

# Cofnod y Trafodion The Record of Proceedings

[Y Pwyllgor Amgylchedd a Chynaliadwyedd](#)

[The Environment and Sustainability Committee](#)

13/01/2016

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Cynulliad  
Cenedlaethol  
Cymru

National  
Assembly for  
Wales

## Cynnwys Contents

- 4 Cyflwyniadau, Ymddiheuriadau a Dirprwyon  
Introduction, Apologies and Substitutions
- 5 Ymchwiliad i ‘Dyfodol Ynni Craffach i Gymru?’—Storio  
Inquiry into ‘A Smarter Energy Future for Wales?’—Storage
- 27 Ymchwiliad i ‘Dyfodol ynni craffach i Gymru?’—Ofgem  
Inquiry into ‘A Smarter Energy Future for Wales?’—Ofgem
- 48 Ymchwiliad i ‘Dyfodol ynni craffach i Gymru?’—Tystiolaeth oddi wrth  
Weinidogion  
Inquiry into ‘A Smarter Energy Future for Wales?’—Ministerial Evidence  
Session

Cofnodir y trafodion yn yr iaith y llefarwyd hwy ynddi yn y pwyllgor. Yn  
ogystal, cynhwysir trawsgrifiad o’r cyfieithu ar y pryd.

The proceedings are recorded in the language in which they were spoken in  
the committee. In addition, a transcription of the simultaneous interpretation  
is included.

**Aelodau'r pwyllgor yn bresennol**  
**Committee members in attendance**

Mick Antoniw	Llafur Labour
Jeff Cuthbert	Llafur Labour
Russell George	Ceidwadwyr Cymreig Welsh Conservatives
Llyr Gruffydd	Plaid Cymru The Party of Wales
Janet Haworth	Ceidwadwyr Cymreig Welsh Conservatives
Alun Ffred Jones	Plaid Cymru (Cadeirydd y Pwyllgor) The Party of Wales (Committee Chair)
Julie Morgan	Llafur Labour
William Powell	Democratiaid Rhyddfrydol Cymru Welsh Liberal Democrats
Jenny Rathbone	Llafur Labour
Joyce Watson	Llafur Labour

**Eraill yn bresennol**  
**Others in attendance**

Chloe Bines	Eunomia
Paul Brodrick	Siemens
Dr Jill Caine	Electricity Storage Network
Prys Davies	Dirprwy Gyfarwyddwr, Yr Is-adran Ynni, Dŵr a Llifogydd Deputy Director, Energy, Water & Flood
Maxine Frerk	Ofgem
Edwina Hart AM	Gweinidog yr Economi, Gwyddoniaeth a Thrafnidiaeth Minister for Economy, Science and Transport
Lia Murphy	Ofgem

Yr Athro/Professor Ron Loveland James Price	Cynghorydd Egni dros Llywodraeth Cymru Energy Advisor to the Welsh Government Dirprwy Ysgrifennydd Parhaol, Economi, Sgiliau a Chyfoeth Naturiol Deputy Permanent Secretary, Economy, Skills & Natural Resources
Carl Sargeant AM	Y Gweinidog Cyfoeth Naturiol Minister for Natural Resources

### Swyddogion Cynulliad Cenedlaethol Cymru yn bresennol National Assembly for Wales officials in attendance

Alun Davidson	Clerc Clerk
Graham Winter	Y Gwasanaeth Ymchwil Research Service
Martha Da Gama Howells	Ail Clerc Second Clerk
Adam Vaughan	Dirprwy Clerc Deputy Clerk

*Dechreuodd y cyfarfod am 09:00.  
The meeting began at 09:00.*

### Cyflwyniadau, Ymddiheuriadau a Dirprwyon Introduction, Apologies and Substitutions

*Nid oes recordiad ar gael o ddechrau'r cyfarfod.  
No recording is available of the start of the meeting.*

[1] **Alun Ffred Jones:** Rydych chi'n gwybod y rheolau ynglŷn â larymau tân: pawb i adael os bydd yna gloch yn canu. Pawb i ddiffodd eu ffôn symudol. Rydym yn gweithredu'n ddwyieithog, felly mae croeso i unrhyw un gyfrannu yn Gymraeg neu yn Saesneg. A oes unrhyw un eisiau datgan buddiant? Ymddiheuriadau? Na; dim ymddiheuriadau. Felly, ymlaen i'r ail eitem.

**Alun Ffred Jones:** You know the rules in terms of fire alarms: everyone to leave if the fire alarm sounds. Everyone to switch off their mobile phones. We operate bilingually, so people are welcome to contribute in English or Welsh. Does anybody want to declare an interest? Apologies? No; no apologies. Therefore, let's move on to the second item.

09:01

## Ymchwiliad i 'Dyfodol Ynni Craffach i Gymru?'—Storio Inquiry into 'A Smarter Energy Future for Wales?'—Storage

[2] **Alun Ffred Jones:** A very warm welcome to the three of you.

[3] **Croeso ichi atom ni. Yr ydym yn ddiolchgar iawn ichi am roi eich amser i ddod atom ni i'n helpu ni gyda'r ymchwiliad yma ynglŷn â dyfodol ynni craffach i Gymru. Felly, fe wnaf i jest gofyn ichi gyflwyno'ch hunain, er mwyn y record. Wedyn, fe symudwn ni ymlaen. A gaf i gyflwyno hefyd Alan Simpson, sydd yn gweithredu fel ymgynghorydd arbennig i ni? Bydd Alan yn gofyn cwestiynau hefyd.** Welcome to you. We are very grateful that you have given your time to join us to help us with our inquiry into a smarter energy future for Wales. So, I will just ask you to introduce yourselves for the record. We will then move on. Could I also introduce Alan Simpson, who is our expert adviser? Alan will be asking questions as well.

[4] So, can I ask you to introduce yourselves, please? We will start on the right here.

[5] **Dr Cainey:** I am Jill Cainey. I'm the director of the Electricity Storage Network.

[6] **Alun Ffred Jones:** Diolch yn fawr. **Alun Ffred Jones:** Thank you very much.

[7] **Ms Bines:** I'm Chloe Bines. I'm a consultant at Eunomia research and consulting. We provide independent advice to a range of clients—public and private clients. We work on behalf of the Department of Energy and Climate Change. We manage the renewable energy planning database, among other contracts, and we also provide advice to technology developers and providers of storage, and also organisations looking to install storage.

[8] **Alun Ffred Jones:** Okay. Thank you.

[9] **Mr Brodrick:** I am Paul Brodrick. I'm the head of connected communities for Siemens plc.

[10] **Alun Ffred Jones:** Great. Well, thank you very much for coming before us. Obviously, our inquiry, hopefully, will produce a report that might indicate a way forward for Wales. So, if you have any relevant comments that are applicable here especially, but obviously that are applicable elsewhere as well—. Thank you very much for coming. We'll kick off with Julie Morgan, who'll—.

[11] **Julie Morgan:** Thank you very much, Chair. My question is: what should be done in Wales to develop smart cities?

[12] **Alun Ffred Jones:** Paul.

[13] **Mr Brodrick:** Would you like me to take that?

[14] **Julie Morgan:** Yes.

[15] **Mr Brodrick:** I think smart cities is an emerging topic area. I think the issue you have around what a smart city is is the definition of a smart city. It's a hundred different things to a hundred different people. What I can give is our definition of what a smart city is: it's the use of connected data to provide better services for the citizens of that city. So, in terms of what can be done in Wales, we've already spoken to Cardiff and Swansea here around what assets you have there today in terms of energy assets, what data assets you have, what communications you have, and how you create a digital infrastructure that connects those. So, in terms of practical steps—some of the stuff that we've done, certainly with cities in England—we've got a smart city project in Manchester, which is Horizon 2020-funded. There is a lot of Horizon 2020 EU funding available: €80 billion up to 2017. From a smart city perspective, there is a specific call, which happens every year, which is the SCC1 call, and applications have to be made by May. The first year we did that there were 17 applications. Last year, there were 40. We're expecting a similar amount this year. But in terms of stimulating the smart city debate, it's a very good starting point because there's EU funding available to actually get some projects kick-started.

[16] **Julie Morgan:** Are you aware of there being any applications from Wales?

[17] **Mr Brodrick:** We spoke to Cardiff last year about doing one, but I don't think, from a smart city perspective—as far as I'm aware—that there were

any applications made, for that particular smart city call. However, there are a number of different pots of money that people can go after in terms of different projects. So, from our involvement, we did speak to Cardiff and we are already speaking to Swansea. That's something we are in discussion about—is there something we could do there?

[18] **Julie Morgan:** In view of the fact that there isn't a city in Wales that is actually doing this yet, why do you think it hasn't happened in Wales yet?

[19] **Mr Brodrick:** That's not really for—. I'm not sure.

[20] **Julie Morgan:** You don't know.

[21] **Mr Brodrick:** I don't know. I can't really comment on that.

[22] **Julie Morgan:** So, in your discussions with Cardiff and Swansea, do you sense a will to move forward?

[23] **Mr Brodrick:** An absolute will to move forward, yes.

[24] **Julie Morgan:** So, generally, what have you found to be the barriers to moving forward in the other work you've done?

[25] **Mr Brodrick:** I think, from a Horizon 2020 perspective, the whole funding stream is very new. This is the third year of Horizon 2020. It's very similar to FP7 projects—so, previous EU funding. I think one of the main barriers is actually that, when you try and define a smart city project, it's trying to define what a smart city is. So, for my own personal perspective, as someone who is an energy guy, I've looked at energy enablement of cities. So, how you can create a local energy system in a city as part of a smart city, if that makes sense. Clearly, there are links to mobility. So, with electric vehicles, charging is the obvious thing. There are links to traffic management systems. How do you use those control systems you've got in a better way in a city? So, from a purely personal perspective, I chose to look at energy in cities because I understand energy.

[26] **Julie Morgan:** Do you feel that the local authority has got sufficient person power there to take this initiative forward?

[27] **Mr Brodrick:** I can only work from personal experience, and the guys we've met are very good.

[28] **Julie Morgan:** Right. So, there's nothing really you could see that could stop Cardiff and Swansea moving forward.

[29] **Mr Brodrick:** No. I think, as with all of these things, it is always helpful to get experts on board to help, because, clearly, all the knowledge won't be sat within your local authorities. So, that's why we get asked to help a lot.

[30] **Julie Morgan:** And what about a lead from the Welsh Government. Are you aware of—?

[31] **Mr Brodrick:** Yes. We had some conversations—I think it was last year—with Welsh Government at the beginning of the Smart Living programme, so we're aware of some of the conversations that have been going on.

[32] **Julie Morgan:** Thank you. I don't know whether either of you have got any comments.

[33] **Dr Caine:** Smart cities could be anything from communications, transport, energy—. But Wales has been developing a good profile in the energy space, particularly around local energy and smart living in that sense. So, I've worked with that team here in Wales, enabling local supply so that people generate locally, which we do. Then you've got very exciting projects, potentially, in Wales with the Quarry Battery, Swansea tidal bay and potentially a Cardiff bay project. That will allow you to generate electricity in Wales. How will you use that? Are you just going to send it away back to England or are you going to use it locally and empower your communities to use that generation locally? That has low carbon benefits because you do not have transmission losses. You're not sending all that electricity down wires where it gets wasted; you're using it where you make it, and I think that's a very important thing.

[34] **Alun Ffred Jones:** Llyr.

[35] **Llyr Gruffydd:** Part of my question has been answered, but I just really wanted to understand who drives this agenda, really, or who you would expect to drive this agenda. Is it the local authority? Clearly, the Welsh Government would have a role. The private sector as well would be interested, I would imagine. Where does the impetus come from?



[36] **Dr Caine**y: I think certainly the Welsh Government has a key role in driving smart cities and the smart agenda. You've obviously got to have communities—be it local authorities, householders and businesses—that are keen to get involved because it won't happen if you don't have that interest at the bottom. And, obviously, you've got your networks. So, you've got your distribution network companies here in Wales. You're not going to be able to do anything because you're going to be using their networks and connecting to their networks. So, you've got to engage with them and involve them. But that's a kind of—. You could build a partnership with them to help deliver these kinds of projects.

[37] **Llyr Gruffydd**: And is there a particular scale of city or grid or entity that really is optimum? I'm just thinking in terms of—can we replicate this in sparsely populated rural areas as well?

[38] **Dr Caine**y: I'm a stakeholder on Western Power Distribution's stakeholder group, and there's what they call the 'network edge', so the people at the end of a very long, soggy piece of string who are hard to treat and who don't have the reliability that they might have if they were in a city. You could take an approach where you develop a whole energy strategy where they have some generation, they have some energy storage, and they're kind of more resilient, set apart from being reliant on that electricity coming in. They do have it, but they have that support. So, absolutely, it could be something that empowers local communities to have their own energy process, if you like—their own energy system that they manage and look after in conjunction with the distribution network operator.

[39] **Alun Ffred Jones**: If you wanted to show us an example of where it has sort of developed and worked well, where would you point us to?

[40] **Mr Brodrick**: In terms of a smart city?

[41] **Alun Ffred Jones**: Yes.

[42] **Mr Brodrick**: There are a number. In the UK, Manchester is the first big smart city project that is happening. But if you look across Europe—Barcelona, Copenhagen and some of the German cities as well. I think, for the UK, definitely Manchester, although we are part of a project now with the Greater London Authority, with London, where that will all be announced within the next week or so, which is a very similar smart city project. I think everyone's trying to do it. It's a case of utilising that funding and utilising the

know-how that people have got to try and create these lighthouse or pilot projects. The idea is to create blueprints that are then replicable, that are equally replicable in terms of those kinds of local energy systems you talk about in rural areas.

[43] I don't believe there's a technological barrier here to doing any of this stuff. This is very much, 'Can we define the business model? Can we make it pay?', and then it's just going out and actually doing it.

[44] **Alun Fred Jones:** Jenny Rathbone.

[45] **Jenny Rathbone:** I just want to pick up on a question posed to us earlier by Jill, which is: if we managed to get Swansea bay and others up and running, do we want to send it back to England or do we want to distribute it and use it locally? I just wanted to question you about what the regulatory barriers are and how we might overcome them and does it need legislation?

[46] **Dr Cainey:** In terms of those specific projects, or in terms of energy storage?

[47] **Jenny Rathbone:** Not—. I'm thinking about the way in which the whole electricity business is set up.

[48] **Dr Cainey:** There shouldn't be any reason for a project like Swansea bay to go ahead. There are hurdles in terms of planning, you know, 'Can you get the planning? Can you get the consent?' But there's no reason why you can't set up a local supply company—an energy service company—to handle that generation and that supply and manage that. I don't think there's any reason why that couldn't happen.

[49] **Jenny Rathbone:** You mentioned you're on the WPD stakeholder group. They, at the moment, are a monopoly distributor, and our general understanding is that all electricity generated by people with solar panels on their roofs et cetera goes back to the grid and they then send it back to the distributors.

[50] **Dr Cainey:** Okay. So, what we're talking about is the difficulties around local supply, which is an issue at the moment. So, you have to be a licensed supplier and there's a process through which you go to purchase your electricity that you then sell on. It would be difficult for me, at No. 15 Acacia Avenue, to sell my electricity to No. 23. Well, it would be illegal at the

moment for me to do that—[*Laughter.*] Not difficult—it's just I'm not allowed to do it. And so that is a key barrier to enabling local supply, that is generating locally and then supplying that to your local community. Certainly, the DECC did have a local supply group—

9:15

[51] **Mr Brodrick:** I sat on that working group.

