to the point where the right thing to do is to build another link to the mainland that is what we need to do, but in the meantime it is also important that what happens in parallel with that on Orkney is a more flexible connection system. There is a scheme looking at a battery storage park to be able to store more of the energy. That is all important up until we get enough certainty that what is needed is a link to the mainland and that goes ahead.

Q398 Chair: To conclude, first of all, an observation. I know you have made a very good attempt, Ms Berge, to try to describe the transmission regime as it currently stands, and a very valiant attempt to describe what has happened since April 2016. Can I suggest that it still seems to be absolutely bewildering and byzantine and it is very difficult to try to understand? If you are a small operator, it must be very complicated to know what is required in order to get on to the grid and what the transmission costs are going to be. Also the fact that it still seems at its heart and its core that the underlying principle is distance to market, so Scotland is always going to be disadvantaged when it comes to these issues. Surely there must be a better way of doing this, something that rewards innovation and creativity and being close to the resource instead of having at its core all the time that you have to pay more because of how far away you are. Anybody?

Kersti Berge: Talking about transmission charges, part of that is back to: if there is resource that we feel it is right to invest in that is very much an issue for Government. I would love to be a head of regional development. I am an economist and I see the value in regional development policy but, as a regulator, I don't think it is right for me to do that. Should I be the person who decides that Orkney is the right place? Should that be done through transmission charges rather than the Government saying, "We need to support the development of marine renewable energy"? That is the right policy tool to do that. Can I come back to the disadvantage to Scotland point? There are two points there. It is not a Scotland versus England point.

Chair: I don't think anybody has said that. I think we are just recognising the fact that we seem to be further away from population centres.

Kersti Berge: It isn't, but there is an important cost-efficiency point here. Cost-efficiency is important, and I will try to explain why. One of the things we did under our Project TransmiT was to say, "What would happen if we socialised or took a postage stamp approach to transmission charges?" The analysis we did showed that that would add about £7 billion—

Chair: We have seen these figures, yes.

Kersti Berge: You have seen them? So £7 billion to consumers' bills up to 2020. If that is a tool that people want to use and they think it is worth £7 billion, then that is a question for Government.

Q399 Chair: We have this issue in Scotland of the distance from market. We have also seen the announcement from the UK Government on the closure of the Renewables Obligation for onshore wind at probably a disproportionate cost to Scottish plant. I think even the UK Government accept that, given we have—I think it is—70% of all the onshore wind installations. Given that and the difficulties we have with transmission charges and the disproportionate impact of the UK Government's announcements on the Renewables Obligation, do you not have the sense that Scotland is being a bit disadvantaged by the way this is all being operated?

Kersti Berge: I think that is a question for Government rather than for the regulator. I go back to what I said right at the start, which is that the Government are responsible for security of supply policy, deciding what the renewables targets are and what type of generation and, to some extent, where they want that generation to be. That is very much for Government. The support mechanisms through the energy market requirement are the key tools to do that. Having done that, the rules on transmission build, they say, "This is the generation Government want and this is where they want to do that. What is the most efficient way to bring that on?". It is a cost-reflective system of transmission charges. If you want to support renewables in more remote locations, that would need additional support.

Chair: We are speaking to the Scottish Minister next and we are speaking to the UK Minister next week, and these are the very questions that we will be putting to them. I know Chris Law has a quick supplementary question.

Q400 Chris Law: It is quick one, because you just touched on it at the end, Kersti. It is about battery storage. This quite excites me because it could be one of the key steps towards localising storing energy that is currently getting wasted in some areas, particularly in the islands. There is a £50 million investment being put forward to the Government. Is that a pittance and do we need some real action, both politically and economically, in terms of investment in order to get on with the job?

Kersti Berge: Again, that is a question for Government. What I can say is that I am also very excited about storage. We are working together with the Government and the Scottish Government to make sure that the regulatory regimes, things like charging and the connection regime, facilitate storage or put it on a level playing field so that it can play the right role in the transition to a more renewable system.

Phil Sheppard: There are some regulatory policy issues that are being addressed for storage but it is not just through that fund that storage is coming to market. We are running a tender in July for a fast frequency response service. We went out to market for expressions of interest for 200 megawatts of a really fast service. We had 1.3 gigawatts of interest; 880 megawatts of that is from battery storage. In July we will be running a tender process. There are three large categories of services that batteries can provide or storage can provide. One is network services who have the constraints, as you touched on. There is also time balancing, so you move it between different time periods. There is also a whole set of what we call ancillary services that provide services to the system operator. At the moment they are very cost-effective, or they should be cost-effective. That is one of the ways storage will come to market very quickly.

Chair: Thank you all ever so much. Unless there are any further questions from colleagues, we are very grateful for your time and your patience in trying to explain the transmission regime to us. I think Ms Berge's valiant efforts and attempts were noted by the Committee, so thank you for that. If there is anything we have missed, anything further you want to contribute, please give us further written evidence. Thank you.

Examination of Witnesses

Witnesses: **Paul Wheelhouse MSP**, Minister for Business, Innovation and Energy, Scottish Government, and **Chris Stark**, Director of Energy and Climate Change, Scottish Government, gave evidence.

Paul Wheelhouse: I would be grateful if I could make a short opening statement.

Q401 Chair: Please do.

Paul Wheelhouse: Thank you, Chair, for the invitation to address the Committee. I am delighted to welcome the Committee to Edinburgh and I look forward to discussing with you the renewable energy sector in Scotland. Following last month's election in the Scottish Parliament, at which the SNP was returned to Government, I was appointed as the new Minister for Business, Innovation and Energy. I would like to pay tribute to my predecessor, Fergus Ewing, MSP. He was re-elected, I am grateful to say, and he has left big shoes for me to fill. Renewable energy is a key part of my ministerial brief. This growing sector of the Scottish economy is at the centre of our ambitions on both climate change and inclusive growth.

Alongside me today is Chris Stark. Chris is the Scottish Government's Director of Energy and Climate Change. I am a matter of a few weeks into my new role and, while Chris and others have done a great job of trying to brief me for today's event and other duties as a new Minister, I may from time to time, where necessary, call upon Chris to add detail or further clarification, particularly where they relate to events that happened prior to my move into this portfolio. We are keen to provide as good a level of support to the work of the Committee today as we can to help you with your deliberations.

Many powers in relation to the renewable energy sector are, of course, reserved to the UK Parliament, although much of the supply and pipeline projects are located in Scotland and

we pride ourselves on trying to provide a supportive environment for investment. However, the Scottish Government are committed to working with the UK Government and Ofgem to deliver the strongest partnership possible to secure a thriving and equitable energy sector in Scotland. I want the UK Government to view us that way and to seek to collaborate with us better, perhaps, in order to achieve our transition towards a decarbonised economy. It is something that is in Scotland's interests, surely, it is in the UK's interests, and I would say it is in the global community's interests as well.

As I am sure the Committee appreciates, Scotland has a lot to offer the renewables industry. Our natural resources and industry expertise are excellent across a range of technologies and we are able to sustain projects with comparatively very favourable efficiency levels. We have an outstanding record of ambition and delivery. We now generate the equivalent of more than half of Scotland's annual electricity demand from renewable sources, estimated to be—and these are provisional figures—57.7% in 2015. That is considerably above the 50% intermediate target we set for ourselves for 2015. An indigenous supply chain exists in Scotland with growing links between renewables and the oil and gas sector, particularly in marine renewables.

We have led the way in maximising opportunities for community engagement. The community benefits from renewables. For that very reason, public acceptance of renewable projects remains comparatively high. I am not saying there is universal support, clearly, but it is comparatively high, with a number of communities seeing a transformation in their prospects as a result of investment in their areas. Scotland's renewable energy success has been built on a high level of ambition and leadership—something recognised by senior figures in the industry—together with what had been up until now a stable UK-wide financial support mechanism.