[52] **Dr Cainey:** But it's difficult to know where that particular group has gone in their community energy strategy following the policy reset on 18 November. Community energy has gone very quiet, and that is a concern. But that doesn't mean that community energy has to go very quiet everywhere. I mean, our system is changing, so we have a lot of—. It was originally set up with demand being king. That's where all the flexibility was. That was in demand, and we flexed, we changed generation in order to meet what everybody wanted at the bottom of the system. That system doesn't exist anymore, because the generation is now distributed at the bottom of the system, and so we're in this transition phase where we've got large entities that are quite happy with the centralised, top-down approach moving towards the bottom-up approach, which is what we need. So there are the traditional incumbent suppliers, which perhaps wouldn't be happening—

[53] **Alun Ffred Jones:** Can I challenge you there? You said this is what we need. Is that view shared by everybody—by Government in the UK? I can't ask you about the Government in Wales, but—

[54] **Dr Cainey:** I think the Government in the UK—except that we're moving to a decentralised system—. How they facilitate that transition is a more complex policy issue, and I'm not sure they're there yet. There's certainly a great deal of keenness to move distribution network operators to distribution system operators, which would allow them to have an energy function. So, at the moment, companies like Western Power Distribution and Scottish Power are only there to make sure that your wires are connected and that energy can flow. They have no role in managing how that energy flows.

[55] **Jenny Rathbone:** But, as you said earlier, there is a loss of energy when you send it back up the chain.

[56] **Dr Cainey:** Yes.

[57] **Jenny Rathbone:** So, in terms of our climate change obligations, what do you think the Welsh Government would need to do to become a licensed supplier? Is it something where they could appoint a private company—

[58] **Dr Caine:** I've never heard of a government becoming a licensed supplier. Individual companies could become licensed suppliers, and then you would set up your power purchasing agreements. You buy your generation locally, and you'd supply it locally, but taking on a supply licence can be onerous. It's not something that you can—

[59] **Mr Brodrick:** We've seen examples—certainly, the GLA are trying to become a licensed energy supplier. Nottingham have created Robin Hood Energy. So, you don't have to be a utility company to create a utility company, if that makes sense. So, it is possible for you to create a Welsh energy company. You just have to go through the various market-entry processes, be part of the market. It's a long process, but it's a relatively straightforward process.

[60] **Ms Bines:** I think, as well, there are different ways of doing that. We've seen some local authorities going through the Licence Lite route, where they basically sit on the back of a supplier who has the supplier licence, so it's not so onerous, but they're then seen to be kind of pushing their more local agenda. So, there are different routes to doing that. Selling that local energy and becoming a local energy supplier doesn't necessarily just need you to go out and go through the whole licensing—

[61] **Jenny Rathbone:** You can self-contract it to some company.

[62] **Ms Bines:** Yes.

[63] **Jenny Rathbone:** So why do you think that we haven't done that in Wales? It seems rather an obvious way of protecting our communities from the big six, basically.

[64] **Ms Bines:** I'll let Jill come in, but I suppose there is an element of waiting and seeing what other local authorities are doing and how that's paying off. I've just come over the water from Bristol. Bristol's going down the whole fully licensed route, and I think probably some local authorities are waiting to see how it works for others, potentially, before they go through the process. I think it comes down to being a more potentially forward-thinking local authority or having a bit more resource to put into the green

agenda—the smart energy agenda.

[65] **Mr Brodrick:** I think there's another point there around the replacement of revenue streams, and providing revenue streams for your own government energy company or a city energy company. You know, it's all around creating a business and a business model around that that allows you to provide energy to your local people, but, also, there are revenue streams that can be reinvested in the community.

[66] **Jenny Rathbone:** Okay, so apart from being more forward-thinking in the way in which we could have a business model here, is there any regulatory barrier that requires legislation, or could all local authorities, if they had the will, do it?

[67] **Dr Caine:** Certainly, local authorities in England are hard-pressed for funding, so I don't know what the situation is here in Wales. And if you're struggling to fund other aspects that you have responsibility for, how do you then divert funding into local energy? If you set up a Welsh supply company, there should be no regulatory barrier at all, whether that is a Welsh entire company or small city, like Cardiff, supply company, purchasing local generation and using it and supplying it to local businesses and households, in the same sort of way that Good Energy have a model where they buy renewable generation and sell that, and that's their sort of business model—they only supply renewable generation, and they try to do that locally. I come from north-west Wiltshire, and they're based in north-west Wiltshire, and they try to source electricity locally. So, there's no reason why a city, a local authority or an entirely separate entity couldn't set up as a supply business in Wales.

[68] **Jenny Rathbone:** What about the virtues of having a Welsh grid? Because it looks as if we're developing lots of small community energy projects plus some very big ones, if Swansea bay happens.

[69] **Mr Brodrick:** I think you've got two things there, haven't you? You've got an incumbent network operator—Western Power Distribution. If you want to go down a private wire route—essentially, build and manage your own networks—that's a possibility for certain areas of cities. I mean, we're seeing that; we're being asked a lot by developers to create local energy systems on a kind of—let's call it a 'campus'. So, if you think about a new development where you have an energy centre with perhaps 2 MW of generation, and you have district heating and you also have some thermal and energy storage in

there, you can create a private energy system that is not part of the regulated network operator. The benefit of that is that the distribution use-of-system charge—you know, you're not part of the bigger system, so you make some savings there. There are some quite neat models around that. Whether you could—

[70] **Jenny Rathbone:** Where?

[71] **Mr Brodrick:** So, in terms of private wire networks, we see them in London. Big developers are developing those. So, there are examples. I think also it's worth considering the model in Germany, where Stadt workers in Germany are responsible for their own networks. Now, from a regulatory perspective, I don't think you'd be able to do that today, but it is an interesting model that can be explored. We've had examples now in Germany, obviously being a German company, where a city has gone and bought the network back from the utility. Now, whether we'd actually get to that in the UK I think is a moot point, but, you know, there are precedents, and the regulatory environment in Germany does allow people to do that.

[72] **Dr Caine:** In the UK, if you are an independent distribution network operator or a distribution network operator like Western Power Distribution and ScottishPower—those are your two DNOs in Wales—you hold a distribution licence. That's a thing you have to go out and get, and you are required to undertake certain activities, and you couldn't hold a distribution licence and a supply licence, or, indeed, a generation licence at the same time, because the UK electricity industry is what we call 'unbundled'. So, you have distinct separate activities and you're not allowed to undertake two activities, although there are some companies, such as Scottish and Southern Electric who, because previously, they were bundled—. They have separated out their supply, their generation and their networks business, and they Chinese wall them, so they all have essentially the same name, and they hold separate licences. So, that's a technical thing. But we did have a system before the 1989 energy Bill that was bundled.

[73] **Mr Brodrick:** Just to add there, in terms of private wire networks, there is an example in the UK, which is Woking. So, Woking works on a private wire basis as a town, so that's a good model to look into.

[74] **Jenny Rathbone:** Thank you.

[75] **Alun Ffred Jones:** Jeff Cuthbert, did you—.

[76] **Jeff Cuthbert:** Yes. Just going back a little bit, Paul, and, no doubt, the others might want to comment, you mentioned, in terms of the dealings that you had with officials in Swansea and Cardiff, that their knowledge appeared to be up to date and they're good people to work with. Taking that more generally, in terms of new developments like this, do you think the skill base is at a right level? I don't mean necessarily the sort of expertise that you have—and there's always a role for that—but in general terms, have we got the right level of skill base to make this sort of thing a reality? And, then, the second, rather different point is: you've mentioned Horizon 2020, but is there any other way in which we could utilise European funding, especially in Wales, as we get a fair chunk?

[77] **Mr Brodrick:** So, let me take that question first. I know we're looking at a couple of projects at the moment with the Department for Communities and Local Government around European regional development fund funding. So, that's certainly something which is worth looking at, and definitely Horizon 2020. In terms of the skill sets—I'm talking smart cities now—it's such an emerging kind of movement, if you like, so what skills do people need? People need ICT and communication skills. From a smart grid perspective, the electrical engineers that were managing our distribution networks traditionally need a completely different skill set to the people that are managing our electricity networks now, because everything is moving away from—. There's always a place for engineering, but it's more towards a digital-type environment. So, one of the things that we do is we work with a lot of universities, because the emerging skills that are required—

[78] **Jeff Cuthbert:** Including Welsh universities?

[79] **Mr Brodrick:** I believe we do, yes. With the emerging skills and all the innovation that comes out of the universities, for a private company such as us, it's great to support and work with those guys because that's where the new breed of skills are coming from. So, do we have the right skills today to deliver a smarter city, a smarter grid? Possibly. Are the skills being developed in our universities? Yes, absolutely they are.

[80] **Dr Caine:** I would say that Welsh Government have had an important role in facilitating community energy generation projects. You had a programme to support communities to develop their own generation. Perhaps having something similar and getting funding for that to develop smart cities is a route to go, where you have a central core of experts that

can provide advice to cities on areas like licensing and regulation, which are highly complex.

[81] **Ms Bines:** I think that's a good point, because, for us, looking at taking it down just to energy storage, although we might have the skill sets coming out of the universities and people developing the technologies, in terms of actually trying to get these things in at a consumer level, or working with local authorities, people's understanding and the education that needs to happen at a user level is quite key to this as well. So, I think that there's potentially a good role for Welsh Government to play there in that same kind of pushing of the agenda and encouraging behavioural change at a user level within local authorities and within community groups, to understand the use of their energy, how energy storage could play a part in that as well, and how the business models are working as well.

[82] **Jeff Cuthbert:** Do you have any evidence as to whether that's happening or not at the moment?

[83] **Ms Bines:** I don't have any evidence, no.

[84] **Alun Ffred Jones:** Can I ask Mr Brodrick: your company, what's your interest in developing smart cities, or smart grids? Where do you fit in in this picture?

09:30

[85] **Mr Brodrick:** So, we're a technology provider, and these new types of model and systems need technology. So, our interest is very clearly around the technology provision. Siemens is a very old company, and we've got 13,000 people in the UK—

[86] **Alun Ffred Jones:** You're very big.

[87] **Mr Brodrick:** Yes. So, we work with all of the traditional utilities. We provide infrastructure for distribution networks and for transmission networks. But, as an organisation, we see the move towards decentralised energy, and that is happening, and it's happening today. We are being asked consistently around energy storage and energy-storage solutions, and I'm not the expert—these guys are the experts. And I think that it is happening today. So, from our perspective, clearly, there's an opportunity for us, but we have to adapt our business to the way the world is changing, and the world is



moving towards, from an energy perspective, decentralised energy, and, from a smart-city perspective, towards digitalisation.

[88] **Alun Ffred Jones:** Thank you very much. Russell.

[89] **Russell George:** Do you provide technology to your customers on requirement? So, is it a case that they ask you, 'This is what we want you to provide', or do you provide, do you produce, research and provide your technology yourself, and then try and say to your customers, 'This is available'?

[90] **Mr Brodrick:** I think a bit of both. I think in this new, emerging world—. I mean, we spend a lot of money on research and development, and we have a whole corporate technology division who are looking at innovation around, certainly, energy storage. So, I think one of the approaches we always take in this new, emerging environment is that we like to open people's eyes to the art of the possible, and I think that that's really, really important in terms of bringing innovation to customers.

[91] **Alun Ffred Jones:** I'll come to you now. I want to get on to storage in a minute, and different aspects of it, but Janet and then William and then Joyce.

[92] **Janet Haworth:** I'm interested in what you were saying about the move to the digital environment, and I wondered how important and effective broadband coverage is to promoting these ideas.

[93] **Mr Brodrick:** It's critical.

[94] **Janet Haworth:** It's critical.

[95] **Mr Brodrick:** Yes.

[96] **Janet Haworth:** Do you consider that Wales has an effective broadband coverage?

[97] **Mr Brodrick:** I can't comment on the broadband coverage, apart from, at the hotel I stayed in last night it was fine. [Laughter.]

[98] **Alun Ffred Jones:** I'm not sure whether that is actual proof of anything. [Laughter.]

[99] **Janet Haworth:** Yes—we're from north Wales.

[100] **Mr Brodrick:** As a general term, if you look at Cornwall as an example, Cornwall have now been enabling superfast broadband down there, and it is a key enabler for businesses and a key enabler for education. If you look at the example of Tech City in Old Street in London: brilliant innovation hub, but, as soon as they started getting people in there, the broadband is not perhaps so good, and then there are some difficulties. So, in terms of a digital infrastructure, high-speed broadband is critical.

[101] **Janet Haworth:** Would that be fibre optic, as opposed to copper cabling?

[102] **Mr Brodrick:** I can't take a view on which technology, but I would just say that you need to get the most efficient and the quickest.

[103] **Janet Haworth:** And fibre optic carries more data, faster, and you can futureproof it better than copper, yes?

[104] **Mr Brodrick:** Yes.

[105] **Janet Haworth:** Yes. Thank you.

[106] **Alun Ffred Jones:** William.

[107] **William Powell:** Chair, can I move to storage, or do you want to do that separately? That was my particular area of interest.

[108] **Alun Ffred Jones:** Well, what about you, Joyce—what are you on?

[109] **Joyce Watson:** Bit of both.

[110] **Alun Ffred Jones:** Bit of both. All right. William, you can move on.

[111] **William Powell:** Okay. Diolch, Gadeirydd. Good morning, all. I wonder what, in your view, is the role for the setting of targets, both in terms of energy generation, but also with the storage agenda, and, if so, at what level those targets would be most effective, whether at a national, regional, or possibly even local authority level.

[112] **Dr Caine:** Well, I would say that DECC are not keen on targets, and,

so, avoid targets. The electricity storage network has a target of 2 GW of additional electricity storage on the network by 2020, but that's just a trade body target, in the hope that we facilitate it. I guess it's more important to know where you're heading than to have a target, in as much as a target is the destination. So, if you have a strategy—

[113] **William Powell:** And you need milestones.

[114] **Dr Caine:** —and milestones, whether they're a specific number or not—'We want x gigawatts of storage at this point, and we want a bit more at this point, and we want this much generation'—it's more important to know what you're heading towards. I think that, given that you have a highly constrained network, particularly in south Wales, and it's difficult to connect new generation projects, the partnership with storage and renewable generation can be a powerful one, in that that helps you to manage those difficult constraints.

[115] So, for instance, Western Power Distribution in another of their DNO areas, in Somerset, are only giving new generation connectees connections and they are barred from exporting between 10 a.m. and 4 p.m.. So, if you're wind turbine or solar, you've potentially got this period where you could be generating, but you're not allowed to export to the network. So, how does that help you, because you will be constrained and you won't be able to earn any incentive? You're not making any electricity when the resource could be there. So, that's where the partnership with storage could be useful because, during that period when you can't export, you could use electricity storage and you could be putting it into heat—it doesn't have to be electricity, but you could be doing other things.

[116] So, facilitating that partnership is important and if you are going to have a target, it should probably be tied to your environmental target: 'We want to reduce our carbon emissions. How do we achieve that? We achieve that by moving to low-carbon generation and using the system efficiently'. So, for instance, we were talking about line losses and, in the UK, that's about 10 per cent. So, we waste 10 per cent of our electricity on wires. Peak demand is around 50 GW, so that's the equivalent of about five large-scale power stations that we just have sitting on the system to waste it going down the lines.

[117] **William Powell:** What is the international comparison there, if it's available to us, in terms of wastage levels?

[118] **Dr Cainey:** I think it's pretty standard—sort of 7 per cent to 10 per cent is pretty standard.

[119] **Ms Bines:** If I can come in on the targets, I guess we've seen in California that targeting has done a huge amount, but that was a very specific target for the investor-owned utilities to bring on and procure a certain amount of storage, and that was legally binding. If we put a target in overnight, it's not going to lead to people rushing out tomorrow to install storage. You need to have the penalties or the drivers there for them to do it, such as we've had with renewable energy. We have had, until recently, a good subsidy regime, so we've had the targets, but we've had a way to facilitate us getting there. So, I think that a target on its own can't really achieve the roll-out that we're looking for because we also need that carrot or stick, or both, to push the storage agenda as well.

[120] **Alun Ffred Jones:** How important is storage in terms of the new emerging patterns in terms of electricity production?

[121] **Mr Brodrick:** Critical.

[122] **Ms Bines:** Yes, I would say—

[123] **Alun Ffred Jones:** Critical.