However, Scotland's ability to achieve its renewable energy targets is now being put at risk by the decision of the UK Government to cut support for renewable projects. Industry respondents have highlighted that these uncertainties are leading to reduced investor confidence, cancellation or postponement of projects and, inevitably, to job losses. The Scottish Government have criticised some of the U-turns in UK energy policy by lobbying the UK Government and outlining that, above all else, the industry needs clarity of vision and stability of approach rather than recent examples of sudden policy changes—for example, the cancellation of the carbon catchment and storage competition without any warning, with its consequences for Peterhead, as we all know.

The rhetoric of the UK Government on low carbon generation seeks to emphasise neutrality between technologies, and that is something we would be comfortable with—competition for support, investor certainty and choosing lowest cost routes to renewables or climate goals. However, and I genuinely regret to say this, the reality often falls short of these principles. Some technologies, such as new nuclear, are favoured with special treatment, long support contracts and loan guarantees, which are denied to other key technologies that I believe are essential to deliver energy resilience, such as pumped hydro. I was interested in the discussion about storage and I would like to come on to that.

The Scottish Government recognise the need to achieve renewables targets at lowest costs and to protect consumers, and acknowledge and share the UK Government's aspiration to this end, but changes need to be planned in a gradual way that provides a long-term vision for the renewables industry and certainty and confidence to developers and investors. Ideally, when it can, Government needs to try to give early signals of any future changes and to honour commitments that have been given. Even in areas where we have worked

closely together over many years to pursue a common agenda, for instance grid connections to the Scottish islands and support for renewables development, we have cause to pause and consider the strength or otherwise of the UK Government's commitment.

Much of the UK renewables industry and project pipeline is located in Scotland and that will be no surprise to the Committee. As such, the Scottish Government believe there is common ground to be built upon and Scotland is the best place to deploy many cost-effective technologies. By working in partnership with the UK Government, we believe this can be achieved and are keen to strive for the best partnership where we can do so. But it does take two to tango and I believe that is a burden that falls on me. Our partnership must be based on respect, understanding and shared long-term aspirations. Future inter-governmental relationships will be more productive if we move beyond perfunctory consultation towards perhaps earlier and more meaningful dialogue. The UK and Scotland are co-dependent in the energy sphere in tackling climate change and boosting energy security, so a basis for co-operation exists and, for our part, we want to work collaboratively in the interests of energy consumers.

Through our manifesto commitments and the development of our new energy strategy, the Scottish Government have committed to ensuring Scotland has the best suite of policies in place to develop Scotland's significant energy resources and expertise as we address the need to decarbonise our energy system. The Scottish Government have a well established approach to energy—and again I want to pay tribute to Fergus Ewing on that—prioritising the long-term development of clean energy sources as part of our varied energy mix. We very much welcome the opportunity to work constructively with the UK Government to get the best cost-effective outcome for the industry and, importantly, for consumers. I am keen to engage early with my UK counterpart to discuss how we can best do that and I hope that, when we present a case for change in their approach, the UK Government will listen and ideally act in a positive way in response. I would be happy to take any questions from the Committee.

Q402 Chair: Thank you ever so much, Minister. Before we proceed, you did refer to Mr Stark and we have to introduce him as a witness. There is a little bit of a difference between the Scottish Parliament Committees and Westminster ones. For the record, Mr Stark will be alongside the Minister this afternoon.

Minister, I think you touched on it in your opening statement but maybe you can talk a bit more about it in helping the Committee with this. There does seem to be a curious mix between devolved and reserved responsibilities, where the UK Government are responsible for support for renewable electricity generation across the UK, and you have responsibility for climate targets and for carbon emissions control and regulation. Could you talk a little bit about how that works and what sort of relationship you have with the UK Government? I know you are new to the post so you probably know not very much, but what is your expectation about how the devolved and the reserved parts work together to ensure customers are best served in Scotland?

Paul Wheelhouse: We recognise that not all powers are devolved to Scotland but we clearly have an important role to play in supporting the development of the supply chain in Scotland and in setting a sense of vision. In a previous ministerial role I represented Scotland at an international climate change conference that was particularly complimentary about the sense of long-term vision that Scotland had given for our renewables target, a 100% target for 2020, our long-term target that I referred to earlier. We can set a positive

kind of environment for business to develop in Scotland and try to create a supportive infrastructure for new technologies as they emerge. We have done many things in the past to try to promote marine renewables. We are very proud of what has been done in Orkney, EMEC, and we believe we have ground-breaking research and development in Scotland that should be seen as a high priority for the UK Government to capitalise on, to be commercialised in the UK, ideally in Scotland of course, from our perspective.

We can get support from our enterprise network, Government policy support, and our planning system when it comes to consenting of large-scale renewable projects and supporting infrastructure in terms of good connections. We have a role to play in that respect, but we want to have a strategic relationship as well. The wider shortage in energy supply in Scotland, and indeed the UK, is very much in our interests, and we believe we have a strong role to play in supplying electricity to the whole of the UK and potentially beyond. We have the good fortune to have a tremendous range of natural resources in Scotland that lends itself to having efficient marine projects and relatively efficient hydro projects. In the discussion earlier with the previous witnesses on areas like storage, Mr Law referred to wind-connected batteries, and there is some excellent work being done in Orkney and the north of Scotland to look at that particular technology, but let's also have a conversation about the role of pumped hydro storage in providing a resilience in the UK electricity network in being able to support periods of peak demand. It can be turned on relatively quickly to deliver electricity when it is needed.

I would like to have a long-term discussion about these kinds of investments. Nuclear seems to be a favoured technology of the UK Government at the moment, and it does require upfront investment and quite a bit of patience in terms of coming in. We need to have strategic discussions about how we may support the UK Government in its aspirations to deliver a secure energy supply and fair prices for consumers but, at the same time, to support jobs and investment in Scotland and allow us to maximise the return from wind energy projects.

Q403 Chair: I am grateful for that. By way of an opening question to do with the powers, the Smith commission recommended a greater role for the Scottish Government in the formulation of energy policy. Have you observed any substantive changes, thus far, given the commitments about the Smith commission? What would you expect to see in making progress for the Smith commitments to be delivered and the way that the Scottish Government might acquire and secure new powers?

Paul Wheelhouse: I can only speak from the limited period of time I have been in this post and I may ask Mr Stark to speak on what has gone before. My understanding is that things have not moved on a great deal. It may well be driven by requirements of other Departments in the UK Government to have a quick turnaround time; I am not necessarily suggesting it is entirely within DECC's gift. But we would like to have an earlier consultation, a strategic kind of role, a partnership role in consultation about key policy changes that may take place at a UK level. From what I can understand, that has been quite a difficult relationship in recent times. Hence today I am trying to put out a message that I want to collaborate where we can do so. There may be points of difference in policy, and we can have mature discussions about those. The earlier we have that engagement the better will be the outcome for the UK Government and ourselves and, importantly, for the industry, so that we don't have any danger of a dog's breakfast of regulatory changes that may cause problems for people, who are having to invest over a very long period of time,

finding that what they assumed was going to be happening has gone and putting that investment at risk.

Q404 Mr David Anderson: Good afternoon, Paul. Under the present devolution settlement, the UK Government are responsible for the funding of renewables across the whole of Great Britain. Would you prefer responsibility to be devolved to the Scottish Parliament?

Paul Wheelhouse: In some respects, we feel we have gone a bit backwards. We used to have more of an input. In the previous regime we had the ability to vary intervention needs to allow for investment in priority sectors in Scotland. We valued being able to have that role. By extension, obviously, the more influence we have over how we can support key technologies and ones we believe have a bright future for Scotland—they are early stage technologies, admittedly—such as wave, tidal power, the better. We believe those technologies have similar potential to what we have ultimately seen exploited in onshore wind technology, which unfortunately was lost largely to the UK economy because of a failure to back those technologies at an early stage. We want to avoid a similar situation arising potentially with some very important technology that could generate jobs all across the UK, but certainly we believe there is great potential to explore those technologies and exploit them in Scotland. It would give us more freedom to be able to support where we believe there are technologies that either are new stage, early stage technologies that are high cost, which we believe deserve that support at a vital point in their development, or where perhaps there are differences in efficiency ratings for different technologies between sites across the UK and perhaps require a little bit more incentive to develop in Scotland, but we believe they have an important part in a balanced energy mix.