[124] **Mr Brodrick:** Absolutely.

[125] **Ms Bines:** It's essential. As Jill alluded to earlier, the traditional system of energy supply in the UK is a top-down system based on large centralised power stations in a pretty standard pattern of consumption and that has changed massively over the last 10 years. Now we've got a lot more decentralised energy, so we've got generation coming on at the lower levels and a huge change in patterns of demand. I think we're kind of seeing that overall annual consumption is falling, but peak demand is spiking and we're trying to balance all of that, as well as the fact that traditionally our storage was in fossil fuel. That was the storage—the coal or the gas before you put it in the power station. We're phasing that out now, quite rightly, but we need something to help with that flexibility on the grid, particularly if we're talking about moving all of our heat generation and consumption over to electricity as well. That will cause a massive spike in demand in a certain period. How do we balance that?

[126] **Alun Ffred Jones:** Joyce, did you want to come in?

[127] **Joyce Watson:** Yes, I wanted to try to link a few things together. Let's say that you have a blank sheet, and there are many blank sheets around the country at the moment because they've been given planning permission to create large-scale housing and very often that comes with a new school and shops and everything that wraps around that. If all systems were going in the right direction, how do you think that we could achieve that? I know we've talked a little bit about some who are moving towards that pre-existing, like Manchester, Bristol, et cetera. I'm minded to think about the links between saying that we must have many more houses, but those houses will require energy and they will also require the storage of that energy to be cost-effective. So, I'm really trying to get my head around this blank-sheet approach and where we can best influence that, because ultimately that might be the best opportunity we have.

[128] **Dr Caine:** One of the key problems with the UK Government in the lead up, I suppose over the summer, was that we got rid of our zero-carbon homes policy, which obviously had a huge impact on energy use and the quality of our housing stock and fuel poverty and everything going forward. So, if you're going to build houses, you can't just build houses in isolation of all your other policies—there needs to be a holistic approach. So, when you build a house or you build a school, a library or a shop, you need to be thinking about what its energy use is going to be in the future and how best you can deliver that energy.

[129] I represent electricity storage, but heat storage is critical. So, for a domestic house in the UK, 80 per cent of their energy cost is vested in space heating and water heating. So, we can do all we like with just the lighting and the electricity use, but heat is critical and there are ways to deliver heat that aren't dependent on electricity. We shouldn't get hung up on de-carbonisation meaning that everything has to go over to electricity. But, if we're not building houses that are energy efficient and we're not thinking about how we can provide heat in the most efficient way, which might be a district heating system or a combined heat and power plant—. It should be a whole thinking.

[130] I know Wales has got their smart living programme and you do have much more of that overarching view of all of your different policy areas, but it will be critical when you're building a new, let's say, garden city

somewhere that you think about how transport will work, how electricity and energy efficiency and heat will work in that community and how you can facilitate local generation and local use.

[131] **Joyce Watson:** But, what would be the barriers? This is—.

[132] **Dr Caine:** There's no barrier other than the way we do things at the moment. The way we do things, certainly in the UK Government, is you have someone who looks at energy, you have someone who looks at planning, you have someone who looks at transport, and you have someone who looks at security. You do not necessarily talk to all those people. There is nothing that sits over the top. It might be that someone has a cup of tea with someone else in a different department and they have a discussion. But, if you're not all talking to each other, you will not be able to deliver this smart, low-carbon, sustainable future that you're after.

[133] **Alun Ffred Jones:** Chloe Bines.

[134] **Ms Bines:** If I can just come in there. In a former life I worked for a consultancy and we provided advice to housing developers installing renewable energy. The driver there was the Merton rule, which lots of local authorities adopted, which was, in order to get your planning for your development through, you had to have x amount percentage of renewable energy. I think one of the barriers is the way in which housing is a commercial development. All the components—the schools, the supermarkets that go with it—are a commercial development. It's got lots of different entities involved in that development, many of which are there to perform their role and move on out.

[135] When we were looking at renewable energy, most of the developers we were working with wanted a quick solution they could install—it would go on the house and they wouldn't have to worry about it. The most efficient solution was often, say, a CHP plant with a distributed heating network. But, who was going to own that plant? Who was going to take the revenues from it? Nobody wanted to stay behind and continue running that company. I think that is one of the big barriers: okay, you've got a new village or town, or whatever you're building, but who's going to take on that role? That could be something that's possibly pushed through with planning, with targets or percentages in planning, and that kind of thing. I think, at a commercial level, that's the challenge.

09:45

[136] **Alun Ffred Jones:** Julie.

[137] **Julie Morgan:** Just on houses, I don't know whether there is a garden city planned in Wales, but, certainly, in Cardiff, we're having one of the biggest housing developments that there's been in Wales, I think, because Cardiff is the fastest growing city in the UK. So, we're having thousands and thousands of houses. The local development plan has just agreed them. What do you think is the first step now that the local development plan has been accepted to ensure that we do some of the things that you're saying?

[138] **Dr Caine:** Well, is there anything in the planning that has an energy strategy for that new housing estate? They're going to have to have electricity come in, so they're going to have to apply for a connection for that new development. How will they manage that connection? That application will go to the distribution network operator, but there are other things you can do. There is a nice example of—I think it's a 10-house development near Slough that SSE built, Greenwatt Way, where they've got a number of houses that are highly energy efficient. They've all got solar panels on the roof, but that solar generation is shared. They have a biomass boiler, they have electricity storage and they have electric vehicles. It's like a little community and they share all their facilities rather than that solar generation going into that house. If there isn't an energy component, perhaps, of planning, how are you going to heat these homes and keep the lights on?

[139] **Mr Brodrick:** If I could just come in there, I think it was mentioned in this session previously about whole-system thinking. If you're building a new development as part of an urban infrastructure—so, a city—you take a view of the whole system rather than just the development that is there.

[140] **Dr Caine:** You would also think about transport. Do you need to put in a new bus route et cetera, et cetera? There are all these things that you have to do with a new development, but we don't often think about anything other than sticking a wire in and a new substation.

[141] **Alun Ffred Jones:** Llyr.

[142] **Llyr Gruffydd:** I'm just interested in hearing from you where you think storage technology is at, because some of the evidence we've had suggests that it isn't economic and that it's still very experimental. So, why shouldn't

we just leave it to DNOs and research and development people to keep working until they crack it?

[143] **Dr Caine**: We would say that, for some technologies, it is cracked. Certainly, overseas, there are a number of developers installing very large battery projects. They wouldn't be installing very large battery projects to support networks if it was not economic or the technology was going to fall over and wasn't reliable, because these very large-scale facilities are keeping up remote areas in, say, South America, or managing renewable generation in the US. So, globally, the technology, certainly with batteries and lithium-ion and lead acid and sodium sulphur, are well established, well used and well deployed. There's good understanding and manufacturers will give you a 15-year warranty.

[144] Yes, of course, we're always looking at new chemistries for batteries and how we can improve things, and there are newer, more novel technologies, but even they are getting to the commercial stage, such as liquid air energy storage, which is where you compress air and store it as liquid nitrogen. Is it economic? It still may be a little bit expensive. For instance, if you've got solar panels on your roof and you decide you don't want to buy electricity from your supplier in the evening, you could put in a battery, and that would probably take three to five years to pay off under current tariff regimes. The costs are coming down all the time. If we had to pay a peak price in the evening so it was more expensive when everybody wants to use electricity, that pay-off time would reduce to two to three years. So, it's getting there. National Grid requested a call for system support services—they had 66 responses. It is economic now to build big batteries and to put them on the system. There's no problem.

[145] **Ms Bines**: We're working with technology providers now who are looking at putting in commercial systems with a range of organisations throughout the UK, and that's mainly behind-the-meter solutions driven by organisations seeing their peak pricing going through the roof to the end of the decade and thinking, 'Okay, if I stick a battery in now, I can protect myself against that.' I think that's really where we see the major increase in deployment, and that is batteries—mainly lithium-ion. We've been looking at some redox flow batteries as well, but lithium-ion is really kind of pushing ahead of the field there. Certainly, from our perspective, I would strongly dispute that the technology is still kind of dwindling in the R&D doldrums. It is commercial; it's technology-proven. There are some regulatory barriers to overcome and the business cases still need to be proven. I think once there



are a good few sites out there, actually, investors will be keen to jump on board.

[146] **Mr Brodrick:** I'd just like to add there that I think, again, it goes back to the fact that, if you put a storage unit in as a stand-alone project, the economics of that will either work or they won't work. If you introduce storage as part of a wider system, then you've got much more flexibility there to make the economics work. I would agree absolutely with the guys here. People who are saying that storage technology is behind the curve—. I can only talk from my organisation, but the amount of requests we get around energy storage has hockey-sticked in the last 12 months, I would suggest. I think that, as soon as it starts being deployed at scale, again the costs come down even more, and the key issue then will be how we manage those—. It completely changes the way the energy market works, and it's whether the regulation can keep up with that. Currently, a storage asset is treated as a generation asset. That's part of the regulation. Correct me if I'm—. That's right, isn't it?

[147] So, it's interesting, but, from a technological perspective—and I can only comment on that—there are a number of commercially viable installations across the world. Certainly, if you look at Germany again, Germany has got too much renewable generation, and storage is critical there to balance their actual physical networks.

[148] **Alun Ffred Jones:** Alan, did you want to come in?

[149] **Mr Simpson:** A couple of quick things: one is that, on this last point you made, Paul, we've got Ofgem coming in in a bit, but, from an end user point of view, have we cracked the issue about the double-charging on storage? That is still a barrier, because it seems to me to be one of the great confusions. Is it an end user or is it a stage in the process? Is it being charged twice?

[150] **Dr Caine:** HMRC have ruled on the climate change levy, and taken a pragmatic approach for the one individual project that we know about, which is Leighton Buzzard, and said that, for that project, it is not an end user. For the feed-in tariff obligation and the renewable obligation, Ofgem are still waiting, I think, on guidance from the Department of Energy and Climate Change. We do have to remember that Ofgem is the regulator and the regulations are set by DECC and Ofgem apply those regulations. So, it's not just necessarily up to Ofgem to make the change. They do have some things

in their gift, but they don't always have everything in their gift. So, it may be that they're waiting for further advice from DECC, but that is a quick win that would have a very material impact on the invest-ability of a storage project.

[151] **Mr Simpson:** Okay. The second question is a broader one. You talked about DECC's reluctance to set targets and the problems about Westminster. As a Liverpoolian, I was always brought up believing you just have to put up with—

[152] **Alun Ffred Jones:** You're from Liverpool?

[153] **Mr Simpson:** Yes.

[154] **Alun Ffred Jones:** You didn't tell us that. [*Laughter.*]

[155] **Mr Simpson:** You just had to put up with the English. The reason I say that is because one of the things that the committee will have an opportunity to do is make recommendations about what Wales should do. So, my question to each of you is: if Wales were to want to take the lead on this, what, for each of you, would be the big intrusive step that would give a lead and be a game changer for the sort of scenarios of smart towns and cities, decentralised generation, and developments of more sustainable and secure grids? What would be the game changer that could come out of a lead taken by the Welsh Government?

[156] **Dr Caine:** I think that, you know—. Well, I'm a climate change scientist, originally. I guess, we've had Paris and that was a bit disappointing and you only have to look at, say, the United States' overall position versus individual states and how individual states have taken actions to move forward their own particular agendas, particularly California, say, which has a lot of renewable energy and they're just getting on with it regardless of the overarching policy of the whole country. I see Wales as having that same sort of opportunity to lead and to show how it's done. I know that's difficult, you know, it's a challenge and an opportunity. It's very difficult with five minutes to go, to come up with the game changer. I guess I'd like to see a more holistic approach. So, yes, we need to build more houses, and it should all be done with that sustainable future in mind, and it's not, so the partnership with generation and storage; it is the smart kind of thing, but around energy, I would say.

[157] **Alun Ffred Jones:** So, the same difficult question to you two. Who

wants to start off? Chloe?

[158] **Ms Bines:** I would agree with Jill, I suppose. Realistically, what you can do—energy storage is my main focus, and renewables as well—what you can do in that space to help facilitate the take-up or deployment of storage is difficult, because the main barriers are regulatory or financial, which Westminster, mostly, control. But I think a strong vision—. I think Wales is really already seen as a place that is pushing the green agenda over and above London. Eunomia is also a waste consultancy as well, and we've seen some really impressive recycling targets in Wales and what Wales is doing moving towards a one-planet country. So, I think it's about that vision and that joined-up thinking of, 'This is our smart agenda' and pushing local authorities to look at, 'Okay, well, what are you doing for the smart agenda? Could you be looking at becoming a licensed supplier or an energy supply company and bringing those benefits back to the consumers?'

[159] We've seen that Cornwall has really gone for the smart agenda and low carbon as a way of trying to push economic growth, as well. So, I think there is the potential for Wales to have a really strong vision on smart energy and how that all builds together, with a joined-up policy; that's not what we're getting from London and it would be great to see a place with a joined-up policy on this.

[160] **Alun Ffred Jones:** Okay. Diolch yn fawr. Paul.

[161] **Mr Brodrick:** Just to echo what the guys said there, I think it's really simple. I think it's a whole-system view of the energy system of the country—the existing assets that you've got, the connectivity between those assets and how you optimise that to provide the energy for the local people.

[162] **Dr Caine:** I think I'd just like to add that I think you should do it. So, you know, the Swansea bay project, if you could get that flying—. You know, have an example, because the moment people can touch it, smell it and feel it, that's when it happens.

[163] **Alun Ffred Jones:** Diolch yn fawr. On that positive note, I'll bring this session to a close. May I thank the three of you for coming in and providing us with your thoughts and experiences? It's been very interesting. Diolch yn fawr iawn. Thank you.

09:59

## Ymchwiliad i ‘Dyfodol ynni craffach i Gymru?’—Ofgem Inquiry into ‘A Smarter Energy Future for Wales?’—Ofgem

[164] **Alun Ffred Jones:** We move on to item 2.2, to Ofgem. Who is going to kick off with Ofgem? Anybody offering their services? Russell, okay.

10:00

[165] **Alun Ffred Jones:** Welcome, both of you. I’m very pleased to welcome you here to help us with our inquiry into a smarter energy future for Wales. Can I ask you just to introduce yourselves for the record, and state your position in Ofgem?

[166] **Ms Frerk:** So, I’m Maxine Frerk. I’m currently the senior partner responsible for the networks, so all aspects of regulation of the networks.

[167] **Alun Ffred Jones:** Thank you.

[168] **Ms Murphy:** Bore da. I’m Lia Murphy, Ofgem’s representative in Wales handling external affairs matters. I’m just here from a Welsh perspective today; Maxine’s the real expert.

[169] **Alun Ffred Jones:** Good. Diolch yn fawr. Welcome here. We’ll kick off; Russell George is going to start off the questions.

[170] **Russell George:** Yes. Good morning, and thanks for being with us today. What has Ofgem done in Wales to promote the right to local supply?

[171] **Ms Frerk:** In terms of the right to local supply, I think most of our initiatives have been around the things that we’re doing to encourage Licence Lite and the ability of companies to offer white label services—so, the things that Ovo Energy are doing, which I think you may have heard about. But, on local energy more generally, there are some Welsh-specific things that we’ve done in terms of the kind of innovation projects that we’ve given funding for, and the work that we’ve done with the distributed generation forum in Wales to try to help understand the particular issues that are facing distributed generation that wants to connect in Wales.

[172] **Alun Ffred Jones:** Do you have any specific examples that you could give us in Wales?

[173] **Ms Frerk:** So, of the innovation projects, we've funded the project on Anglesey to convert the link from Anglesey, which is currently AC, to DC, which will allow more generation to be connected on Anglesey, as well as giving us some really important learning about how that different mode of carrying energy can help with increasing capacity.