I would never turn down the opportunity to have the arrangements but, even if that were not possible, to have more say and more influence on how the financial regimes are developed, and perhaps to have a more genuine partnership in the discussion about the importance of taking a view as to the needs of the whole of these islands and not just a particular part of them.

Q405 Mr David Anderson: In purely financial terms, I can understand the logic since it would appear that per head Scotland gets more investment from the UK Government in renewables. My clear understanding is that you have the assets or you have the way, and obviously you are far ahead of the rest of Great Britain in terms of hydro, but if there was the devolution of resources do you believe that if it was done on a per head basis that the Scottish Government could carry out its responsibilities fully or would you still be looking at—I am not using this in bad way—a disproportionate amount of money because it is like saying, and my background is in coal, it would be pointless sending money to the Isle of White to invest in coal?

Chris Stark: Taking coals to Newcastle.

Mr David Anderson: Absolutely. We do not want that now. How are you seeing the mix at the moment? If there was a suggestion that, yes, the Scottish Government should get control over the funding to incentivise renewables, would you need to make the case that it could not just be done because you've got 8% of the population, therefore you can only have 8% of the budget, so effectively it would be setting you up to fail?

Paul Wheelhouse: It is a very important question and, in terms of the economics of it, I have not looked at the detail of that particular scenario but clearly we have an energy market that we are contributing to. I suppose I recognise what the UK Government and the regulators are trying to do is deliver an electricity market that is delivering fair prices and it is competitively priced. I don't decry that but we also have—and I think you hit upon it—at a UK strategic level there is a need to recognise that, where the resources are based, is where the support should go. I picked up on the point about good connections earlier.

It is a similar argument that, even if you ignore that, we have a particular perspective in Scotland, even if you look at a UK perspective there is a strategic interest in ensuring the lights don't go off and that we have sufficient resilience in our electricity supply to be able to meet peak demand. We have a few televisions and kettles going on during the European Championship, certainly there will be fewer in Scotland but we will be at the pub enjoying ourselves I think. We know the serious point there will be: this particular year and beyond will be quite challenging from the point of the grid to be able to meet demand. Hence we believe that, if we are operating a single energy market across these islands or certainly the UK, then the support should go where it is needed to provide that power supply.

I don't know whether Mr Stark is aware of any analysis that predates my arrival in post that looks at that particular issue. I have not yet had a chance to look at that myself, but I think we will come back to the Committee with a considered view on that.

Chair: That would be helpful.

Paul Wheelhouse: That would be helpful. But I think the principle is it is in the UK Government's interest, and in the network's interest, to support technologies where they produce the most efficiently for that technology. When it comes to wind and tidal power, the chances are the majority of that opportunity may be in locations like Scotland and there are obviously sites in England and Wales, and no doubt in Northern Ireland, which could do the same but we certainly have a wealth of natural resources to exploit in that respect and we think that should be the priority.

Q406 Margaret Ferrier: I am going to jump in with one of my questions at the moment because the Minister has mentioned it a couple of times now. The Committee were lucky enough to visit Orkney. During that visit we went to the European Marine Energy Centre, which is obviously the test centre for wave and tidal technologies established umpteen years ago, so it sounds like the Scottish Government are quite keen to develop that type of renewable energy. Can you tell us what kind of support you are offering and how far down the road we are with that? Obviously there is a period of time for each renewable technology and we need new things to go alongside onshore and offshore wind, so how far are we down the road and what kind of support are you offering these people?

Paul Wheelhouse: Clearly, I recognise the important centre and in fact the Scottish Government put this in the different portfolio. I had the opportunity to visit Chile to support the aquaculture sector and even in Chile they knew about EMEC. It was recognised as an international centre of excellence in clean energy, and Chile is potentially one of the biggest markets in the world for wave power and so that is not an irrelevant point. They were very much aware of the expertise we have in Scotland and were looking for EMEC to be involved in the consortia that were bidding to provide energy projects in Chile. So we have a tremendous asset in that research facility in Orkney.

Obviously the issue of grid connections between islands, in terms of exploiting technology in the Orkney Islands in future, is an issue that you discussed earlier on with previous witnesses. We are doing what we can through support for research and development in green technologies, both wave and tidal power and also, as was discussed earlier by Mr Law, the grid connected batteries as well. It is obviously an opportunity both to deal with the lack of grid capacity but also has potential use elsewhere within the UK to store energy from intermittent energy sources.

So we have an opportunity there to exploit what is a tremendous research team of international renown, and I suppose the concern is that the uncertainty about the future under Contracts for Difference for marine technology is probably the key thing that could potentially damage the long-term prospects for that sector. We have obviously helped establish it, like yourselves. We have Wave Energy Scotland, which is an organisation we are providing support to. In the past, we also used the ROCs regime, which Mr Anderson was referring to earlier on, with the financial mechanisms. We used that to provide some incentivisation of marine technologies in Scotland and financial support through REIF as well, the Renewable Energy Investment Fund, especially for tidal stream as well.

We have a range of mechanisms but, ultimately, as was alluded to earlier on, some of the key levers in terms of supporting the commercialisation of that research, important research in EMEC, lies with the UK Government in terms of the financial interventions to support particular technologies. There is currently a great deal of uncertainty unfortunately about what level of funding there will be under Contracts for Difference for those technologies.

Q407 Margaret Ferrier: Thank you very much. Just a final point on that and I will come back to the grid later on, but supporting innovation is an area that the UK Government seem quite keen to promote. You said earlier that, again, you were happy to engage positively between the Scottish Government with the UK Government. Is this an area that you feel that would be a positive area for you to engage on?

Paul Wheelhouse: Absolutely. Innovation is the middle part of my title and I have responsibility with the current Secretary for looking after innovation policy in Scotland. Clearly with any sector innovation is vital, but when we have a world class opportunity here in our grasp to explore and develop fantastic and potentially globally significant technologies, and we have the research and assets in this country, it would be criminal—more than criminal—to let that fall through our fingers, so we will do everything we can as a Government to support it. We will work with UK Ministers to try to get support from them, I hope. I have to believe that UK Ministers will recognise the potential significance of this technology, not just for Scotland but for other coastal regions of the UK, and to support our energy security as a country, and that they will also see the opportunity not just in terms of supplying electricity, but also the supply generation opportunities—the economic opportunity for UK plc to support high value-added jobs, with workers contributing through the income tax system, corporation tax, you name it. These industries, if they are supported, can be the kind of Siemens of wind power in the future. They can be the equivalent of that. We can see a massive growth in employment in these areas, and so I think there is a prize for both Governments and we will certainly work with the UK Government if we can. We will use all the powers we have in Scotland, which are more considerable in relation to innovation than they are in relation to energy policy itself, to support the development of these vital sectors.

We are developing innovation centres across a number of sectors of the economy as a way of stimulating investment in those sectors. Obviously, in the context of marine technology, EMEC is well renowned, as I say, so we already have a very good platform to build on that.

Chair: I want to move on to the impact of the increase in UK Government policy decisions, so we have Chris Law to ask a couple of questions.

Q408 Chris Law: What has been consistent each time throughout this inquiry is the negative and adverse impact on the renewables sector in Scotland with the recent UK policy change announcements, ranging from the withdrawal of the Renewables Obligation through to the £1 billion investment in carbon capture and storage technology at Peterhead. I want to ask you: what is your view of these changes and how adverse are they going to be?

Paul Wheelhouse: Obviously, I have great concern about the impacts of them. I think a few years ago there was great optimism within the offshore wind sector; albeit, it was a new technology. There was great excitement about the potential scale of development in Scotland. There still is a great prospect for investment, so I don't want to paint too gloomy a picture. However, with the recent uncertainties there have been around the policy change both in offshore wind and in terms of onshore wind, in terms of solar, in terms of other technologies, we are seeing a destabilising of the ability of businesses that have to make very long-term investments. It seems in relation to some technologies, like nuclear, there is preparation to give a 35-year commitment to a funding regime but for other technologies, that level of long-term commitment is not being provided.

There are some technical reasons for that in some cases because of the length of lifespan of the technology, and the appraisal needs to take account of the break points in which you need to renew the equipment, and I understand that, but it is about being able to give a longer term policy commitment about the level of funding going beyond 15 years and beyond the Levy Control Framework that, as I understand, has only been given certainty until 2020. How does a business that is meant to be investing over a 25-year or 35-year time horizon understand and seek funding support from those who are providing the capital and commit to a project when they don't know where their revenue stream is going after four years, and maybe two years or one year by the time they have developed the project? I think there needs to be recognition that these are very significant, very large ticket investments that are over a very long period of time. In a world that is facing shortages of global capital for reasons I understand, we need to make it as easy as possible for these very important technologies to have the certainty about what their financial environment is.

Hence, whether it is offshore wind, whether it is onshore wind, whether it is solar, whether it is tidal, we need a long-term commitment and long-term clarity. I do recognise the financial constraints that Governments have to work to; well, at least our own. Let us focus on the pounds, shillings and pence of the subsidy and look at the total value of what this investment will deliver for the economy in terms of tax receipts. I am sure the Treasury has access to models to do this—to look at the entire contribution it can make. Obviously, the question is what price do you put on electricity security and energy security more generally? The economic damage from having a shortage of electricity may well considerably outweigh the cost of supporting these vital technologies at this time.

Q409 Chris Law: Another thing that came through consistently in the inquiry is the Scotland Office, which represents Scotland at a UK level, seems to have been underwhelming in terms of championing Scotland's renewable interest. Would you agree with that position? The second thing I wanted to ask was: how much have the Scottish Government been able to negotiate these decisions being made by the UK Government and were they invited to the process of negotiations and the implementation of these changes?

Paul Wheelhouse: On the latter point, I will bring Mr Stark in about the nature of the discussion that has gone before. What I do understand—and perhaps Mr Stark can provide the detail—is that there has been a history, certainly in recent times, of quite sudden consultation at the last minute. Hence my appeal earlier on, a genuine appeal, to say we are not here to be destructive or to be disruptive of what the UK Government wants to achieve. We recognise there are going to be genuine policy differences and they are the Government at a UK level. We are not decrying that, but we believe we have a locus where we have an important role to play to try to secure the best outcome for Scotland. In doing so, I believe there will be a better outcome for the UK Government, but I am going to invite Mr Stark to comment on the engagement to date.

Chris Stark: It might be instructive to think about the institutional landscape for making decisions in Whitehall, so my colleagues in Whitehall. The budget here, which Mr Wheelhouse referred to earlier, is the Levy Control Framework, so all of the support provided to renewables energy comes from that single pot. It is a budget. It is a slightly odd budget, in the sense that it is a levy on bills but that is a Treasury decision so it is, at least for part of it, the annual budget process. Under that process, DECC are required to respond to the budget that they are handed, in effect, through the Levy Control Framework. That is a new development in the way that the Scottish Government, and indeed DECC, are required to make policy. Since the introduction of the Levy Control Framework, I think there has basically been even less consultation on some of those decisions.

We have moved from a position where, in times gone by under the RO, Renewables Obligation, Scottish Ministers had a right to set and review levels of support for certain technologies used, most famously I suppose for some of the rain technologies. Those powers no longer rest with Scottish Ministers and the Secretary of State for Energy makes the decisions now on the design of renewables incentives. The biggest constraint often on that design is the budget. I think that has meant that there has been less consultation. Mr Wheelhouse is right that in recent years there has been less consultation among the—

Q410 Chair: Could you go directly to Mr Law's question, which was about the recent announcements that we had on the withdrawal of the Renewables Obligation. A year earlier it was stated in the Government's manifesto, and the consultations happened with the Scottish Government. Were you brought in for conversations about this? Tell us a little bit about what happened.

Chris Stark: We were made aware. But I would say it was through the traditional write around process that we were made aware of some of those things, which is effectively where one Department of Government writes to another. It is fair to say that some of those changes we were aware might happen. Some of them were committed to in, for example, the Conservative Party's manifesto.

Q411 Chair: Was there any conversation about the withdrawal of the Renewables Obligation, a year earlier when the statement was given to the House of Commons by the Secretary of State, for example, or were you consulted on that?

Chris Stark: There was, but not greatly in advance. I think that is the simple way to answer that question—so later on.

Q412 Chris Law: This is quite an extraordinary admission that the Scotland Office is not representing large scale interests in Scotland, in particular to renewables and also in some of the policy statements. It is quite shocking. Isn't it time that Scotland had full powers over its own energy policy and development?

Paul Wheelhouse: Mr Law will not be surprised to hear me say yes. I think the frustration we have—and you are quite right to highlight that—is that this is an issue that is of concern to us. It certainly is. That is why I am trying to appeal to reboot that relationship and give us the chance to work together and demonstrate that. We will have differences but we can discuss them in a mature way. We can have a strategic relationship where they recognise the importance of what Scotland is contributing already to the renewable energy supply at a UK level and obviously the legal targets at European Union level, which the UK Government would be struggling to meet anyway—it would certainly be in severe difficulty if it was not for the contribution of Scotland.

There is a need for the UK to see that there is a strategic relationship where we can work together. Clearly, with something as significant as the CCS decision, which was referred to earlier—and Mr Stark can correct me on this—I understand obviously we had no notice of that. That was profoundly disappointing, in the sense that it also has an impact on the oil and gas sector. We are talking about an opportunity, not just in the central North Sea fields that have been mooted before but also the southern North Sea, which could obviously be potentially a benefit to developers elsewhere in the UK. If we don't have support for the industry you may then face challenges in terms of economically sustaining the infrastructure in the longer term. With a hiatus or gap in terms of certainty about what is actually happening, there is a risk that we lose momentum in that area. We certainly have conversations with the oil and gas sector but it is just an example of how one decision taken in isolation can have consequences for another sector.

Similarly, we have the same issues in renewables. We are trying to transition people from oil and gas at the moment, because of the challenges they face in that sector, to opportunities in renewables but at a time, unfortunately, because of the policy changes that have taken place in recent times, where we now have destabilised renewables companies that are having to shed workers rather than take them on as they had previously expected.

It is about trying to see a whole system here and trying to take intelligent decisions. I am not saying necessarily that I am privy to the full detail of the understanding behind the decisions of the UK Government, but to my mind there seem to be some missed opportunities here that if we work together we could do a better job on. Certainly, if we had the full range of powers ourselves that would not be a consideration. We could take those decisions based on the laws of engagement with our stakeholders about what is required to be done at a Scotland level, but in the current framework there are still, hopefully, opportunities where we can work better together—an unfortunate turn of phrase I admit—to try to get a better range of decisions that could be taken across all technologies.

Q413 Chair: Minister, with the response that has been given, I would be interested in your view about this. Given that we have something like 70% of the onshore wind resource, and given the obligation and responsibilities that the Scottish Government have, and that the Minister has to discharge them, to have had practically no consultation, and particularly no conversation about bringing forward a policy, albeit one that was committed to in the manifesto, is quite shocking and appalling. What I would like from you, if it is possible—we have the UK Minister in front of this Committee next week—and if Mr Stark could help us with this, would be any details of communications, conversations and consultation about this decision in advance of it being made, and we will put that to the Minister, because I think the majority of the Committee cannot understand why something as significant and important as this could be done with such poor consultation.