[174] **Alun Ffred Jones:** Let's not get too technical. What exactly—

[175] **Ms Frerk:** So, that's the sort of technical innovation example. The examples around—. As I say, we hold an annual forum where we bring together the distribution companies with all those who are interested in providing distributed generation, in order for them to have that kind of engagement and work out the things that they need to do in order to take that forward. So, the initiatives that you've heard about from the distribution companies with the provision of heat maps, the provision of surgeries, and so on, which are specific things in Wales to help those Welsh companies, are things that have come out of the work that we have been doing with the distribution companies.

[176] **Russell George:** In the examples you've given us for the initiatives in Wales, were there any barriers and obstacles that you came across that you believe that perhaps the Welsh Government could—or that there could be legislation or regulatory changes that could've overcome any obstacles that you faced?

[177] **Ms Frerk:** So, I'm not sure that there were particular obstacles that you could overcome, but there are things around, certainly, how companies get together to do the connections. As you know, where you've got constraints on the network, it often needs somebody to bring all of the potential investors in an area together in order to fund that reinforcement. That kind of thing is a potential role—

[178] **Russell George:** There's not a mechanism for that at the moment, so you're suggesting that that's a role for Government to bring those people together—is that what you're suggesting?

[179] **Ms Frerk:** So, there are mechanisms that we have in place to, once initial funding has been done, get the money back from what we call 'second comers'. So, if you fund the initial investment, then subsequent companies that connect will then pay part of those charges. But there could be a role for

Government there to play in being a bit of a catalyst in bringing developers together to help make that rather more co-operative approach to getting connections funded work. And I think we're already talking about that with some of your colleagues.

[180] **Ms Murphy:** Yes, we have facilitated regular meetings between Welsh Government on Mrs Hart's side, on Carl Sargeant's side, and the Welsh DNOs. So, we've facilitated regular meetings every few months with them to bring them together to find out, 'Okay, what are the barriers stopping people; how we can resolve them?' Some of the things Maxine's already talked about, and the DNOs we know have spoken to you about—heat maps, milestones, those kind of things—they've been resolved through that kind of ongoing engagement that we've facilitated.

[181] **Alun Ffred Jones:** The weakness of the networks is a problem, isn't it, within Wales, in terms of renewables, especially in rural areas, but it could be in urban areas as well. Are you able to influence that at all—improvements in the networks so that those either communities or individuals who wish to get renewable or energy creation schemes off the ground can then link in to the networks? Are you able to influence? What's your role?

[182] **Ms Frerk:** Absolutely. That is a core part of what we're doing in regulating the networks. The first thing is that we've given a very clear message to the companies that it's simply not acceptable. We've funded them through their business plans very extensively for future investment. So, it's simply not acceptable to put up a sign that says, 'sorry, we're full'. Whether the right answer for consumers is necessarily to put more investment and copper into the ground—. That costs money and adds to customers' bills; at the end of the day, either the developer has to pay or the customer has to pay. So, we are pushing them hard to look at other solutions as well, and so the whole drive currently towards smart, alternative connections, where they may be constrained off at particular times if there are problems with the network, but they can get their basic connections through on those different terms, is one way forward. We're pushing the companies to look at how to get more capacity off their existing networks, which are very technical solutions. The amount of energy that you can carry along a cable is dependent on the temperature, so if you're actively monitoring the temperature of the cable, you can often get more energy along it than you can if you just make an assumption about average weather. So, there are those kind of smart grid innovations that are allowing them to get more capacity off their existing networks. And then there are simple

things around queue management. So, sometimes, the reason they say there are constraints on the network is because they've made offers to customers who've been sitting on them for a very long time. They can't take somebody else's offer, but, by being more active about managing the queue, and managing people who've got connection offers who aren't progressing with theirs, they can then free up space. So, it isn't necessarily about putting more investment in the ground, but, if they can't do it any other way, we've made it clear to them that they have to do that.

[183] **Alun Ffred Jones:** Llyr, and then William.

[184] **Llyr Gruffydd:** A lot of what you talked about is firefighting, basically, because we're working off an aged grid that's creaking under pressure and not coping. So, could you tell me what Ofgem is doing to develop proactively alternatives to the existing grid—you know, the localised grids and facilitating that kind of approach—instead of still being tied to this sort of large, central generation and rather inefficient and ineffective hub-and-spoke model, a better spider-web approach of smarter grids?

[185] **Ms Frerk:** Firstly, I'm not necessarily sure that the problem is that we've got an ageing and old network. They have had problems that they've—

[186] **Llyr Gruffydd:** It's practically what we've been talking about for the last 10 minutes, isn't it, really?

[187] **Ms Frerk:** What we have seen has been a massive uptake in the amount of distributed generation. So, when we go back and look at the business plans that the companies put in to us for their price control, at that point, nobody—. We've got the levels of distributed generation now that Government were forecasting to happen in 2030. So, the rate of growth of distributed generation has taken, I think it's fair to say, everybody by surprise. So, they hadn't moved as fast as they might have needed to in order to be ready for that.

[188] **Llyr Gruffydd:** Is that shift happening now?

[189] **Ms Frerk:** That is part of that shift that's happening now, and part of the message that we're giving to them. As I say, you can't simply say 'our network's full'. They committed in their business plans that they would develop their networks in order to accommodate the growth in distributed generation, so we expect them to do that. But you are right that the nature of

the networks has got to change to accommodate more intermittent generation, to accommodate the fact that generation isn't just now all flowing top-down to the end user, and that we need to have much more interconnected grids and much more active network management in those local distribution networks. Whether that goes as far as having the kind of micro grids that are completely able to be islanded, I don't think we yet know. But, certainly, much more active network management at that local level, and much more interconnection. And that's the kind of thing that we're funding through the network innovation funds.

[190] **Llyr Gruffydd:** Well, I was going to ask, 'So, how are you driving that through then?' And that's it.

[191] **Ms Frerk:** So, we drive it through the network innovation funding, but also things like—. In the price control, we now manage the companies through what we call 'totex' rather than—we used to give them an allowance for capital expenditure, and they had a kind of incentive to try and get more copper in the ground, because they could then earn a return off that. What we now do is say we're indifferent between—. You could do as well out of spending operational money to find smart solutions as you can out of putting more copper in the ground. So, the incentive structure, through the price control, should drive them now to look at a different range of solutions to problems. The fact that we've moved to an eight-year price control, instead of a five-year, is also meant to be making them think about the longer term, and make it worth their while investing in those kinds of things.

[192] **Llyr Gruffydd:** But does that risk meaning that change would take longer to work its way through, then, if we're moving to longer timescales? Because you just said that nobody foresaw what happened in recent years. Well, now we're tied in for eight years.

[193] **Ms Frerk:** Yes. I think it gives them time to make significant changes, rather than just incremental changes that they make in a five-year price control. And I guess that the other strand that I might have added is, you know, we do a lot of working with, and bringing together, all the different partners. So, we jointly chair a smart grid forum with DECC, which is bringing together the players from across the value chain, to try to understand what those barriers are.

[194] **Llyr Gruffydd:** So, would it be fair to say, then, that we really don't have the degree of flexibility that really we would like to see, in terms of



being able to respond to emerging opportunities and really grasping new technologies in the way that we should?

[195] **Ms Frerk:** I think the networks are changing quite rapidly. The challenges will get only ever greater. I think a lot of the challenges will become even more so when we have electric vehicles and much more electric heating—there's a further step change in the technology. But I think they are moving and that the ability to use active network management is happening now on the networks, the use of alternative connections is happening now on the networks. So, they might have taken a little while to wake up, but I think there is a real culture change in those organisations, looking at how to move, and recognising—maybe it was a wake-up call, with the pace of growth of distributed generation, but I think they all recognise now that they do need to move faster and the world is changing in a way that it didn't use to. Energy systems were like they were for a very long while, and everything was very slow moving, but we're now into something that's more like the IT pace of change, almost, and they need to respond.

[196] **Alun Ffred Jones:** William Powell.

[197] **William Powell:** Diolch, Gadeirydd. You spoke earlier of active management of the network, and of the issue of companies having offers for grid connection and so on. Is that normally time limited, or is there a case for bringing in some sort of sunset clause on an offer of grid connection? I'm aware, obviously, of lots of situations where planning difficulties have led to delays in taking up offers, but what would your view be about that kind of approach?

[198] **Ms Frerk:** So, on the time-limitedness of connection offers, I think what most of the companies are now doing is putting milestones in, so that, if you haven't managed to reach a certain point in the process, then they're at least able to—they have the ability to take back that connection offer. It's a contentious area, because, as you say, some people do find that planning problems and others get in the way, so they're having to navigate through and get the right balance of interests. But there is good progress, I think, in giving them the ability to manage that queue better.

[199] **William Powell:** And what is Ofgem's position on the suggestion that's come up in some quarters about prioritising community energy projects over others? Is that something that's open to you at present, or what would your view be on that?

[200] **Ms Frerk:** One of the things that we have said is that we need a steer from Government if we're going to prioritise community energy over others. The basic rules at the minute are about non-discrimination, so the companies cannot discriminate between different categories of user. So, we would need a steer from Government that said there were real, positive benefits in community energy and proven benefits for us to do that. We have very recently—. On storage, which you were talking about just now, one of the problems of storage being classed as 'generation' was that they were having to sit in the same place in the queue as everybody else, despite the fact that the storage might actually have helped to alleviate the problem. But we were able, with that, because storage had different characteristics, for them to say—. We have made it clear that we are happy for them—provided that they make that offer available to everybody—to bring storage up the queue, if it is going to help alleviate the constraint.

10:15

[201] **William Powell:** Did that involve a fresh steer from Government or was that within—

[202] **Ms Frerk:** That was within our gift because it was clear to us that that was due discrimination because they are very, very different sorts of 'generation' and so we were able to give that comfort that that was acceptable. For community energy, we don't have that same steer at the minute.

[203] **William Powell:** And in terms of the active grid management that you spoke of earlier, what is your toolkit of sanctions in terms of the DNOs, if they continue to put up the sign, 'No room on the grid', as you referred to it earlier?

[204] **Ms Frerk:** The companies have an obligation to run an economic and efficient network. Ultimately, at the end of the day, if they are not—. For me, that is about saying, 'You can't just put up a "Full" sign', and we have enforcement powers and can levy penalties for companies if they're not complying with their licence obligations. I would hope that we would not get to that point.

[205] **William Powell:** But have you done that in recent times or have there been cases where you've done that in recent years?

[206] **Ms Frerk:** We haven't needed to. But, clearly, I think it was probably the south-west that was getting the most profile and we've had some high-level conversations with WPD about the situation in the south-west, off the back of which they have taken some steps to address the issues there. I hope that that message will read across to the position in south Wales in terms of recognising that the same applies there—i.e. that they can't simply put up a 'full' sign.

[207] **Alun Ffred Jones:** You know the grid and networks are not devolved, but in terms of planning, planning is devolved to Wales. So, if the Welsh Government gave a steer in terms of community schemes being prioritised, what would Ofgem's response be? Would it say, 'Well, it's nothing to do with you'? Or would it actually have to respond to that lead from Welsh Government?

[208] **Ms Frerk:** I think it's something that we would need to think about. Clearly, if you're helping the planning process for community energy, then they're more likely to be able to meet those milestones for getting connections. So, even without us doing something, that would probably help them get through the process in a quicker way. I don't think it would, in and of itself, be enough justification for us to say that we would treat them differently, but it's the kind of thing that we'd want to think about.

[209] **Alun Ffred Jones:** Okay. Jenny Rathbone and then Joyce Watson.

[210] **Jenny Rathbone:** We have climate change obligations in the Well-being of Future Generations (Wales) Act 2015. Why would a renewable energy business establish a generation if they will continue to be told by the DNO that they can't access the grid, or if they were to want to access the grid they would have to pay three or more times the amount of money that it would cost to build whatever it is they're trying to do? The Abergavenny area is continually being told that there is no room on the grid. What do you do about that?

[211] **Ms Frerk:** If it is a small, local area that is constrained, then our policy has always been that it's right that we send price signals because we want to get renewables connected, but we want to get renewables connected at the least cost to consumers. So, it is better for renewables to be connected where there is space on the network than somewhere where there are constraints and there's going to have to be more investment to deliver it,

because ultimately that is more expensive to do. So, we have always supported the idea that there should be cost signals and that generators should have to bear the cost of connecting in a particular area if that happens to be full. What we are saying is unacceptable is to say that the whole of Wales is full. So, you might put up a 'full' sign around Abergavenny, but you couldn't put up a 'full' sign around the whole of Wales.

[212] **Jenny Rathbone:** It's a bit of a chicken-and-egg argument, though, because if the DNOs are not investing in the grid network in Wales, then there will never be that—. That commercial argument will never run.

[213] **Ms Frerk:** So, they need to be investing generally in Wales—

[214] **Jenny Rathbone:** But they aren't. If you analyse how much they've invested in Wales versus how much they've invested in, say, England, they simply haven't been putting in the investment as much, proportionately.

[215] **Ms Frerk:** I don't have the figures in front of me, but you've had the figures about how much distributed generation has been connected in Wales and, actually, in north Wales there are higher levels than have been connected anywhere else across Great Britain in terms of—. In fact, you are in a position, at times, of net export from Wales, so—

[216] **Jenny Rathbone:** But that's driven by one very large non-renewable project.

[217] **Ms Frerk:** Yes.

[218] **Jenny Rathbone:** I think that what we're trying to do here is explore why Ofgem is not able to be much more directive in forcing the DNOs to have a much more sustainable network that allows more local generation to be used locally.

[219] **Ms Frerk:** So, overall, our message is that they are meant to be investing. What we don't want them to be doing is spending money unnecessarily that may turn out to not be needed, or may be adding simply to customers' bills when there could be connections elsewhere. It comes back to: if we really are at a position where the message we're getting back is that there are issues and that, in effect, renewables are no longer able to connect effectively throughout Wales, then we'll be calling in the DNOs in the

same way as we did in relation to the south-west and saying, 'We need to tackle this problem'. At the minute, the message that I'm getting is that they are providing those alternative connections and finding other ways to meet the requirements of customers being connected. It is a challenging area, and we recognise the importance of it. What we are trying to do is get the right balance between that and not imposing too many costs on customers because there are, equally, concerns about the level of network charges for end consumers in Wales. We don't want to be adding to those unless it's really clear that that investment is needed.

[220] **Jenny Rathbone:** Okay, because looking at it from the perspective of the user, it's that they've got one DNO delivering to the big six retail providers, all of whom are charging them far more than the Government are currently saying they ought to be, given the reduction in their costs. So, there isn't a proper market operating, and there doesn't seem to have been enough regulation to generate local markets to create alternatives.

[221] **Ms Frerk:** Obviously, we share the concerns about how the supply market is working, which is why we referred them to the Competition and Markets Authority. We're looking forward to their conclusions and their remedies. I think it is really important that we get more, different, competing and new variance of suppliers coming forward so that you can take that on. Again, the work that we've been doing, trying to promote non-traditional business models and the potential for local authorities to take on the role of suppliers and things like that is something that we find very exciting, as I know you've been talking to people about here, because those are the people who can. They make sure that lower costs get properly passed on.

[222] **Jenny Rathbone:** Okay. Unless DECC says that it's possible to discriminate in favour of community energy projects, at the moment it looks as if community energy projects are going to continue to struggle to get off the ground. Certainly in Wales, that is the picture. So, what are we going to need? Are we going to need a separate grid for Wales, with a separate Ofgem? How are we going to move forward if the UK Government decides not to discriminate against community energy projects?

[223] **Ms Frerk:** Clearly, there are some—. I'm not here to answer for DECC. There are some wider issues of DECC policy that are probably creating problems for community energy beyond getting the grid connected, in terms of the levels of subsidy. What we've had through the DECC/Ofgem Smart Grid Forum is that we've had a particular work stream trying to look at community

energy, and the conclusions from that were the issues that needed to be addressed were, firstly, around better information and support, and to help them navigate their way through what's quite a complicated system, alternative connection models to help them get connected, and then around connection charges, which is probably the biggest area where we say the discrimination is that we can only discriminate if you have the backing from Government that that's really in their interests. There are other things that we've been trying to progress as well around better information.