Paul Wheelhouse: I am relatively new in post but I am aware that there have been representations made by my predecessors and, indeed, by other Ministers across other proposals about the need for consultation with respect to our role in the decision-making process. I will certainly look at what can be provided in advance of your meeting next week. I want to say that we will provide that.

Chair: I would be very grateful for that.

Paul Wheelhouse: It is an important issue. I would hope that it would be an opportunity to stop and reflect on the part of the Ministers: can we do this better? There is certainly an appetite on my part to have a partnership relationship. We are not expecting that we will necessarily be in everything because we have a different focus in terms of the sectors we wish to promote in Scotland, and we feel the UK has a focus on nuclear that we do not share but there are areas of mutual interest and, on those areas, I would hope we could find common ground. I will hopefully be able to present information we get from our developers in Scotland about the impact of commercial risk and about their ability to secure financial closing deals because of the lack of certainty about where they stand.

I can give you a practical example that Kirsty Blackman and Margaret Ferrier referred to earlier on, in terms of the marine renewables sector. We have two outstanding opportunities in, with two projects that have European funding identified to support them in the region of £30 million. Also the valuables I believe is about—I will just double-check my figure and make sure I am correct—£460 million in total of investment in those two projects, a potential that will be lost if we don't have some certainty over the Contract for Difference for marine energy. I think that is a crying shame and even neglectful if that opportunity is not delivered. I think it would have benefits across the UK that will be undoubtedly part of the supply chain within the UK but outside of Scotland, and so this is not just a Scotland only issue; this is something that is of benefit to the whole of the UK economy and indeed beyond, and it will be a gilt edged opportunity missed if the necessary certainty is not given to these investments.

Chair: I want to move on because I know there is a quick supplementary from Margaret Ferrier.

Q414 Margaret Ferrier: Yes, very quick. You mentioned that there was £30 million funding coming from the EU.

Paul Wheelhouse: Yes. It is the European NER 300 fund. A grant has been identified for that project and I understand that €37.4 million could potentially be lost if this does not proceed.

Q415 Margaret Ferrier: Carrying on from that then, if we leave the EU will that funding be lost?

Paul Wheelhouse: I am not sure where we stand in relation to purdah at the moment. We had better play safe on that one, but I think it is clearly an issue that funding has been identified for a project that, if that project does not proceed, is potentially money lost to the UK. So no comment on the issue of the European Union in itself, but I believe it is obviously an opportunity that may be missed.

Chair: I do not think the purdah rules apply to you, Minister, and I think you would be at liberty if you wanted to, but can we move on anyway? Mr David Anderson wants to ask another question.

Q416 Mr David Anderson: The target that you produce for the energy mix in Scotland has 100% of gross electricity from renewable means. Given the current energy mix in Scotland and the fact that the Government is withdrawing any new support for offshore wind, do you still think you can reach that target?

Paul Wheelhouse: We remain hopeful but there is no doubt it is becoming far more challenging. We are ahead of schedule on the interim target so we are largely onshore wind, obviously hydro in the past and solar installation with domestic. I had the great pleasure of opening the largest solar farm in Scotland this weekend, in Errol in Perth. That was a 13 megawatt installation. So we have a range of technology being developed but there is no doubt, when particularly a lot of our emphasis had been on offshore wind as a key technology to help us meet that target, recognising it would probably be towards the end of the period but there was a great expectation that, certainly beyond 2020, it was going to be a key part of our efforts to decarbonise our electricity supply.

There is supposed to be a Scotland target of decarbonising our electricity generation or largely effectively de-carbonising things at 50 grams per kilowatt hour—I believe that is the measurement—by 2030. I think we have put a lot of store in developing technology, particularly offshore wind. Obviously there is hope that wave and tidal power will develop certainly later than that, but the impact of the decision the UK Government has taken means that we have just over 1.1 gigawatts of projects that are likely to happen even though there is a higher figure that Scotland has consented to, so we know there is great potential there. There are sites that have been consented to, notwithstanding the judicial review that is ongoing at the moment, which I cannot comment on. We have had the process of identifying sites but a relatively small proportion of that looks like it can be developed at this stage because of the Contracts for Difference and the Levy Control Framework.

Q417 Mr David Anderson: Thanks for that. If you do get—quite rightly, you are identifying problems—to 100% being produced, actually your consumption within the country will not be met through that because of the intermittency and so on, so you will still be reliant on traditional sources to cover the consumption gap. Given what we have heard about the early

demise of the coal industry and other issues, how can you be sure that you will be able to continue to produce 100% of what the country needs?

Paul Wheelhouse: Clearly, I recognise the issue of baseloads. Our target is expressed as a percentage of consumption of electricity in Scotland. There are obviously two ways to tackle that. You can grow supply and that is what we have been trying to do but we also need to take—and we will be taking an energy strategy that we are developing for the remainder of this year—a whole system approach, which will also be looking at how we consume electricity, so: how can we have greater energy efficiency, how can we reduce consumption? So we will be trying to push in both directions and obviously invest in those areas.

There are smart meters and other technologies to try to reduce the consumption of electricity, which will help too. We do recognise the need for baseloads. We have some nuclear capacity in Scotland, which had its life extended, in Torness in East Lothian, and that will take that baseload up to about 2030 so we will have some more baseload there. We still have the physical capacity at Peterhead gas power station in the north-east of Scotland. We would ideally like to see that being part of a CCS project, as I mentioned earlier on, but it still lies there as a potential resource to be used for a UK level to produce enough electricity. I think there is probably a looming challenge for Amber Rudd and her UK colleagues to recognise and to bring back into production some of the baseload that we have in Scotland and Peterhead to ensure that we do have sufficient coverage.

As I mentioned earlier on, I would also very much like to see a greater emphasis on technologies such as pumped hydro storage. We have a great opportunity at the Cruachan pumped hydro storage plant in the west of Scotland to provide the kind of storage that will allow us to store what is an intermittent energy resource—you are quite right. To store the electricity generated from that, it pumps water up and pumps it down when it is required to release electricity for the grid. That again is a technology that requires a lot of upfront investment and it needs certainty because it is a really long-term investment on the same basis as nuclear is in terms of the lifespan of the project.

We are still using dams that were built in the post-war era in Scotland and are highly reliant on them. I presume—although I have not discussed this with Welsh colleagues—that there will be a similar desire to see projects potentially in places like Wales to provide support to the UK grid to make sure that, when it is required, these resources can be used. So there is an appetite to have a discussion with UK Ministers about the potential of that technology too. By traditional baseload, potentially gas has been lower carbon than coal, although I recognise the impact on mining communities and the transition to a low carbon future is something we have to manage in those areas. Providing baseload through gas and also temporarily, in our case, nuclear until 2030 gives us some cover, but we need to look at how we store electricity as well.

Q418 Mr David Anderson: Can I just come in? Notwithstanding Peterhead, the general feeling in the UK and in Westminster discussions is that there is going to be another dash for gas, potentially in relatively small-scale stations. Do you think that is something you might have to look at in Scotland?

Paul Wheelhouse: It is not an area I have looked at closely. I don't know whether Mr Stark can comment on if there is any work that has been done prior to my taking office, but clearly we are open to suggestions in terms of types of stations that can support the network. I understand—and I will ask Mr Stark to comment more on it—our targets do permit additional capacity to be built for thermal sources for export, for example, to the rest of the UK. But I will ask Mr Stark to comment on that.

Chris Stark: Yes, there is a pretty clear policy position on this, which is something called the Electricity Generation Policy Statement, which was a product of the Scottish Government in the last parliamentary Administration in Scotland. As Mr Wheelhouse says, the renewables target is expressed as a proportion of how much is consumed. That does not preclude the idea that we will produce more electricity than we require now to be exported. In fact, we have consented to a gas plant at the old Cockenzie Power Station, which is a coal plant, so that is something that would be very much accommodated under the current set of policies.