[224] **Jenny Rathbone:** Okay. One of the things that we heard from our earlier witnesses was the fact that there is a general levelling off in demand for energy, but a massive increase in spikes at particular times of the day. I just wondered what role Ofgem has to try and get the retail suppliers to incentivise. Where are the carrots and sticks to get people to change their behaviour and to not put the washing machine on as soon as they get in from work?

[225] **Ms Frerk:** So, some of the challenges of that come—. It's really only possible to give any financial incentives around that once you've got smart meters in place that will record your usage sort of half hour by half hour, and those are being rolled out through to 2020, but that's a long-term project.

[226] **Jenny Rathbone:** Yes, but they're not—. They're introducing smart meters to prevent them having to send a man or a woman around to knock on the door and read the meter. What are you doing to ensure that they also use it to the benefit of the consumer?

[227] **Ms Frerk:** So, the things that we are—. The business case wasn't just about saving money. It's an obligation on the suppliers to roll out the smart meters. We are progressing hard with a project to look at a half-hourly settlement, which is one of the other barriers to suppliers offering particular time-of-day tariffs.

[228] **Jenny Rathbone:** I can understand that—

[229] **Ms Frerk:** At the minute, even if they had a half-hourly meter, the way that they would be paying for their energy and settling it in the wholesale market would be on assumption of a profile of usage. We need to move away from that so that they are actually paying for their energy explicitly, depending on how much has been used half hour by half hour. So, all that half-hourly settlement—

[230] **Jenny Rathbone:** So, are you in a position to change that?

[231] **Ms Frerk:** We are in a position to change that and we're working on that now. What that will do, in the first instance, is allow new smaller suppliers who want to do that as a business model to come in and do it. Again, we are then reliant on the competitive market, meaning that other suppliers will want to follow suit or they'll get left behind by—. There are a number of the smaller innovative suppliers who do want to offer those kinds of tariffs to customers to kind of—

[232] **Alun Ffred Jones:** Is it on this point, Llyr?

[233] **Llyr Gruffydd:** Well, yes, it was about—. When you were addressing some of the issues around access priority—access for community energy—and, I think, in answer to me earlier as well, you said that you needed a steer from DECC as to whether you could do that. I presume, therefore, that you have asked DECC for the ability to do that.

[234] **Ms Frerk:** So, we have asked DECC for a steer, for them to evaluate whether or not community energy offers something over and above other forms.

[235] **Llyr Gruffydd:** And is there any indication as to when you might expect an answer? I know it's difficult, but—. They haven't told you.

[236] **Ms Frerk:** No, I don't think—. They haven't.

[237] **Llyr Gruffydd:** No. When did you ask, then, just for us to know, roughly? Was it very recently?

[238] **Ms Frerk:** Certainly in the last Government. It came off the back of work that was done with the smart grid forum. One of the things, just building on that point, is that we all use 'community energy' in a very loose way. I think that the real benefits from community energy come when you are getting something that links up with what you're talking about, which is an offer where you get the community engaged in wanting to actually manage their energy usage. So, it isn't just a farmer in a field who wants to stick up a wind turbine, and it's called 'community energy' because he's a local farmer; if you've genuinely got the community behind you and you've got the community themselves wanting to participate and make sure that they're

using the energy when that wind is blowing, even bringing in storage, you're getting something that is much more of a holistic solution. I think, when we get to that point, then you can see and you've got some real benefits. It's a bit like you're putting storage up the queue and generation because it was fixing the problem. I think that if you've got a holistic solution in community energy, then we would be able to say, 'Actually it's not adding generation; it's constraining itself to be behind the meter, balancing what's used'. So, it's about developing those full models of what community energy is about.

10:30

[239] **Llyr Gruffydd:** It's not just energy either, potentially—once you've set that entity up, it can go in all sorts of directions.

[240] **Ms Frerk:** Indeed.

[241] **Alun Ffred Jones:** Alan, did you want to come in?

[242] **Mr Simpson:** Can I just be clear? When you talk about smart metering, does Ofgem require the smart metering to be two-way so that it's not just smart consumption, but requires this whole change in the relationship between households and communities as producers being built into what gets metered as well? Is that an obligation that you impose on the industry so that we're clear that smart isn't just a way of propping up this cost-reduced way of billing people?

[243] **Ms Frerk:** The smart meters that are being rolled out have two-way communication: they can both take the meter reading and they can send a message about the level of prices in the last half-hour—

[244] **Mr Simpson:** That isn't' the question I asked. It was whether they record energy generated.

[245] **Ms Frerk:** Yes. They have the ability to record import and export.

[246] **Mr Simpson:** That is the common definition of 'smart' that you require.

[247] **Ms Frerk:** Yes. The technical specification for a smart meter includes all of that facility for something within the home. If you've got renewable generation within the home, that can all be picked up through the smart meter. It won't necessarily get you as far as the whole community energy



piece, which obviously requires—

[248] **Mr Simpson:** I wasn't going there. Okay. So, from an Ofgem perspective, can we be clear about how much renewable energy is actually being generated within Wales at the moment? How much is going back into the system? What do we know about that?

[249] **Ms Frerk:** I'm afraid I don't have those figures to hand, but we can make sure—

[250] **Ms Murphy:** We can write to you on those, if we can find those out for you.

[251] **Ms Simpson:** Great, because that would be helpful.

[252] The third point, really, was following on from Jenny about post-Paris. One of the big criticisms—and it's fantastic that you've done the work on non-traditional business models—post-Paris is that, actually, what we should be starting from is the recognition that what we have at the moment is the non-sustainable business model and it doesn't require a cherry on the cake, but means that we have to change the cake. Wales is committed to setting carbon budgets and carbon obligations, but what is Ofgem's view on putting carbon reduction obligations on both the production and distribution of energy in Wales? Would you have a view on that? Because you've talked mainly about price considerations, but in Paris, they talked about planetary considerations and so does the Well-being of Future Generations (Wales) Act 2015.

[253] **Ms Frerk:** As Ofgem, we do have responsibilities to—. Our definition of 'consumer interest' includes consumers' interests in the reduction of greenhouse gasses, but if it came to putting carbon-reduction obligations on to parties, then that is something that we would say is for Government rather than for Ofgem.

[254] **Ms Simpson:** But if the Welsh Government wanted to do that, would you find it objectionable or if that—?

[255] **Ms Frerk:** I don't think we would have a view.

[256] **Ms Simpson:** Okay.

[257] **Jenny Rathbone:** Just picking up on the opportunities for consumers to be involved in making rational, good decisions, the zero-carbon housing model, like we have in Bridgend—the SOLCER model—offers people the opportunity to change their pattern of consumption of electricity in order to maximise the profit that they can make from the electricity their house has generated. But, at the moment, they're not able to do that themselves because you have to be a licensed supplier in order to sell. If you wanted to sell to your neighbour, you can't do that. You can sell back to the grid, but without the smart meter to know when it is the maximum time, you can't really operate clearly on how to do that. So, I just wondered how you as regulators are making sure that there are no barriers to enable very small producers, like a house, to maximise their opportunities.

[258] **Ms Frerk:** As you said, they can, at the minute, sell back to the grid. The idea of being able to sell to your neighbour is one of the ideas that was very much coming out when we were looking at the non-traditional business models. So, this whole peer-to-peer is a growing opportunity in Uber and Airbnb and so on. It is very difficult because, as you say, we have a whole framework around licensed suppliers and so on, so one of the things that we are thinking about is whether there are things that one could do that would facilitate that. It would need to be a very, very different business model, so we're quite a long way from being able to have people selling to their direct neighbours.

[259] **Jenny Rathbone:** But bearing in mind that there's so much wastage in the way that electricity gets pumped back to the system, and then sent back again to the consumer. Yet, there's an awful lot of electricity wasted, energy wasted, when it could be generated and used locally.

[260] **Ms Frerk:** Where the electrons flow to and fro, the electrons will always flow to probably wherever the closest place is that they can flow to, where there's another source of demand. That's quite separate from the financial transactions about whether or not you've said you're selling your electricity to your neighbour.

[261] **Jenny Rathbone:** So, you're saying that there is a virtual local grid in operation at the moment, technically.

[262] **Ms Frerk:** Technically. You wouldn't be able to do anything different even if you said, 'I'm going to sell you my electricity.' The electricity would still flow to wherever it flowed to.

[263] **Alun Ffred Jones:** Can I just bring in Jeff, or Julie—?

[264] **Julie Morgan:** It was just on this. You said you were thinking about it, in response to Jenny's question. When you say you're thinking about it, what is actually happening and what's the timescale?

[265] **Ms Frerk:** We've committed to publishing—. In our forward work plan, as I said, we will put out a discussion paper on local energy, which obviously covers a whole gamut of these issues, next year.

[266] **Julie Morgan:** But do you think you will come out with some concrete proposals next year?

[267] **Ms Frerk:** I would expect that to have some concrete proposals in it, and I think part of what I'm saying is that doing that kind of peer-to-peer thing is probably going to be very difficult. There may be some things that you can do at more of a community level that are rather easier to do around local energy and how we actually make it easier for people to come in as local suppliers. I'm probably getting ahead of myself here, but there are a whole range of issues that we've covered in that discussion document, and I would like to hope that it will have some concrete proposals in it.

[268] **Alun Ffred Jones:** But it would be up to Government at the moment, at the UK level, to actually say 'ye's or 'no'.

[269] **Ms Frerk:** There are some things that are very much within our gift, and there are other things—. So, the definition of what is a supplier is set out in statutory legislation and would need Government's involvement; there are elements about particular licence conditions that might stand in the way of somebody offering a local service that is within our gift to deal with.

[270] **Alun Ffred Jones:** Okay. Jeff Cuthbert.

[271] **Jeff Cuthbert:** Alan and Jenny, between them, have pinched most of what I was going to say, but one question—it was mentioned before, in terms of the Well-being of Future Generations (Wales) Act, which will come into force in Wales in April. There will be statutory public service boards. Now, do you think that Ofgem would have a role in terms of public service boards, for example, in terms of helping to advise and guide public bodies on how they utilise energy?

[272] **Ms Frerk:** My initial reaction is that we don't generally have a role in advising end users, but we're always very happy to have a discussion around how we can best help. So, we're not necessarily giving advice on how you can use energy, but we might be giving advice on what the rules are around how you might take forward particular strategic initiatives.

[273] **Jeff Cuthbert:** Okay. This may be something, because that new development will create opportunities for organisations that have a public role to play to get far more fully involved in a joined-up way. So, that may be something that you might want to reflect on in Wales. My other points: on smart meters, my smart meter doesn't actually save me any money, but it does tell me what are the most expensive appliances and when I can, or should or shouldn't use them. That's fine; I'm interested in that. Do you monitor—apart from the companies that put them in, and I think I got mine from British Gas—the way in which the energy companies advise their customers about smarter use of energy?

[274] **Ms Frerk:** Absolutely. So, there is an obligation on the suppliers to provide information when they install meters about how to use them and how to save energy and the whole code of practice behind that, and we monitor their compliance with that. DECC also have a role because, in some sense, they're responsible for the project and, overall, whether or not it's delivering its business case, so they're doing quite a lot of the consumer research to see whether or not consumers are responding and what more could be done in order to encourage, as you say, those customers, who may not be as interested as you, to actually take advantage of the information that the smart meters are providing.

[275] **Ms Murphy:** Just quickly on your future generations Bill point, we have been involved quite early on with the Bill—

[276] **Alun Ffred Jones:** Act.

[277] **Ms Murphy:** Act now, yes. We've been part of the national conversation and have hosted debates with the Institute of Welsh Affairs et cetera, and we're seeking a meeting with the future generations commissioner as well. So, we are very active in that space.

[278] **Alun Ffred Jones:** Joyce.

[279] **Joyce Watson:** I just want to say something—just because I feel I have to—about smart meters. I have to be consistent. I actually think that they're going to work against people, because in a cold spell, they're going to turn things off and they might need them—things like heat. But that's for another day; I'm consistent in saying that, but I hope that I'll be proved wrong.

[280] **Alun Ffred Jones:** Have you got a question?

[281] **Joyce Watson:** My question is this: it's about energy storage and planning and your role in giving that advice, according to, obviously, the legislation that's in place, which works against it very often. Do you advise Government? Let's take Paris as an example: they've engaged, they've promised and now they need to deliver on some actions to reduce carbon emissions. So, will you be advising Government that, in very many cases, when people are storing energy, the systems in place, in terms of licensing, are not necessarily working in their favour?

[282] **Ms Frerk:** We currently have a big project looking at a whole range of different flexibilities and solutions and storage is one of our priority areas that we're looking at. Within that, we have highlighted the problems that come from the way that storage is classified as 'generation'. That's not to say that you might want to classify it differently, but you need to look at the problems that it creates and work out whether they can be addressed in other ways to make sure that we're not creating undue barriers to storage from the way that it's classified, and planning, absolutely, is one of those. So, if you've got 50 MW storage and it's viewed, from a planning perspective, as a real generation plant, then that may be one of the barriers, and that's one of the things that we've highlighted that should be looked at. Insofar as Wales ends up with its own planning regime, I would have thought that that might be something you would want to look at.

[283] **Joyce Watson:** Would we have the ability, if you know or want to find out, to change that here in Wales if we wanted to say, 'Right we're going to treat this differently because we've got a massive building project coming up, but we want it to be self-sustaining in the energy that it produces, which might mean some level of storage'? Do we have the ability, in your opinion, or would you make a comment if we didn't?

[284] **Ms Frerk:** When we go into planning rules, I'm afraid I don't know—

[285] **Joyce Watson:** But this is regulation and this is part of the regulatory

barrier, maybe, at the moment. So, as a regulator, seeing something that might possibly get in the way of trying to do what the Government has signed up to in Paris, and what we have to deliver, would you make a very firm comment about that?

10:45

[286] **Ms Frerk:** I'm not sure whether I'm quite picking up on your question, so come back at me if I'm not. From the regulatory perspective, there's an issue that storage is classified as generation, but that doesn't stop anybody from saying, 'Well, we don't have to treat it as generation for these purposes.' In the same way as when it came to the connections queue, we said, 'Okay, strictly, it's generation and all you DNOs have been treating it as generation and just putting it at the back of the list. You are perfectly entitled for these purposes to say there are two categories of generation: there's storage and there's ordinary generation, and storage is not going to sit at the back of the queue', for planning purposes, you could say that it's all generation but that we're not going to treat it all the same, because storage is different from other generation for the purposes of planning because it doesn't have the same sets of local concerns, because it just looks like a shed and therefore take a different approach. From a regulator's perspective, you're welcome to do what you like in relation to planning. The other regulatory issues around storage clearly are Ofgem's remit and we are moving ahead to look at other problems that are caused around double charging and things like that. That clearly is our area rather than yours, but we wouldn't have any objection with you—

[287] **Alun Ffred Jones:** Fine. I want to draw this session—. Sorry, did you—

[288] **Joyce Watson:** A time frame—. We've heard you say quite often through today that you are looking at issues. When do you expect to complete the looking at and turn them into a firm proposal that might go to Government?

[289] **Ms Frerk:** On storage, again, some of it goes to Government and some of it is our own activity. We are committed to publishing our proposals on storage in the first quarter of the next financial year. So that's April, May, June time.

[290] **Alun Ffred Jones:** That's a time frame. Russell, quickly.

[291] **Russell George:** Given that there are differences in policy between the UK and the Welsh Government, does Wales need its own Ofgem?

[292] **Ms Frerk:** I don't think it needs its own Ofgem, but I think it's really important that we are working together. Obviously, that's why we have an office, albeit a small office, with Lia there. We come down and are very happy to engage with you on issues. I'm very happy to find ways to help you engage. I know we have a myriad of consultations that may be of interest. So, I don't see a need for a separate Ofgem, but really close working is important.