Q419 Kirsty Blackman: I am going to ask about a few different things, but I will start off with CCS. In terms of the carbon capture and storage, obviously the rug has been pulled out from under your feet on that. The Scottish Government's target was having commercial CCS in Scotland by 2020, and it looks to me like that might not be achievable now because of what has happened. But what are the future plans in relation to CCS, particularly if we are talking about the UK Government and possibly the Scottish Government pursuing new gas? In terms of my understanding anyway, in terms of the carbon output from gas, it is not as good as it could be without having the CCS attached to that.

Paul Wheelhouse: I think the latter point is a fair point. Clearly, if we are trying to decarbonise, anything that could reduce the carbon intensity of gas-powered thermal provision would be a very welcome thing to do. Again, unfortunately, both predate my coming into post, but we have had a suggestion that there was going to be support from Longannet, a coal-powered opportunity. Obviously we have now lost Longannet as a thermal-powered plant in Scotland, which has had a huge contribution to the grid. But that was proposed as a potential solution; that had the rug pulled from under it.

We then had Peterhead, which was a better opportunity from a climate change point of view because it would be lower carbon in itself, then obviously CCS takes that down further, and then that appears to have had the rug pulled from under it. There is a kind of raising of hopes and then a pulling the rug from under those who have invested a lot of money in developing the proposals. Let's not forget that, and that is why it is also important to honour the kind of commitments you give. Because this is not Monopoly money—people are spending real money to progress a project. That is why we would appeal to the UK Government to try to give long-term commitments and stick to them, because that is absolutely essential for securing investment in this kind of area.

But I hope it is not completely dead. We still have a viable pathway there. We have the offshore infrastructure there and we know there are a number of fields in the North Sea, the central North Sea in particular, that would be suitable as reservoirs for CO₂. As recently as last Friday, when I was up in Aberdeen with the Cabinet Secretary, meeting with the oil industry for the first time in my new post, we did raise the issue of CCS with them. They are still very much interested in that, both the Oil and Gas Authority and Oil & Gas UK, clearly, but also the operators. I think there needs to be a discussion about what kind of financial models could maybe sustain that. It may be that the UK Government are willing

now to look elsewhere for the capital for that, but I still think it is a resource that is there; it could be vital.

We are fortunate in Scotland, fortunate at a UK level as well, that there are renewable resources that are available to us. Some other countries do not have the range of resources we have at our disposal to meet a low-carbon agenda. By having the by-product of the oil and gas industry, and the infrastructure that is there that could be used to sustain a viable CCS industry, then that is an opportunity that might be of benefit to other nation states in the European Union and elsewhere to store CO₂. I think it is still an opportunity. It has not gone yet. I think it has just had a body blow in terms of the decision that has been taken and we have to hope that, by a bit of gentle pressure—or not so gentle pressure—we can try to get a change of heart.

Q420 Kirsty Blackman: Thanks. On a different topic, in relation to locally and community-owned renewable generating capacity, there is a Scottish Government target of 500 megawatts to be generated, which has now been reached. Community Energy Scotland has said that the Scottish Government needs to set out what is next. They are particularly concerned that there should be a focus on community-based projects rather than ones that are a private investor coming from elsewhere. Can you tell me what the Scottish Government's plans are in relation to community and renewable generation?

Paul Wheelhouse: It is a very important area that you raise and, you are right, we have reached the 500 megawatt target we had five years earlier, which we are delighted about. We have aspirations to reach a much higher target if we can, set out in principle as 1 gigawatt by 2020, then to 2 gigawatts by 2030. But I think much of where there has been resistance to wind energy onshore—and I recognise that that has caused tensions in local communities—it has sometimes not just been about the visual impact. It has been about things being done to them by someone else and there is a perception that they do not have a stake in what is happening. Obviously if there is a community-owned project, a community-led project, there is an opportunity to influence the design, the layout, the siting, the size of the turbines and so on. Obviously the range that is available in the market will determine that, but there is much greater control of the nature of the project and how it will work at a local level. Clearly the benefits of that project and the financial gains from that project will then be either equitably shared or entirely gained by the community, depending on what road you go down.

That is not to want to deter investors of a different nature, because they quite often work very closely in partnership with communities too. There are various models that we are keen to support in terms of shared ownership, in terms of assigning turbines, other options that might be suitable to give a genuine stake in the project for the community, so they feel they have some ownership over it as well, literally and also in spirit. So I would like to go to Mr Stark and maybe he can just add any further detail to that.

Chris Stark: I might just say one or two things. One is that the Scottish Government has had quite an active policy on community energy and, in particular, community-owned projects. We have seen of late how that has moved from a position where at one end of the spectrum communities benefit from what we call community benefit payments, which are effectively a stream of cash flows from the developer, and we have a policy at the other end of the spectrum of genuine ownership. In recent years, we have seen 100%-owned community projects and of course there is a big economic return to the communities. There is a particular project in Western Isles that I am thinking of right now, where there is a

collection of crofter communities who now benefit to the tune of about £1 million a year. That money is used for philanthropic purposes. It rebuilds roads. It has improved energy diversity there.

Those sorts of projects though rest on some of the subsidies that have been available under ROCs, for example, so we have a question on how we support those projects in the future. One way through that is to encourage a greater degree of shared ownership, so that is where there is a commercial owner and the community would invest on commercial terms in that project, but where the commercial developer takes, I suppose, some of the additional financial risk.

Paul Wheelhouse: For the Committee's benefit, just to double-check, it is Storas Uibhist, which is a community landowner in South Uist in the Western Isles. I think it is three turbines that they have that are producing now £23 million economic gain for that community. I believe they are rebuilding the one at Lochboisdale Harbour with some of the proceeds of this. It is a significant economic gain. It is not just hanging baskets and that kind of thing. It is really an investment in the economic future of the islands, a very vulnerable community with fewer than 2,000 people in that area.

Chair: Before we go on—I know Ms Blackman has a question there—are we okay to have you for another 15 minutes or so?

Paul Wheelhouse: Yes, that is fine.

Chair: Fantastic, thank you.

Q421 Kirsty Blackman: Thank you very much. The UK Government has been criticised for not setting out a long-term strategy and you yourself made those comments just now. In terms of the Scottish Government's approach and the Scottish Government's ability to set out a long-term strategy, given the number of things in this area that are reserved and are controlled by the UK Government, how is Scotland managing that and are you setting out a long-term strategy for those things than we can control?

Paul Wheelhouse: Absolutely, I recognise that. Clearly, as we have discussed, some of the financial mechanisms are not things we have in our direct control, but what we can do is provide certainty about the planning environment, the importance of the partnership working that we have in the industry to form collaborative networks in the industry to try to build a supply chain, to try to seek procurement as much as we can from within Scotland for contracts that are taken forward, projects that are taken forward and we have had some real successes there. We obviously continue to try to provide and broadcast our own long-term commitment to the developments and that is why we have had long-term targets—which are now reasonably short-term targets as we approach them—but we were setting long-term policy and starting to think about that.

When we first considered it, it was back in 2012 when the 100% target was something that was very much being referred by an international audience. Indeed, Senor Galan said himself on a platform that it was an important driver for investment decisions by his company, which owns ScottishPower in Scotland. So we could do a range of things but, as I said, we are developing our own energy strategy this year. That sits in parallel with the Scottish Government's third report on proposed policies for climate change targets. You may be aware from our manifesto that we are committed to increasing the level of

ambition on climate change targets for 2020 to 50%. That will require primary legislation in the Scottish Parliament. We have cross-party support for that, but, sitting alongside that, one of the key drivers of how we will achieve those climate change targets is our energy strategy.

We have mentioned a few technology developments being talked about. I suppose because of the nature of the debate, it has been things such as biomass and other technology, so taking in the full range of technologies that are available, including existing more established thermal technologies, nuclear and so on, to set it out. I appreciate Mr Anderson's earlier question on how we plan to help keep the lights on in Scotland, but we recognise there are some things that are outwith our control and we need to obviously work with the UK Government on some of these, so we will try to set out what we can do as a Government in that document but we also need support from others, including UK Ministers.

Q422 John Stevenson: Paul, the Scottish Government today is responsible for planning decisions.

Paul Wheelhouse: It is.

John Stevenson: The British Government is obviously responsible for planning in England and Wales and, quite rightly, the divide is sort of major projects stick with the Government and more localised and smaller projects go to local government. This Committee has heard concerns, both written and oral evidence, about the fact that local residents, their views, their objections have not been taken into account appropriately. Indeed, there was also some evidence that local authorities are not making decisions that they might otherwise have had because of the fear of the expense if it goes to appeal. I would be interested in your views on that.

Paul Wheelhouse: Obviously, we are only able to talk about generalities here, so I am tied. I will not be able to talk about individual applications but I am certainly aware of the concerns that have been expressed. That is not to say necessarily I agree with the concerns, but I do recognise them and I understand why they have come about. We have a system whereby obviously for larger applications, section 36 ones, they go straight to the DPEA and are determined by an independent reporter, who advises the Minister on the decision and the Minister then takes the decision. But for smaller applications under that threshold, they go to the local authority for determination. Sometimes there is either a delay in the process that results in a non-determination and the developer then goes straight to appeals, to the DPEA, to try to take up the Minister to make a decision. There have been concerns around projects that maybe sit around the threshold, that maybe have gone just above the threshold, so they go to the DPEA rather than going to the local authority.

I think the more substantive point that you are referring to is around the perception of how the planning system works and whether it overturns locally determined decisions. I suppose what I would say, without referring to anything specific, is that where you have established planning policy and you have local development plans, local spatial frameworks that are being developed in each area for areas to determine which areas are more sensitive to such developments and which areas are more suitable for those developments, in theory, if an application comes forward and it is an area of search that has been identified, if it complies with planning policy—just like any other development, whether it is a housing development, a factory or another project—they will have a

reasonable expectation that if that is rejected by the local authority they would take that to appeal.

Q423 John Stevenson: I take that, but, as a matter of principle, do you think that local authorities should be determining the issues for their local area? I am talking about smaller projects here. I understand the issue about the bigger projects, and quite clearly they have to be dealt with at the national level but do you agree with the principle that local authorities should be deciding decisions on their local area?

Paul Wheelhouse: Hypothetically, it would certainly be the desire that local democracy will be important in taking local decisions, but if I could just finish the point, in a sense, we also have to recognise natural justice. If people feel that decision has been either incorrect or has not complied with planning policy, they would always have the right to have an appeal. I think we are talking about a quasi-judicial process and, if people feel there is either something wrong with the process or the policy around the decision, they would have their appeal but, in theory, if the decision is taken and complies with planning policy, the process is correct, then I have no problem with local decisions being made locally.

Q424 John Stevenson: Following on from that then, do you think local authorities should have a greater say in the decisions about onshore wind farms than they do have presently?

Paul Wheelhouse: I think we have an established planning policy and an established mechanism that gives appropriate controls. Local authorities—

Q425 John Stevenson: No, that is fine, I take your point. I am moving on now. In England they have changed the policy so that local authorities do in fact have a greater say than they did previously. Is that something you could see happening in Scotland or do you think you will maintain the present regime?

Paul Wheelhouse: Obviously, as you have mentioned, there is a review of planning policy that will be undertaken, so I do not want to prejudge that, but I am not aware of any plans to go down the same route at this moment in time, but clearly we have to listen to the evidence that is presented to colleagues in terms of looking at planning policy.

Q426 John Stevenson: That is fine. Just, therefore, as a representative of the south of Scotland—I am a representative of the north of England, and I am very familiar with your part of the country, as you will be with mine; they are in many respects very similar—do you think it will be desirable to see a policy change?

Paul Wheelhouse: I do not think it would be for me to determine another Minister's policy position in that respect. I am not the Planning Minister. I do not have a role in consenting projects over a threshold that takes it into section 36, so I would rather reserve my position on that. I do understand each of the concerns that local people have in the communities, and that is why we go to real lengths to try to improve the pre-application consultation with communities, try to get better engagement and try to improve the standard of visualisation evidence that is provided as well, which has been very variable and has come under some criticism in certain sites for its inaccuracy.

Q427 John Stevenson: Would you agree there is room for improvement?

Paul Wheelhouse: There is always room. We never want to rest on our laurels on the planning process and I think there is always room for improvement. But on a specific proposal, I do not want to take a position on that.

Q428 John Stevenson: I am conscious of time. I want to ask you one final question. Clearly the Scottish Government is quite a strong supporter of renewables and part of renewables is solar power. Do you think there should be a move towards making it compulsory, if you could change the planning system to achieve this, that all new builds should have solar panels on them? Because, quite clearly, that could lead to innovation and obviously a drop in price and create a market almost immediately and support the renewables industry. Is that something you could see as being desirable under the Scottish planning system?

Paul Wheelhouse: Again, I preface it by saying I am not the Minister responsible for these regulations but, in principle, I am happy to address the point. I do accept that we obviously are trying to drive improvement in energy efficiency in our new homes and it is something the Scottish Government does have within its powers—it is a devolved matter, energy efficiency. We have a good track record of investing in that area but, to tackle the specific point, we are always looking for means with which we can improve the standard of building regulations to help deliver our low-carbon targets. That is something I am pretty sure will be taken into consideration as we develop RPP3 in terms of whether that has a potential role in helping us achieve those targets. So I am happy to listen to evidence but, new in the post, I have not yet had representations from either the house builders or indeed those in the Solar Trade Association as to whether they think that is deliverable.

It may surprise some people outside of Scotland, but we do have a viable solar power industry in Scotland, because it is about solar radiation rather than heat, thankfully, and so we have a good opportunity to develop that technology here. It is probably an under-exploited resource in Scotland, where we have a relatively low take-up of solar power, which is another reason why the policy change that took place was potentially more harmful in Scotland because of the slightly—not hugely, but slightly—more marginal economics for solar fuel cells in Scotland. Therefore probably the removal of the subsidy may have had a more precipitate effect here.

John Stevenson: An opportunity for you to be ahead of the game.

Paul Wheelhouse: Well, you never know. We always like to be ahead of the game.

Q429 Chair: Minister, one of our most—how should we describe it?—energetic sessions in this inquiry was when we had representatives of some of the groups throughout Scotland who do oppose wind farms. I think the sense from them was that their views were being ignored or being belittled when they were being presented. They presented us with a variety of concerns on the impact of security of supply, the noise of wind turbines, and the impact on places in the area. Are you doing all you can to ensure that these people, who have very genuine concerns about wind farms and wind farm developments in their localities, are being properly listened to and addressed?

Paul Wheelhouse: I am not sure those who are in those kinds of groups would necessarily wholeheartedly agree with us, but we are genuinely trying to listen. I think there has been a

research programme with ClimateXChange, who were commissioned by the Scottish Government to undertake work to address some of the specific points that had been raised by my predecessor around the impacts on property prices, those kinds of issues. That was done by ClimateXChange, which is an independent academic body. They are considering the impacts, as I say, of new build developments and we can provide more detail of that research and what has been commissioned to demonstrate to the Committee how we have taken that forward. But we certainly have a willingness to research issues.