[293] **Alun Ffred Jones:** Thank you. And the last word from Alan.

[294] **Mr Simpson:** Just a quick one on that, then. The committee has previously had evidence from a whole range of people, including people from Nottingham's Robin Hood Energy company as a not-for-profit public energy company. I just wonder whether Ofgem would have a view if you received a proposal from the Welsh Government for an Owain Glyndŵr public not-for-profit energy company for Wales. Would Ofgem find that acceptable on the same terms that it approved the Nottingham energy company? If so, would it be a welcome proposal that you would receive from a Welsh Government?

[295] **Ms Frerk:** I think it would be a very welcome proposal, yes.

[296] **Alun Ffred Jones:** There you are. On that—another—positive note, we'll end. Thank you very much for coming in and sharing your experience with us and for providing us with information as well. Thank you very much, both. Diolch yn fawr iawn.

[297] On that point, we'll take a short break. If you can get back on time so that we don't keep the Ministers waiting.

*Gohiriwyd y cyfarfod rhwng 10:49 ac 11:00.  
The meeting adjourned between 10:49 and 11:00.*

**Ymchwiliad i ‘Dyfodol ynni craffach i Gymru?’—Tystiolaeth oddi wrth  
Weinidogion  
Inquiry into ‘A Smarter Energy Future for Wales?’—Ministerial Evidence  
Session**

[298] **Alun Ffred Jones:** Fe wnawn ni ailagor y pwyllgor a chrosawu'r tystion i'r ymchwiliad i ddyfodol ynni craffach i Gymru. Rŷm ni'n falch iawn o groesawu'r ddau Weinidog a'u swyddogion i'n helpu ni yn yr ymchwiliad yma. Felly, croeso a diolch yn fawr iawn i'r ddau Weinidog am bresenoli eu hunain ac am gytuno i ddod gyda'i gilydd. A gaf i ofyn i chi i gyflwyno'ch hunain a'ch swyddogion?

**Alun Ffred Jones:** We will reconvene the meeting of this committee and welcome the witnesses to the inquiry into a smarter energy future for Wales. We're very pleased to welcome the two Ministers and their officials to assist us with this inquiry. So, welcome and thank you very much to the two Ministers for joining us this morning and for agreeing to come together. May I ask you to introduce yourselves and your officials?

[299] **The Minister for Economy, Science and Transport (Edwina Hart):** Edwina Hart, Minister for Economy, Science and Transport. On my right—

[300] **Professor Loveland:** Professor Ron Loveland, energy adviser to the Welsh Government.

[301] **Mr Price:** James Price, deputy permanent secretary.

[302] **The Minister for Natural Resources (Carl Sargeant):** Carl Sargeant, Minister for Natural Resources.

[303] **Mr Davies:** Prys Davies, is- **Mr Davies:** Prys Davies, energy, water adran ynni, dŵr a llifogydd. and flooding division.

[304] **Alun Ffred Jones:** Diolch yn fawr iawn. We'll kick off straight away with the questions. Jenny Rathbone.

[305] **Jenny Rathbone:** Ministers, I just wanted to ask, in the first instance, why we think progress in energy transition in Wales has been so much slower than in other parts of the UK. For example, 2 MW of community energy in Wales versus 500 MW of community energy in Scotland. And in Cornwall, 40 per cent of energy is now generated from renewables. It's a tiny proportion



in Wales.

[306] **Carl Sargeant:** Thank you, Chair, and good morning, committee. That's a really interesting question, and thank you for that. I think we've got a good record in Wales in terms of our delivery around renewables and community renewables. You're comparing apples and pears, technically, in terms of what the measurement in Scotland is in terms of what they consider community energy to what we consider in terms of community energy. The Scottish Government defines that as 'community and locally owned'—community groups, local authorities, housing associations, Scottish public bodies, charities, et cetera. So, there's a much larger scope, a bigger collective. So, when you ask the question, I think it would be fair, as I've explained, to demonstrate that they're not the same when we term that.

[307] **Jenny Rathbone:** Okay. Well, that's fair comment and we need to make sure that we are able to extrapolate that, but nevertheless, the witnesses that we've had—people who want to generate community energy—have had numerous barriers put in front of them and I just wondered what Government can do to improve progress on that front.

[308] **Edwina Hart:** Well, I think we've got to be realistic about what we have done. Renewable generation is now 16.3 per cent of the total generation in Wales. It's up 10 per cent from 2013, so I think that is remarkable progress. The total capacity has increased from 594 MW in 2008 to 2,208 MW as of September 2015. That's a real indication of progress, and I think it's a real indication of how we've worked so hard with the industry in trying to unblock some of the barriers.

[309] But let's be absolutely honest. Some of the barriers are actually financial barriers—they can't get the cash to start the development. They're not going to get the cash for investment into energy projects unless we have an energy policy that's easily understood across the UK, which it is not, currently. When you look at the decision of the UK Government with what happened in terms of changing the goalposts in terms of renewables and how much money that has cost and how many thousands of jobs that can actually cost in the long term, you realise what an uncertain market you're in. So, we've got to look at some of the financial issues around this. Unless there's financial certainty in the market, it is difficult even for us to generate in Wales, where Carl is streamlining planning and consent issues, to give clarity. This is making life incredibly difficult for us.

[310] As I'm saying a few words, if you don't mind, Chair, we must look at the elephant in the room. We might have the Wales Act, we might be having powers coming to us, but there is a real issue about what we haven't got. We haven't got parity with the Scots and we haven't got parity with Northern Ireland; we're the poor partner. In our dealings with the National Grid, for instance, we're just an adjunct of England rather than doing things. When we look at our dealings with Ofgem, we've got to look at the facts: they've got a big process, effectively devolution, in Scotland. What have we got? One very good person working for us in Wales, but where is it? So, all these issues around where we are, I think, are actually coloured by things that are outside.

[311] **Alun Ffred Jones:** Can I interrupt you very briefly? In terms of parity and the differences, you mentioned a relationship there with Ofgem and with the grid. Are there any other issues that you would highlight, which cause difficulties?

[312] **Edwina Hart:** No, I think the grid is an issue for us. Ron?

[313] **Professor Loveland:** And the operation of the renewables obligation.

[314] **Alun Ffred Jones:** And the difference there would be—

[315] **Professor Loveland:** In Scotland, they have the powers to set the levels of support, whereas in Wales it is set by our friends in Whitehall.

[316] **Alun Ffred Jones:** But in terms of Scotland, would they then be having to finance that as well?

[317] **Professor Loveland:** No, it's still financed in general by the English consumer.

[318] **Alun Ffred Jones:** Okay. Russell, did you want to—?

[319] **Russell George:** Given what the Minister said in her opening statement about the UK Government and the Welsh Government, does Wales need its own Ofgem?

[320] **Edwina Hart:** Well, can I say, in terms of Ofgem, you get involved in the discussion of structures rather than the reality of the operation? In Scotland, in very real terms, they are effectively—we would say—almost devolved because of the nature and the number of the people they've actually got

working up there on issues. We've actually only got, I think, one person. One of the issues for Ofgem is that they've got to take their relationship with Wales much more seriously in terms of the resources that are given to that individual. The individual concerned is very hard-working and works very well with us, but we actually need the resource. So, I don't think we want to get into structural issues. We want to get into the reality of how operations can be benefited by having the appropriate personnel on the ground. I think it's too soon to say anything else in terms of a separate Ofgem. I don't know whether you agree, Carl. It's the way we work with them and the resource they have to work with us, and the reality of what's happening in the rest of the UK in terms of what's going on. The grid stuff, if we ever come to the grid issues, I'm sure would be of enormous interest to the committee.

[321] **Carl Sargeant:** If I may, Chair, I think Edwina is right in her view: that this isn't just an Ofgem issue. This is about a package—a suite of things. If we are serious about increasing at pace our commitment to renewables, we need the powers alongside that as well. So, the Wales Bill is important, but that's only part of the deal. The Ofgem aspect of that, the renewable obligation ability and the variances around that—it's a suite of tools that would enhance the opportunities that we have in Wales.

[322] **Alun Ffred Jones:** You mentioned the different interpretation of the term 'community energy' in Scotland and Wales. If you don't have the figures now, if we counted community energy in the same way as Scotland, could you give us the figures for that? If you can't give them to us today, obviously you can provide them afterwards.

[323] **Carl Sargeant:** I'd be happy to do that, Chair.

[324] **Alun Ffred Jones:** Okay. Jenny, did you want to carry on?

[325] **Jenny Rathbone:** We're all totally dismayed by the tearing up of the zero-carbon obligations for new buildings, as well as the tearing up of the feed-in tariff, or the watering down. What is the Welsh Government's vision of how we are going to move forward on our climate change obligations in the light of these difficulties?

[326] **Carl Sargeant:** I think what we've done in Wales—and this committee was part of that—we've got some groundbreaking legislation that we've introduced around the Well-being of Future Generations (Wales) Act 2015. We're introducing the environment Bill, which is currently going through the

scrutiny process of this Assembly. Within that structure, we have public service obligations around global responsibility, the environment aspects, and carbon budgeting, which will be introduced for government. Again, we believe we're the first Government to legislate around this. So, again, we are very committed to making a critical change. I know that the Member appreciates this, but this isn't always about energy generation. It's about energy conservation as well and doing things better. So, it's a mixture. We've got a much more holistic view now about how we care about the climate, energy use, energy consumption and energy efficiency. They're all part of a toolkit that we believe we're legislating for and have legislated for. The environment Bill, we think, will be the final piece of the jigsaw to deliver on that.

[327] **Jenny Rathbone:** Okay, but you announced yesterday that there was ERDF funding of £1.5 million, which you hope will generate £30 million-worth of projects. That's excellent. How else are we going to move forward? Some countries have put, for example, obligations on new developments for storage. We've heard from earlier witnesses that whilst demand is going down for energy, there are spikes that need controlling, and obviously, storage would be a very good way of doing that.

[328] **Carl Sargeant:** If I can start and then maybe bring Ron in in terms of the technical aspect of this, I think one of the more complex issues of energy is the storage aspect of that. We have seen some small examples of some homes that are using storage capacitors of battery storage, which are topped up by solar cells, but doing that on a large scale is very difficult. So, technology is part of the issue that's holding us back there. We think that, as we mentioned earlier on, the production of energy is more simple, provided that we can get the support mechanisms behind that; we don't hold all the levers for that. But then completing the step change is about production, storage and efficiency. The storage is the most difficult part of that procedure. I don't know whether Ron might have a view about the technical aspects of that.

[329] **Professor Loveland:** Storage is a very difficult issue. I mean, in my job, if I'm asked what is really complicated, my answer is normally 'biomass and storage'. We've had in the past, and still have, a good storage system through our fossil fuel stocks. That's why coal stations and gas stations can generate at will; the energy is stored in those fuel stocks. Now, clearly, that's not sustainable as we move forward in the low-carbon world. But the reality—I've never seen proof of these figures, but people generally talk

about them—is that the cost of heat storage is about 100 times the cost of storage of fossil fuel, and the cost of electricity storage is about 100 times the cost of heat storage. So, it's an expense issue.

[330] It's also a question of what the storage is there for. If it's there for just switching the consumption of energy for a few hours, as it would be if you have a PV panel on your roof, and you want a battery in your house, that's one issue. I think most people, as they go forward, if they have PV panels, might well install batteries, particularly as they come down in cost, because that saves them taking money from the grid. If you're talking about keeping the lights on for a much longer timescale—you're talking about the Dinorwigs of this world, which are very expensive beasts—you clearly have to look at the costs of all of this and the competition in terms of security of supply or what the alternatives are in respect of security of supply through interconnectors, through, sort of, flexible generation and through open-cycle gas et cetera. As I say, it is a very complicated area with no simple solutions.

[331] **Jenny Rathbone:** Okay, but one of the other, perhaps, simpler solutions would be to create smart cities. We've heard that Manchester is already a smart city, and Bristol and Nottingham are well on the way. There's initial interest from Cardiff and, apparently, some interest now from Swansea. What role does Government play to ensure that these projects are taken forward, given that there is money available through Horizon 2020?

[332] **Carl Sargeant:** There is some work with our green growth programme. Already, we've got some pipeline projects, again, working with other organisations. One example would be the smart energy in Bridgend—. They're looking at a holistic view for the whole of that community in terms of heat and power. So, we are starting to roll out a programme already on that, so we are in the mix in terms of delivery on this already, Jenny.

[333] **Jenny Rathbone:** So, are we in a position to be making a bid? I believe May is the deadline for the current round of Horizon 2020?

[334] **Edwina Hart:** Can I indicate that the city region board in Swansea, as Carl is well aware, has actually been looking at whether there is a feasibility to looking at bidding around this issue around smarter cities? They have been looking at wider issues of smarter living, which we are, obviously, currently involved in in terms of projects there, because I think we're supporting two projects currently on smarter living, Carl.

[335] **Carl Sargeant:** We've got two, but we've got some more on the way, as well. There's, I think, RCT, and Flintshire is another—

[336] **Alun Ffred Jones:** And what are they?

[337] **Carl Sargeant:** They're basically about looking at the energy usage of the community, and 'community' based on local authority level or smaller, and looking at the resources, the utility network, storage, supply chain, affordability of energy and low-carbon developments—all aspects of what the hub will look like for development within that community. We have attracted over £45 million already, supporting two of the projects that we were talking about.

[338] **Alun Ffred Jones:** And that money has come from—?

[339] **Carl Sargeant:** I'll have to just check with my team.

11:15

[340] **Mr Davies:** It's come from the—

[341] **Carl Sargeant:** We'll have to send you a note on exactly where that money's come from.

[342] **Alun Ffred Jones:** The reason I ask the question is—

[343] **Carl Sargeant:** I'd like to say it's from me, but it's not.

[344] **Alun Ffred Jones:** The reason I ask the question is that we had reference in some earlier testimony that quite a lot of Horizon 2020 money had gone into, for example, the Manchester scheme, and it seemed that none of that had come to Wales. I'm just wondering whether the Government has been discussing that at all with anybody.

[345] **Edwina Hart:** All of this has been discussed in the European structural fund context with others, because there's money involved in that, but we'll give you a breakdown of the money. The other point I would add is they're looking at smart solutions grid-wise as well as part of this—about how you can deal with some of the grid issues in a more smart and novel way as well, which is actually quite important when we come to talk about the grid. So there is, I think, a lot of work going on, and I think it is across departments,

because it links so much in. Because out of these developments, can I say, also come jobs, investment opportunities and new businesses, and you see, for me, the energy agenda is about how we deal with some of these issues, because energy is a massive thing for us in terms of the development of the economy? You've only got to look at some of the excellent projects that are coming forward in Wales, how they will enhance employment opportunities, and how we deal with the training agenda, which gives much broader economic value to this, rather than just concentrating, perhaps, on targets where we've got renewables. I think we've got to look at the wider economic benefits as well.

[346] **Alun Ffred Jones:** Well, seeing as you've mentioned targets, Jeff, would you like to—?

[347] **Jeff Cuthbert:** Yes, thank you, Chair. Following on, really, from the Paris conference, you've already alluded to the Environment (Wales) Bill and the Well-being of Future Generations (Wales) Act 2015, the provisions of which will come into force this April. Do you see a role for public service boards in terms of co-ordinating responses for energy, the demand in outlay of energy, and indeed the take-up of renewable energy? Do you think that PSBs can play a positive role in that regard?

[348] **Carl Sargeant:** I think they can, but I wouldn't want to be prescriptive in what they do. I think the opportunity for understanding the wellbeing of the community is a matter for them, and we were very keen to ensure that the—as it was put to us—potential democratic deficit wasn't challenged in that process. It is a matter for local people to make the determination of what they seek and see fit for the area. What I do support is the fact that they will be under the obligations of the goals within the Act, which is very clear in terms of reducing the impact on community and the climate. So, carbon reduction would, I hope, feature as part of one of their key aspects in terms of determining their priorities as a PSB for their local community. So, the answer to your question is 'yes', they will have an involvement in this. At what scale, I wouldn't want to be prescriptive of.

[349] **Jeff Cuthbert:** All right. Following on from that, the environment Bill, as we know, will introduce national carbon budgeting. Have you considered introducing targets for carbon budgeting for sub-national areas like city regions, for example?

[350] **Carl Sargeant:** We have, and I'm not minded to pursue that at the

moment. I think your first question, which you asked us through the Chair, was evidence that we don't hold all the levers here in terms of ensuring what we'd like to see happen. So, it would be very unfortunate for any Government to insist on an organisation having to do something when we can't control that mechanism, or they can't either. So, I don't think it's a bad idea to drive down the agenda and have a very common theme about what we're trying to achieve here, but setting targets when they or we don't hold all the levers would not work.

[351] **Edwina Hart:** Can I say something on carbon budgeting? I think people need to recognise this is a very complicated and complex area that I think would have to be looked at in really great detail, about the implications across the piece. But if I follow on the point that Carl made about the engagement of people, can I say that, sometimes, when we talk about energy policies, we talk about them at that level, but some of the levels we should be discussing are public perception and public understanding of why things have to be done? It's like the renewables agenda, and why people don't like wind in a certain way, why they don't like solar farms, et cetera. I think we've got to get the public on our side in terms of developing an agenda about energy as we try to get the full benefits that I think can come from the transition to low carbon. They're enormous, but I think there's an awful lot of work to be done in that area in terms of perception, for people to understand that we need to do it not just for the planet, but for our economy, the growth of the economy and how responsible business develops within this area.

[352] **Alun Ffred Jones:** Llyr Gruffydd.

[353] **Llyr Gruffydd:** We talked about the targets earlier and it's something that I raised with you yesterday, really. You'll recall that this committee, in its inquiry into energy policy and planning, recommended that the Government sets a specific target for community renewable energy, and that recommendation was accepted by the Government. So, I was just wondering when the Government would be in a position to announce that target, because this report was published three years ago?

[354] **Carl Sargeant:** Yes, indeed, and my answer to the previous question remains the same. I think what's happened here is we've seen a change in the way that the market operates; we've got less market confidence. The feed-in tariff proposals that came from the UK very quickly have had a massive impact on development, and, as I said, I'm not minded to set targets in regards to this because of the levers that we don't hold yet. The principle



is I absolutely think it would be the right thing to do, but technically I don't think it's possible to achieve because we just don't know the market security.

[355] Saying that, we have a very good relationship with the renewable sector; I meet them on a regular basis. They are keen to do business, but we've got to develop a Wales solution to this now because of the insecurity of the English market.

[356] **Llyr Gruffydd:** So, what is the Wales solution, then, or when is the master plan being—?

[357] **Carl Sargeant:** We're working on that with them, and I don't think a Government can fix this. I think Edwina was right—it's about what the community wants and how can the market deliver that with the support of Government. I'm working within my department and with NRW on what our stake in this is. What is the public stake in this? While we know that finances are tight—the financial settlement has been very difficult for all of the public sector—so what do we have? That may be land use, and we could use NRW land as our stake in the development for a community project. So, is there a new deal to be struck where it's not cash based and is it a long-term relationship on land use?

[358] I'm encouraged by the operating companies, in their role, about how we find solutions to this. The problem we had was that the transition time from the announcement to when this happened destabilised the market. My worry was that all of these companies would just shut shop in the UK and move abroad. They haven't done that; they've said, 'We're still keen to work with you in Wales'—Scotland, of course, too. But there's no business for them in England, and you will have seen rapid job reductions—companies closing because of the effects of what the UK Government did.

[359] **Alun Ffred Jones:** When we went to Germany, we did see examples in various communities where local production seemed to be linked to local demand—there was a school, wasn't there, and a farm producing it? So, there's nothing, presumably, stopping that happening in Wales. What's the role of the Government in trying to establish and encourage that?

[360] **Carl Sargeant:** Yes, I think there is a role there for Government, and, again, this comes back to not looking at renewable energy in isolation; it's about a public service solution. So, what is the need of the country and if we need new schools, how do we make new schools greener and renewable?

How do we build that into the supply chain? And that's what the green growth agenda is for us, and we're working really hard on growing the green growth. We've got a summit in March, later this year, where we're bringing world leaders to Wales to talk about the green growth potential for us, because we recognise that transition isn't just about energy; there's the whole approach of sustainable development of the economy, social aspects and cultural aspects, which will deliver benefits on the back of low-carbon transition. So, there is a lot of work we are doing. We're instigating that. We're supporting it, but you can't just look at energy as one part of this; we have to look at a community solution, with energy being part of it.

[361] **Alun Ffred Jones:** Mrs Hart, and then Llyr.

[362] **Edwina Hart:** Yes, if I just say I've got my Energy Wales strategic delivery group, and that looks at all these issues in detail. Since I've taken over the chairing of the group and we now meet every six weeks, it's an opportunity at quite a high level for individuals to express their comments about the energy industry, knowing that we are under Chatham House rules, and they produce reports.

[363] We're now looking at a range of issues, as Carl says, that impact on the whole policy, not just the renewables agenda, because they've looked at the nuclear sector, the potential for future nuclear in Wales, which has been very important, they've looked at grid issues, they've looked at fracking and unconventional gas. They're focusing now, currently, on two reports that will be ready in March—and I'd be more than happy to share the executive summaries of these with the committee—on marine energy and rural energy matters, because on rural energy matters they're looking at some of the grid issues within the rural areas, and all these issues about renewables and others will come out from that discussion.

[364] So, I think it's important that we recognise that, when we have these wide discussions about energy, we take them forward in confidence with the industry, but also as well, from the representation I also have from my other groups that work for me, like construction and advanced manufacturing, we realise how concerned they are about some of the energy issues. And when you talk to some of the very good companies that exist within Wales about what they've done in terms of energy efficiency, how they're looking at producing their own energy—you've only got to look at Toyota in Deeside, with its new solar farm and everything—you recognise that there's a good link between the economy and the energy issues. But the intelligence that

we're all getting from these various groups that advise us—. They're not telling us to rush into things; what they want is confidence in whatever we do. And I think you will find that they've got confidence in the way that we're now dealing with issues in relation to business, how we're dealing with them.

[365] The renewables sector doesn't feel bruised from anything we've done as a Government, I can tell you that, now, because the dialogue with us is quite honest. Somebody said on the phone to me the other day on an issue, when I was talking to them, that they wished they could deal with us more on some of the issues that they're getting impacted on. We found that particularly when there was that change in UK Government policy; it was just overnight. You wouldn't believe the impact that that could possibly have on jobs, and that's been an absolute frustration, I have to say, to my energy Wales group—the lack of clarity on that. They feel that we are giving clarity to the agenda. And, even if we don't have the levers, we must still pursue what we can do without levers. It's like on nuclear, particularly; we have an excellent relationship with Hinckley Point; we've gone into the supply chain there, and we're looking at what we can do and we're doing the same in Wylfa. Even if we haven't got the levers, they know we have a coherent policy for dealing with the issues with them, and that's across both departments. Because, obviously, at official level, and ministerial level, we work very well together.

[366] **Alun Ffred Jones:** If you could share—

[367] **Edwina Hart:** Yes, happy to do so.

[368] **Alun Ffred Jones:** —those points from the meetings, it would be very useful.

[369] **Edwina Hart:** And, if you would like, I can do a little note, Chair, about what the group discusses in highlighted points for you, which might be helpful.

[370] **Alun Ffred Jones:** Okay. I want to move on to the housing stock, if I may, so, Llyr.

[371] **Llyr Gruffydd:** We know clearly, because of European directives, that public and private buildings have to be built to near zero-carbon standards by 2020. You've already told us that you intend to review part L of the building regulations. Why doesn't Welsh Government require all new market

and social housing to be built to SOLCER-type standards? Wouldn't that be more straightforward?

[372] **Carl Sargeant:** We have our building regulations, which were devolved to us, and we've had long discussions over this and we have some disagreements too, but that's the nature of the politics. I've had to make decisions that have been looked at very carefully, about making some energy-related decisions, so energy-efficiency related decisions, while protecting the market in terms of construction as well. We went through a very difficult period where the construction industry was struggling in keeping afloat, effectively. I think we've turned the corner there now. We can start looking at that. The review of part L will be taken forward.

[373] In regard to the general question about a near zero-carbon home on all social housing, I have talked to the housing Minister on this, in terms of, 'How do we encourage that type of development into the system?' Part of the issue is about consumer issues and people having confidence to have a non-traditional home. That also goes to the market as well, and that's why the Redrows or the Persimmons of this world generally only have six types of homes. You can have them in any colour, and turn them around in which direction you want, but, generally, there's only six, and that's because of the way the market operates, because they know they sell them. I think there is something more that we can do in Government in terms of our social housing stock. Once we have confidence in the market, and it's a proven scheme—. I know that the SOLCER house is currently being sought to be—to have significant developments of that. Once that's up and under way, I think we'll have more confidence around that programme, and maybe, at that point, we should be instructing all housing associations to use that.

11:30

[374] **Alun Ffred Jones:** There is timber-framed housing in Dolwyddelan, for example, built many years ago, again using local supplies. That is another model that could be used, but the question is: why isn't it used?

[375] **Llyr Gruffydd:** We've spent the best part of the meeting so far expressing a great deal of frustration about areas that we don't have competence over; this is one where, actually, we can make that decision ourselves.

[376] **Carl Sargeant:** Indeed we can, but, as I said to you earlier on, I think

what we've got to do is make sure that the technology is scaleable and that we have people who are confident to have those properties. These are new—this is a new system, and, while the timber construction frame is exactly the same, and timber homes have been around a lot longer than brick homes, we still can't break the market. The market is the market and what we're trying to do here—. The levers that we have may be for the Minister for housing in her decisions, when we can prove that the technology is scaleable. It may be at that point that the Government may say that all social housing grant will only be developed for that type of home. But we're not at that point at this time.

[377] **Llyr Gruffydd:** But you do appreciate, I'm sure, that the risk is that, if we don't insist on the ultimate standards possible, then you're locking that inefficiency in for decades to come and that'll affect future generations and we've been quite active in that in terms of legislation.

[378] **Alun Ffred Jones:** What about the European energy efficiency directive, which will demand that all new public sector buildings are built to a very high standard, zero—well, I don't know about zero carbon, but near zero carbon?

[379] **Carl Sargeant:** And we continue with our pledge to deliver that.

[380] **Alun Ffred Jones:** By 2018 or 2020, was it?

[381] **Carl Sargeant:** Public buildings by 2018, but the issue here is also about technology creep as well and making sure that we have the technology, because you can get so far into developing a building, but then you get to a point where you have to use mechanical ventilation and things like that at a certain point. What we also need to do is take into consideration where we are technically around this as well. We're hoping that more technologies coming forward will help us with the development to achieve those standards. But we are continuing on our journey to achieve this.

[382] **Alun Ffred Jones:** Julie Morgan.

[383] **Julie Morgan:** Just very quickly, obviously I'm concerned because this is a very immediate problem, particularly in Cardiff, because we've had the local development plan just agreed and we're going to have thousands and thousands of new homes built, many of them in my constituency, and I feel that it's really important that, as quickly as possible, we get some standards built in. So, have you got any comment on that, because this building is

going to take place very soon and we're going to be left with the problem that's already been raised? Will we retrofit all those in years to come?

[384] **Carl Sargeant:** We have got good standards. We have got good standards in our building quality stock, compared to many other places. It's not for me, Chair, I don't know whether you've had the house builders into your meetings, but, when I push around energy efficiency measures with the housing sector, I'm not the most popular person, may I say, and I usually end up in a bit of a spat on the front of the *Western Mail* by some of the developers because they just don't want to do this because of market conditions.

[385] I must say that we've got some small and medium-sized enterprises in Wales that are very, very effective in delivering on this and my view is: let the people who want to do this do it. It's about market forces that generate the sales, and Julie Morgan's point on the development around Cardiff, where some of the, I expect, big businesses will know exactly what their market is and exactly what they want to sell—and they will sell, because people want them. I think we've got to try and shape with the levers that we do have. Llyr does have a point about our social housing stock, where we invest money into the public sector. We should be pushing into a space where we can have proven technology and scaleable technology for delivery of better homes for people in our communities.

[386] **Alun Ffred Jones:** Llyr.

[387] **Llyr Gruffydd:** The Government did regulate on sprinklers and the industry were dragged kicking and screaming towards that. Why is this different?

[388] **Carl Sargeant:** It isn't different. I think, again, sprinklers are a proven source. We know that they work.

[389] **Llyr Gruffydd:** So it's not the industry; it's the technology. That's what you're saying.

[390] **Carl Sargeant:** No, I didn't say that at all. It's a mixture of both, isn't it? We've got the technology that we've known, the SOLCER house. That's been developed. That was your initial question. We haven't seen that at scale and we haven't seen that in terms of how a development will work. That's on track to happen. I think once that's proven we can then, as a Government—or

a Government—can make a decision over whether that is an opportunity to develop that type of programme on a larger scale in social housing. I've got confidence in that programme. But I wouldn't want to fly that kite without the detail and the evidence behind that.

[391] **Alun Ffred Jones:** Mrs Hart, did you want to come in?

[392] **Edwina Hart:** I don't know whether the committee's had the opportunity to see the house down in Stormy Down, which was exceptionally interesting, and, of course, we've supported that from a departmental point of view in terms of the development of the technology. I think we're quite clear on the technology that's there in terms of the development, because we've been actively involved.

[393] **Professor Loveland:** The problem goes away if you can build a low-carbon house at no extra cost. That's the great benefit of the SOLCER house. Also, with the SOLCER house, you get an income from the fact that you generate more energy in that house than you use. Clearly, one house is not enough to change the market. But we would like to work with SPECIFIC. I was talking with our friends in Whitehall yesterday about how we might move forward to expand that project. So, we are talking about five, 20, perhaps 100 houses, which not only demonstrates the integration of the technology and some of the mass-building techniques that will be needed for that, but also how we can do it in such a way that we meet all the standardisation requirements, so, we will work with the BRE. If we can do this sort of pilot, expand the programme as much as possible, you then really, at the end of that, have a launch pad on which the major house builders will move forward, because they would have absolutely no reason not to do it.

[394] **Alun Ffred Jones:** Mick and, I'm sorry, William Powell afterwards then.

[395] **Mick Antoniw:** We had evidence a while back from some of the house builders. I hadn't been aware of the phenomenal level of profits that they actually make, which go way beyond the profits that are made on capital investment by industry. With the potential expansion that's required in areas that are clearly very commercially viable, it seems to me we hold an enormous number of economic levers at the moment. Isn't it about time we actually said to some of these big developers that they either want to develop with the standards that we actually think are necessary for the future, or they can go develop wherever else they want? We actually need to look at those who do want to develop housing to the proper standards within Wales. Isn't

there a case for us being clearer about where we stand on this now, whereas obfuscation, to some extent, actually has allowed us to play into the hands of their individual economics?

[396] **Carl Sargeant:** I like the thought, but I don't think it's as simple as that. I think Wales has a complicated geography. There are very popular land bases that people want to develop in and there are other areas that they don't. We have to have a solution for all of Wales. There is a viability issue on land in Wales that is different to what is happening in parts of England, too. So, we have a historic mining culture, which has—. And the hills and valleys that we have are prominent and all cause development issues and development costs. So, there are increased costs for developing in parts of Wales, but we've got to find a solution that covers all of it, because some of the major house builders would love to build along the M4 corridor and the A55 and nowhere else. We have to look at what's right for the rest of Wales too. So, I'm sympathetic to your argument, but I don't think it's quite as simple as saying that we want—

[397] **Alun Ffred Davies:** William Powell.