I suppose some of the concern maybe comes back to Mr Stevenson's point around the planning system itself and the perception that the process is not working in favour of communities. When you look at—and again, we can get some detail on this to provide to the Committee—the proportion of applications that go to appeal, that go up to DPEA that are rejected or accepted, and how that stacks up relative to other forms of planning applications going to appeal, from the evidence we have seen in the past, and admittedly it was over a year ago, the figures at a Scotland level were comparable, if not a slightly lower proportion, than were passed by the reporters than for other types of application. But at a local level it may vary and a lot will depend on the approach that is taken by the local authority, whether the local authority has been effectively using the Scottish planning policy appropriately or not.

Q430 John Stevenson: You would recognise, though, in certain cases local authorities are reluctant to necessarily reject an application because of the potential costs. That is, in the present financial environment, a consideration for many local authorities.

Paul Wheelhouse: Certainly. As I say, I am not the Planning Minister as such, but I am more than happy to listen to any representations from local authorities who have a specific issue to raise on that front and see if there is anything that can be done to fix it. I know the Government have tried to support local authorities with some resource to bulk up their planning teams, to give them the sufficient resource to deal with what can be often highly complex applications. Particularly where there is impact on nature issues and sites of special scientific interest, the Bird Directive, these issues do start to make it quite complex for local authorities to determine, so I recognise there are challenges in the system. It is not within our gift, I suppose, to determine how many applications come forward at any one time and there have sometimes been peaks and troughs, when a whole raft of smaller applications come forward to a local authority at the same time, and that can be very challenging. I do recognise that.

But on the specifics, I have not had any evidence presented to me of that nature that local authorities have said to me yet, but I am sure on the back of this appearance there may be some that come my way, so I will read them with interest. But we do believe in the kind of plan-led system that we have, transparency in terms of the planning policy, the spatial frameworks, the local development plans, the energy strategy over-arching Scottish planning policy and that that should be the means by which we give people certainty about whether they invest, how much money they have to spend—a lot of money is taken forward on the application, obviously—but also for communities, about what rules apply to them and how they can object and on what grounds they can have a legitimate objection to development, just as with any other objection. I hope that we can improve the trust in the system, by eschewing any bad practice, and that the visualisation evidence is dealt with so people can trust what they are seeing in front of them about the potential impact on the landscape.

Q431 Chair: I am grateful, Minister. It would be fair to say we have received a number of representations by individuals concerned about wind farm developments. You will see our report obviously where we comment on that when the report is produced, but I think there is a sense of the very real concern that people raise—

Paul Wheelhouse: I recognise that.

Chair: —that we should be doing this properly and I think that is something we recognise on this Committee. A couple of last questions from Margaret Ferrier.

Q432 Margaret Ferrier: Mr Wheelhouse touched on this area earlier and it is regarding interconnection issues for the Scottish islands. We had discussions with the last panel on the transmission grid and the difficulty in connecting with the islands. Some of the reasons given were low cost-effectiveness and the business case. The Scottish Government is part of the Scottish Islands Renewables Delivery Forum, as you will be aware, which was established to look at this particular issue. Your predecessor recently wrote to the Secretary of State for Energy, urging the Department to make progress in supporting grid connections to the Islands. Are you aware of having had a response to that letter? If you have not, what do you feel is holding back progress on this issue and how could it be resolved?

Paul Wheelhouse: I will just check with Chris Stark. I don't believe we have received a reply to that representation yet. I hope we will still get one and I hope it will be a positive one. Margaret Ferrier is absolutely right, this is a critical issue. I know Members that represent the Northern Isles are particularly concerned about this, as are local economic development agencies and others, about the importance of this and having the certainty and the commitment to the interconnectors to ensure that what could be a very great contribution to our electricity needs can be met from the community, and it does largely—not universally, but largely—support the development of the technology in their area.

Also to mention and to address it to Mr Anderson, I would say that we have an opportunity for the Government to support the development of technology in some communities that want this for economic development reasons. There isn't a universal picture across Scotland in terms of support or otherwise for renewables, and that is another reason why this is important. We have had a decision, I think, in terms of what we obviously want to have, a variable outcome, but I will ask Mr Stark if he is aware of any other information predating my appointment on that point.

Chris Stark: In fact, there have been a number of telephone calls between Mr Ewing and the Secretary of State where the issue was raised, but in each of those Amber Rudd refused to be drawn on her intentions for the Contract for Difference. Partly, if I could speculate, I think that is because of some uncertainty about two things: one is the status of the support that would be required and the second is this budgetary issue that I raised before.

Q433 Margaret Ferrier: Could I come in there and say that, obviously in the next round of questioning to the Secretary of State, I would be happy to come in and ask that question, as I am sure other Members from the islands would be. I believe that the Member from Orkney himself has raised this, but I am very happy to come in and do that as well.

Paul Wheelhouse: Can I say, we are not seeking to be confrontational on this, and it just is an important issue for ourselves? I hope the Government recognises it is important for them too. As I say, this would be a huge opportunity missed, both in terms of the rain energy sector and wind as well, if we cannot exploit the resource in the area that people are keen to see developed. If it is done sustainability within the environment, I think there is an opportunity missed if we do not get that decision.

Q434 Margaret Ferrier: I think you made the point earlier as well, not just an opportunity missed for Scotland but an opportunity missed for the rest of the United Kingdom.

Paul Wheelhouse: Absolutely. I cannot be specific, but I have no doubt there will be supply chain impacts across the whole of the UK and indeed beyond, and opportunities to develop new employment throughout the UK and beyond. If we are able to prove in a very challenging environment the worth of this technology, it could be applied elsewhere in less hostile environments and as to the merit of what you may be able to do. If something works in the Pentland Firth, which works and can stand the conditions there, it will work in much more amenable climates too.

Q435 Chris Law: One additional question. Is there a real danger that if the development is not supported, it is going to go elsewhere and get developed elsewhere and we are going to miss out entirely?

Paul Wheelhouse: I referred to this earlier, but I think—and I hope it is not an irrelevant example—of what happened in the 1970s, when the university research in the UK, particularly in Scotland, at Strathclyde in Glasgow, on the development of wind energy was at the forefront of the development of that sector, but the dash for gas and the change in policy that took place in the early 1980s effectively starved that industry and the research community of vital investment at a critical time. Credit to Germany and Denmark, because they picked the ball up, they ran with it and who are we buying turbines from today, apart from the very important plants at Machrihanish and elsewhere that we have in Scotland? We are buying, largely, technology that is imported. That is not to blame the Danes or the Germans—they commercialised research that we failed to develop. We dropped the ball, basically, and I have a real fear that unless there is a commitment—and a sincere commitment and honoured commitment—to our renewables energy sector, the same thing will happen here. It would be an absolutely huge own goal, ultimately, 20 or 30 years down the line to be seeing lots of turbines—wave and tidal turbines—around the coast of the UK purchased from overseas.

Chair: One last quick one, because we have detained the Minister well over time.

Q436 Margaret Ferrier: Just on that point, we have found that one of the onshore wind farms that we visited in Orkney bought the wind turbines from Germany.

Paul Wheelhouse: Yes. That is not to blame, as I say, the Germans or Danes—they do what they do, and they do it well—but there was an opportunity that the UK and Scotland had to develop the technology, well before the advent of the new Scottish Parliament, I would stress, but that opportunity was dropped. I think that was a mistake, with the benefit of hindsight.

Chair: I am grateful. If that is all from my colleagues—and I am looking around just to see—they are looking quite satisfied. Minister, thank you ever so much and sorry to detain you a little bit longer than was first indicated, but we are grateful for your attendance at this Committee. I think one request would be if we could see some of the correspondence around the consultation that went beforehand with the UK Government about the Renewables Obligation, I am sure this Committee would be grateful. If there is anything else of course that would maybe assist us in this inquiry, then we will always be open for further written evidence, but thank you very much for your attendance.

Paul Wheelhouse: My pleasure, and thank you for your interest in what is happening.

Chair: Thank you all for coming along and listening through this this afternoon. That is the end of this session on renewables.