[398] **William Powell:** Diolch, Gadeirydd. Coming back to a couple of points that arise out of earlier comments, Minister, you talked about people needing confidence in innovative properties and technologies. One small item that's recently been raised with me is whether you would give consideration to issuing technical advice for One Planet developments, not just in rural settings, but also those adjacent communities. I understand from people in that particular sector that they would welcome that, and I think it was probably the original intention back in the third Assembly when your predecessor launched that. Would you give consideration to revisiting that, because I think it would make a small contribution in certain areas to building the confidence that you referred to?

[399] **Carl Sargeant:** Yes, I will give that some further consideration, Chair. I'll drop the committee a note.

[400] **Alun Ffred Jones:** Joyce Watson.

[401] **Joyce Watson:** I think what we're talking about here is where the Minister started—we've got to think of this as one single unit, whether we produce energy locally, and that then in itself powers the houses that we build in a different way, whether also that energy then delivers jobs in that



locality at the same time as providing housing and it's about—. Really that's sort of where my question lies. It's that level of thinking that we need. There is a project—so, I have to say it— in Pembrokeshire that has done just that. They have produced energy, built houses with local materials, but also provided electric vehicles on site as well—and it's always overlooked, so, I'm just going to put it back on the table—and with local skills. So, I suppose my question is this: when we're talking about energy, and I can take mid Wales as an example, where people rallied against it—everybody I talked to did that because they couldn't see any gain, they could only see a loss within that project—is it time, Minister, that we, first of all, sold the gain to the community where there's a large, or even a small-scale energy project, but at the same time put on the table the benefits that I've briefly mentioned, so that those people can actually see the benefit and, of course, it leads us nicely into talking about the grid?

[402] **Carl Sargeant:** I think my view on that about community engagement is really an important one and I think we see some applications fail because of the lack of engagement. I've spoken to developers and said they have a part to play in this too. We've changed the planning regime now, so there is a pre-consultation process for developments of national significance. So, we've changed the way that operates, but it also gives confidence to the market as well to say exactly—. They know what the terms and conditions are here. You go to communities, talk about the benefits for communities, as well as the negatives, but people fully understand the story because you often see newspaper headlines that are inaccurate around the proposals, and I think there is a job for us all to do about telling people, being open and transparent about developments that do have economic, social and environmental benefits for communities. We've tried to change the system that operates now to accommodate that very thing.

[403] **Alun Ffred Jones:** Mrs Hart.

[404] **Edwina Hart:** I just wanted to say, you see, I think we can influence the market in some ways, and following on from what Mick said and Llyr. We've obviously had projects that we've dealt with from our side of the house in terms of the Ely Mill project, where we worked with the building society, the Principality, and we worked with a housing association to get a development of good-cost housing et cetera. Now, as part of that ongoing work that we're doing developing other sites with them, that might be the issue for looking at a small experiment in terms of the one house of 20 that we were talking about earlier, which is in Stormy Down, to influence the market. Because if

that was to come up somewhere, being brought in at a certain cost, that then will influence the market to see if it can be done. And, I also think that houses like that will prove extremely popular and might then change the big house builders' views about what is actually popular, perhaps, with young professionals and families, about what developments they want for the future. Because people are a lot smarter than commercial people think they are. They are interested in their energy costs. They're interested in the impact on the planet. We've got children now who know so much about climate change it puts their parents to shame. So, we have got a driving agenda there, which I think there is a role for Government in, whether it intervenes in other projects, like we've had to in Ely Mill. Do we then intervene in future projects like that with our partners, the Principality and building societies, to look at the 20-house build that we can use an exemplar to persuade the big house builders? Let's not have any naivety. They're in it to make the profit and maximise their profit. We live in the capitalist system and that is what is happening. But, we've also got to recognise that the big house builders also bring jobs into Wales and training into Wales and it's that economic balance that it's sometimes quite difficult when you're talking about a principled approach on certain issues.

[405] **Alun Ffred Jones:** Germany is a capitalist system and we've seen, you know, massive developments there of very-low-energy-use housing. Anyway—

[406] **Edwina Hart:** Yes, and the German state controls it from the centre, and the German state takes an interest in it and in some of the issues and the local state. It's a question of the devolution aspects of this and what the policy of the German state is as well, if I may suggest, Chair.

[407] **Joyce Watson:** Absolutely.

[408] **Alun Ffred Jones:** Julie Morgan.

[409] **Julie Morgan:** I was going to ask about business partners—*[Inaudible.]*—and, first of all, do local authorities in Wales currently have the powers to set up local energy service companies?

11:45

[410] **Carl Sargeant:** Yes, they do. Prys will be able to give you more detail on that, but they are able to do that currently.

[411] **Mr Davies:** It is our understanding that they have the powers to set these companies up. I think the question, though, is whether it's attractive under the current regulatory regime for them to establish these companies. The Minister's already referred to work that we are doing. We're working with local authorities in particular, but also with a range of public bodies to develop a pipeline of investment opportunities, which we will then support through funding that has been already announced. We believe that, unless the regulatory model changes, the work that we're pursuing is probably a more attractive proposition to local authorities than necessarily establishing ESCOs.

[412] **Alun Ffred Jones:** And the model is?

[413] **Mr Davies:** The model is that we support—. We have contracted an organisation called Local Partnerships to work with all local authorities to help develop a pipeline of energy opportunities in each local authority across Wales, but also working with Natural Resources Wales and other public bodies to give them technical and commercial expertise to identify those projects that are appropriate for commercial development and that make economic sense for the local authority, and for us then to proceed with potential investment vehicles, which the Minister is currently consulting on, and, subject to appropriate and robust business cases, we have a funding mechanism to support investment in those particular projects, which, in turn, will deliver, hopefully, carbon emission reductions for those local authorities and energy efficiency savings and, potentially, where appropriate, energy generation opportunities as well. So, there's a range of processes.

[414] **Julie Morgan:** So, would that include a company—a local authority setting up a company?

[415] **Carl Sargeant:** It could do, but we need to be clear on the regulatory regime. It is very complex. What we're trying to do is enable local authorities to have the skills to do that. I think local authorities are nervous about how the system operates. Ofgem have been doing some work about the current regulation system. We've helped on the consultation of that process. We facilitated five workshops across Wales to try to understand that better. So, we think the regulatory system allows that to happen. The problem is that it's very complex, and I'm not sure how many will want to do this. So, we're trying to find other opportunities or more simple routes to enable similar outcomes for communities to benefit from local training groups. We've got

some social enterprises, actually, interested in doing some smaller scale stuff. There's one in Bethesda that we're hoping will be online in the summertime—this coming summer—where they're doing some special work around Bethesda in terms of looking at how they can replicate energy programmes for the local community.

[416] **Alun Ffred Jones:** Ofgem were asked this morning what their response would be if the Welsh Government set up a not-for-profit energy company for the whole of Wales, and the answer was that they'd welcome it, rather surprisingly. Is that being considered or discussed at all?

[417] **Carl Sargeant:** We have had discussions around this, about the opportunity for a Wales energy solution company. It goes right back to the very beginning of what we talked about what levers we have and what control we have because, at the end of the day, we're still under the remit of the UK Government about the power and the power controls that they have, so—

[418] **Alun Ffred Jones:** Nottingham have done it, and so, presumably—

[419] **Carl Sargeant:** Sorry, Chair?

[420] **Alun Ffred Jones:** Nottingham have done it and others are looking at doing—

[421] **Carl Sargeant:** But we're not Nottingham; we're Wales. The fact is that what we're trying to do—. If we believe in having a Welsh company, we would want to have the stake, the ownership of that about how we control it—the energy supply, the mechanism, the grid network—. It is very complex. It's not inconceivable, but while you're still at the beck and call of the UK Government's proposals and how that operates, they still hold far too many levers for us to have a credible control over such a programme.

[422] **Alun Ffred Jones:** We're not going to cover all the ground this morning. Is it on this?

[423] **Llyr Gruffydd:** Yes. Just picking up on the levers that we don't have, with particular reference to the grid, could you maybe tell us what additional powers the Welsh Government would like to have in relation to the grid?

[424] **Edwina Hart:** Well, I'd like the grid to recognise that Wales is a nation and actually has to have proper grid issues. What we find with the grid is that

we're almost an add-on in terms of the grid. What industry is telling us is that one of the issues is the lack of network capacity, where capacity is, and the difficulties that we have, particularly in rural areas, with it. So, in terms of the grid, we'd like to be able to challenge where the grid does work and what work the grid should be doing. I think we should have some role and function. Now, Ron's worked with the National Grid for years. They're nice enough people, but the issue is the politics around it and the way that it works.

[425] **Professor Loveland:** No doubt you've talked to operations like Western Power Distribution—one of the more innovative DNOs in the UK. They would like to do lots of things, but they are prevented by the Ofgem rules from so doing. On grid, as you know, we are being offered devolution of power station consents up to 350 MW. We are not being offered powers over the consents for grid.

[426] **Alun Ffred Jones:** Russell, did you want to come in on this?

[427] **Russell George:** What additional powers do you think the Welsh Government needs over the grid and consenting powers as well?

[428] **Edwina Hart:** Well, I'd like the powers over consenting on the grid.

[429] **Russell George:** You would do.

[430] **Jenny Rathbone:** This is a leadership issue, surely, not a technical issue. Ofgem told us, 'This is not a technical issue'. Because if we had a Welsh grid, the technical lines would still be there in place.

[431] **Professor Loveland:** The law at the moment gives the consent power to—

[432] **Jenny Rathbone:** No, no; I appreciate the law, but we need to, obviously, change the law because the technical—

[433] **Edwina Hart:** I would love to change the law on many things if I could just sit here and sign something off, but there's a due process with this. There's the discussion with the UK Government. What we've got to do is hold them firmly to the fact that they've given us devolution on some things. There is anticipation, I think, on the devolution of more things in terms of this agenda, and we've just got to keep on about that issue. James.

[434] **Mr Price:** Very simply, and I think Ron's already covered this, for me we need devolution of the ability to grant grid consent, to go alongside the ability to generate power because otherwise—

[435] **Edwina Hart:** It's nonsense.

[436] **Mr Price:** —you can't connect them. But, beyond that, I think there's the ability for the Welsh Government to be able to sort of specify direct lean on—I don't know what the right word is—the grid to ensure that where there isn't capacity, capacity is put in. Because, the big providers will be able to afford to enhance the grid as a result of the planning process, but that isn't always the case, and the grid is massively constrained, certainly in key parts of south Wales and in key parts of north Wales, and joining the two together as well. We need much more.

[437] **Edwina Hart:** But also as well, when you just look at the simple thing, like that visual impact provision project, right, that's been dealt with in terms of the grid, where were we in our involvement in that? You know, we couldn't do certain things. We would have liked other things done, but we don't have control over these things. We need to have control because it's our environment; it's our people that are concerned about this. So, when we have the argument now about what's happening across Anglesey with the pylons and all this type of stuff, and the mitigation of some of this in areas of outstanding natural beauty and national parks, where is our involvement? Our involvement is only a voice to talk to Ofgem, to talk to the grid. We have no control. Unless we start to get some control on this, we're not going to be able to do what we do as a nation. As far as I'm concerned, we've got to get further on this. Also, Ofgem has to secure transformation in the market. They've got to be more hard-nosed about their responsibilities to Wales, not just concerning themselves about being nice to the Scottish Government. They've got to get to grips with what's going on in Wales as well, as the regulator.

[438] **Russell George:** Can I ask, on the—*[Inaudible.]*—so, how do you navigate that? How do you navigate through those difficulties?

[439] **Edwina Hart:** We navigate all the time through difficulties on transport, with cross-border roads, rail and everything. Where there's a will there's a way.

[440] **Carl Sargeant:** We experience that on water too.

[441] **Edwina Hart:** Yes.

[442] **Carl Sargeant:** So, it's not insurmountable. On the back of the grid, I think what's really important is that we put this into a practical context about what people really do understand. What we saw in Powys, in the joint inquiry, was developments being refused by the Minister. That's the choice of the Minister, and I fully accept that, but the fact of the matter is, even if some of those applications on the renewables have been passed, the basis of not passing the application for a grid connection made them pointless in the first place. So, we have no control over the destiny of our renewable sector because the levers are not with us. That's the point that the Minister made. If we have the complete package, we can deal with what are the right things for Wales, and the current position is that we don't have them.

[443] **Russell George:** Can I ask then, with the levers that you have got, how can you support community energy projects with connection-to-grid issues—with the levers that you do have?

[444] **Carl Sargeant:** Well, we have to have much smaller-scale programmes and that's what we're doing. That's why I've always said to you, for us, while we don't have the ability to do these large-scale projects, until we have the devolved powers to do that, we have to mitigate and find clever solutions to do it. But it's very difficult, even now, trying to get grid connection on small scale. It's about the cost of that. We're making investments—they're not false investments, but they're not true investments, because it isn't our grid.

[445] **Alun Ffred Jones:** William Powell, drawing to a close.

[446] **William Powell:** Diolch, Gadeirydd. Minister, would you bring forward the argument to Ofgem that they should look to prioritise community schemes for the very reasons that Mrs Hart has outlined in terms of how prohibitively expensive connections are?

[447] **Edwina Hart:** Absolutely.

[448] **Alun Ffred Jones:** Could I finish then, since the session is coming to a close, now? I'm sorry, Joyce, that I didn't get to you—

[449] **Joyce Watson:** That's fine, it can wait.

[450] **Alun Ffred Jones:** Could I ask the Minsters to outline the vision of the Welsh Government in terms of the shape of the energy system in Wales in the future?

[451] **Edwina Hart:** Well, my priority, as I think I've indicated previously, is to drive economic growth and support the growth of green jobs and skills and the competitiveness of Welsh businesses, to get the right energy policy. I believe, for a start, that we can have a very vibrant marine energy industry, we have major anchor companies that lead the way in research and development and energy innovation, and we need to do more to encourage them.

[452] We also need clarity on other projects, like Wylfa Newydd. We need clarity on that in terms of when that's going to actually take off, because we're doing an awful lot of work in that supply chain. Also, on the Swansea bay tidal lagoon, I understand that the Prime Minister, in questions yesterday, wasn't that keen on tidal power, but on the other hand, I know that across the parties here, people have been very keen on the development of the tidal lagoon. So, I think there are transformational impacts on the economy side that I need to look at.

[453] I see low-carbon transition as an opportunity to look at the diversity of the energy mix and what we can do. I think, as Carl has alluded to, it's small, it's medium, it's large—it's what is suitable. I think we've got to position ourselves in Wales with the energy industry as a leader in innovation and the work we do in terms of energy, but we also have got to have clarity on UK energy policy as part of this as well. Even if we don't have clarity, I think we've got to plough our own furrow. I really think that, sometimes, we've got to make decisions that we won't necessarily quite have the power for, and push them through with public opinion and cross-party support, because they're the right things to do in terms of energy to help the Welsh economy. That is my vision.

[454] **Alun Ffred Jones:** And Carl.

[455] **Carl Sargeant:** I think it's a really exciting time for us in Wales in terms of our opportunities in a global setting. We have set our agenda very clearly in terms of our sustainable development principles, we've introduced the Well-being of Future Generations Act, which is getting global recognition about what we can do, and we see that as a huge opportunity in terms of our



energy transition programmes. The green growth agenda is a massive market out there that can benefit all of Wales in terms of economic and environmental credibility. We may never be the leader in this, but we should be up as one of the lead players and that's what we are pursuing with our developments.

[456] For the people of Wales, I want affordable energy, secure energy, effective energy and a low-carbon environment, so that's what we've got to strive for.

[457] **Alun Ffred Jones:** Diolch yn fawr iawn. Thank you very much, both of you and your officials, for coming in and helping us with our inquiry. Obviously, there are a few notes that we'll—

[458] **Edwina Hart:** And if there are any questions that the committee have that are outstanding, if they wish to write, we'll be more than happy to provide a paper.

[459] **Alun Ffred Jones:** Diolch yn fawr iawn, thank you.

*Daeth y cyfarfod i ben am 11:59.  
The meeting ended at 11:59.*